Sustainable Economic Growth and Financial Stability: A Critical Perspective with Special Reference to Sub-Saharan Africa

By

Ibrahim Dolapo RAHEEM

This work is submitted in partial fulfilment of the requirements of Oxford Brookes University for the Degree of Doctor of Philosophy on the basis of published work. Unless otherwise stated, this work is that of the author and his co-authors, as the case may be, and has not been submitted in whole or in part for an award at any other University.

Date: December 2020

Acknowledgment
The road to success, they say, is not easy. I can attest to this fact. The past four years have been quite rocky, daunting, stressful and challenging, but I prevailed and came out victorious! I would not have been at this stage without the help, support, prayers and words of encouragement from many people, to which I cannot mention all. Primarily, my gratitude goes to Allah, the Lord of the universe. He alone we worship and He alone we ask for help. I thank Him for besieging me with His help, when I asked for it. A special thanks to my supervisor, Dr Sara le Roux, from whom I have benefitted and learnt enormously. Her calm approach to solving issues is a priceless gift. Her fighting spirit and doggedness is out of this world. Prof. Simplice Asongu's support cannot be overemphasized and his role in making my dream a reality will not be forgotten. My gratitude also goes to my examiners, Prof Singh Pritam and Dr Shinder Thandi for their constructive comments, which has enhanced the quality, structure and beauty of the appraisal. I have come in contact with, and enjoyed the support of many people from the University, staff such as Dr David Bowen, Jill Organ and Paola Galván Vera have been exceptional. Support received from my extended family members cannot be repaid in a lifetime. I will forever be indebted to you people. I would like to acknowledge my effort for the hard work and for not giving up when all roads seem blocked. Ibrahim Raheem, you have undeniably done a very good job (you deserve a pat on the back!). Indeed, every disappointment breeds an equivalent opportunity. Saving the last for the best, I would like to appreciate my wife, Aminat Ibrahim-Raheem. Without her perseverance to my often times nag and absence from home, I would not have gotten to this stage of my academic career. I share this glory with you, my love.

Dedication

To all those who were instrumental for making this journey a reality.

Abstract

This critical appraisal summarizes and reviews eight published articles for the award of a doctoral degree, based on published works. These articles examined different issues surrounding two monetary policy objectives: sustainable economic growth and financial stability. These policy objectives lay more emphasis on Sub-Saharan Africa, as six papers were devoted to the region.

The first policy objective identifies capital flows as an important source of economic growth. The two types of capital flows examined in this study were Foreign Direct Investments (FDI) and remittances. This theme addressed two issues that are inter-related: (i) the determinants and consequences of capital inflows; and (ii) the dynamics of dollarization. There are four main shortcomings of the previous studies. First, determinants of FDI have been limited to economic variables. Second, studies have mainly used regional/continental dataset without recourse to sub-regions, implying high level of data aggregation. Third, remittances based-studies have ignored the ability of remittances to solve some problems, such as investment volatility and business cycles. Fourth, there are some features of dollarization (asymmetry, structural breaks and threshold effect), though not apparent, but exist, and not captured by the previous studies. The inability to capture these features could lead to wrong policy formulation.

The second policy objective sought to provide models that would accurately make stock market predictions. The main shortcoming of the literature is the inability to capture some inherent characteristics of the predictors, such as persistence, endogeneity and conditional heteroscedasticity. In addition, this literature has also not taken cognisance of recent development in the financial markets e.g. the emergence of cryptocurrencies and financialization of the commodity markets.

Findings from the first policy objective are as follows: Institutional framework is an important determinant of the two types of capital flows. In addition, capital flows accompanied by improved institutional level are able to curtail the rising influence of investment volatility and business cycles. Accounting for some features makes dollarization in Sub-Saharan Africa (SSA) defy theoretical underpinnings.

The findings from the second theme suggested that Bitcoin and quantitative easing policy of the monetary authorities and oil price were good predictors of stock market performance. Results further showed that investors react more to positive changes in oil price. Policy implications, research limitations and future research directions were discussed.

Abbreviations

APT: Arbitrage Pricing Theory

CAPM: Capital Asset Pricing Model

ECOWAS: Economic Community of West African States

FDI: Foreign Direct Investments

FRED: Federal Reserve Economic Data

ICT: Information and Communication Technology

IFS: International Financial Statistics

IMF: International Monetary Fund

NARDL**:** Nonlinear Autoregressive Distributed Lags

OLI: Organization, Location and Internationalization

QE: Quantitative Easing

SGMM: System Generalised Method of Moments

SSA: Sub-Saharan Africa

US: United States of America

Contents

1: Introduction

1.1 Overview

Countries all over the world- developing, emerging and developed- aim at achieving simultaneously the twin goals of appreciable economic growth rate and financial balance. It is widely understood that any economy that is able to attain these lofty goals would be in a good position to experience internal balance and external equilibrium in the long run. It is not surprising that the policy focus in these countries is mostly directed at how these twin goals can be achieved. The situation in developing countries is much more precarious in terms of economic backwardness, to the extent that when embarking on far-reaching economic reforms, these goals are always flagged. It is against this background that this critical appraisal will focus on these issues with respect to the identified set of countries used in their various studies. This critical appraisal considers a collection of eight papers that were written between 2014 and 2018 by the author and his co-authors, as the case may be. The publication dates range from 2016 to 2019. This introductory chapter presents a list of the published articles in the portfolio. It further dwells on the context of the published works and gives an overview of existing relevant studies, and identifies the gaps from the consulted studies. This chapter highlights the contributions to the body of knowledge in the field. The final aspect of this chapter provides a statement of coherence among the published articles by looking at the inter-relationship among the papers.

