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CORPORATE CULTURE AS AN INSTRUMENT TO MANAGE THE INTERACTION BETWEEN STRATEGIC MANAGEMENT AND EMPLOYEES’ SELF-ACTUALISATION WITHIN BUSINESS ORGANISATIONS

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Abstract

The functioning of business organisations in the context of the current dynamic and digital environment predefines a different managerial approach toward people so that they can transform into human capital and contribute to the achievement of the company objectives. This requires stimulation of the employees’ self-expression in the internal organisational environment defined by the existing corporate culture. The scientific objective of this paper is to outline the possibilities to stimulate the aspiration toward employees’ self-actualisation through management of corporate culture with a view to achieving the strategic objectives of the business organisations. This work is of conceptual nature and it integrates and gives an overview of the existing theoretical grounds in the field of strategic management, corporate culture and human resources. Different research methods and approaches have been used, including the methods of analysis and synthesis and the systematic, complex and interdisciplinary approach. As a result of the research, the necessary matches have been discovered, with the support of which corporate culture helps stimulate self-expression of the employees in the context of the companies’ strategic development.

Key words:
strategic management, corporate culture, human resources, motivation, employees’ self-actualisation

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Introduction

The focus on human resources and the aspiration to transform them into human capital in the current dynamic competitive environment provides the managers of business organisations with the opportunity to achieve the strategic priorities they have formulated. An important aspect here is the management of employees’ self-actualisation, which is the foundation of satisfying the most superior needs in the hierarchy of needs (according to Maslow’s pyramid). In essence, this “... enables the individuals to recognise their complete potential. They got awareness about their skills and competencies and put them into practice to achieve the desired state in life“ (Ivtzan, I., 2019). This is how a motivated team of people is formed, who are loyal to their companies and engaged with achieving their objectives. Corporate culture plays an important role in this process, since, according to Dimitrova (2012), it is the social glue that unites the members of an organisation, motivates them and creates a feeling of commonly shared organisational reality. In this regard, the author added that “this fact becomes particularly important at times where virtual companies and multinational corporations become increasingly important, where the need to increase the employees’ sense of identity with the organisation they work for is growing” (Dimitrova, 2012, p. 26). The topic about the motivational influence of corporate culture on people within the organisations and their work performance has been widely discussed in literature. However, there is a lack of analysis of the closer interrelation between the projections of the organisation’s cultural characteristics on the aspiration toward self-actualisation of its employees and, consequently, on their behaviour during the working process with a view to achieving the company objectives.

The practical significance of this matter in human resources management urged us to take a conceptual view to the topic of increasing the willingness for self-actualisation among employees and for better work performance by developing an appropriate corporate culture and work environment. In this regard, the scientific objective of the paper is to outline the possibilities to stimulate the aspiration toward employees’ self-actualisation through management of corporate culture with a view to achieving the strategic objectives of the business organisations. Different research methods and approaches have been used for the achievement of this objective, including the methods of analysis and synthesis and the systematic, complex and interdisciplinary approach. We believe that the creation and implementation of specific mechanisms for balanced and targeted management of the elements of corporate culture increases the opportunities to deploy and utilise the employees’ potential, which, on the other hand, has a positive effect on the strategic performance of the companies.
1. Process of interaction between strategic management, corporate culture and employees’ self-actualisation

The interaction between the factors in „the strategic management – corporate culture – employees’ self-actualisation“ relationship is of permanent and cyclic nature. We believe this interaction could be subject to targeted management, where the quality of that management will determine the level of corporate culture, the employees’ motivation for self-actualisation within the organisation and the level of achieving its strategic objectives. The entire cycle of interaction can be divided into three separate sub-processes, which are presented in fig. 1.

Fig. 1. Cyclicality of the process of interaction between strategic management, corporate culture and employees’ self-actualisation

Source: Drawn up by the authors

- “Strategic management – corporate culture“ interaction

There is a two-way relationship of influence between strategic management and corporate culture. On the one hand, culture, with its values, plays an important role in the organisation’s strategic development through its level of compliance with the other strategic factors for the organisation’s success on the market (structure, systems, skills, etc.). This influence is manifested in the nature and characteristics of the strategy selected by the managers in order to achieve the objectives and increase the competitiveness of the company (Minkov, 2009).

On the other hand, it is observed that strategic management has an impact on corporate culture related to synchronisation between the organisation’s strategy and
its internal values. In this context, Kaplan and Norton (2006) believe that if there is coherence between the organisation’s culture and strategy, its organisational capital will increase its value.

- “Corporate culture – employees’ self-actualisation” interaction

A corporate culture that has established itself over time with its written and unwritten norms has influence on the work of each person within the organisation. This is the result of the fact that these norms have the characteristics of mandatory rules of conduct, attitude and communication between people both within and outside the organisation. This is how culture imposes some form of a “framework” of the relationships within the company, which has a motivating impact on the employees that have decided to comply with it by stimulating their self-actualisation and their input in the work process.

At the same time, the influence of employees’ self-actualisation on corporate culture is predetermined by the fact that they constitute an “organic” manifestation, its real embodiment with their individual characteristics and therefore it can be argued that with their beliefs, understandings and actions they model, develop and translate it both within and outside the organisation.

- “Employees’ self-actualisation – strategic management” interaction

Strategic management opens up horizons, but also puts a framework on the opportunities for employees’ self-actualisation, because it sets the course of development, the conditions and resources for achieving both the personal and the organisational objectives.

On the other hand, the employees’ motivation for self-actualisation influences the achievement of the organisation’s objectives, the utilisation of resources, the development and creation of competitive advantages, the opportunities to build relationships with clients and partners and the image of the organisation.

2. Levels of interaction between the elements of strategic management, corporate culture and employees’ self-actualisation

The focused management of the process of interaction between strategic management, corporate culture and employees’ self-actualisation requires to clarify the nature, essence and interrelations between the elements that build up these complex concepts.

The operationalising elements of strategic management are the corporate environment, the organisational objectives, the adopted strategic orientation and the tactical actions of the company. Essentially, they follow the logic of the “information - transformation - action” managerial process.

The culture of a business organisation can be viewed as an amalgamation of the
existing organisational climate, the corporate values, the good practices adopted and the employees’ conduct at and outside their workplace. When combined, they demonstrate the way “things are done” in the respective company.

Self-actualisation is manifested in the employees’ ability to focus on controlling the complex interaction between its constituent interrelated elements – conditions for development, individual objectives, personal plan for development and fulfilment of the duties and responsibilities. In this way it takes a key place in the “strategic management – corporate culture – self-actualisation” relation and helps improve the organisational performance.

This gives us the ground to conclude that four different levels of interaction between the elements of strategic management, corporate culture and employees’ self-actualisation can be distinguished (fig. 2).

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Fig. 2. Levels and interrelations of the elements of strategic management, corporate culture and employees’ self-actualisation

Source: Drawn up by the authors
First-level elements: business environment – organisational climate – conditions for development of the employees

The **business environment** creates the conditions for the business functioning. It is the combination of “external factors and internal conditions, based on which forecasts are made and justified strategic decisions are taken” (Radev, 2014, p. 110). According to Nenov (2012), its analysis is the “head of the pin” and the anticipation of changes in it is the “essence” of management. The qualitative and comprehensive analysis of the environment is a solid basis for taking adequate follow-up strategic decisions in the context of the dynamic market environment.

The **organisational climate** is a manifestation of the psychological atmosphere created within the company. It reflects the interpersonal relationships along the horizontal and vertical line of hierarchy reflecting on the interactions with clients and the other business partners. Climate is a determining factor of culture of the most superior level and largely depends on the leadership skills of the organisation’s managers. In this regard, Masaldziyyska (2020a) notes that the formation of a more productive and efficient work environment requires the presence of leaders with high level of emotional intelligence within the organisation, since this is a “key prerequisite for accomplishments and excellent results at the work place”. (Masaldziyyska, 2020b, p. 125)

The **conditions** form the characteristics of the environment where employees realise their potential. “One chooses a circle and conditions that help them make a free choice.” (Korostyleva, 2003, p. 75). In order to identify the favourable opportunities and the factors that prevent self-actualisation, it is necessary to encourage the employees to get a good knowledge, understanding and aligning with the mission and objectives, the image, the environment, as well as the internal conditions within the organisation. In this regard, Silgigidzhiyan (1978) argues an individual gets to know their capabilities through the activities and relationships in the others; this is how one develops and realises them.

Second-level elements: corporate objectives – values – individual objectives

The **objectives** “outline the main aspects of development and provide a qualitative and quantitative expression of the desired future state and preferred future result the business strives to achieve“ (Radev, 2014, p. 162). Essentially, these are the aspirations of the company management, which are summarised through the “objective tree”, thus providing a basis for choice of business and functional strategies and for the development of functional programmes and a complex business plan.

The **values** are at the core of corporate culture as a “sustainable belief that a certain type of behaviour or target state of existence is preferred by the individual or by society as compared to the opposite type of behaviour or state of existence” (Dimitrov,
In this way, according to Emilova (2012), they are the main regulator of the person’s behaviour and are the most invisible and evasive component of culture. They are deeply incorporated and widely accepted and shared by the members and are demonstrated through the norms, which disclose the extent to which they have been adopted by the people within the organisation and how they influence their behaviour (Emilova, 2012).

Effective self-actualisation requires an autonomous definition of precise and clear **individual objectives**, which should be realistic, but sufficiently significant, challenging and difficult, so that their accomplishment could develop the employee’s potential and skills. Furthermore, there is no doubt that in order to have high individual motivation at work, a synergy between the organisational objectives and the personal priorities of each employee within the company needs to be achieved. In this context, Garvanova (2011) argues that the degree of life satisfaction reflects the consistency or inconsistency between the life goals of the person and the actual situation where they can be accomplished.

- Third-level elements: business strategy – good practices – individual plan for development

Planning an appropriate **business strategy** is the foundation of the successful realisation of the corporate objectives. This is the model of behaviour adopted by the company, where the final objective is to increase its long-term competitiveness. Thus, the strategy success is directly dependent on the existing competitive advantages of the organisation. Radev (2014) believes that business strategies define the product and market scope, deduct the primary competitive approach and the desired form and level of integration, the achievement of which helps for the accomplishment of the main business objective of the company. Pavlov (2021a, 2021b) adds that in today’s context, successful business strategies leading to permanent competitiveness of the companies are based on innovations and technological development.

The **good practices** within the company are the methods for dealing with day-to-day problems that have been adopted as the right methods over time. These are “the rules of the game” (Dimitrov, 2012, p. 18), which apply to each employee and act as a regulatory norm (most commonly unwritten) in the organisation. They are a direct reflection of the corporate values and are passed on through mentoring by the more experienced to the newly hired employees within the team as unconditional and indisputable truths.

“The characteristics of self-actualisation are defined by the personal skills, qualities and expectations. Life experience also plays an important role.” (Korostyleva, 2003, p. 106). The optimal manifestation and utilisation of the key capabilities, qualities, skills and competences requires to organise them in a clear **individual plan**...
for development that provides opportunities for flexible thinking and integration of resources for achieving the defined objectives. This plan should be supported by the company management so that the employee can be involved and engaged in the accomplishment of the desired results from the organisation’s business.

- Fourth-level elements: tactical actions – behaviours – fulfilment of duties and responsibilities

Putting the strategy into action takes place via short-term and operational tactical decisions specifying the main action plan. These are primarily related to the organisation of actions to implement the strategy, distribution and utilisation of resources and improvement and modification of the strategy (Nenov, 2012). It can be stated that the successful implementation of these activities requires effective management by the organisation’s heads of units and high motivation among the human resources in those units.

The projections of corporate culture at individual level are demonstrated in the behaviour of each member of the staff or the business structure. The mix of individual attitudes is a complex form, which Dimitrov (2012, p. 18) sees as a combination of „the language used by the people in the organisation, the customs and traditions established and the rituals used in the wide variety of situations related to life within the organisation”. The behavioural standards created are a component of the visible aspect of the company’s culture and thus contribute to building a certain image of the company.

Self-organisation, self-discipline and self-control capabilities influence the quality and efficiency of the performance of employees‘ work duties, which results in reduced organisational costs and increased standards of work. In this respect, it can be argued that the level of individual performance is the most important indicator for evaluating the management efforts to stimulate people’s self-actualisation.

3. The role of corporate culture in the interaction between strategic management and employees’ self-actualisation in the organisation

Maintaining sustainable competitiveness requires timely, adequate and targeted actions by the organisations in response to both existing and emerging challenges arising from the dynamics in the external environment. However, the successful adjustment of the business model to the new requirements also requires employees to adapt to changes in the organisational conditions, which, in most cases, is accompanied by internal resistance. Their adaptation is of particular importance for the strategic performance of the organisation and the possibilities for flexible and timely adaptation to the changes in the external environment. In this regard, Bergson (1944) argues that „self-actualizing people have the patience to tolerate the things that cannot be
changed, and to change the things that can be changed and their behaviour is known for simplicity and naturalness. “In our view, the mechanisms of corporate culture provide concrete methods for a relatively smooth adoption and support of changes of a different nature. This is the result of the fact that when people are united by common values and priorities, their efforts can be more easily oriented in one direction. This, on the other hand, is achieved through the personal identification of the organisation’s employees. In this respect, Mathews & Shepherd (2002) suggested that „organizational commitment refers to the relationship between the employees and organizations, including the employees’ contribution to, involvement in and loyalty to the organizations“.

Identifying the level reached of the elements defining employees’ self-actualisation allows for a targeted and balanced impact on employees through the mechanisms of corporate culture. In this way, by modelling the elements of corporate culture, the management can orient its employees’ personal priorities and actions toward the organisation’s desired strategic development.

In order to be controlled, the interaction between strategic management and employees’ self-actualisation needs to be measured first. The evaluation is carried out on the basis of the correspondence between the self-actualisation drivers and the elements of strategic management (Table 1).

<table>
<thead>
<tr>
<th>Interaction</th>
<th>Indicators</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Business environment – conditions for development of the employees</td>
<td>The extent to which the conditions for development of the employees are favourable</td>
<td></td>
</tr>
<tr>
<td>2. Corporate objectives – personal objectives</td>
<td>Degree of correspondence between the personal and the corporate objectives</td>
<td></td>
</tr>
<tr>
<td>3. Strategy – individual plan for development</td>
<td>Degree of consistency between the strategy and the individual plan for development</td>
<td></td>
</tr>
<tr>
<td>4. Tactical actions – fulfilment of duties and responsibilities</td>
<td>Degree of correspondence between the performance of duties and responsibilities and tactical actions</td>
<td></td>
</tr>
</tbody>
</table>

Source: Drawn up by the authors
Based on the deviations from the optimum condition, the areas requiring specific measures for modelling the individual elements of corporate culture are identified, in order to achieve the desired consistency between strategic management and employees’ self-actualisation.

The utilisation of the potential of interaction between strategic management, corporate culture and employees’ self-actualisation requires to achieve coherence between those elements. In our opinion, when we build such coherence through targeted management, corporate culture is the “instrument” used, which helps managers create conditions for employees’ self-actualisation and thus contribute to the accomplishment of the objectives of the business organisation.

![Fig. 3. Model for managing the interaction between strategic management and employees’ self-actualisation through the elements of corporate culture](source: Drawn up by the authors)

The proposed model (Fig. 3) presents the possibilities for targeted and balanced management of the interaction between strategic management and employees’ self-actualisation through specific mechanisms to model the elements of corporate culture.
with a view to improving the organisation’s strategic performance.

While the organisation may have a limited and indirect influence on the factors of the business environment and, at the same time, the perceived favourable conditions for employees’ development are subjective and dynamic, the organisational climate is largely determined by the management’s decisions. In this regard, we believe that targeted management can create conditions to utilise the potential of employees, which in turn will be reflected in greater strategic flexibility and competitiveness. To this end, the nature of the internal relationship needs to be in line with the dynamics of organisation’s surrounding environment. The rapidly changing and dynamic industrial landscape requires flexible organisational behaviour. The opposite is also true – slower and static market conditions call for keeping the business status quo. In this context, the key task for senior managers is to monitor changes in the sector (consumer changes, product changes, technological changes, etc.), to assess their dynamic and degree of influence on the organisation and to drive changes in the organisational climate as necessary.