1.2 List of Published Works

The following constitutes the portfolio of peer-reviewed published works to be submitted. These works are a mixture of both co-authored and single-authored publications.

Journal Ranking Notes: 1) Australian Business Deans Council 2) Association of Business Schools

1) Ajide, K., and Raheem, I.D. (2016) "Institutions-FDI Nexus in ECOWAS Countries" Journal African Business, 2016, 17(3) pp 319-431[ABDC[1] (2018)]
   Number of citations: 67 Journal's Impact Factor: 1.42
2) Ajide, K., Adeniyi, O. and Raheem, I.D. (2017) "Remittance, Institutions and Investment Volatility Interactions: An intercontinental Analysis" South African Journal of Economics, 85(4) 553-569 [ABS[2] (2018) 1*]
   Number of citations: 4 Journal's Impact Factor: 0.86
3) Adeniyi, O., Ajide, K. and Raheem, I.D. (2019) "Remittances and Output Growth Volatility in Developing Countries: Does Financial Development Dampen or Magnify the Effects?" Empirical Economics, 56(3), 865-882 [ABS (2018) 2*]
   Number of citations: 8 Journal's Impact Factor:1.02
4) Raheem, I.D. (2018a) "Dollarization: Asymmetry and Breaks"International Review of Applied Economics, 32(5), 697-710 Raheem, [ABS (2018) 1*]
   Number of citations: 1 Journal's Impact Factor: 0.56
5) Raheem, I.D. (2018b) "Inflation rate of 14–16% is fair for the sub-Saharan African dollarization" Journal of Economic and Finance, 42(4), 779-794 [ABDC (2018)
   Number of citations: 0 Journal's Impact Factor: 2.63

6) Ajide, K., Raheem, I.D. and Asongu, S. (2019) "Dollarization and the "Unbundling" of Globalization in sub-Saharan Africa" Research in International Business and Finance,47, 398-409 [ABS (2018) 2*]
Number of citations: 13 Journal's Impact Factor: 1.46

7) Isah, K and Raheem, I.D. (2019) "The Hidden Predictive Power of Cryptocurrencies and QE: Evidence from US Stock Market" Physica A. 536 (121032), 1-10 [ABS (2018) 2*]
Number of citations: 3 Journal's Impact Factor: 2.50

8) Salisu, A. A., Raheem, I.D and Umar, B.N (2019) "A sectoral analysis of asymmetric nexus between oil price and stock returns" International Review of Economics and Finance, 2019, 61(1), 241-259. [ABS (2018) 2*]
Number of citations: 9 Journal's Impact Factor: 1.43

1.3 Context of Published Works

This critical appraisal focuses on two interesting monetary policy objectives: sustainable economic growth[1] and financial stability. On the first policy objective, we acknowledge that there are many sources of economic growth (Sala-i-Martin, 1997). However, we considered capital flows due to its general acceptability in the literature. The second policy objective is ensuring financial stability. Of the several ways this objective could be achieved, this critical appraisal will focus on the accurate predictability of the financial market.

It is hypothesized that countries around world- be it developing, emerging or developed- are interested in both policy objectives. However, the intensity and degree to which these policy objectives are pursued differs along country grouping. In essence, a larger proportion of developing and emerging countries tends to lay more emphasis on stable and continuous economic growth[2]. On the other hand, the developed countries, in addition to economic growth rate, formulate policies that seek to ensure that stability in the financial system is maintained. Hence, the second policy objectives is mainly focused on an advanced economy, the United States of America. This critical appraisal identifies the tension between the two monetary policy objectives, as the first six papers in the portfolio focused on developing countries, while the last two papers based on a developed economy.

[1] The phrase "sustainable economic growth" is a wide concept that has varying meanings and perceptions in different fields of economics. The development/macroeconomics views this concept from the prism of continuous economic growth, while the ecology economics relates this phrase to environmental dynamics. In line the monetary policy objective, this critical appraisal takes a cue from the development/macroeconomics' definition/perception.

[2] Evidences have shown that some developing countries, such as Bolivia and Ecuador, have jettisoned economic growth policies for eco-friendly sustainability. This stance can be linked to the myriad of negative consequences of natural resources, which include environmental pollution, erosion, deforestation, desertification, extinction of species and natural resources depletion, among others. A growing literature has concluded that there is a positive relation between natural resources and climate change (Ghezzo et al., 2018; Peterson and Halofsky, 2018). As such, some resource rich countries prefer to "keep the oil in the soil" and "leave the coal in the hole" in order to conserve the environment. (Hogenboom, 2014; Andrade, 2016). This is a conscious policy decision based on the ecological vision that the traditional economic growth, based on the use of fossil fuels, has negative consequences for sustainability of economy and multiple forms of life- human and non-human (Singh, 2014).

Reconciling the tension, it is assumed that global shocks and innovations in financial development and medium of exchange (e.g. cryptocurrencies) have obvious implications on financial stability and sustainable economic growth in sub-Saharan Africa. The spillover and contagion effects have shown that there is high interconnection among markets (Bekiros, 2014). These effects ease the rate at which events in some countries, especially the developed countries, could spread to other countries (i.e. rest of the world). Therefore, there are lessons the developing countries can learn taking a cue from the developed countries.