The alignment of the individual conditions for self-actualisation with the established internal climate within the company requires a suitable environment for the expression of the personality created by the organisational psychological context. In this context, the application of a leadership approach by the managers helps to build a good working atmosphere, improves communication and has a positive impact on the employee’s willingness to develop their capabilities within the specific organisation. This is why we believe that the role of the management team is essential for achieving such alignment.

The strategic development of the organisation is largely determined by the effective consolidation of staff around the company priorities. A prerequisite for achieving this is the adoption and promotion of values by employees that support the organisational objectives set by the company management. In this sense, innovation-related objectives create a need to „weave in values such as innovation, imagination and creativity in people’s thinking, whereas the attempt to cut costs provokes the development of a routine, stability and systematization in their work. It should be noted here that setting values is usually accompanied by resistance from the employees concerned, which also raises the issue of overcoming that resistance.

Furthermore, the individual objectives of each employee need to be relevant to the value priorities of the company. As a result, the employee would adopt these values as his or her own ones, which would increase his or her professional motivation and commitment to the company. For example, the presence of „development and improvement of the company employees” in the core values of the company is an essential prerequisite for self-actualisation, if the employee’s objective is to develop his
or her professional competences during the work process. Thus, the task of employee recruitment should include identification of the level of correspondence between the profile of values of the company and the job applicant.

The good practices and business models established by the management encourage employee development in the desired direction, in line with the organisation’s strategic plans. In this context, the good practices that have been adopted and validated over time in the course of work need to be consistent with the measures and approaches demonstrating the company behaviour in the long run. The performance of different team-building activities, for example, is a suitable approach for the realisation of a strategy of differentiation. At the same time, the company management’s willingness to achieve low-cost leadership could be supported by activities related to workplace skills training performed by the employees that are more experienced. The main „burden“ here should be taken by the mid- and low-level managers, who are responsible for introducing appropriate practices in their teams.

It is also essential to achieve correspondence between the individual plan for development of each employee and the established practices within the organisation. Ideally, one or more good practices could support the aspirations and the associated timelines set by the people in relation to their personal development. If the employee seeks to improve his or her professional competences, the regular organisation of trainings, for example, could contribute to the continuous and planned fulfilment of this objective. In order to achieve this correspondence: 1) the individual plans for development in question need to be developed by the employee in collaboration with his or her supervisor; and 2) certain practices need to be created and implemented in the team’s work process, which would satisfy the plans of the team members.

The adopted behavioural norms and rules help to adapt the performance of employees’ duties and responsibilities to the organisation’s tactical actions, the level of which predetermines its overall strategic performance. This requires a high level of comparability between the competences arising from the job descriptions of the individual jobs and the competences inherent to the relevant staff. In this context, broad spectrum positions result in the need for universal people (experts with a broad profile), whereas positions with a more narrow specialisation require subject experts with a more limited profile of competences. Furthermore, an important task staff recruitment to set a criterion for the degree of correspondence between the core values of the company and the individual profile of values of the applicant for the job concerned.

The work behaviour of the employee must be relevant to the quality of performance of the tasks assigned. This requires the development of in-house standards of conduct at the work place that are directly derived from the desired level of performance and the targets set for the employee’s work. This will make the employee seek to improve his or
Ilian Minkov, Monika Mihaylova. Corporate Culture as an Instrument to Manage the Interaction between Strategic Management and Employees’ Self-actualisation within Business Organisations

her own capabilities for self-organisation, self-discipline and self-control in the context of the norms of the corporate culture established in the company. The performance of this task has prompted leaders to seek/create behavioural models to be followed by their subordinates. This ensures consistency between the performance of the employees’ work duties and responsibilities and the organisation’s tactical actions, as a result of which business is organised independently, without systematic external control and stimulation. This is due to the fact that, in order to achieve this consistency, employees are capable to independently organise and control the quality of the activities performed, maintaining high standards of work, while making “continuous improvement a guiding principle of behaviour and action” (Milkov, 2016, p. 100). Engaging and involving the employee in the business is motivated by the activity itself (Stamatov & Minchev, 2003) and the high-quality performance of the activity leads to the achievement of self-actualisation. “Job Satisfaction Employees would make a positive contribution to their respective organization and may lead to increase the effectiveness” (Gopinath, 2016).

Based on what has been discussed here, it can be summarised that identifying the opportunities, methods and means to take advantage of the favourable conditions and to neutralise the negative factors hindering personal development, helps employees create attractive and valuable suggestions, thereby contributing both to their self-actualisation and to the development and well-being of the organisation as a whole. Clearly, in the presence of a joint integrated and coordinated activity, the effect of the personal benefits for the employees will be multiplied and will transform those benefits from personal to organisational benefits.

**Conclusion**

The management of employees’ self-actualisation and its transformation into results for the business organisations is a complex and time-consuming process. Investment in the development of appropriate corporate culture can contribute to stimulating people’s willingness to develop their skills and thus transform them into an intangible asset for the company. The analysis of the role of corporate culture in the interaction between the business organisation’s strategic management and the self-actualisation of its employees allows to reveal the internal interrelations and correspondence between the elements that make up the different concepts. It is important that each company achieves the level of full correspondence, which means that there is synergy between those elements. It can be concluded that in order to achieve the desired result, managers should apply targeted control on the elements of corporate culture and thus maintain the synergy between the relevant elements of strategic management and employees’ self-actualisation, which will result in a more complete utilisation of human potential.
within the organisations. In this context, some important research issues that are subject to future studies are the development of a system of indicators to evaluate the level of correspondence between strategic management and the employees’ self-actualisation and development of specific mechanisms to model the elements of corporate culture for the purpose of achieving the desired correspondence (management of interaction) between strategic management and employees’ self-actualisation. We believe that addressing these challenges will lead to improved results of the companies’ performance and, on the other hand, will result in increased satisfaction and motivation of the people who work for them.

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MACROECONOMIC SHOCKS AND AGGREGATE WELFARE IN SUB-SAHARAN AFRICAN COUNTRIES

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JEL: O11, I31, E62

Abstract

This research investigates the outcome of various macroeconomic shocks on the welfare of Sub-Saharan African countries. Data on real private per capita consumption expenditure as a measure of welfare, terms of trade, RGDP per capita, unemployment rate, inflation, government expenditure, and official development assistance were used for the time 1980 to 2019 on ten less-developed countries in Sub-Saharan Africa. The PVAR estimation method was used as there was no presence of long-run association established amidst the variables confirmed by Pedroni’s panel cointegration tests. The result indicated that a surge in both internal fiscal shocks and external shocks (terms of trade) boosts welfare, while official development assistance does not improve welfare in these countries. We, therefore, advocate the intensification of pro-poor government expenditure and official development assistance. Diversification into non-primary exports is also imperative.

Key words: Macroeconomic Shocks, Welfare, Sub-Saharan Africa, panel VAR

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1. Introduction

Intuitively, shocks in macroeconomic variables impact economies in various forms. Many developing countries have weak shock absorbers in the way of high
under-developed financial markets, and the inability to diversify macroeconomic risk. They also suffer from policy instability, policy mistakes and have a high proportion of their export as primary products, which often suffer from price fluctuations (Loayza, Ranciere, Serven & Ventura, 2007). These fluctuations impact economic growth, income distribution, and the welfare of individuals.

Trade Development Report (2013) noted that primary products like oil and metals count for about 80% of export within Africa for countries like Nigeria, Algeria, Mali, and Niger between 2007 and 2011. The instability in the prices of primary products makes SSA prone to shocks affecting the expenditure pattern and is expected to affect the welfare of the people. For instance, external account balance as a percentage of GDP was in deficit almost throughout the period 1980 to 2017.

Growth of government expenditure fell from 8.5% in 1980 to a negative growth rate of -0.64% in 1993 and -0.02 in 1999 and these were the periods where most of the countries plugged into the Structural Adjustment Programme to enhance the growth and welfare of the people. It however grew by 13% in 2007 which was the peak of high oil prices before the global crisis of 2008 and mirrored down continuously to 4.3% in 2016 (WDI, 2016). The share of Africa’s export has also been falling continuously from about 3.5% in 1970 to about 1.5% towards the end of the 1990s representing about 21% ($68 billion) loss of the region’s income and fall in GDP (Blackden & Canagarajah, 2003). In the same vein, terms of trade have been virtually negative for most of the SSA countries particularly the oil-producing countries from 1980 to 2014 except for a few years (see Fig 1.2).

![Terms of Trade for selected Sub-Saharan Africa](source)

**Fig 1.2. Terms of Trade of Selected SSA countries**

*Source: Author’s chart from WDI data.*
Although various policies such as Deregulation Policy, monetary/fiscal/exchange rate policies, Millennium Development Goal (MDG), and the current Sustainable Development Goals (SDGs) have been put in place, yet poverty level, fiscal deficit, inflation, unemployment is still high in many of these countries. Although there was a global fall in poverty from 44% in 1982 to 10% in 2016, the poverty rate in SSA is the highest among the regions with a significant margin where about 390.3 million are poor as of 2013 and 40% in 2018 (World Bank, 2017, 2020). Unemployment and inflation are also high and rising.

Interest in the examination of macroeconomic shocks has received momentum with renewed interest being attributed to its welfare and poverty impact towards determining the appropriate policy measures to account for these impacts. This has also continued to generate controversy. Some economists (Ghosh and Nolan 2005; Onodje, 2009) argued that macroeconomic shocks promote growth and hence welfare given that growth is a major prerequisite for the reduction of poverty and enhancement of welfare while others are of the view that macroeconomic shocks can inhibit growth, development and affect welfare negatively (see Daza, Arce & Böhrt, 2004; Senmoga & Matovu, 2018).

These inconsistencies can likely be attributed to the evaluation of welfare or the country’s/region’s economic condition used in the study. Focus had been on growth rather than welfare itself while the role of the potential domestic protection policies as observed by Caballero and Krishnamurty (2001) has been neglected. The use of real welfare measures and shocks of groups of macroeconomic variables on welfare has received less attention, particularly in Sub-Saharan Africa.

Based on this premise, this study aims at contributing to knowledge particularly for Sub-Saharan African countries in four important ways: First, the study ascertains the welfare impact of various macroeconomic shocks (internal and external) which is critical for policy responses to defuse the effects of these shocks on welfare. Second, we made use of real private per capita consumption in a panel of some developing Sub-Saharan African countries which has been found superior over other measures. Third, the study investigated the role of macroeconomic shocks in domestic policies on welfare. Fourth, this analysis investigated the outcome of Official Development Assistance that has not been widely considered by erstwhile researchers.

2. Literature review

2.1. Conceptualization

Macroeconomic shocks are the disturbances in macroeconomic variables touching other variables and the economy as a whole. They can be domestic shocks from poor
policy (monetary or fiscal policy), non-policy shocks (changes in demand and supply), political instability/conflict, or external shocks (terms of trade, export/import price shocks, natural disasters/accidents, or financial global spread) (Mendoza, 2009). They can be negative or positive and can have visible impacts on a household’s welfare from household disposable income, aggregate consumption/expenditure level, among others. This is a consequence of changes in general prices, wages, profit, and this impact can also be transferred to generations.

2.2. Channels of transmission of macroeconomic shocks on welfare

A specification of the linkages among macroeconomic shocks and policies, as well as the fundamental determinants of economic welfare are presented in Fig 2.1.

![Fig 2.1. Macroeconomic shocks transmission channel on welfare](Source: Author's chart)

2.3. Empirical Literature

There exist some empirical studies on welfare and economic shocks on country-specific, region, and cross-country using various models as well as different types of macroeconomic shocks. In a cross-country panel data study, Ahmed and Suardi (2009) explored the upshot of trade liberalization on some macroeconomic variables and found that trade liberalization is a key basis of variations in consumption and output growth. On the allocative consequence of macroeconomic shocks, Bussolo and Lay (2003) for
Colombia showed that macroeconomic volatility affects growth negatively. The impact on households was through a fall in wages, employment, access to credit, and price changes among others.

Omojolaibi and Egwaikhide (2013) carried out panel scrutiny on the dynamics of oil price, fiscal policy, and macroeconomic outcomes in four African countries (Algeria, Angola, Egypt, Libya, and Nigeria). Employing quarterly data spanning from 1990 to 2010, in a panel vector autoregressive (PVAR) model on oil price instability, fiscal deficit, gross investment, and money supply shocks, investment responded more to oil price instability than fiscal policy and money supply changes.

Daza, Arce, and Böhrt (2004) used short-term data between 1999 and 2002 on households in Bolivia and simulated the result of changes in terms of trade, plunge in foreign savings inflow and economic growth on aggregate consumption and income, household consumption and income, and consumption assessment of poverty. A negative upshot of terms of trade and foreign savings inflow on the dependent variables was established.

Examining the influence of changes in government fiscal actions, the study of Van Aarle and Garretsen (2003) examined the impact of the transfer on private consumption. Using an error correction panel model of 14 EU countries from 1990 to 1998, it was instituted that public transfer impacts more on private consumption than taxes and government spending while positive shocks of government spending negatively affect RGDP thereby crowding out private investment and consumption.

Onodje (2009) in connection with the above studies empirically investigated the consequence of shocks in government expenditure and tax revenue on private consumption in Nigeria. Employing annual data of 1980 to 2004 in a Vector error model found a validity of Keynesian effect.

In a Dynamic Stochastic General Equilibrium (DSGE) model and Bayesian techniques, Jidoud (2012) investigated the sources of macroeconomic shocks in Cote D’Ivoire. Productive shocks were noted to be the core driving force behind macroeconomic volatility while world interest rate was the cause of changes in consumption growth, hence welfare supporting the business cycle theory. Melina and Portillo (2018) also tested the business cycle theory in Sub-Saharan African countries in comparison with the rest of the world. African countries were found to have lofty levels of macroeconomic fluctuations with their output being negatively affected by inflation rates. Trade balances were also seen to be cyclical while investment and consumption were positively related to import.

Further research on the consequences of macroeconomic shocks on growth and welfare was done by Sennoga and Matovu (2016) on Uganda simulating for the time 2010 to 2017. They employed the CGE model and findings revealed that the agricultural
and services sectors were positively affected by terms of trade changes, oil prices, and development assistance inflows. However, welfare was low and the effectiveness of strategies to reduce poverty was affected by changes in these external macroeconomic shocks.

Ssozi, Asongu, and Amavilah (2018) examined the effectiveness of Official Development Assistance on the agricultural sector and the responsiveness of the sector to ODA in Sub-Saharan Africa. Using the two-step system GMM, Results showed a positive relationship between agricultural productivity and development assistance. However, development assistance only had weak structural economic transformation on the sector.

3. Theoretical Support and Econometric Methodology

3.1. Theoretical Support

This study takes up the New Keynesian School’s business cycle theory, which believes that an economy’s economic activities are controlled by the government towards achieving macroeconomic goals including enhancing the people’s welfare. Hence, vicissitudes in government fiscal actions given other macroeconomic variables can affect the people’s welfare. Even external shocks can be controlled by the government’s appropriate policy measures.

3.2. Model Specification

The study employed a panel framework in the analysis. This is because it is useful in increasing the degrees of freedom, and generalization of results amidst cross-sectional units particularly when the time series are short. Panel data do not experience cyclical influence and noise as in annual data making it difficult to identify the specific relationships. The general practice of a panel data model is given as

\[ y_{it} = \alpha_i + \beta_i X_{it} + \mu_{it} \]  

(3.1)

Where

\[ \mu_{it} = \mu_i + \nu_{it} + \epsilon_{it}, \]  

(3.2)

\( \mu_i \sim IID(0, \sigma_\mu^2) \) and \( \nu_{it} \sim \) independent and identically distributed (IID)(0, \( \sigma^2 \nu \)), independent of each other and among themselves. The \( X_{it} \) are assumed independent of the \( \nu_{it} \) for all \( i \) and \( t \). \( y_{it} \) is the contingent variable, while \( \alpha_{it}, \beta_i \) and \( X_{it} \) are k-vectors of non-constant regress and parameters for \( i = 1, 2, \ldots, n \) cross-sectional units (here countries) and \( t = 1, 2 \ldots T \) time series unit; \( \mu_i \) is a general disturbance, which is country specific unobservable effect \( \mu_i \), a time specific factor \( \nu_{it} \) and an idiosyncratic disturbance \( \epsilon_{it} \). The fixed effects \( \mu_i \) act as an alternate for other determinants of the country’s steady
state not included in $X_{it}$ and the time specific factor $\nu_t$ controls for shocks common to the countries. Applying the panel framework and taking a linear form of the model, we have

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 X_{it} + \beta_3 X_{it} + \beta_4 X_{it} + \ldots \beta_k X_{ik} + \mu_{it} \quad (3.3)$$

$Y$ is the contingent variable and in this analysis we made use of household’s real private per capita consumption expenditure, the $X$s are the explanatory variables, which includes; $\mu_{it}$ is the error term.

### 3.3. Method of estimation

The system equation approach to panel study remains the best approach. Hence, the study employed the panel Vector Autoregression (VAR) incoherent with Canova and Ciciarelli (2004) given the various methods of estimating system panel models. Employing the VAR is because of the ability in identifying and explaining the various unanticipated shock effect of variables to the endogenous variable(s), along with investigating the transmission, our VAR includes seven variables, where the vectors of variables $Z$ is given as

$$Z_{it} = \text{RPPCCE}_{it}, \text{RGDPpc}_{it}, \text{TOT}_{it}, \text{UNEMP}_{it}, \text{INF}_{it}, \text{GE}_{it}, \text{ODA}_{it} \quad (3.4)$$

RPPCCE is real private per capita consumption expenditure (captured by real household final consumption expenditure per capita), a measure of welfare.

TOT is terms of trade that accounts for an external shock on welfare;

RGDPpc is the real gross domestic product per capita as a surrogate for the country’s size and the development level;

UNEMP is the unemployment rate which is a linking variable between the major macroeconomic variables and the welfare of the people;

INF is inflation and was brought into the model to account for the welfare given macroeconomic shocks that affect price;

GE is government expenditure accounting for the outcome of fiscal shock on welfare;

ODA is the official development assistance accounting for external shock.

The VAR model reads as follows

$$Z_{it} = \alpha_i + \sum_{k=1}^{K} C_k X_{it-1} \Psi_{it} \quad (3.5)$$

where $\Psi_{it}$ is a vector of constants, accounting for country fixed effects; $C_k$ are appropriately defined matrices and $K$ is the ideal lag length. The structural form of VAR can thus be stated as
In analyzing a PVAR model, the selection of lag order, p, is very essential. Without a formal method, the selection of lag order in a PVAR model will be arbitrary and could result in specification errors (Fair & Schiller, 1990).

**Panel unit root:** For this study, the Maddala and Wu (1999) panel unit root test was used. This is because they are highly preferred over others which are less restrictive. It is also not contingent on distinct lag lengths in the individual ADF regression like the IPS. The Maddala & Wu (1999) is based on the standardized statistics given as:

\[
Z_{MW} = \frac{\sqrt{N} \{N^{-1}E [-2\ln(\pi_i)]\}}{\sqrt{\text{var}[ -2\ln(\pi_i) ]}}
\]

Under the null hypothesis of a unit root \( E[-2\ln(\pi_i)] = 2 \) and \( \text{var}[ -2\ln(\pi_i) ] = 4 \). If the p-values are independent and identically distributed, the \( Z_{MW} \) statistics converges to \( N(0,1) \) under null hypothesis when \( N \rightarrow \infty \) (Bangake & Eggoh, 2009).
long-run relationships amongst the variables. The test comprises seven tests divided into two types of residual-based for the null hypothesis. It is attentive to heterogeneity based on specific parameters and allows for cross-sectional interdependency (Fowowe, 2011).

\[ y_{it} = \beta_{0i} + \beta_{1i} X_{1it} + \beta_{2i} X_{2it} + \ldots + \beta_{Mi} X_{Mit} + \epsilon_{it} \]  

(3.9)

for \( I = 1 \ldots N; \ t=1 \ldots T ; \ m=1 \ldots M, \) where \( N \) is the numbers of countries in the panel, \( T \) is the number of observations over time; \( M \) is the number of exogenous variables. The structure of estimated residuals is as follows:

\[ \hat{\epsilon}_{it} = \rho_i \hat{\epsilon}_{it-1} + \mu_{it} \]  

(3.10)

It has a null hypothesis stated as no cointegration. In the face of conflicting results, Pedroni shows that the group-adf statistic and panel-adf statistic generally perform best.

3.5. Data

The study used an annual panel dataset as given. This was sourced from the World Development Indicators of the World Bank, 2020. The data comprises ten selected Sub-Saharan Africa countries, five oil-producing countries while the other five are not (Angola, Botswana, Equatorial Guinea, Ethiopia, Ghana, Kenya, Nigeria, South Africa, Tanzania, Uganda) on 39 years (1980-2019). The particular selection of countries and periods is determined by data availability. The real data employed are expressed in 2010 prices.

4. Empirical Analysis

4.1. Correlation

The correlation result presented in Table 4.1 showed the nonexistence of multicollinearity amidst the variables. Government expenditure and terms of trade indicated strong positive correlations with welfare. Inflation revealed a negative correlation with welfare in line with expectation while ODA showed a negative correlation with welfare contrary to our expectation.
Table 4.1

<table>
<thead>
<tr>
<th></th>
<th>RPPCCE</th>
<th>RGDPPC</th>
<th>TOT</th>
<th>UNEMP</th>
<th>INF</th>
<th>GE</th>
<th>ODA</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPPCCE</td>
<td>1</td>
<td>0.79547</td>
<td>0.90712</td>
<td>0.22780</td>
<td>-0.25338</td>
<td>0.90081</td>
<td>-0.27227</td>
</tr>
<tr>
<td>RGDPPC</td>
<td>1</td>
<td>0.75752</td>
<td>0.68552</td>
<td>-0.03349</td>
<td>0.81326</td>
<td>0.09479</td>
<td></td>
</tr>
<tr>
<td>TOT</td>
<td>1</td>
<td>0.19835</td>
<td>-0.19031</td>
<td>0.95981</td>
<td>-0.36088</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNEMP</td>
<td>1</td>
<td>0.27657</td>
<td>0.25743</td>
<td>0.53873</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INF</td>
<td>1</td>
<td>-0.20631</td>
<td>0.31762</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GE</td>
<td>1</td>
<td>0.19835</td>
<td>0.95981</td>
<td>-0.36088</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ODA</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s computation using data sourced in Eviews 9.1

4.2. PVAR Lag Order Selection Criteria

Table 4.2 shows that LR, FPE, AIC, SC and HQ selected lag 2. Therefore, the PVAR Lag Order Selection Criteria shows that lag 2 is most efficient because all the lag criteria estimators indicated lag 2. Hence we estimated the PVAR using lag 2.

Table 4.2

<table>
<thead>
<tr>
<th>Lag</th>
<th>LogL</th>
<th>LR</th>
<th>FPE</th>
<th>AIC</th>
<th>SC</th>
<th>HQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-33335.30</td>
<td>NA</td>
<td>3.56e+76</td>
<td>196.1312</td>
<td>196.2100</td>
<td>196.1626</td>
</tr>
<tr>
<td>1</td>
<td>-32255.92</td>
<td>2107.955</td>
<td>8.30e+73</td>
<td>190.0701</td>
<td>190.7008</td>
<td>190.3214</td>
</tr>
<tr>
<td>2</td>
<td>-31692.13</td>
<td>1077.835*</td>
<td>4.02e+72*</td>
<td>187.0420*</td>
<td>188.2244*</td>
<td>187.5131*</td>
</tr>
</tbody>
</table>

*is lag order chosen by the criterion

Source: Author’s computation using data sourced in Eviews 9.1

4.3. Unit root test

The outcome of the unit root test carried out on the variables are as reported in Table 4.3. The result showed that RPPCCE, INF, GE and ODA were stationary at levels, UNEMP and RGDPPc were stationary at first difference while TOT was found stationary at second difference both for the ADF-Fisher test and the ADT-Choi test at 5% level of significance.
Unit-Root Tests using Maddala Wu techniques

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Maddala Wu (ADF-Fisher Chi²)/ ADF - Choi Z-stat</th>
<th>Order of integration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fisher Chi² Levels</td>
<td>Choi Z-stat Levels</td>
</tr>
<tr>
<td>RPPCCE</td>
<td>170.77 (0.0000)</td>
<td>-11.2128 (0.0000)</td>
</tr>
<tr>
<td>RGDPPc</td>
<td>17.8640 (0.5963)</td>
<td>-0.7250 (0.2342)</td>
</tr>
<tr>
<td>TOT</td>
<td>0.00051 (1.0000)</td>
<td>14.4256 (1.0000)</td>
</tr>
<tr>
<td>UNEMP</td>
<td>12.7348 (0.8885)</td>
<td>0.23019 (0.5910)</td>
</tr>
<tr>
<td>INF</td>
<td>67.9787 (0.0000)</td>
<td>-5.79613 (0.0000)</td>
</tr>
<tr>
<td>GE</td>
<td>234.489 (0.0000)</td>
<td>-13.6354 (0.0000)</td>
</tr>
<tr>
<td>ODA</td>
<td>49.1969 (0.00003)</td>
<td>-4.33020 (0.0000)</td>
</tr>
</tbody>
</table>

Probabilities in parentheses; Sample from 1980-2019

Source: Author’s computation using data sourced in Eviews 9.1

4.4. Cointegration test

To determine the existence of a stable long-run relationship amongst the variables, we conducted a cointegration test using Pedroni’s panel cointegration tests. As shown in Table 4.4, all the statistics do not fail to accept the null hypothesis of no cointegration amidst the variables. Thus, the cointegration tests do not support the presence of a long-run relationship among the variables.

Panel cointegration test results
(Null Hypothesis: No cointegration)

<table>
<thead>
<tr>
<th>Non parametric (within-dimension)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel v statistic</td>
<td>-0.931384 (0.8242)</td>
</tr>
<tr>
<td>Panel p statistic</td>
<td>2.287260 (0.9889)</td>
</tr>
<tr>
<td>Panel pp statistic</td>
<td>1.231156 (0.8909)</td>
</tr>
<tr>
<td>Panel adf statistic</td>
<td>1.432775 (0.9240)</td>
</tr>
</tbody>
</table>

390
Parametric (between-dimension)

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group p statistic</td>
<td>3.615106 (0.9998)</td>
</tr>
<tr>
<td>Group pp statistic</td>
<td>2.285849 (0.9889)</td>
</tr>
<tr>
<td>Group adf statistic</td>
<td>2.523020 (0.9942)</td>
</tr>
</tbody>
</table>

Sample from 1980-2019 panel

Source: Author’s computation using data sourced in Eviews 9.1

4.5. Impulse Responses to Shocks

Table 4.5 and Figures 1 divulge the response of welfare to shock at a 95% confidence interval. The upshot of the impulse response showed that welfare (RPPCCE) responds positively to one standard innovation in itself, country’s level of development (RGDPpc), government expenditure, and terms of trade (TOT) which corresponds with expectation throughout the period. The outcome of the positive response of welfare to itself supports the poverty cycle hypothesis that a low level of welfare in period t will result in a low level of welfare in period t+1. This is supported by other findings (Ogbeide-Osaretin, Edeme & Ifelunini, 2016) and also strengthened by the positive response of RGDPpc to welfare. When the level of development is low, welfare will be low and vice-versa.

In the same vein, the positive response of welfare to TOT shock shows the poor state of SSA’s terms of trade. This is subsequent from the concentration in the sales of primary products which are always affected by price instability and poor durability making the countries suffer high levels of unfavourable trade and payment balances. This verdict is consistent with the report of Ahmed and Suardi (2009) and Senmoga and Matovu (2018) however, opposing the outcome of Daza, Arce & Böhrt (2004). For instance, SSA had a constant deficit BOP as a percentage of GDP from 1992 to 2015 ranging from -0.2% to -4.5% with the highest -6% recorded in 1996 (World Bank, WDI, 2020).

The effect of a positive response of welfare to government expenditure supports the Keynesian outcome of fiscal policy on private consumption expenditure, particularly in less-developed countries. This is in tandem with the hump-shaped pattern from the results of Ghosh and Nolan, (2005), Onodje (2009), Van Aarle and Garretsen (2003) and Jidoud (2012) found little effect. Welfare was also found to respond positively to unemployment throughout the time which is contrary to our expectations. The impulse response function showed that welfare responds negatively to one standard innovation in inflation and official development assistance in both the short and long run. The response to inflation is not unanticipated, an increase in the inflation rate increases the cost of living which reduces the welfare of the people particularly the poor given fixed income level.
The validity of the response of welfare to ODA shock was expected to increase welfare. The negative response portrays that ODA to SSA countries has not been cumulating to welfare increase because it has not been properly channeled. This is in strong agreement with the findings of Ssozi, Asongu, and Amavilah, (2018). For instance, ODA allocation to the agricultural sector was only 6% in 2012 (CESifo DICE, 2014). Findings have shown that welfare is lower in the agricultural sector even when this sector provides about 65% of the labour in Sub-Saharan Africa. It has further been found that about 7 million people will escape from poverty when there is about a 10% increase in agricultural productivity in SSA contrary to other sectors (IAASTD, 2009).

Table 4.5

<table>
<thead>
<tr>
<th>Period</th>
<th>RPPCCE</th>
<th>RGDPPC</th>
<th>TOT</th>
<th>UNEMP</th>
<th>INF</th>
<th>GE</th>
<th>ODA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>213.3505</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
</tr>
<tr>
<td>2</td>
<td>609.4875</td>
<td>39.55582</td>
<td>373.7093</td>
<td>291.4707</td>
<td>-29.22892</td>
<td>81.23084</td>
<td>-61.37405</td>
</tr>
<tr>
<td>3</td>
<td>1507.258</td>
<td>109.1399</td>
<td>900.1504</td>
<td>1271.893</td>
<td>-80.59299</td>
<td>115.7337</td>
<td>-389.8349</td>
</tr>
<tr>
<td>4</td>
<td>3569.635</td>
<td>158.6568</td>
<td>1934.052</td>
<td>3193.516</td>
<td>-186.4721</td>
<td>301.8827</td>
<td>-1098.871</td>
</tr>
<tr>
<td>5</td>
<td>8204.078</td>
<td>269.9295</td>
<td>8539.414</td>
<td>7464.420</td>
<td>-368.9492</td>
<td>662.8535</td>
<td>-2733.642</td>
</tr>
<tr>
<td>6</td>
<td>18406.24</td>
<td>549.9295</td>
<td>18408.36</td>
<td>16805.98</td>
<td>-833.7457</td>
<td>1476.318</td>
<td>-6332.846</td>
</tr>
<tr>
<td>7</td>
<td>40802.72</td>
<td>1172.322</td>
<td>396597.2</td>
<td>34422.93</td>
<td>-154100.4</td>
<td>34422.93</td>
<td>-154100.4</td>
</tr>
</tbody>
</table>

Source: Authors’ Computation using Eviews 9.1

Figure 1. Combined Impulse response graph
Source: Authors’ Computation using Eviews 9.1

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4.6. Variance Decomposition

The outcome of the variables’ forecast error variance decomposition for welfare is presented in Table 4.6. Own shocks constitute a major source of the variation in welfare forecast errors between the ranges of 45% to 100% over the ten years. Given an exogenous shock to other macroeconomic variables, it was evident that unemployment contributed the highest amount of innovations in welfare, which ranged from 12% in the short run to 38% in the long run. This was followed by TOT accounting for more of the changes in the short run (about 21%). This implies that about 38% of the forecast error variance of real private per capita consumption expenditure is explained by unemployment. Hence, the low welfare level in SSA is mainly given to the region’s high unemployment rate. The above verdict of the VDC shows that variations in welfare are largely due to own shocks obeying the vicious cycle, variations in unemployment, the terms of trade, and slightly the ODA respectively.