Also, repercussions of global shocks and innovations in currencies and stock market development can affect developing countries in a plethora of fronts, inter alia: (a) changes in external flows (aid, FDI, remittances); (b) negative external shocks on oil-exporting developing countries; (c) international policy coordination and funding of sustainable development projects. The poor level of technological innovations and development in the developing countries, with special emphasis on Sub-Sahara African (SSA) countries, makes the usage of cryptocurrency difficult. For instance, access to internet is a major requirement to conduct transactions in cryptocurrency. Asongu and Nwackukwu (2019) showed how the poor level of Information and Communication Technology (ICT) decreases financial activity in 53 SSA countries.

One of the major issues apparent in the post Bretton-Woods system is the high rate of globalization among countries and regions in the world. One of the features of globalization is the ease at which capital flows across the globe (Bluedorn et al. 2013). There are various forms of capital flows, among which are Foreign Direct Investment (FDI), debt, portfolio investment and remittances. These variants of capital flows have different characteristics and consequences, and thus have heterogeneous impacts on the economies of the recipients' countries (Koepke, 2015; Guichard, 2017). This appraisal considers two types of capital flows: remittances and FDI. These two measures have been adjudged to be more beneficial to the recipient economies, as compared to the other types of flows, because they are less volatile and more resilient to socio-economic downturn [examples include poverty alleviation, consumption smoothening and stabilization of current account reversal] and are of higher magnitude in terms of size of the flows (Barajas et al., 2009; Chami et al., 2009; Alguacil et al., 2011; Ebeke and Combes, 2013).

Two main issues have been explored and analyzed in capital flows literature: determinants and benefits of capital flows. The first paper in the portfolio, Ajide and Raheem (2016), examines the extent to which institutions (governance) matter(s) for the inflow of FDI. The second and third paper investigate the ability of remittances to solve some socio-economic problems such as investment volatility and business cycles (Ajide, Adeniyi, and Raheem, 2017 and Adeniyi, Ajide and Raheem, 2019, respectively).

Foreign capital flows have been discovered to be associated with dollarization (Kessy, 2011; Levy-Yeyati and Zuniga, 2016). There is a dearth of studies on issues surrounding dollarization (Corrales et al., 2016). The fourth paper in the portfolio (Raheem, 2018a) examines some inherent characteristics of dollarization, structural breaks and asymmetry, which if present and not accounted for, could lead to bias in results and policy formulation. It has also been argued that dollarization is majorly fueled by inflation (De Nicolo et al., 2003;

Levy-Yeyati, 2006). The fifth article argues that not all levels of inflation are detrimental to the dynamics of dollarization. The article examines the optimal level of inflation that is conducive for dollarization episodes (Raheem, 2018b). Macroeconomic fundamentals have been wholly linked to dollarization episodes. However, there are other non-macro variables that could explain the incidence of dollarization. Hence, the sixth article in the portfolio changes the narration of the literature and thus considers globalization as a formidable candidate capable of enhancing the level of dollarization (Ajide, Raheem and Asongu, 2019).

It is generally understood that economic agents are more interested in the accurate forecast/prediction of scenarios. The ability to make reliable forecasts could help to achieve the financial stability objective of the monetary policies (Bernoth and Pick, 2008). A number of crises (financial, economic recession, foreign exchange) have been caused by the downturn in the financial sector (Claessens and Kose, 2013; Detzer et al., 2014). Two articles (i.e. the seventh and eight published works) demonstrate how to make accurate and reliable in-and out-of-sample forecast for the United States stock market (S&P500). Specifically, the seventh article shows the extent to which cryptocurrencies and Quantitative Easing (QE) predict the stock market (Isah and Raheem, 2019). It would be misleading to infer that economies/markets and agents react in a similar manner to changes in the price level (Pinho and Madaleno, 2016; Trabelsi, 2017; Badeeb and Lean, 2018). The last article examines the role of asymmetry in oil price in the stock market prediction. This article decomposes oil price into positive and negative partial sums and then examines which of the decomposed output is more reliable in the forecast of the stock market (Salisu, Raheem and Ndako, 2019)[3].

1.4 Existing Knowledge

There are various sources of economic growth, prominent among which, are capital inflows (Solow, 1999) and improved levels of institutional infrastructure and governance (Robinson et al. 2005). Thus, countries should formulate policies that seek to improve these factors (Asiedu, 2006). The combination of capital inflows and institutions further enhances economic growth (Alguacil et al., 2011) and solves selected macroeconomic problems such as business cycles disturbances and investment volatility (Ahamada and Coulibaly, 2011; Bluedorn, et al., 2013; Chami et al., 2012; Jihoud, 2015).

There is a dearth of studies on issues surrounding dollarization (Corrales et al., 2016). Most of the available studies have focused on its determinants (De Nicolò et al., 2003; Levy-Yeyati, 2006), implications (Kokenyne et al., 2010), benefit and cost analyses (Sahay and Vegh, 1996) and stylized facts (Kessy, 2011). At best, it could be stated that existing studies on dollarization have mainly focused on the basics and have not captured recent occurrences and dynamics in the global market.

Forecasting stock prices has received enormous attention with more emphasis on the developed economies or regional blocks (Smith and Narayan, 2018). Apparently, there is no consensus as regards the best approach to predict this financial variable. This might be due to the inability to account for: heterogeneity within the financial market (Mollick and Assefa, 2013); nature of shock (Kilian and Park, 2009); and time-variation dynamics (Jammazi and

[3] Positive partial sum decomposition implies the increase in oil price, while negative part sum decomposition is define as the decrease in oil prices.