Table 4.6

<table>
<thead>
<tr>
<th>Period</th>
<th>S.E.</th>
<th>RPPCCE</th>
<th>RGDPCE</th>
<th>TOT</th>
<th>UNEMP</th>
<th>INF</th>
<th>GE</th>
<th>ODA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>213.3505</td>
<td>100.0000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
</tr>
<tr>
<td>2</td>
<td>808.9447</td>
<td>63.72232</td>
<td>0.239102</td>
<td>21.34176</td>
<td>12.98232</td>
<td>0.130553</td>
<td>1.008334</td>
<td>0.575615</td>
</tr>
<tr>
<td>3</td>
<td>2353.290</td>
<td>48.55243</td>
<td>0.243341</td>
<td>17.15302</td>
<td>30.74530</td>
<td>0.132712</td>
<td>0.361012</td>
<td>2.812185</td>
</tr>
<tr>
<td>4</td>
<td>5794.650</td>
<td>45.95608</td>
<td>0.115100</td>
<td>13.96894</td>
<td>35.44351</td>
<td>0.125444</td>
<td>0.330949</td>
<td>4.059974</td>
</tr>
<tr>
<td>5</td>
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<td>45.79007</td>
<td>0.061636</td>
<td>11.43224</td>
<td>37.42256</td>
<td>0.098647</td>
<td>0.304666</td>
<td>4.890177</td>
</tr>
<tr>
<td>6</td>
<td>30300.56</td>
<td>45.91184</td>
<td>0.045069</td>
<td>10.19236</td>
<td>38.12771</td>
<td>0.095126</td>
<td>0.297347</td>
<td>5.330543</td>
</tr>
<tr>
<td>7</td>
<td>67375.91</td>
<td>45.96065</td>
<td>0.039390</td>
<td>9.526269</td>
<td>38.49561</td>
<td>0.096838</td>
<td>0.291187</td>
<td>5.590054</td>
</tr>
<tr>
<td>8</td>
<td>148612.3</td>
<td>45.98745</td>
<td>0.036804</td>
<td>9.165176</td>
<td>38.69060</td>
<td>0.099598</td>
<td>0.290699</td>
<td>5.732382</td>
</tr>
<tr>
<td>9</td>
<td>326336.6</td>
<td>45.99345</td>
<td>0.035225</td>
<td>8.956526</td>
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<td>0.291649</td>
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<tr>
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<td>38.88112</td>
<td>0.102072</td>
<td>0.292762</td>
<td>5.860644</td>
</tr>
</tbody>
</table>

Source: Authors’ Computation using Eviews 9.1

5. Conclusion and Policy Implications

This study scrutinized the welfare outcome of shock in some macroeconomic variables in SSA using some selected developing countries in SSA. A simultaneous equation model was employed and estimated using the PVAR on real per capita consumption expenditure, real GDP per capita, terms of trade, unemployment, government expenditure, inflation, and official development assistance for the time 1980 to 2019. The following are the findings from the study:
(i) Welfare was established to respond positively highly to shock in unemployment, terms of trade, and government expenditure than shocks the other variables while it responds negatively to inflation and official development assistance.

(ii) Terms of trade account for more of the forecast error variation in welfare in the short run and a major source of external shocks that affects welfare.

(iii) Unemployment accounts for more of the forecast error variance of welfare in the long run

(iv) Welfare in these countries is affected by both external and internal fiscal shocks.

The following are thus the policy implication from this study:

i) Less-Developed countries in Sub-Saharan Africa should concentrate on the formulation and execution of diversification of export policies, departing from primary goods exportation to reduce the negative impact of price volatility of the primary products. Policies of safety nets in the agricultural sector can help ameliorate the negative effect of terms of trade shocks on welfare.

ii) Government expenditure should be pro-poor and targeted at activities that boost welfare (agricultural sector, education, health, infrastructures, and technological advancement). Infrastructural development will also reduce transaction costs thereby making export more competitive and acceptable in the foreign market.

iii) Policy measures to repress and stabilize inflation ought to be positioned to control internal shocks. This will increase the real value of consumers’ income and welfare especially for the poor. This can be feasible by controlling government expenditure through fiscal discipline, and the use of accumulating foreign reserves.

iv) Employment is an imperative outcome for welfare intervention. Policies towards the reduction of high rates of unemployment should be intensified. Human capital development has been upheld to be the best tool for the reduction of unemployment as it will increase productivity thereby increasing welfare through an increase in income.

v) Official Development Assistance should be pro-poor for it to be effective in boosting welfare.

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INFLUENCE OF LIQUIDITY ON MARKET VALUE OF DEPOSIT MONEY BANKS

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JEL: C22, G21

Abstract

This study assessed how liquidity influenced the market value of 12 listed Nigerian Banks within the range of 2011 and 2019 with 108 observations. Data was generated from certified annual reports of selected banks. The study employed descriptive and multiple regressions techniques to analyse data while relevant diagnostic tests were conducted to validate data. The result indicated that liquidity had a negative significant influence on earnings per share (EPS) and divided yield (D/y) respectively. Bank size had a positive significant influence on the (EPS). On the other hand, bank size had a negative significant influence on the (D/y). Leverage gave us the positive insignificant influence on the (EPS) but it had a positive significant association with (D/y) respectively. The study concluded that negative effect of liquidity can lead to a decline in the earnings and reduce the growth of investment thereby has adverse effects on dividend yield to shareholders.

Key words:
Earnings per share, dividend yield, leverage, liquidity, market value

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1.0. Introduction

Deposit money banks play a significant part in the economic system of any country by moving funds from saving units to spending units. Therefore, effectiveness and efficiency in the financial system thereby enhance their market value. The increase in the availability of funds flowing from savers to borrowers will enable the customers enjoin the quality of services delivery. The market value of a business can be seen as an enterprise’s value of economic measure to show the firm value of a business. It is a sum of claims by all claimants’ creditors and shareholders. Market value is a standard employed by investors to measured going concern of a bank. The more the bank’s liquid, the greater the banks showcase themselves to creditors. This implies that bank is considered to be capable of meeting its obligations to pay creditors on time (Yanti & Darmayanti, 2019). The availability of liquidity represents an indicator to the creditors to give loans (Manoppo & Ari, 2016). Moreover, it also shows that the bank that has more ability to pay all of its obligations, safeguards the creditors from any default risks (Zuhroh, 2019). Market value maximization is greatly influenced by the availability of access to either within or outside firm sourced of funds (Safitri & Wahyuati, 2015).

Liquidity plays a key role in the survival of any bank whose primary responsibilities entail keeping of cash and other valuable items. Agbada and Osuji (2013) opined that, as uncertainty led source funds to be evaporated, resultant to shortage of cash by a bank to cover their obligations as they came due. In these cases, some banks all over the world failed to merge due to the interest of broader financial instability, substantial amounts of illiquidity provided by authorities of many countries, including Nigeria (Onyekwelu, Chukwuani & Onyeka, 2018). The better the value of the firm, the more valuable the firm will be seen by potential investors.

Banks’ liquidity refers to the ability of the bank to have adequate money to pay its due obligations. The banks are capable to meet immediate cash, cheques, other withdrawals obligations, and legitimate loan on demand while abiding by existing reserve requirements. Liquidity management involves the strategic supply or withdrawal of money from the market to ensure, the amount of liquidity is consistent with the optimal level of short-term reserve money without distorting the profit-making ability of the bank.

Illiquidity of any banks neither in Nigeria nor in other countries can lead to banks failure thereby reducing the potentials of earnings and market value. This is because the high liquidity position of the bank will assist the bank to meet up obligations as required. This can lead to disbursement of loans and advances that could assist the bank to earn income in form of interest (Onyekwelu, Chukwuani & Onyeka, 2018). Anyanwu, (2003) and Wuave, Yua and Yua (2020) posits that insufficient liquidity
can cause unimaginable disruption to a bank’s operations and customers’ relationships. Liquidity crisis occurred when it is not properly managed; this can result in reputational risk against the banks and have consequences on the market value of the DMBs. To avoid this, it is imperative that the bank managers have a well-defined business established policy and procedures for measuring, monitoring, and managing liquidity. Therefore, managing liquidity is an everyday process that requires banks to monitor and project cash flows to ensure that adequate liquidity is always maintained to meet their commitments as they arise.

Several studies have been conducted on this topic and they came out with different findings, for instance (Zuhroh, 2019; Cevheroglu-Acar, 2018; Thaib and Dewantoro, 2017) who uphold that liquidity has a negative and insignificant effect on firm value. The study corroborated the work of (James, 2020) who found that firm liquidity has no significant effect on market value per share. (Reschiwati, Syahdina and Handayani, 2020; Widyastuti, 2019; Otekunrin, Fagboro, Nwanji, Asamu, Ajiboye and Falaye, 2019) discovered that liquidity had no negative and significant effect on the value of the bank and financial performance. The aforementioned studies have reported mixed results on the impact of each of the liquidity on firm value as some reported significant relationship while some others failed to find significant impact. In addition, the studies focusing on the link between liquidity and market value in Nigeria context have largely focused on earning per share while dividend yield which firms are now shifting to is underexplored. Against this background, this study seeks to examine the influence of liquidity on the market value of Nigerian listed Deposit Money Banks.

The main objective of this paper is to examine the influence of liquidity on the market value of Nigerian Deposit Money Banks. The specific objectives are: to investigate the influence of liquidity on the earnings per share, and to examine the influence of liquidity on dividend yield of Nigerian Banks. The above leads to research questions. What is the influence of liquidity on the earnings per share of Nigerian Banks? To what extent does liquidity influence the dividend yield of Nigerian Banks?

Based on the above, the study is currently trying to add value to existing work of Zuhroh, 2019; Cevheroglu-Acar, 2018; Thaib and Dewantoro, 2017; Reschiwati, Syahdina and Handayani, 2020; Widyastuti, 2019; Otekunrin et al, 2019) by expanding the works in term of scope covered till the period of 2019 and including dividend yield as independent variable.

2.0. Literature Review

Market value serves as a perception of the investor to the success of a bank and reflected the share price of the bank (Reschiwati, et al, 2020). The wealth of shareholders
that bank reflects in the price of shares of investment funding and asset management. Increases in stock prices reflect market confidence by investors to the concerned prospect of the bank. Therefore, earnings per share are measured as profit after tax minus preferred dividend net over the weighted average of number. Dividend yield indicates the current return on investment and it shows the actual amount received by the investors as a rate of return on their investment.

Liquidity is the major predictor variable in this study and is a ratio that measures a company’s ability to meet its current obligations. Based on the signal theory, the ability of a company to meet its current obligations invariably will have positive response from the stock market which causes the company’s value to rise so to say that liquidity affects the firm value (Yanti & Darmayanti 2019). Jagongo and Makori (2013) view that the role of bank was to oblige to their statutory responsibilities as to convert their current assets in form of cash to pay the due obligations. The banks without sufficient amount in current assets will have challenges in its processes and if banks have a high amount of current assets, in turn, shows that the return on investment for the bank is in good position.

Firm Size is regarded as the controlled variable in this study and is a factor that plays a vital role in optimizing market value. The research of (Oktaviarni and Suprayitno, 2018) reported that the size of the bank affects the value of the bank positively. This is because the larger the size of the bank, the easier for it to obtain funds. The positive effect of firm size leads banks’ to access fund to improve the investors’ confidence on the increase in the market value that reflected in the stock exchange price (Marfuah & Nurlela 2019). Agunbiade (2020) supported that the size of the company affects the value of the company because the larger the size of the company, the easier for companies to obtain funds.

Leverage is another control variable that takes an important position in maximizing firm value and the addition of corporate debt may serve as an instrument for controlling the cash freely by the management. The rising in fund control thereby enhances the bank’s performance. Therefore, it will influence the strengthened bank value as reflected via the rise in the stock exchange price (Mediawati, 2016). Hermuningsih (2012) disclosed that leverage had a positive and significant influence on the firm value but the results of Wulandari (2013) gave different results that leverage had a significant negative effect on the firm value.

Theoretically, this study was underpinned by shiftability and anticipated income theories. Shiftability theory was propounded by Mouton in 1918 with aims that banks should organize their portfolio in a manner that liquidity is at an optimum level. The assumption of this theory is to store bank’s liquidity by encouraging the moving of an asset. If a bank has inadequate willing money, it can repossess or sell its assets to a bank
that is highly liquid. This proposition lets the banking system shift high efficiently with appropriate reserves of investment in non-current term assets. That is why the ideal standard of liquidity ratio is 2:1, which means that assets double the liabilities.

Anticipated Income Theory was propounded by Prochanow in 1944 based on practices of extending terms loans. The assumption is that through an adequate channel, the bank can manage their liquidity by monitoring the grants loans and advance them to their customers. The bank that is capable to collect due loans on time will mitigate delays in repayment at the maturity date. Nzotta (2004) emphasizes the earning potential and the creditor’s worthiness is the final guarantee for ensuring sufficient liquidity. Nwankwo (1992) states that the theory identifies movement patterns towards self-liquidating commitments by banks, contended bank’s authority to plan its liquidity based on the expected income of the borrower. This will enable the bank to grant a loan as long as the repayment of these loans are linked with the borrowers expected income to be paid at the stipulated time regularly. Hence, this will invariably enable the bank to provide strong liquidity, when the cash inflows are prompt as it is expected. This theory has encouraged many conventional banks to employ a ladder effect in the investment portfolios and that is why the ideal standard of liquidity ratio is 2:1, which means that assets double the liabilities. These two theories give a comprehensive spectrum of bank’s financial structure as compared to other theories of liquidity.

Though, empirical literature has been carried on liquidity as the evidence of reviewed include; Olarewaju and Adeyemi (2015) examined the link between liquidity and profitability of selected 15 Nigerian Banks using Pairwise Granger Causality to test causality between the banks’ liquidity and profitability. The study discovers there was no causal link between liquidity and profitability of selected banks. However, the study failed to perform numerous diagnostic and robustness check to validate the findings.

Okaro and Nwakoby (2016) tested how liquidity management influenced the performance of Nigerian banks within the range 2000 to 2015 using OLS method to analyze the data. The study gave a negative significant link between liquidity ratio and profitability of Nigerian banks.

Du, Wu and Liang (2016) employed the Pearson correlation and regression analysis to evaluate how firm liquidity influenced the corporate value of listed companies in China during year 2013. The study disclosed that firm value was positively related to liquidity. However, the outcome of one year may not be generalized for a good conclusion.

Obi-Nwosu, Okaro and Atsanan (2017) assessed how liquidity management influenced the performance of DMBs in Nigeria within a range 2000 to 2015. The study employed Augmented Dickey-Fuller Unit Root Test, OLS regression, and Granger Causality. Results disclosed that liquidity mechanism was insignificantly related
to DMBs performance both in the short and long-run. However, the study failed to perform numerous diagnostic and robustness checks to validate the findings.

Bassey (2017) examined how liquidity management influenced the performance of sampled 24 Nigerian banks from 1986 to 2011. The study employed descriptive and multiple linear regression analysis data to determine their survival, growth, and sustainability of banks. The results discovered a significant positive link between liquidity management and the performance of DMBs in Nigeria. Nabeel and Hussain (2017) examined the nexus between liquidity management and profitability of 10 banks in Pakistan between 2006 and 2015 using descriptive statistics and regression techniques to test data. Results from the study indicated a positive link exists between liquidity management and the banks’ profitability.

Onyekwelu, Chukwuani and Onyeka (2018) assess how liquidity has influenced the financial performance of 5 banks in Nigeria within a range from 2007 to 2016 using multiple regression analysis. The outcome showed that liquidity had a positive significant effect on both banks’ profitability and return on capital employed. Otekunrin et al (2019) hypothesized how liquidity management affect the performance of 15 quoted banks in Nigeria from 2012 to 2017, using an ordinary least square method (OLS). The finding showed that liquidity management and bank’s performance were positively related. The study concluded that liquidity management is an important element in banking operation. James (2020) evaluated the impact of firm liquidity and size on the firm value of 34 quoted firms in Nigeria from 2007 to 2016 using the Hausman test to choose fixed effect estimation techniques to analyze data. Results revealed that firm liquidity had no significant effect on the market value per share. However, the study was based on the non-financial firms. Wuave, Yua and Yua (2020) relate liquidity management with the financial performance of 5 banks in Nigeria from 2010 to 2018 using the Hausman test to consider the fixed effect in testing the hypotheses. The finding showed that the liquidity ratio had a positive and significant effect on the financial performance of DMB. However, the outcome of a small sample size may not be generalized for a good conclusion.

3.0. Methodology

This study used a longitudinal research design. The study population consists of twenty-two (22) listed Nigerian Deposit Money Banks. A judgmental sampling method was used to select sample size of twelve (12) Banks. The selection criteria of Twelve (12) banks was based on the financial report of banks that have not changed their nomenclature since 2011. This include; Access Bank Plc, Unity Bank Plc, Fidelity Bank Plc, First Bank of Nigeria Limited, First City Monument Bank Plc, Guaranty
Trust Bank Plc, Union Bank of Nigeria Plc, United Bank For Africa Plc, Stanbic-IBTC Bank Plc, Sterling Bank Plc, Wema Bank Plc and Zenith Bank Plc

Secondary data was sourced from the audited annual financial statement of the twelve (12) selected Nigerian Deposit Money Banks from 2011 to 2019. This study used descriptive and multiple regression to analysed data. The following diagnostic tests such as Heteroskedasticity and Serial autocorrelation were conducted to validate the data.

3.1. Measurement of Variables

Dependent variables of market value were proxied by earnings per shares (EPS) and Dividend yield (D/y). EPS measured as profit after tax minus preferred dividend net over a weighted average of number share (Ahmad and Sallau, 2018) while dividend yield (D/Y) measured as the proportion of dividend per share to market value.

The independent variable was liquidity ratio (Liq) measured as current assets to current liabilities (James, 2020; Wuave, Yua & Yua 2020; Nabeel & Hussain 2017) while bank size (Bsize) and leverage (Lev) serves as control variables, first measured as logarithm of total assets and latter measured as total debt to total assets (Ibrahim, Adesina, Olufowobi & Ayinde 2018; Ahmad & Sallau, 2018). The above summarized in Table 3.1

<table>
<thead>
<tr>
<th>Variables</th>
<th>Variable Labels</th>
<th>Measurement</th>
<th>Expected Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earnings per share</td>
<td>EPS</td>
<td>Profit after tax - preferred Dividend Net Weighted average of number share</td>
<td></td>
</tr>
<tr>
<td>Dividend Yield</td>
<td>D/Y</td>
<td>Dividend per share x100 Market Value</td>
<td></td>
</tr>
<tr>
<td><strong>Independent</strong></td>
<td></td>
<td></td>
<td>±</td>
</tr>
<tr>
<td>Liquidity ratio</td>
<td>BDS</td>
<td>Current assets Current liabilities</td>
<td></td>
</tr>
<tr>
<td><strong>Control Variable</strong></td>
<td></td>
<td></td>
<td>±</td>
</tr>
<tr>
<td>Bank size</td>
<td>B size</td>
<td>logarithm of total assets</td>
<td></td>
</tr>
<tr>
<td>Leverage</td>
<td>Lev</td>
<td>Total debt Total Assets</td>
<td>+</td>
</tr>
</tbody>
</table>

*Source: Author’s Computation (2021)*
3.2. Model Specification

To empirically assess the influence of liquidity on the firm value measured as EPS and D/Y of listed banks in Nigeria, a model adapted from the study of (Onyekwelu, Chukwuani and Onyeka, 2018), was used as specified mathematical form as follows:

\[ EPS_{it} = \alpha_0 + \beta_1 Liq_{it} + \beta_2 Bsize_{it} + \beta_3 Lev_{it} + \mu_{it} \]  \hspace{1cm} (1)

\[ D/Y_{it} = \alpha_0 + \beta_1 Liq_{it} + \beta_2 Bsize_{it} + \beta_3 Lev_{it} + \mu_{it} \]  \hspace{1cm} (2)

\( EPS_{it} \) represents Earnings per share
\( D/Y_{it} \) represents Dividend yield
\( Liq_{it} \) represents Liquidity
\( Bsize \) represents Bank size
\( Lev_{it} \) represents Leverage
\( \alpha_0 \) = Constant parameter
\( \beta_1 \) = Coefficient of explanatory variables
\( \mu_{it} \) = Error terms
Note the subscription index “it”
i = firms
t = time

4.0. Results and Discussion of Findings

Table 4.1: Summary of Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>EARNINGS</th>
<th>DIVIDEND</th>
<th>LIQUIDITY</th>
<th>BSIZE</th>
<th>LEVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>2.186667</td>
<td>8.460967</td>
<td>1.725341</td>
<td>21.67391</td>
<td>0.862724</td>
</tr>
<tr>
<td>Median</td>
<td>2.180000</td>
<td>9.142200</td>
<td>1.595404</td>
<td>21.60362</td>
<td>0.861742</td>
</tr>
<tr>
<td>Maximum</td>
<td>3.310000</td>
<td>11.70600</td>
<td>2.321136</td>
<td>22.68641</td>
<td>0.914319</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.950000</td>
<td>5.244100</td>
<td>1.244246</td>
<td>20.66772</td>
<td>0.803549</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>0.692885</td>
<td>2.209620</td>
<td>0.390267</td>
<td>0.564786</td>
<td>0.030338</td>
</tr>
<tr>
<td>Skewness</td>
<td>-0.109562</td>
<td>-0.225580</td>
<td>0.203201</td>
<td>0.121414</td>
<td>-0.084778</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>2.175143</td>
<td>1.734966</td>
<td>1.573999</td>
<td>2.554120</td>
<td>2.886043</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>3.277818</td>
<td>8.117348</td>
<td>9.893880</td>
<td>1.159986</td>
<td>0.187809</td>
</tr>
<tr>
<td>Probability</td>
<td>0.194192</td>
<td>0.017272</td>
<td>0.007105</td>
<td>0.559902</td>
<td>0.910370</td>
</tr>
<tr>
<td>Sum</td>
<td>236.1600</td>
<td>913.7844</td>
<td>186.3368</td>
<td>2340.782</td>
<td>93.17414</td>
</tr>
<tr>
<td>Sum Sq. Dev.</td>
<td>51.36960</td>
<td>522.4190</td>
<td>16.29696</td>
<td>34.13116</td>
<td>0.098485</td>
</tr>
<tr>
<td>Observations</td>
<td>108</td>
<td>108</td>
<td>108</td>
<td>108</td>
<td>108</td>
</tr>
</tbody>
</table>

Source: Researchers’ Compilation (2021)
Table 4.1 shows the mean of earnings per share, dividend yield, liquidity, bank size, and leverage of 2.186667, 8.460967, 1.725341, 21.67391, and 0.862724 respectively. Table 4.1 also shows that, bank size had a maximum value of 22.68641 and a minimum value of 20.66772 while leverage had a minimum value of 0.803549 and a maximum value of 0.914319 respectively. The implication of this is that bank size contributed maximally to the increase of firm value more than other parameters and means that the assets are indicators for good firm value. From Table 4.1 the standard deviation for earnings per share, dividend yield, liquidity, bank size, and leverage are 0.692885, 2.209620, 0.390267, 0.564786, and 0.030338 respectively. The result implies that D/y had a standard deviation of 2.209620 which is riskier than other parameters in the study.

Table 4.2

<table>
<thead>
<tr>
<th>Variables</th>
<th>EPS</th>
<th>D/Y</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coeff.</td>
<td>t-Stat</td>
</tr>
<tr>
<td>C</td>
<td>-12.69320</td>
<td>-3.976319</td>
</tr>
<tr>
<td>LIQUIDITY</td>
<td>-0.641917</td>
<td>-3.226500</td>
</tr>
<tr>
<td>BSIZE</td>
<td>0.524406</td>
<td>2.121504</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>5.356834</td>
<td>1.689838</td>
</tr>
<tr>
<td>R²</td>
<td>0.846310</td>
<td></td>
</tr>
<tr>
<td>F-stat.</td>
<td>190.8959</td>
<td></td>
</tr>
<tr>
<td>Prob(F-stat.)</td>
<td>0.000000</td>
<td></td>
</tr>
<tr>
<td>Diagnostics</td>
<td>x²Hetero</td>
<td>Obs*R² 35.00, Prob. x² 0.00, P(F) 0.00</td>
</tr>
<tr>
<td></td>
<td>x²Serial Cor</td>
<td>Obs*R² 31.65, Prob. x² 0.00, P(F) 0.00</td>
</tr>
</tbody>
</table>

Source: Researchers’ Compilation (2021)

Table 4.2 disclosed that the aggregate outcome of predictor variables had a significant influence on the EPS as P-values of F-stat < 0.05. This implies that all predictor variables contributed to EPS. The study showed that the R² value of 0.845 suggests that approximately 85% of the variation of the independent variable is contributed by the predictors’ variable. The remaining 15% is changed by variables that are outside the model, which has been taken into account by the disturbance error. Despite there being a negative association of liquidity with earnings per share, still it
had a significant influence on the EPS of sampled banks in Nigeria as the showed $(\beta = -0.641917, t = -3.226500, P< 0.05)$. This implies that a unit increase in liquidity will lead to a corresponding inverse increase in earnings per share price by -0.642 units. High liquid ratio would leads to a decline in the earnings because holding too much of cash (idle cash) will reduce growth of investment. Bank size had a positive significant influence with EPS. This implies that the more the bank has assets, the easier for banks to obtain funds. Leverage has positive insignificant influence with EPS as showed the p-value $> 0.005$.

As indicated in Table 4.2, the data shows that approximately 48 percent of D/y is influenced by changes in predictors’ variables given the estimated value of the $R^2$ of 0.475. The remaining 52% are caused by variables that are not considered in the model, which is accounted for by error term. This implies that 52% was the true value of explanatory variables that constitutes the dividend yield. As shown in Table 4.2, the aggregate results gave us that there was a statistically important link between predictor variables and dividend yield as confirmed by F- stat value =0.0000. This implies that all predictor variables contributed to dividend yield thereby lead to increase in return on investment.

Liquidity had a negative significant influence on dividend yield as shown by $(\beta = -7.089539, P< 0.05)$. This indicates that increase in the liquid ratio would have inverse effect on growth of investment thereby reduced the dividend yield to shareholders. Bank size had a negative significant influence on dividend yield as shown by $(\beta = -5.661629, P< 0.05)$ respectively. This indicates if the bank has large total assets, the management is more flexible in using the existing assets in the bank. The freedom that this management has is proportional to the worries that the owner has over his assets.

Leverage gave us a positive significant influence on the D/y of the sample banks as confirmed $\beta = 56.92748, P< 0.05$, in this report that an increase in proportional variation in leverage will lead to a corresponding increase in dividend yield by 56.9 percent. This implies that moderate leverage is susceptible to have dividend yield. This can increase investor confidence that banks can pay dividends in the amount of stability without the panic of the bank.

The results from Table 4.2 showed the Brench-pagan-Godfrey test on Heteroskedasticity, since the F-stat and Obs $R^2$ have the relationship of p-values of 0.0000 and 0.0000 respectively which $< 0.05$ level of significance, it is good to conclude that there was an absence of Heteroskedasticity. Table 5 also showed the F-statistics and Obs $R^2$ values of P-v of 0.000 and 0.000 respectively, this indicates there is no presence of auto-correlation in the model since P< 0.05 level of significance.
4.1. Discussion of Findings

This study has assessed how liquidity affects the firm value of Nigerian banks. The study found that liquidity had a negative significant influence on earnings per share and dividend yield respectively. This is supported by Okaro and Nwakoby (2016) who revealed that there was a negative significant link between liquidity ratio and DMBs profitability. This study is in line with, Zuhroh, 2019; Cevheroglu-Acar, 2018; Thaib and Dewantoro, 2017 Wijaya and Purnawati 2014) who found that liquidity had a negative significant influence on firm value. The above findings are contrary to the studies of (Wuave, Yua and Yua 2020; Otekunrin et al, 2019; Onyekwelu, Chukwuani and Onyeka, 2018; Du, Wu and Liang 2016) who found that liquidity had a positive and significant effect on both banks’ profitability and return on capital employed. The results were also consistent with (Reschiwati, Syahdina and Handayani, 2020; Agubiade, 2020; Oktaviarni and Suprayitno, 2018) who discovered that bank size affects the market value because the larger the bank size, the easier it is for banks to obtain funds thereby increases return on investment.

The result of this study is also supported by Hermuningsih (2012) who disclosed that leverage had a positive and significant influence on the firm value but the results of Wulandari (2013) gave a different results that leverage had a negative significant effect on the firm value.

5.0. Conclusion/ Recommendations

The study concluded that liquidity had a negative significant influence on both earnings per share and dividend yield of Nigerian Banks. This implies that an increase in the liquid ratio would lead to a decline in the earnings because holding too much of cash (idle cash) will reduce the growth of investment thereby has an adverse effect on dividend yield to shareholders. This can result in the decline in firm value.

Banks with moderate leverage are susceptible to dividend yield. This can increase investor confidence that banks can pay dividends in the amount of stability without the panic that the bank will go bankrupt because of debts, thereby increasing earnings. The study recommended that managers need to pay more attention to the management of liquid funds because high illiquidity is susceptible to problems that will possibly affect the declining value of the banks. 

The Investors should continue to pay attention to specific-related information on financial reports to liquidity, leverage and size. This will assist investors in taking the right decision to invest into the bank thereby obtain the expected return from the investment. The regulatory authorities need to put appropriate mechanisms in place that will help to address issues of bank liquidity and share assets.
quality in the banking industry. This is because the market value of banks is affected by certain macroeconomic variables. This study was limited to only Nigerian banks while other non-financial sectors take no accounts. At the same time, this study fails to capture other variables such as economic value added (EVA), market share price to measure market value. Further research can be carried out in other sectors such as manufacturing firms and insurance companies.

References


Influence of Liquidity on Market Value of Deposit Money Banks


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Latinoamericana, 25 (6), 325-331


Appendix 1

Regression analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
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<tbody>
<tr>
<td>C</td>
<td>-12.69320</td>
<td>3.192200</td>
<td>-3.976319</td>
<td>0.0001</td>
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<tr>
<td>LIQUIDITY</td>
<td>-0.641917</td>
<td>0.198951</td>
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<td>0.0017</td>
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<tr>
<td>BSIZE</td>
<td>0.524406</td>
<td>0.247186</td>
<td>2.121504</td>
<td>0.0363</td>
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<tr>
<td>LEVERAGE</td>
<td>5.356834</td>
<td>3.170027</td>
<td>1.689838</td>
<td>0.0941</td>
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</table>

R-squared 0.846310
Adjusted R-squared 0.841877
S.E. of regression 0.275524
Sum squared resid 7.894983
Log likelihood -11.98656
F-statistic 190.8959
Prob(F-statistic) 0.000000

Appendix 11

Diagnostic tests

Heteroskedasticity Test: Breusch-Pagan-Godfrey

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Value</th>
<th>Prob.</th>
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<tbody>
<tr>
<td>F-statistic</td>
<td>16.62169</td>
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<tr>
<td>Obs*R-squared</td>
<td>35.0098</td>
<td>0.0000</td>
</tr>
<tr>
<td>Scaled explained SS</td>
<td>15.74366</td>
<td>0.0013</td>
</tr>
</tbody>
</table>

Breusch-Godfrey Serial Correlation LM Test:

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Value</th>
<th>Prob.</th>
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</thead>
<tbody>
<tr>
<td>F-statistic</td>
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</tr>
<tr>
<td>Obs*R-squared</td>
<td>31.65006</td>
<td>0.0000</td>
</tr>
</tbody>
</table>
AN EMPIRICAL ANALYSIS OF STOCHASTIC DOMINANCE AND PORTFOLIO SELECTION IN THE STOCK MARKET: EVIDENCE FROM NIGERIA

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JEL: D22, D25, G11

Abstract
This study carried out an empirical test of stochastic dominance application on portfolio selection in the Nigerian stock market. December daily stock price of ten (10) listed insurance firms in the period 2014 to 2020 were selected and tested for stochastic dominance occurrence. The findings indicate that the selection of firm stock followed the Markowitz mean-variance and risk preference behavior of investors in the stock market. It also shows that two (2) firm stocks were first order stochastically dominant (FSD), four (4) stocks of firms were second order stochastically dominant while nine (9) stocks were third order stochastically dominant (TSD) in the period after the stock market meltdown in Nigeria. The study recommends that future researchers should empirically investigate portfolio dominance on a sector by sector basis. This will guide potential investors at selecting securities on the basis of mean-variance and utility function.

Key words:
Stochastic Dominance, Portfolio Selection, Risk Aversion, Risk seeking, Pay off

Introduction
The application of stochastic dominance in portfolio selection cannot be overemphasized. Stochastic dominance is applicable in a decision under uncertainty
and in the choices of random variables with payoffs. Random variables are subject to variation in outcomes (payoffs). A rational agent such as a risk averse investor with an expected utility (gain), will prefer to select a random variable if it yields the expected satisfaction (maximized utility or gain) as against another random variable with negative expected utility (loss) within a utility function. Wolfstetter (1996) states that it is hard to find an agent utility function with a similar random variable outcome. One possible way to resolve this is to estimate if a random variable is a dominant, since it is often a choice preferred by all rational agents whose utility function shares general and common characteristics in portfolio selection.