Aloui, 2010). This might be the reason explaining why studies have not been able to accurately make out-of-sample forecasts (Narayan et al., 2016).

1.5 Research Gaps

In the light of the previous section, there are some gaps that are not considered by the existing literature. The gaps identified here are presented in a chronological order, in line with section 1.2. First, there is a large chunk of studies investigating the dynamics of capital flows, FDI in particular. This section of the literature has two major shortcomings: (i) analyses are mostly conducted in the FDI-growth relations; (ii) studies have mainly used a regional/continental dataset without recourse to sub-regional coverage (Asiedu, 2002; Adeleke, 2014; Ajide et al., 2014). Second, earlier studies have focused mainly on the economic growth prospects of remittances. The growth prospects are obtained either directly or indirectly. In the case of the former, the self-interest motive of remittances helps achieve economic growth. As for the latter, the altruistic motive, which seeks to enhance the quality of living, reducing poverty, would, in the long-run, fuel economic growth (Demirgüç-Kunt et al., 2011; Aggarwal et al., 2011; Ebeke and Combes, 2013). However, these studies tend to have ignored how remittances could ameliorate the negative consequences of: (i) investment volatility and (ii) business cycle, via institutions and financial development, respectively. Expatiating further, studies have ignored the channels through which remittances could ameliorate these socio-economic problems.

Dollarization is a burgeoning issue in the international finance literature but has received less attention in SSA setting. There are some features of dollarization, which make the concept region-specific. These features include, but are not limited to, asymmetry and structural breaks. The inability to account for these features tend to resort to formulation of wrong policy recommendations. It seems the existing studies have not accounted for these features. This might explain why: (i) recent data has defied some theoretical postulations between dollarization and some macroeconomic variables (such as exchange rate and inflation); and (ii) economic variables have performed poorly in dollarization models.

Forecasting financial series has been adequately addressed by previous studies (Sezer et al., 2020). Fang and You (2014) argued that there are some features in some financial series (such as conditional heteroscedasticity, endogeneity and persistence) that have been ignored by existing studies while making forecasts. This literature has also not taken cognisance of recent innovations in the financial markets[4]. For instance, the sudden upsurge in the usage, pricing dynamics and trading activities of cryptocurrencies and the financialization of the commodity market.

[4] Innovation is a huge concept that has no generally agreeable definitions or measures (Blach, 2011). However, a more general concept views innovation as new ideas and/or products, solutions and instruments implemented to change the conditions of business (Dabic et al., 2011). Measures of innovation have been linked to research and development (Tufano, 2003), technological advancement (Frame et al., 2018). In the context of this appraisal, we relate innovation to new product (i.e. the emergence of cryptocurrency) and ideas (decomposition of oil price to positive and negative partial sums). The overall impact of innovation on the economy has been greeted with mixed feelings. On the one hand, studies have shown that innovation enhances business and financial development (Blach, 2011). On the other hand, the 2007/2008 financial crisis has raised issues about the role of innovation on financial stability (ECB, 2008; Beck et al., 2010).

1.6 Proposals on Addressing Research Gaps

This section enumerates how this critical appraisal addresses the identified gaps in the previous section, using the same chronological manner as in section 1.2. Ajide and Raheem (2016) analyze the explanatory power of a non-economic variable (institutions/governance) on FDI inflow to the Economic Community of West African States (ECOWAS) region. The paper proposes a multi-measure of institutions: economic (government effectiveness and regulatory quality), political (voice and accountability and political stability) and institutional (rule of law and control of corruption). Ajide et al., (2017) seek to uncover the causal relationship between remittances and investment volatility via the intermediating role of institutions, while Adeniyi et al., (2019) examine the extent to which the degree of financial development affects the remittances– growth volatility nexus using a dataset for both developing and emerging countries.

Raheem (2018a) considers how countries respond divergently to changes in macroeconomic fundamentals (exchange rate dynamics), an occurrence contrary to theoretical arguments. The study also accounts for multiple structural breaks. The research used a recently developed econometrics model (Nonlinear Autoregressive Distributed Lag, NARDL, hereinafter) to examine the asymmetric relationship between dollarization and exchange rate. Raheem (2018b) inquires whether all levels of inflation enhance episodes of dollarization in SSA. The paper examines the possible existence of a threshold effect and dispels the misconception that inflation, irrespective of its level, fuels dollarization. Ajide, Raheem and Asongu (2019) expand the determinants of dollarization to account for a non-economic variable - globalization. The study decomposes globalization into three measures: economic[5], political and social. This decomposition is due to the narrative that the components of globalization have differing impacts on dollarization.

The objective of Isah and Raheem (2019) and Salisu et al., (2019) is to examine the reliability of the in- and out-of-sample forecasts of the S&P500. Essentially, Isah and Raheem probed the predictive power of Bitcoin on stock returns, while also accounting for the influence of unconventional monetary policy (QE) in the nexus. Whereas, Salisu et al., argued that aggregate oil price performs poorly when predicting US sectoral stock prices, rather, the positive and negative changes (i.e. asymmetric) price should be used.

1.7 Contributions to Knowledge

The objective of this section is to summarize the contributions made by the papers in the portfolio towards expanding the frontiers of knowledge. This summary is presented in a chronological order as set out in the foregoing. Ajide and Raheem (2016) offer a plausible explanation for the dearth of FDI inflow to the ECOWAS region. Alongside this, they show that determinants of FDI are not limited to economic variables. The findings of Ajide, Adeniyi and Raheem (2017) and Adeniyi et al. (2019) show that remittances in the context of improved institutional quality and financial systems help to dampen the negative effects of business cycle and investment volatility, respectively.