In the choice and selection of portfolio, four sets of stochastic dominances are applicable. These are the first, second, third and higher than third order stochastic dominances. These sets of stochastic dominances in random variables choice and selection assist to indicate when and if one random variable ranks higher than the other through specifying a condition which the difference between their distributions function must satisfy. Wolfstetter (1996), avers that first order stochastic dominance is stochastically larger than the second order stochastic dominance. Conventionally, first order stochastic dominance (is) less volatile given that its utility function belongs to a defined asset class with incontrovertible particularity.

Stochastic dominance appears closely connected with the mean-variance approach developed by Harry Markowitz in 1952. Previously, economics and finance scholars have often thought that the mean-variance approach is the best way to measure risks in a comparative manner. In the passage of time, the mean-variance approach to risk analysis became less sophisticated. For instance, mean-variance probability serves the purpose of risk assessment if all probability distributions are normal distributions (Kinnunen, 2018). This presupposes that utility function often tends to get to a maximum to permit a rational agent’s asset (portfolio) selection. It is suggestive that the absolute level of risk aversion increases in relation with an increase in wealth and it eventually gets to infinity as utility reaches its peak.

In the view of Osamwonyi (2012), stochastic dominance is a preferred alternative to mean-variance approach in risk pricing and asset selection, and it is commonly used in decision towards comparing and ranking two stochastic distributions. Constructing stochastically dominating stock/portfolios is necessary, since a stochastically dominating portfolio naturally suggests higher returns without higher risk, lower risk without lower returns, or both higher returns and lower risk simultaneously (Kinnunen, 2018). In other words, a data set is always stochastically dominant over another in relation to the value of the outcomes (Wikipedia, 2018). For example, when comparing the relative value of two investment securities, say security A and security B, the one whose possible rate of return is more than the other asset at any level is presumed to be
stochastically dominant (Kinnunen, 2018).

In the selection of financial assets on the basis of which one is stochastically dominant over the other, some assumptions and definitions are held constant. Contextually, to understand these assumptions, it is necessary to denote random variables alphabetically such as A and B. In this case, all the random variables are assumed to have uniform outcomes denoted as: \( I = [x, x], -\infty < x < +\infty \). From the foregoing, it therefore implies that all the expected value distribution are assumed to be finite. Given the expected value distribution, the rational decision maker has a preference ordering regarding all possible outcomes denoted by the Von Neumann-Morgenstern utility function as: \( I = [x, x], -\infty < x < +\infty \). The Von Neumann-Morgenstern utility function principally emphasizes two aspects, which is monotonicity, connoting more is better than less and concavity, suggesting risk aversion. The value \( U_1 \) denotes monotone increasing and concave by \( U_2 \). Therefore, \( U = U_1 \) if and only if the argument of \( U \) is taken as good and \( U = U_2 \) if the decision maker is equally risk averse. The dominance of a random variable over another is premised on its outcome which is premised on the rational investors’ preference and utility satisfaction. The preference of investors over a random variable outcome is hinged on their attitude to risk. The common investors’ attitudes to risk include risk aversion, risk neutral and risk seeking. Investors are in a three brackets of risks with respect to gains/loss. Investors could be risk seeking over gain or risk averse over loss and risk indifferent.

Financial assets such as security A, for example may stochastically dominate security B if it has a lower risk and higher gain. Similarly, security B is said to stochastically dominate security A if it has higher risk and higher gain. The choice of either of these two assets is dependent on the utility preference of the investor under uncertainty. However, Lean, Wong and Wing-Sweung (2016) emphasized that investors’ risk choices may hold if returns are in the positive or negative domain of an empirical return distribution. In accentuation to this, Starmer (2002) earlier posited that stochastic dominance are meaningful for a range of non-expected utility theory of choice under unlikelihood. This is however canonical with the prospect theory of Kahnemann and Tversky (1979) and the experimental work of Thaler and Johnson (1990) in behavioural finance. According to Fong et al. (2004), the essential concerns of prospect theory are that persons assess gains and losses in relation to a reference point. This was later refuted in that prospect theory has little to say about the dynamics of choice under risk; that is, how people make decisions after a sequence of gambles. Thaler and Johnson (1990) in an experimental research work, stressed that people are risk averse over gains as well as risk seeking over losses.

While several studies such as Davidson and Duclos (2000); Fong, Lean and Wong (2004); Chan, Deperetti, Qiao and Wong (2012); Lean, Wong and Wing-Keung

(2016); Qiao, Wong and Clark (2016) and Kinnunen (2018) have been carried out in developed countries over the application of stochastic dominance in financial assets (portfolio) selection in the financial market, the same cannot be said of developing countries. These observed gaps, the specific objective of this study is to apply the stochastic dominance technique in portfolio selection in the Nigerian stock market. Apart from the introductory part, section two concerns the review of related literature while section three dwells on conclusion and recommendations.

Literature Review

Conceptual Review

Wolfstetter (1996) opines that stochastic dominance is an age-long issue whether one sees a random variable as more risky in relation to the other; irrespective of who selects it, provided such utility function is within the ambit of asset class with similar characteristics. Stochastic dominance allows agents such as investors in the stock market to make the preference of an expected utility between different probability distributions over possible outcomes under uncertainty. Osamwonyi (2012) avers that the application of stochastic dominance makes no clear proposition concerning the probability distribution of returns or the specific form of the utility function.

Lean et al. (2016) noted that testing for stochastic dominance permits researchers to simultaneously recognize the assets preferred by risk averters and risk seekers in both positive and negative return in a behavioural manner. It further enables the drawing of preferences for risk averters, risk seekers, prospect investors and Markowitz investors (Lean et al. 2016). Stochastic dominance is used in identifying conditions under which one risky outcome (for example, stock return) can be preferred to another risky asset (for example, bond return) (Osamwonyi, 2012).

First Degree Stochastic Dominance

The most common types of stochastic dominance literature are first, second, third and higher order stochastic dominances (Fong et al. 2004). First order stochastic dominance is the most intuitive of the three criteria since it only assumes non-satiation (Fong et al. 2004). For instance, Let F and G be the cumulative distributions of two risky assets like shares and bonds, x be the uncertain return and U be a utility function (Kinnunen, 2018). Suppose all investors are non-satiated i.e. $U'(x)$, then, all such investors will agree that security F is preferred to security G if $F(x) \geq G(x)$ for all $x$ random variables; thus, security F is said to dominate security G because the probability that returns $x$ will be realized is always higher for security G than for security F (Kinnunen, 2018).
First-degree stochastic dominance (FSD) is a form of stochastic ordering. First order stochastic dominance is always a stochastically larger association, implying more is preferred to less by rational agents in decision making (Kinnunen, 2018). A random variable A is said to be first stochastically dominate (FSD) a random variable B, expressed as A≥FSD\(B\) if \(\Pr\{A>z\} \geq \Pr\{B>z\}\) for all \(z\) returns; or is equivalent if \(A(z) \geq B(z)\) for all \(z\) returns. Equivalently, where \(A(z):=1-A(F(z))\) and \(B(z):=1-G(z)\). This equivalent equation makes it implicit that the dominant random variable is stochastically larger, thus expressing the degree of first order stochastic dominance. It further connotes that security B cannot first stochastically dominate security A if its expected value is lower. Tentatively, it means a random variable A is preferred to random variable B by all rational agents with monotone increasing utility function (satisfaction) if and only if \(A\geq FSDB\). However, the utility preference ranking is considered to be reversed if it is in a decreasing distribution order (Kinnunen, 2018).

**Second Order Stochastic Dominance**

This is concerned with stochastically more risky relationship and a preference order commonly embraced by all rational agents who prefer more to less and are risk averse (Kinnunen, 2018). A random variable X is said to second order stochastically dominate (SSD) another random variable Y, expressed as \(X\geq SSDY\), if \(\int \Pr\{X>x\}dx \geq \int \Pr\{Y>y\}dy\) for all \(k\) variables (Kinnunen, 2018). With further expression, this is equivalent to \(\int F(x)dx \geq \int G(y)dy\) for all \(k\) variables. This presupposes that the prerequisite for second order stochastic dominance is first order stochastic dominance.

**Third Order Stochastic Dominance**

This order of stochastic dominance adds to risk aversion, the assumption of skewness preference (Kinnunen, 2018). Security F is said to dominate security G at the third order for all risk averse investors with \(U''(x) > 0\), \(U'''(x) = 0\) and \(U''''(x) = 0\) if and only if security \(F \succ G\) and \(m > 0\) where \(m\) denotes expected return. So, investors who prefer positive skewness will assign larger weight to upside potential and will hold a less diversified portfolio with large upside potential. Empirical evidence indicates that investors prefer more positively skewed returns distributions (e.g. Friend & Westerfield; 1980; Harvey & Siddique, 2000).

**Theoretical Framework**

This study is anchored on stochastic dominance theory of risk averters and risk seekers. It was Hadar and Russell (1969), Hanoch and Levy (1969), Rothschild and Stiglitz (1970, 1971) and Whitmore (1970) who laid the utility foundations of stochastic dominance analysis (Fong et al. 2004). According to Fong et al. (2004), stochastic
dominance theory opens up a general framework for ranking risky prospects which relies on utility theory. Stochastic dominance theory is connected with the prospect theory of Kahnemann and Tversky (1979) in psychological finance. In prospect theory, investors are risk seeking over gains and risk averse over losses (Fong, et al. 2004). Stochastic dominance theory holds the view that rational agents can maximize expected utility except if and only if the utility functions have peculiar characteristics (e.g. high risk for higher gain and lower risk for lower gain). Stochastic dominance theory is appealing because it requires little proposition concerning returns distribution and preferences. For instance, returns may demonstrate time series dependence and matches with any distribution pattern (Fong et al. 2004).

Relevance of Stochastic Dominance

Stochastic dominance in terms of relevance, helps to know the shape of investors’ utility functions based on preference rankings of securities (Lean et al. 2016). Osamwonyi (2012) emphasized that stochastic dominance is relevant in optimal portfolio selection and capital budgeting problems, where a number of alternatives is pre-specified and finite. It is used for problems where economic theory fails to present strong forecast concerning decision-maker preference and distribution of the choice alternatives (Osamwonyi, 2012). The author notes that stochastic dominance is relevant where large, high-quality data sets are available to limit the sampling error and enable application of non-parametric tools. Similarly, where the distribution of portfolio returns is unknown, stochastic dominance becomes a readily veritable tool.

Challenges Associated with Stochastic Dominance Application

Stochastic dominance has two sides of a coin, the useful side in terms of portfolio selection and its reverse side which concerns the peculiar challenges in using it given the underlying assumptions. First, non-discrimination-low crossing is a major issue connected with stochastic dominance in applying empirical data (Osamwonyi, 2012). In the view of Osamwonyi (2012), first degree stochastic dominance, for instance, requires the dominant distribution to always have an expected minimum than the dominated distribution; and where this distribution indicates a large improvement under all the observations, except the lowest one, stochastic dominance will fail to hold in any form. Most of the time, simple crossing algorithms are employed to assess it in a pairwise method. Where these algorithms could fail to deal with cases involving infinity of asset preference by a rational investor. Post (2003), however, posits that there is a challenge associated with the determination of the level of investor risk-averseness directly with the stochastic dominance technique.
Classical Assumptions in Stochastic Dominance Application

Risk averseness of an investor is assumed within the stochastic dominance framework. In other words, stochastic dominance holds the proposition that individual investors always fall into the class of risk averter and may include continuously risk-averse individuals. Stochastic dominance holds the assumption that an individual can possess a risk aversion parameter that is so large that the utility of the small variation at the lowest observation is extraordinarily important (Osamwonyi, 2012). However, overcoming the peculiar teething issue associated with stochastic dominance assumptions require placing bounds on the risk aversion parameter through constraining numerical designs (Osamwonyi, 2012).

Empirical Review

Fong, et al. (2004) investigated stochastic dominance and behavior towards risk with respect to the market for internet stocks during the period 1988 to 2000. They used the stochastic dominance test developed by Davidson and Duclous (2000) to identify dominant types of risk preference in the internet bull and bear markets. According to the authors, the choice of DD test was predicated on the fact (that) unlike most traditional stochastic dominance tests, the DD test takes the viewpoint of risk averse decision makers. The study leaned on the utility theory of gambling and behavioural finance. The findings of the research show that first, risk averters and risk seekers have unique differences concerning preference for internet versus “old economy” stocks. They apportioned the difference in preference for internet stocks over “old economy” stocks to the bull market period where internet stocks were observed to stochastically dominate old economy stocks for risk seekers but not for risk averters. The result further indicates that in the bear market, risk averters demonstrated an increased preference for old economy stocks, while risk takers showed a decreased choice for internet stocks. The authors concluded that the results are contrary with prospect theory which often points to the fact that investors tend to demonstrate reverse S-shaped utility functions. From the research outcome of Kundu (2010), internet stocks are stocks investors purchased through online trading in a technologically driven stock market environment.

Due to the information technology evolvement, the on-line approach has helped individual investors to have better control on their stock investments (Looney and Chatterjee, 2002). With the proliferation of the internet, more banks and stock brokerage firms are offering on-line stock trading and financial services for investors for a gain. Through that, investors can now gain access to various kinds of information on financial planning such as real-time stock prices and portfolio management (Wong, 2000). However, internet stock is different from non-internet stock. Non-internet stocks are stocks which are traded without the influence of technology. While internet stocks
are common to the old economy, non-internet stocks are found in the new economy. Old economy refers to old ways of trading of stocks. It mainly relies on traditional methods of doing business and trading in stocks rather than leveraging new cutting-edge technology as common to the new economy which favours the use of technology in the trading of stocks.

Lean, Wong and Wing-Keung (2016) applied stochastic dominance (SD) to test the dominance relationships between the futures and spot markets in Hong Kong. They also assess the choices for the risk averters, risk seekers, prospect investors and Markowitz investors (mean-variance investors) within the spot and futures markets. The study finding indicates that for the risk averters, spot dominates futures while for the risk seekers, futures dominate spot. This is clearly suggestive that the risk averters like to purchase indexed stocks, while risk lovers are attracted to long index futures because of the intention to maximize their expected utilities, but not necessary their wealth. They concluded that the prospect investors go for spot in the positive domain and prefer futures in the negative domain while the Markowitz investors like spot in the negative domain and prefer futures in the positive domain as well.

Chan, et al. (2012) used stochastic dominance and likelihood ratio tests to investigate the efficiency of the UK covered warrants market. The finding indicates there exists no dominance between covered warrants and the underlying shares. Qiao et al. (2016) apply stochastic dominance tests to examine investors’ preferences with respect to the Taiwan stock index and its corresponding index futures. They found that spot prices dominate futures for risk averters, whereas futures dominate spot for risk seekers. Lean, Wong and Zhang (2015) research reveals that risk-averse investors prefer the spot index, whereas risk seekers are attracted to the futures index to maximize expected utility, though not their expected wealth for the entire period or for the sub-period before the 2008 global financial crisis.

Kinnunen (2018) undertook a study measuring the performance of a stochastic dominance-based portfolio selection model in Nordic stock market using eight years of daily return data of OMX Nordic 40 index and its constituents. The portfolio selection model was used in a stochastic dominance-based model developed by Kopa and Post (2015). The empirical finding shows that returns are higher with lower risk for the optimized portfolios compared to the index.

**Methodology**

This study uses the descriptive research design. The study population consist of the listed insurance firms in the Nigerian insurance sector as at 31st December, 2020. There are a total number of fifty-three (53) listed insurance firms in the Nigerian insurance sector.
sector (NSE Fact book report, 2020). A sample size of 10 listed insurance firm were
selected using the simple random sampling technique. The average of the daily share
price of December 2014 to December, 2020 of each of the listed insurance firms was
used in the data analysis. The stock return was calculated for 10 firm stock price with
the formula:
\[
r_i = \frac{p_{ti} - p_{t+1}}{p_{t-1}}; \quad t = 1,2,\ldots,10; \quad i = \text{for individual firm}, t= \text{is the period}.
\]

The periods were chosen in order to determine how the listed insurance firms were
stochastically dominant in terms of share price returns and variance after the global
stock market meltdown of 2007/2008. The selected listed insurance firms were Niger
insurance PLC, NEM insurance PLC, OASIS insurance PLC, Guinea insurance PLC,
Crusader insurance PLC, Cornerstone insurance PLC, UNIC insurance PLC, Universal
insurance PLC and LASACO insurance PLC. First order stochastic dominance (FSD),
second order stochastic dominance (SSD) and third order stochastic dominance (TSD)
were employed to estimate dominance of the securities using descriptive statistics of
mean-risk and skewness parameters respectively through application of E-views 8.0
version.