[5] The economic component essentially focuses on the proxies of financial liberation and/or capital movements across borders. It does not imply the “pure” economic fundamentals (e.g. interest rate, inflation, exchange rate, among others).

Raheem (2018a) made the following conclusions: (i) there is existence of asymmetry in the dollarization-exchange rate model; (ii) this asymmetry is majorly short-run based; (iii) endogenously accounting for structural breaks extends the prowess of asymmetry to long-run. The results of Raheem (2018b) contradict the theoretical postulation that inflationary episodes are dollarization enhancing. The use of Threshold Auto-regression technique shows that inflation below a certain point does not aggravate the dynamics of dollarization. The key import of the results of Ajide, Raheem and Asongu (2019) is that political and social measures of globalization are important drivers of episodes of the African dollarization. The study further makes plausible explanation for the weak influence of the economic component, which is attributed to the process in which countries handle receipt of foreign currencies and assets.

The models of Isah and Raheem (2019) confirm that Bitcoin has an implicit feature that helps to make predictions more accurate on the United States stock market. The study further shows that unconventional monetary policy plays a significant role in the explanation of the evolution of cryptocurrencies. Salisu et al., (2019) show that the positive oil price shock is able to accurately predict stock returns of the sectors listed in the S&P500.

1.8 Statement of Coherence of Published Works

The papers listed above can be categorized under three themes: capital flows and macroeconomic fundamentals; dollarization and stock market prediction. These papers seek to analyze how to achieve the selected monetary policy objectives of sustainable economic growth and financial stability. These objectives are inter-twined as they are individually driven by similar factors. It is therefore important to assert that there are no general/unique determinants of the listed objectives. The aim of this critical appraisal is to present essays that dwell on these monetary policy objectives, analyze what issues they raise and what contributions they make to the literature and highlighting their observed inter-relationship. Succinctly put, one paper examines the non-economic determinants of FDI; two papers focus on the effect of remittances on macroeconomic fundamentals; three papers dwelled on financial dollarization; and the final two papers focused on stock market predictability, all of them touching on different aspects of the same inter-related concepts of economic growth and financial stability

It has become a norm for countries to formulate policies and create an enabling environment that would ensure the continuous attraction of foreign capital inflows. However, the share of foreign capital flows to developing countries in general, and sub-regions such as ECOWAS in particular, are considered to be meager. This might account for the reason why there are fewer studies on these economies. In addition, it has become a standard practice in the literature to link capital flows to economic growth. These issues have raised a number of concerns, *inter alia,* the need to: (i) conduct sub-regional analysis on capital flows, with the hope to find a plausible explanation for the low share of capital inflow to developing regions (Ajide and Raheem, 2016) and (ii) explore the potentials of capital flows beyond economic growth dynamics. Essentially, capital flows accompanied by some socio-economic fundamentals could help solve the problems of investment volatility (Ajide et al., 2017) and business cycles (Adeniyi et al., 2019).

Among the side effect of capital inflows is its rising level of dollarization. The global interest on dollarization can be dated to the post-2000 era. Thus, the knowledge being offered by the existing literature needs further expansion. An overview of the extant literature has identified three important areas worthy of empirical investigation. First, there are some features of dollarization-asymmetry and structural breaks - that need to be accounted for (Raheem, 2018a). Second, inflation has been found to have a threshold effect on various variables. Raheem (2018b) seeks to address the inquiry of whether the threshold effect of inflation is extendable to dollarization. This exercise becomes important considering the strand of the literature that inflation, irrespective of its level, can enhance dollarization. Third, Ajide et al., (2019) explored whether globalization could explain the incidence of dollarization.

The literature on stock market prediction is quite wide, with each study seeking to advance on the previous ones. To date, there is no generally acceptable approach to make reliable prediction of stock market prices, hence necessitating further research. The two papers selected in this portfolio argue that there are some properties of the predictor that need to be accounted for in order to have reliable forecasts. These properties are conditional heteroscedasticity, persistence and endogeneity. While Isah and Raheem (2019) made a case for cryptocurrency, Salisu et al., (2019) examined the extent to which commodity prices could make accurate forecasts by considering the roles of asymmetry and sectoral analysis.

Following the overview provided in this chapter, the rest of this critical appraisal is structured as follows. Chapter 2 focuses on the critical appraisal of the two main monetary policy objectives (sustainable economic growth and financial stability). Chapter 3 makes some concluding remarks, provides some policy implications, and offers suggestions for future research.

Chapter 2: Critical Appraisal of Policy Objectives of Sustainable Economic Growth and Financial Stability

2.1 Overview

Discussions in this chapter are built around two themes. The first theme dwells on sustainable economic growth. This theme is further divided into two strands. The first sub-section is concerned with the determinants of economic growth, to which emphasis is laid on foreign capital inflows. The second sub-section focuses on one of the detriments of capital flows, in the light of financial dollarization. The second theme provides insights into the financial stability objective of monetary policy. The issues raised here articulate the importance of having accurate prediction of the financial markets. In essence, this appraisal intends to examine the extent to which some financial assets classifications (commodity prices and cryptocurrencies) can predict the stock returns of the United States' financial markets. Discussions on these themes are predicated on the following grounds: (i) theoretical arguments; (ii) gaps and contributions to the literature; (iii) data and methods and (iv) results and policy implications.