**Stochastic Dominance Modelling**

\[ A \leq FSD^B \text{ IF } \Pr\{A < z\} \leq \Pr\{B < z\} \text{ for all } z \text{ returns} \quad (1) \]
\[ X \geq SSD^Y, if \int \Pr\{X > x\}dx \geq \int \Pr\{Y > y\}dy \text{ for all } k \text{ variables} \quad (2) \]
\[ U'(x) 0, U^n(x) = 0 \text{ and } U^m(x) = 0 \text{ if and only if security } F > G \text{ and } m > 0 \quad (3) \]

Equation (1) presupposes that no rational agent (investor) will prefer a random
variable A with lower returns and higher risk to random variable B of higher returns
with lower risk in a utility function (Elton & Gruber, 2002). In checking for dominance
of the firm stock over another, the Markowitz mean-variance process was followed.
For the first order stochastic dominance to apply, stock A is said to FSD over stock
B if its mean (expected return) is > the mean (expected value) of stock B. For the
second order stochastic dominance, stock A is said to SSD over stock B if the standard
deilation (risk) of stock A is < standard deviation (risk) of stock B. Applying the third
order stochastic dominance, stock B is TSD if it has a positive skewness and mean >0;
conversely, stock B is not TSD if it has a negative skewness and the mean is <0 (Harvey
& Siddique, 2000).
Empirical Analysis

This section of the study concerns the application of the stated method for portfolio selection in the stock market. The selection of the portfolio is premised on the Markowitz and then followed by first order stochastic dominance, second order stochastic dominance and third order stochastic dominance approaches respectively using the criteria stated in the methodology segment of the study.

Table 1

<table>
<thead>
<tr>
<th>S/N</th>
<th>Company</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Risk Preference Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Niger Insurance PLC</td>
<td>9.39</td>
<td>4.72</td>
<td>Risk seeking</td>
</tr>
<tr>
<td>2.</td>
<td>NEM Insurance PLC</td>
<td>11.32</td>
<td>10.73</td>
<td>Risk seeking</td>
</tr>
<tr>
<td>3.</td>
<td>OASIS Insurance PLC</td>
<td>6.31</td>
<td>4.51</td>
<td>Risk seeking</td>
</tr>
<tr>
<td>4.</td>
<td>Great Nigeria Insurance PLC</td>
<td>9.79</td>
<td>6.05</td>
<td>Risk seeking</td>
</tr>
<tr>
<td>5.</td>
<td>Guinea Insurance PLC</td>
<td>14.93</td>
<td>13.70</td>
<td>Risk averse</td>
</tr>
<tr>
<td>6.</td>
<td>Crusader Insurance PLC</td>
<td>29.60</td>
<td>42.15</td>
<td>Risk averse</td>
</tr>
<tr>
<td>8.</td>
<td>UNIC Insurance PLC</td>
<td>23.64</td>
<td>33.62</td>
<td>Risk seeking</td>
</tr>
<tr>
<td>9.</td>
<td>Universal Insurance PLC</td>
<td>13.88</td>
<td>5.54</td>
<td>Risk Averse</td>
</tr>
<tr>
<td>10.</td>
<td>LASACO Insurance PLC</td>
<td>4.33</td>
<td>2.65</td>
<td>Risk Averse</td>
</tr>
</tbody>
</table>

Source: Data Collected from the Nigerian Stock Market and Computed with E-view 8.0

Table 1 shows the selection of the security (stocks) using the Markowitz mean-variance criterion. It can be observed that the selection of the portfolio is a function of the risk appetite and preference behavior of different investors in the stock market. Investors who prefer higher risks for higher expected returns would select the securities of Niger Insurance PLC, NEM insurance PLC, OASIS insurance PLC, Great Nigeria insurance PLC and UNIC insurance PLC for inclusion in the portfolio selection. While investors who like higher expected return (mean) for a lower risk will select the stocks of Guinea insurance PLC, Crusader Insurance PLC, Cornerstone Insurance PLC, Universal insurance PLC and LASACO insurance PLC respectively. This selection of the securities enables the investor to maintain efficient frontier curve, promoting portfolio risk diversification in a systematic pattern in the stock market.
In the passage of time, mean and variance approach to risk analysis became less sophisticated in that it fails to indicate condition upon which one financial asset could dominate another (Kinnunen, 2018). Osamwonyi (2012) posits that stochastic dominance is a preferred alternative to mean-variance approach to risk pricing and asset selection, commonly used in decision making to compare and rank two stochastic distributions. Stochastic dominance is the utility preference for one asset over another with minimal knowledge of the decision maker’s utility function (Kinnunen, 2018). Following the drawback associated with Markowitz mean-variance approach to securities selection, the first, second and third order stochastic dominances are applied to select the securities into a basket of portfolio.

The details of each of the 90 pairwise comparisons of the first order stochastic dominance (FSD), second order stochastic dominance (SSD) and third order stochastic dominance (TSD) are indicated in Table 2. Table 2 results shows that among the ten firm stocks, only Crusader insurance PLC and Cornerstone insurance PLC stocks were first order stochastically dominant in the period after the stock market meltdown in Nigeria. The finding affirms the assertion of Meyer, Li and Lawrence (2005) that first order stochastic dominance is empirically hard to observe because of its low discriminating power in making choices compared to higher degrees of stochastic dominance. In table 2, column 2, it can be observed that out of the 10 firms which comprise the 90 pairwise comparison, only four (4) stocks of firms, namely, LASACO insurance Plc, Universal insurance Plc, OASIS insurance Plc and Niger insurance Plc were second order stochastically dominant in the stock market in the period after the stock market meltdown in Nigeria. This is an improvement on the first order stochastic dominant (FSD) strength. In column 3, nine (9), namely, Niger insurance Plc, NEM insurance Plc, Great Nigeria insurance Plc, OASIS insurance Plc, Guinea insurance Plc, Cornerstone insurance Plc, UNIC insurance Plc, Universal insurance Plc and LASACO insurance out of the ten (10) stocks were observed to be third order stochastically dominant (TSD), leaving only one security non-dominating in the period after the stock market meltdown in Nigeria. The overall stochastic dominance results are quite intriguing! While the result explicitly demonstrates the dominating strength of the stocks in stochastic order form, it does not convincingly portray the risk preference attitudinal disposition of investors unlike the Markowitz mean-variance criterion demonstrated in table 1. This overtly is in tandem with the viewpoint of Post (2003) that there is the challenge of determination of the level of investor risk-averseness directly with the stochastic dominance application.
### Table 2
Summary of Pairwise First, Second and Third Order Stochastic Dominance in the Security Selection

<table>
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## Conclusion and Recommendations

The study examined stochastic dominance technique in portfolio selection in the Nigerian stock market. The literature reviewed revealed that stochastic dominance remained a potent tool to selecting random variables which rank higher than another.
through specifying a condition which the difference between their selections must satisfy. Ten (10) listed insurance firm stocks were selected and tested for stochastic dominance. Findings indicate that the selection of firm stock followed the Markowitz mean-variance and risk preference behavior of investors in the stock market. The result of the stochastic dominance technique shows that two (2) firm stocks were first order stochastically dominant (FSD), four (4) stocks of firms were second order stochastically dominant while nine (9) stocks were third order stochastically dominant (TSD) in the period after the stock market meltdown in Nigeria. The study concludes that while stochastic dominance is good in determining the dominance of an asset over another, it does not succinctly portray investors’ risk preference behavior unlike the Markowitz mean-variance approach.

This study has contributed to knowledge in several ways. For instance, previous studies have always relied on the use of the capital asset pricing model (CAPM) and arbitrage pricing theory (APT) in the choice and selection of portfolio in the stock market. This study is the first to employ the stochastic dominance approach in portfolio selection on the empirical fronts in the emerging market of Nigeria.

The study therefore suggests that future researchers need to concentrate their attention on empirically investigating portfolio dominance on a sector by sector basis as this will guide potential investors to selecting securities on the basis of mean-variance and utility function. Similarly, further research work should be undertaken to determine the dominance of firms on the basis of portfolio selection, corporate governance mechanisms and firm characteristics using stochastic dominance software with a view to contributing to knowledge. This has the potency of guiding financial analysts and stock brokers in the context of fundamental analysis, when suggesting investment ideas to potential and existing investors in the stock market.

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DOES ENTREPRENEURSHIP GUARANTEE YOUTH EMPOWERMENT IN NIGERIA? THE ROLE OF SMALL AND MEDIUM SCALE ENTERPRISES

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JEL: C22, D24, J21, L81, M20; M21

Abstract

The aim of this study is to examine the impact of entrepreneurship within the context of SMEs on youth empowerment in Nigeria. Providing an empirical evidence to answer the research question required the extraction of data between 1991 and 2019 from the World Development Indicators. Meanwhile, the data was subjected to various pre-tests such as unit roots and Co-integration tests before the adapted models were estimated using Fully Modified Least Squares (FMOLS) and Granger causality techniques. The summary of the major discoveries in the study were enunciated as follows; self-employment and youth unemployment had a significant negative relationship in Nigeria. In the same vein, population growth rate and youth unemployment had a significant negative relationship. However, commercial banks loans to SMEs and youth unemployment had an insignificant positive relationship in the country. By and large, self-employment generated by SMEs reduces youth unemployment significantly in Nigeria. Furthermore, a long run convergence existed among the variables of interest in one hand, a unidirectional causal relationship running from youth empowerment to SMEs financing existed in the study. Also, a unidirectional causality running from self-
employment to population growth rate was discovered. Therefore, the study concludes that entrepreneurship - SMEs has the capacity to guarantee youth empowerment in Nigeria. Against this backdrop, this study recommends that the policymakers and other stakeholders in Nigeria should embrace entrepreneurship, especially SMEs as a reliable means of youth empowerment through employment generation in the country.

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1. Introduction

Unemployment among the youth has been one of the major issues of concern inhibiting the growth and development of Nigeria on a sustainable basis. This monster has orchestrated a lot of social vices such as kidnapping, political thuggery, armed robbery, internet frauds, destitution, prostitution, terrorism and the host of others (Okoye et al., 2014). The growth and development of every economy is a function of its citizens’ resourcefulness, in which the youth population occupies the major spectrum (Olajide & Akojenu, 2017). Meanwhile, in Nigeria, youth empowerment is becoming critical in today’s economic reality of the nation. This is because about 47.40% of Nigerian youth are jobless (NBS, 2019). Unemployment reduces economic and financial power of an individual in an economy.

However, entrepreneurship has been identified as the antidote in curing unemployment menace in developing economies (Porter and Kramer, 2019; Olajide & Akojenu, 2017). Similarly, evidence has shown that small and medium enterprises have created over 50% of the jobs in developing countries which are dominated by the private sector in such countries (Lorenz and Pommet, 2018; Kumar, 2017). Meanwhile, over the time, small and medium enterprises have been a veritable tool in advancement of economic growth and development. This provides an indispensable role in catalyzing prosperity in providing new employments and through increment of the economic prosperity of region (Maksimov et al., 2017). Owing to the strategic role of SMEs in any economy, policymakers in both advanced and developing economies perceive them as a tool of wealth creation, employment, innovation and nation building (Mills and McCarthy, 2016; Aderemiet el., 2019:1; Aderemiet el., 2019:2 ). In the case of the Nigerian economy, small businesses have provided about three (3) million jobs in 2017 (NBS, 2019). This provides a convincing justification why small businesses become
one of the utmost priorities of the policymakers as the agent of innovation in creating jobs within the economy (De Massis et al., 2018).

Due to the pertinent role of the youth in economic activities of the nation, the Nigerian government has made some efforts to proffer solution to the problem of the high rate of unemployment among the Nigerian youth via various empowerment schemes such as Capacity Acquisition Programme (CAP), Youth Empowerment Scheme (YES) and among others. In the same vein, the apex bank in Nigeria has made strategic initiatives such as NYSC Entrepreneurship Training Programmes and Venture Prize Competition (CBN, 2012). The purpose of these schemes is to empower the Nigerian youths by equipping them with vocational and entrepreneurial skills which would enable these youths to earn a living, and contribute to the national development. In spite of the government efforts to ameliorate the youth unemployment issues in Nigeria, a cursory look into the country’s social indices indicates that the youth unemployment rate was 7.8% in 2015, which has metamorphosed to 17.69% in 2019. In the light of the above scenario, this study raises this critical question. What is the role of entrepreneurship from the perspective of SMEs in youth empowerment in Nigeria? Therefore, this study examines the contribution of SMEs to youth empowerment in Nigeria. It is important to stress that this current study is unique compared with the most recent studies such as Ogunjimi (2021), Tagwai (2020), Ogamba (2019), OECD (2019), and Mukhtar et al. (2018). The focal point of majority of these studies concentrated on entrepreneurship education and youth empowerment without application of empirical analysis. In terms of measurement of variables, this study is unique in comparison to the existing studies because youth empowerment is measured in the form of youth employment and entrepreneurship as self-employed as percentage of total employment. Hence, this study bridges the existing gap in literature by examining the nexus between entrepreneurship and youth empowerment in Nigeria. The objective of this study is to examine the impact of entrepreneurship within the context of SMEs on youth empowerment in Nigeria. This study would provide an empirical evidence to answer the question of what has been the role of entrepreneurship from the perspective of SMEs in youth employment in the country. Besides the introductory aspect of this paper, section two appraises the review of literature. Section three presents methodology, discussion of results and policy implication of this paper.

2. Literature Review

Due to the continuous rise in the quest for youth empowerment in developing economies, entrepreneurship development has been a popular subject of discussion by researchers and policymakers. This has invariably given birth to a series of empirical
studies globally, in which efforts have been made in this section of the study to present as follows: Wang (2016) extracted data from 119 developing economies to identify the key inhibitors of SMEs in those countries. It was discovered from the study that the major inhibitors of SMEs in those countries were lack of financial inaccessibility, huge tax rate, political instability, power shortage and stiff competition. Adeosun and Shittu (2020) utilized error correction model to examine how small–medium enterprise (SME) advanced the Nigerian economy between 1990 and 2016. The findings from the study established that a rise in the level of SME formation contributed to the advancement of the Nigerian economy. Meanwhile, a rise quantity of micro-small and medium scale enterprises had no positive contribution to the advancement of the nation’s economy. In a similar study, Ilori, Uregu-Ile and Allen-Ile (2018) investigated the relationship between the national small enterprise development agency and youth employment generation in Nigeria. It was discovered from the study that SMEs contributed to employment creation and expansion of the means of livelihoods among the Nigerian citizens on a sustainable manner. Omeje, Jideofor and Ugwu (2020) applied the multinomial logistic regression model to assess the linkage between youth empowerment and entrepreneurship growth in the diversification of the Nigerian economy. The authors argued that entrepreneurship growth orchestrated a significant impact on youth empowerment in the country. However, in a study carried out by the United Nations (2020), time-series data was employed in investigating the nexus between youth social entrepreneurship and creation of jobs among youths of different nations. The study posited that a lot of unexploited youth potentials existed in yet-to-develop countries due to labor market restrictions which were very hostile to youth’s engagement in entrepreneurship and jobs in the formal sector among these economies.

Consequently, Guelich and Bosma (2019) examined the contribution of youth entrepreneurship to entrepreneurial ecosystems within the context of 10 countries in the Asian-Pacific region. The evidence of descriptive statistics shows that lack of development of entrepreneurial skills was the major factor militating against entrepreneurship among the youth in the region. Semimalaki (2017) analyzed the contribution of Oceania to youth entrepreneurship while employing empirical literature review technique. The researcher submitted that youth entrepreneurs were facing a lot of constraints such as access to limited capital due to unavailability of adequate collaterals by the youths. Massimiliano and Martina (2015) used a panel analysis to estimate how the values and attitudes of youths were affected by the European entrepreneurship and policies using descriptive statistics. The study reported that despite the fact that there was a rise in policy interest on youth entrepreneurship in the region, it was only 6.5% of the regional youths who were predominantly males engaged in entrepreneurship in 2013. In another perspective, Yusuf (2017) made use of cross-sectional survey of
22,628 youths in Doguwa local government of Kano State, Nigeria to investigate how entrepreneurship skills in businesses influenced youth empowerment. The finding from multiple regression analysis indicated that a positive and significant relationship existed between youth empowerment and entrepreneurship skills in businesses.