2.2 Capital Flows and Socio-Economic Fundamentals

2.2.1 Theoretical arguments

There are various measures of capital flows, which have diverse impacts on selected macroeconomic variables. Hence, there is no unique theory that best explains these measures. However, one of the most compelling theories is attributed to Calvo et al., (1993,1996). In the model set-up, there are two countries (i.e. home and foreign) and factors (i.e. push and pull). The push factors are variables that drive capital from the home country to the recipient economy. These factors are exogenous to the home countries and include variables like higher economic growth rate, interest rate, global money supply, commodity prices, among others. The pull factors are incentives that drive capital to the home countries, from the foreign countries. The home countries' policymakers can easily tweak these factors to achieve some desired objectives. Examples include domestic interest rate, population size, market size, and availability of natural resources to name a few. It is important to note that some forms of capital have specialized and unique theories coupled with their theoretical underpinnings.

This critical appraisal considers two types of flows: FDI and remittances because they: (i) have the highest magnitude in comparison with other types of flows (Chami et al., 2009); and (ii) are resilient to shocks and business cycles (Bugamelli and Paterno, 2011). Starting with FDI, the pioneer theory is the eclectic Ownership, Location and Internationalization (OLI) paradigm framework of Dunning (1977). Essentially, the theory ascribes that there are three main determinants of FDI inflow into a region: Ownership, Location, and Internalization. The ownership advantage dwells on the reason why some multinational companies go abroad, due to some inherent advantages, which make operating costs cheaper in the foreign country. The location argument centres on benefits accruable to the foreign companies, in terms of some advantages the host nation is endowed with such as large market size, national resources, and cheap labour, *inter alia*. The internationalization advantage helps determine the modus operandi of the foreign firm in the host country. This advantage helps the firms decide whether it is best to wholly own the company or pursue a joint venture.

Although there are no standard theories of remittances, there are however two basic canons that explain the motives for sending remittances: the altruistic and self-interest. In the case of the former, immigrants send money back to their home countries in order to support families. Evidence has shown that there is tendency of increased rate of remittances when there are adverse shocks, such as famine, drought, war or disease outbreak in the recipient countries (Chami et al., 2009 and Ebeke and Combes, 2013). The self-interest motive is based on the principle that immigrants send money back home for investment purposes.

2.2.2 Gaps and contributions to the literature

Foreign capital inflows have been widely studied and linked to a variety of socio-economic variables (Koepke, 2015). There are two shortcomings surrounding FDI studies. The first is the inability to consider some important non-economic variables. Second, there is dearth of regional-based studies. The "institutional rule" hypothesis of North (1990) makes institutions/governance a worthy determinant of FDI. The importance of FDI as a means of promoting export for the ECOWAS block calls for the need for regional analyses. Thus, Ajide and Raheem (2016) examine the extent to which institutions determine the level of FDI. Essentially, the paper investigates how economic (government effectiveness and regulatory quality), political (voice and accountability and political stability) and institutional (rule of law and control of corruption) forms of governance affect FDI inflow to the region.

Of the various forms of capital flows, remittances have been adjudged one of the best due to a multitude of corresponding advantages, some of which include: compensating for socio-economic downturn, alleviating poverty, smoothing consumption and stabilizing current account reversal. The stabilizing role of remittances has been extended to business cycle (Ebeke and Combes, 2013). On the flipside, remittances' negative consequences on the recipients' economies include the exertion of inflationary pressure, exchange rate appreciation and lowering labour force participation. In fact, studies have found that remittances could be injurious to the long-term growth trajectories of the recipient countries (Acosta et al., 2009). In addition, there tends to be a high degree of substitutability between domestic and foreign investment in remittances recipients' countries (Hirata et al., 2004). Another strand of the literature had argued that remittances induce income inequality and may exert exacerbating pressures on poverty (Mishra, 2007; Acosta et al., 2008; Wouterse, 2010).

There is the need to upturn the tides of the investment volatility and business cycle resulting from the inflow of remittances. Ajide et al. (2017) focus on investment volatility and explore whether institutional quality could help stabilize the domestic and foreign investment dynamics. Institutional framework is vital in guaranteeing the interests of third parties, thereby ensuring that investors' funds are not expropriated (De Soto 2000 and Rodrik, 2004). Thus, Ajide et al., (2017) hypothesized that an improved institutional framework possesses the requirement and ability to curtail the investment volatility tendencies of remittances.

Adeniyi, Ajide and Raheem (2019) examine two sources of reducing the impact of business cycles: remittances and financial developments. While there is consensus in the literature about the mitigating role of remittances on business cycle (Craigwell et al., 2010), the same cannot be said of financial development, as Ahamanda and Coulibaly (2011) validate a non-linear relationship. Hence, the need for a tripartite relationship, among financial development, remittances and business cycles, becomes appropriate. This method provides a more resilient approach to determining how to reduce business cycles as well as the channel through which the former operates.

2.2.3 Data and methods

The scope of the study is dependent upon the nature of the research questions. For instance, the regional consideration hypothesized by Ajide and Raheem (2016) necessitated building a dataset for a representative regional block, such as the ECOWAS. Hence, the study is limited to 15 countries in the West African region over the period 2000 – 2013.[6] The choice of this timeframe is dictated by data availability, as institutional data, hosted by the World Governance Indicators, has a 1996 start date. In order to avoid missing observations, the study opted for a later date.

Ajide et al. (2017) and Adeniyi et al. (2019) focus on 70 remittance recipient countries, for which data are publicly available. Also, the selected countries are classified to be emerging and developing. The decision not to consider the developed countries is largely to avoid outlier effects and an exaggerated proposed influence of institutions and financial development. It is common knowledge that developed countries have sophisticated financial systems and improved institutional infrastructure.

The three papers under this theme used the same methodology-System Generalized Method of Moments (SGMM). SGMM is reputed for its ability to deal with endogeneity issues resulting from reverse causality, misspecification, measurement errors and omitted variable bias. Almost all economic models/relationships suffer from one or more of the causes of endogeneity. For instance, remittances is plagued with measurement errors. Bettin and Zazzaro (2012) claimed that unofficial remittances accounts for over 30% of the total foreign capital flows. Theoretical postulations have shown that countries that respect property rights will attract and encourage private investments, thus confirming the existence of reverse causality between remittances receipts and institutional quality.

2.2.4 Results and the policy implications

The results of the three papers confirm the hypothesis specified therein. Ajide and Raheem (2016) argued that the meagre share of FDI flows to ECOWAS, in the global flow, is the resultant effects of the dysfunctional institutions. Political instability, social unrest, corruption among other vices play a significant role in repressing inflow into the region. Results show that dichotomizing the sample size into weak and strong institutional qualities reveals that the latter is able to attract more inflows than the former.[7] An obvious policy implication is that

[6] The selected countries are Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo.

[7] The study concurs that the institutional quality of the region is generally poor, especially when compared to other regions in the continent. However, it is also a truism that the level of this decadence is dissimilar across

ECOWAS can chart a new course, in terms of increasing her share of FDI in the global flow, by formulating coordinated policies that will seek to enforce reforms strengthening the institutional frameworks. More emphasis should be placed on the political component by purging it of political bickering and the incessant social unrest.

The findings of Ajide, Adeniyi and Raheem (2017) reveal opposing effects of remittances and institutions on investment volatility. Phrasing it differently, remittances have a dampening effect on the outcome variable while the exact opposite ensues for institutions. However, the interaction between remittances and institutions reduces the incidence of the outcome variables, even beyond what remittances singly achieved. The credible policy message of the results is the need to formulate policies that will ensure continuous inflow of remittances. Arguing further, other sources of capital flows could be explored. If the financial gaps are bridged, it may be the case that investment stability could be achieved. Also, institutional framework needs to be enhanced. It is important to note that policies that seek to promote inflow of foreign capital should go hand-in-hand with policies that aim to improve institutional qualities.

Adeniyi, Ajide and Raheem (2019) show that both remittances and financial development are very important for reducing the negative effect of business cycles. However, the interaction between remittances and financial developments yields mixed results. Hence, the remittances-business cycle nexus is sensitive to the measure of the financial development used. Banking sector credit seems to have a magnifying effect in the nexus. However, private sector credits consistently mitigate business cycle. These results are justified on the grounds that private sector credit is regarded to be more efficient, as public credits are sometimes channelled to unproductive use (Levine et al., 2000; Beck et al., 2000)[8]. Another plausible justification is the profit motives of the private sector, which enhances their desirous level on the usage and allocation of credits, which often times gives no room to wastage. The resulting policy implication/advice is to have a holistic view of the financial system and its dynamics. One option is to design policies that will further enhance the development and deepening of the financial market. The other option is to complement the above by ensuring the stability of the gains realized.

member countries. For instance, Senegal, Ghana, and Benin have institutional qualities that are much higher than the regional average. Tossing the coin, Liberia, Nigeria, Benin, and Guinea are the worst governed countries, in terms of institutional matrices.

[8]This critical appraisal acknowledges the fact that banking sector credit, including those granted to the governments are welfare enhancing, especially if such credit are used for the provision of public goods. However, a section of the literature has confirmed that the ability of government officials to divert some of the funds to private use and/or to corruptly enrich themselves reduces the effectiveness of banking sector (Tanzi, 1995). On the other hand, a huge literature has shown that private sector credit could sometimes be unproductive has it been found to enhance wastage, racketeering, insider dealings and bad news hoarding (Kim and Zhang, 2016; Wei and Kong, 2017; Cao et al., 2019). As such, there is the need for the presence of the public sector to control the activities of the private sector is need. The consequence of this is to correct market manipulation and enhance efficiency in all segments of the economy.

2.3 Dollarization in Sub-Saharan Africa

2.3.1 Succinct Tale of Dollarization: A Global Perspective

Dollarization is a concept whose emergence can be traced to some Latin American countries, such as Ecuador, Panama, Cuba, Bolivia, and Argentina among many others (Rose, 2000). At the turn of the millennium, these countries were experiencing economic and currency crises. In a bid preserve their wealth, economic agents began to use dollar for the purchase of goods and services. In no distant time, these countries gave up their local currency in exchange of US dollars as the legal tender. This phenomenon spread beyond the shores of the Latin America to other regions such as Africa and the Middle East. Interestingly, some countries in the Europe also use high degree of the euro in addition to their national currency. Such instances are referred to as "Euroization" (Rochon and Rossi, 2003). In recent times, countries are increasingly using other currencies, beyond dollar and euro for economic transactions. In fact, Nigeria holds a proportion of her international reverse in the Chinese yuan/RMB (Olayiwola and Fasoye, 2019; Okwurume and Onua, 2019). Also, there is currency swap agreement between China and South Africa. Interestingly, studies are now adopting the phrase "Yuanization" (Green, 2013). The focus of this appraisal is beyond nomenclature or the dominating features of dollarization, euroization or yuanization. For simplicity sake, this study adopts the term "dollarization" to imply the high usage of foreign currencies, not limiting it to the dollar, in the economy. Winkler et al., (2004) have also adopted similar path.