Furthermore, OECD (2019) assessed the linkage between youth skills, innovation and SMEs’ export capacity with the application of a firm-level data and descriptive statistics. The study discovered that access to finance constituted a major bottleneck in youth-led firms than those of older-led firms. Ahlstrom and Ding (2014) reviewed empirical studies to provide a detailed overview of entrepreneurship in People Republic of China. The study asserted that noticeable strategies and skills in entrepreneurship grew significantly among firms in the early stage of China’s market transition. Okoh et al. (2021) selected a sample of 180 SMEs using microfinance bank to investigate how the roles of micro-financing in the development of entrepreneurship in Ogun State, Nigeria. The authors opined that micro-financing played strategic roles in entrepreneurship development via the availability of credit facility for the entrepreneurs, and at the same time the empowerment of poor entrepreneurs through rising in savings opportunity for the business owners. While investigating the impact of microfinance bank on the development SMEs engaging in essential commodities during COVID-19 pandemic in Sango-Ota industrial hub of Ogun state, Nigeria, Bako et al. (2021) enunciated that more than 90% of enterprises using microfinance credit to run their enterprises recorded an increment in the stock of goods, which consequently led to a moderate rise in profit of the majority of the SMEs located in Sango Ota. Using the application of the General-to-Specific modelling, Ndiaye, Razak, Nagayev and Ng (2018) explored the World Bank Enterprise Survey data to model five performance indicators of 266 economies. The empirical evidence from the study shows that there was a rise in job opportunities due to technology and innovation in medium enterprises, but reverse was the case of small enterprises.

In conclusion, it is important to stress that the literature regarding the nexus between youth empowerment and SMEs in Nigeria is still evolving. And the results of some studies carried out at the micro-level are inconclusive, whereas literature is silence about the overall economy as a whole. Therefore, this study will fill these gaps by utilizing aggregate data to investigate the impact of SMEs on youth employment generation in Nigeria. Hence the relevance of this paper.

3.0. Methodology

The main focus of this paper is to investigate the viable linkage that exists between dependent variable and explanatory variables; and then predict precisely how SMEs explain variation in youth empowerment. Therefore, an ex-post facto research design
was considered as the best research design in this study. In the same vein, secondary data between 1991 and 2019 was sourced from the World Development indicators and International Labour Organization databases simultaneously.

3.1. Specification of Model

The specification of the model for the empirical analysis SMEs and youth empowerment in this study involves the drawing of insight from the works of Adeosun and Shittu (2021), Olowookere et al. (2021) and Aderemi et al. (2019). Therefore, this study adapts a model from the above by eliminating variables that have nothing to do directly or indirectly with this study. GDP was eliminated in the adapted model and replaced with youth empowerment. Hence, the model is specified in a functional form as follows:

\[
\text{Youth Empowerment} = f(\text{SMEs}) \\
\text{YEMP} = f(\text{SMEO, POP, FSMEs}) \tag{1}
\]

Linearizing model (2) transforms it as follows;

\[
\text{YEMP}_t = \alpha + \beta_1 \text{SMEO}_t + \beta_2 \log \text{FSMEs}_t + \beta_3 \text{POP}_t + e_t \tag{3}
\]

3.2. The Direction of Causality between Youth Empowerment and SMEs in Nigeria

The cause effect relationship between youth empowerment and SMEs was examined using a pair wise granger causality analysis. The estimation of this model was done within the VAR model in equation (4-7) below.

\[
\text{YEMP}_t = \alpha_0 + \sum_{i=0}^{p} \alpha_1 \text{YEMP}_{t-i} + \sum_{i=0}^{p} \alpha_2 \text{SMEO}_{t-i} + \\
\sum_{i=0}^{p} \alpha_3 \text{FSMEs}_{t-i} + \sum_{i=0}^{p} \alpha_4 \text{POP}_{t-i} + u_{1t} \tag{4}
\]

\[
\text{SMEA}_t = \beta_0 + \sum_{i=0}^{p} \beta_1 \text{SMEA}_{t-i} + \sum_{i=0}^{p} \beta_2 \text{FSMEs}_{t-i} + \\
\sum_{i=0}^{p} \beta_3 \text{POP}_{t-i} + \sum_{i=0}^{p} \beta_4 \text{YEMP}_{t-i} + u_{2t} \tag{5}
\]

\[
\text{FSMEs}_t = \gamma_0 + \sum_{i=0}^{p} \gamma_21 \text{FSMEs}_{t-i} + \sum_{i=0}^{p} \gamma_1 \text{POP}_{t-i} + \\
\sum_{i=0}^{p} \gamma_3 \text{SMEA}_{t-i} + \sum_{i=0}^{p} \gamma_2 \text{YEMP}_{t-i} + u_{3t} \tag{6}
\]

\[
\text{POP}_t = \gamma_0 + \sum_{i=0}^{p} \gamma_1 \text{POP}_{t-i} + \sum_{i=0}^{p} \gamma_2 \text{SMEA}_{t-i} + \sum_{i=0}^{p} \gamma_3 \text{FSMEs}_{t-i} + \\
\sum_{i=0}^{p} \gamma_4 \text{YEMP}_{t-i} + u_{4t} \tag{7}
\]
Where; YEMP is used to represent youth empowerment, and percentage of unemployed youth as percentage of total labour force ages 15-24. SMEO denotes output from SMEs, this is proxied by employment generated by entrepreneurship businesses- self-employed as percentage of total employment. FSMEs means SMEs financing and commercial banks loans to SMEs is used to proxy it. \( t \) is time period from 1991 to 2019, and \( e \) is error term capturing other variables excluded from the model. The apriori expectation is \( \beta_1, \beta_2, \beta_3 < 0 \).

4. Results and Discussion

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>SMEO</th>
<th>YEMP</th>
<th>POP</th>
<th>FSMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>85.76966</td>
<td>10.20241</td>
<td>2.575907</td>
<td>39380.94</td>
</tr>
<tr>
<td>Median</td>
<td>86.06000</td>
<td>9.600000</td>
<td>2.564842</td>
<td>32374.50</td>
</tr>
<tr>
<td>Maximum</td>
<td>89.68000</td>
<td>17.69000</td>
<td>2.680914</td>
<td>172000.0</td>
</tr>
<tr>
<td>Minimum</td>
<td>79.87000</td>
<td>7.810000</td>
<td>2.488785</td>
<td>10747.89</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>3.492865</td>
<td>2.117355</td>
<td>0.071027</td>
<td>34488.17</td>
</tr>
<tr>
<td>Skewness</td>
<td>-0.268080</td>
<td>0.415861</td>
<td>0.161476</td>
<td>0.194817</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>1.456787</td>
<td>3.078921</td>
<td>1.471912</td>
<td>2.653343</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>3.225010</td>
<td>59.37869</td>
<td>2.947550</td>
<td>61.90191</td>
</tr>
<tr>
<td>Probability</td>
<td>0.199388</td>
<td>0.000000</td>
<td>0.229059</td>
<td>0.000000</td>
</tr>
<tr>
<td>Sum</td>
<td>2487.320</td>
<td>295.8700</td>
<td>74.70131</td>
<td>1142047</td>
</tr>
<tr>
<td>Sum. Sq. Deviation</td>
<td>341.6029</td>
<td>125.5293</td>
<td>0.141255</td>
<td>3.33E+10</td>
</tr>
<tr>
<td>Observation</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
</tr>
</tbody>
</table>

Table 1 provides an overview of the descriptive statistics of the various dataset used in this study. The estimated results indicated that the mean and median values of YEMP, SMEO, POP and FSMES are almost the same. This implies that the distribution of these variables is fairly symmetrical in nature because a distribution of data series becomes a perfect symmetry if mean, mode and median values of such set of series are identical (Karmel and Polasek, 1980).

In the same vein, all the variables were moderately dispersed from their mean.
because they possess the mean values that are greater than the standard deviation. The majority of the variables were positively skewed, and at the same time possess Kurtosis values that are not far from 3. This further reinforces the possibility of these variables to agree the assumption of normal distribution. Hence, econometric technique could explored to analysis the objective of this study.

Table 2

<table>
<thead>
<tr>
<th>Variables</th>
<th>ADF Test</th>
<th>PP Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Level</td>
<td>Prob.</td>
</tr>
<tr>
<td>YEMP</td>
<td>-2.971853***</td>
<td>0.9989</td>
</tr>
<tr>
<td>SMEO</td>
<td>-2.971853***</td>
<td>0.9834</td>
</tr>
<tr>
<td>POP</td>
<td>-2.986225***</td>
<td>0.0010</td>
</tr>
<tr>
<td>FSMEs</td>
<td>-2.971853***</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Source: Authors’ work (2021)

Nonsense or spurious result is one of the common problems that could not be easily detached from time series analysis. This problem reduces the reliability of time series study in policy application. In order to overcome this, this study employed a unit root test to verify the stationarity of the variables of interest at various forms. Consequently, the results of the estimated Augmented Dickey Fuller (ADF) and Phillip Peron test (PP) tests affirm that the variables are mixture of stationary and non-stationary series. This means that these series could possess some level of divergence in the short run which could equilibrate in the long run. Therefore, there is a need for the verification of the co-integration test.
Table 3

Test for Co-integration
(Johansen Cointegration Test Trace Statistics & Maximum Eigenvalue)

<table>
<thead>
<tr>
<th>Hypothesized No. of CE(s)</th>
<th>Eigen value</th>
<th>Trace Statistic</th>
<th>P-Value</th>
<th>Max-Eigen Statistic</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>None *</td>
<td>0.882451</td>
<td>102.3371</td>
<td>0.0000</td>
<td>57.80423</td>
<td>0.0000</td>
</tr>
<tr>
<td>At most 1 *</td>
<td>0.586986</td>
<td>44.5326</td>
<td>0.0005</td>
<td>23.87542</td>
<td>0.0200</td>
</tr>
<tr>
<td>At most 2 *</td>
<td>0.520680</td>
<td>20.65744</td>
<td>0.0076</td>
<td>19.85544</td>
<td>0.0059</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.029267</td>
<td>0.801998</td>
<td>0.3705</td>
<td>0.801998</td>
<td>0.3705</td>
</tr>
</tbody>
</table>

Source: Authors’ work (2020)

Table 3 above shows the estimated results of the long run equilibrium relationship between youth empowerment and entrepreneurship using the technique of Johansen Co-integration Test. It was confirmed from the above table that there was an existence of at most three (3) co-integration equations in the system. This shows that youth empowerment and entrepreneurship have a long run convergence in Nigeria. Therefore, this study explored the long run relationship between the dependent variable and explanatory variables.

Table 4

Pair wise Granger Causality Test between Youth Empowerment and SMEs

<table>
<thead>
<tr>
<th>Null hypothesis</th>
<th>F-statistic</th>
<th>Prob.</th>
<th>Decision</th>
<th>Causality</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP does not Granger Cause FSMEs</td>
<td>2.84062</td>
<td>0.0799</td>
<td>Accept</td>
<td>None</td>
</tr>
<tr>
<td>FSMEs does not Granger Cause POP</td>
<td>2.63618</td>
<td>0.0941</td>
<td>Accept</td>
<td>None</td>
</tr>
<tr>
<td>YEMP does not Granger Cause FSMEs</td>
<td>8.32605</td>
<td>0.0020</td>
<td>Reject</td>
<td>Unidirectional</td>
</tr>
<tr>
<td>FSMEs does not Granger Cause YEMP</td>
<td>0.53312</td>
<td>0.5942</td>
<td>Accept</td>
<td>None</td>
</tr>
<tr>
<td>SMEO does not Granger Cause FSMEs</td>
<td>0.03793</td>
<td>0.9628</td>
<td>Accept</td>
<td>None</td>
</tr>
<tr>
<td>FSMEs does not Granger Cause SMEO</td>
<td>0.94258</td>
<td>0.4048</td>
<td>Accept</td>
<td>None</td>
</tr>
<tr>
<td>SMEO does not Granger Cause POP</td>
<td>3.60834</td>
<td>0.0441</td>
<td>Reject</td>
<td>Unidirectional</td>
</tr>
<tr>
<td>POP does not Granger Cause YEMP</td>
<td>0.46194</td>
<td>0.6360</td>
<td>Accept</td>
<td>None</td>
</tr>
<tr>
<td>SMEO does not Granger Cause YEMP</td>
<td>1.51066</td>
<td>0.2428</td>
<td>Reject</td>
<td>None</td>
</tr>
<tr>
<td>YEMP does not Granger Cause SMEO</td>
<td>2.82057</td>
<td>0.0812</td>
<td>Reject</td>
<td>None</td>
</tr>
</tbody>
</table>

Source: Authors’ work (2021)

Having established a long run convergence among the variables of interest, further effort was made in this study to investigate the direction of causality among these variables within the context of Pair wise Granger Causality Test. It could be
deduced that from table 4 that a unidirectional causal relationship exists for two pairs of causality. In an explicit form, a unidirectional causal relationship is running from youth empowerment to SMEs financing. Also, a unidirectional causality running from self-employment to population growth rate was discovered. No causal relationship exists between self-employment and youth unemployment.

Table 5

Youth Empowerment in Nigeria and Small and Medium Scale Enterprises

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>T-statistics</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSMEs</td>
<td>8.39E-08</td>
<td>0.765327</td>
<td>0.4515</td>
</tr>
<tr>
<td>SMEO</td>
<td>-0.876727</td>
<td>3.548313***</td>
<td>0.0016</td>
</tr>
<tr>
<td>POP</td>
<td>-40.96446</td>
<td>7.209750*</td>
<td>0.0000</td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.797731</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Authors’ work (2021) *Significant at 1% ***significant at 5% **Significant at 10%

Table 5 shows the estimates of the long run relationship between youth empowerment and SMEs in Nigeria. It is worth of note that SMEO, which is the principal variable has the expected sign. Similarly, the R-squared is 0.79, which indicates that FSMEs, SMEO and POP jointly accounted for about 79% of the systematic variations in YEMP. This implies that a relatively good model was appropriately applied in the empirical analysis of this paper. Consequently, self-employment and youth unemployment had a significant negative relationship in Nigeria. A unit change in self-employment causes a reduction in youth unemployment by 0.8% in the country. In the same vein, population growth rate and youth unemployment had a significant negative relationship. A unit change in population growth rate reduces youth unemployment by 49% in Nigeria. However, commercial banks loans to SMEs and youth unemployment had an insignificant positive relationship in Nigeria. Consequently, by and large, self-employment generated by SMEs reduces youth unemployment significantly in Nigeria. Therefore, the study concludes that entrepreneurship - SMEs has the capacity to guarantee youth empowerment in Nigeria. The finding in this study is in tandem with the submissions of Ndiaye, Razak, Nagayev and Ng (2018), Ilori, Uregu Ile and Allen-Ile (2018), Omeje, Jideofor and Ugwu (2020) and Yusuf (2017) in similar studies.
5. Conclusion and Policy Implication

In this study, an empirical answer has been provided to the question whether entrepreneurship from the SMEs perspective has the capacity to guarantee youth empowerment in Nigeria. Providing an empirical evidence to answer the research question required the extraction of data between 1991 and 2019 from the World Development Indicators. Meanwhile, the data was subjected to various pre-tests such as unit roots and Co-integration before the adapted models were estimated using Fully Modified Least Squares (FMOLS) and Granger causality techniques. The summary of the discoveries in the study were enunciated as follows; A long run convergence existed among the variables of interest in one hand, a unidirectional causal relationship running from youth empowerment to SMEs financing existed in the study. Also, a unidirectional causality running from self-employment to population growth rate was discovered.

Furthermore, self-employment and youth unemployment had a significant negative relationship in Nigeria. In the same vein, population growth rate and youth unemployment had a significant negative relationship. However, commercial banks loans to SMEs and youth unemployment had an insignificant positive relationship in Nigeria. By and large, self-employment generated by SMEs reduces youth unemployment significantly in Nigeria. Therefore, the study concludes that entrepreneurship - SMEs has the capacity to guarantee youth empowerment in Nigeria. Against this backdrop, this study recommends that the policymakers and other stakeholders in Nigeria should embark policy that will favourably drive entrepreneurship, especially SMEs as a reliable means of youth empowerment through employment generation in Nigeria.

References


medium enterprises (MSMEs) 2017”, available at: https://nigerianstat.gov.ng/elibrary.