2.3.2 Theoretical arguments

In the literature, four theories have examined the dynamics of dollarization. The theories pertain to (i) price movement and its store of value; (ii) institutional quality; (iii) financial development and (iv) the role of Chinese investment waves in Africa (Sino-Africa Relations). The price movement argument suggests that demand for money is a function of exchange rate and inflation. The globalization waves have led to expanding the concept of money demand beyond local currencies, thus there is the need to account for foreign exchange interventions (Arango and Nadiri, 1981; Bahmani-Oskooee and Techaratanachai, 2001). Ize and Levy-Yeyati (2003) and Levy-Yeyati (2006) expanded on the above by asserting that volatility of both inflation and exchange rate is what drives dollarization. Price movement is also known as the currency substitution view. Another subset theory is the relative rate of return, which shows that investors' profit motive makes them adjust their portfolios to markets with a higher rate of return. Hence, financial dollarization is positively correlated with the interest rate differential between the domestic and foreign market.

The institutional theory is based on the premise that the weak institutions and credibility of government policies in the developing countries make it difficult to cope with adverse economic shocks (Savastano, 1992). Poor rate of enforcement of contracts (Levy-Yeyati, 2006) and the reckless behaviour of the executive branch of government deteriorate the monetary value of the domestic currency and thus fuel increase in the use of foreign currency (Honig, 2005). The financial development view is hinged on the misallocation effect: a scenario that depicts the inability of the domestic banks to properly hedge against risk by matching their liabilities and assets. As such, the bulk of the risk is now transferred to the asset holders. If a significant proportion of the asset is domiciled in foreign currencies, any shock to the forex market poses a risk for the stability of the financial institutions. Hence, dollarization is one of the signs of financial instability (Honohan and Shi, 2002; De Nicole et al., 2003).

A common trend among African countries is the continuous and increasing presence of China in the continent. The globalization wave of China, in Africa in general and SSA in particular, can be attributed to trade and investment initiatives. Statistics reveal that the overall Sino-Africa relations has increased exponentially since 1990 (Babatunde, 2013; Asongu and Aminkeng, 2013). Studies have analysed the merits and demerits of the growing influence of China in Africa (see Asongu, 2016 for literature survey). What is often missing, in terms of disadvantage, is the role of China in the dollarization dynamics of SSA. Hypothetically, the continuous inflow of investments into, and trade with, the region would influence the surge in the circulation of foreign currencies in the economy. As such, there is a positive relationship between dollarization and Chinese investment and trade. This critical appraisal limits the application of the theoretical underpinning of dollarization to the first three theories listed above.

2.3.3 Gaps and contributions to the literature

Dollarization is a new and topical issue in the African economies' context. Dollarization has been argued to be caused by the liberalization policies of countries (Yinusa, 2009; Kessy, 2011; Corrales et al., 2016), macroeconomic instability (Levy-Yeyeti, 2006) and asset diversification (Sharma et al., 2005). The embryonic nature of the African-based dollarization studies might be partly attributed to data issues. As a result, existing studies are mostly interested in understanding the dynamics and operationalization of the dollarization. This might also account for the reason why policy designs tend to follow what is obtainable in other regions. Dollarization is a unique concept that is region-specific, hence the need to account for regional peculiarities. Thus, the generalization of this issue in previous studies is wrong and not tenable.

The differences in the reaction and behaviour of developing countries vis-à-vis developed countries are well documented in the literature (Salvatore, 2001). For instance, dollarization is easily reversible in countries with low levels of inflation, a common characteristic of emerging and developed countries (Kamin and Ericsson, 2003), while persistence of dollarization is observed for developing countries (Winkelried and Castillo, 2010). Raheem (2018a) towed this line of argument by allowing for the role of asymmetry and structural breaks. The main proposition of Raheem (2018a) is that dollarization reacts differently to the levels of exchange rate. Accounting for the role of structural breaks further enhances this asymmetric relationship. This hypothesis is examined under different scenarios: (i) high levels of dollarization and high exchange rate volatility; (ii) high dollarization with low exchange rate volatility; (iii) low dollarization with high exchange rate volatility; and (iv) low dollarization and low exchange rate volatility[9].

[9] There seems to be consensus in the literature as regards what constitutes high dollarization. Studies have concluded that countries with dollarization level exceeding 30% are highly dollarized economies (Corrales et al., 2016; Raheem and Asongu 2018). There is no scientific guidance on the level or value of what high exchange rate volatility is. However, this appraisal adopted an ad-hoc approach and defines high exchange rate volatility as one whose level of variability is in excess of 50 units.

Studies on inflation-dollarization dynamics have assumed a unilateral channel of transmission, thus assuming that inflation, irrespective of its level, fuels dollarization (Brown et al., 2013). However, feedback transmission mechanism has also been reported, thus, suggesting that the initial high inflation that fuels dollarization will self-adjust in the long run (Bahmani-Oskooee and Domaç, 2003). Another section of the literature has argued that a moderate level of inflation is required for the smooth running of the economy (Phiri, 2012; Raheem and Oyinlola, 2015). Raheem (2018b) examined the level of inflation that is required to stabilize dollarization episodes. In other words, the study examines the threshold level of inflation that will avoid a surge or increase in dollarization. The study further examined the consequences of exceeding this optimal level.

The widely documented factors that drive dollarization include inflation, exchange rate dynamics, and financial development, among other macro factors (see the literature survey by De Nicole et al., 2003 and Levy-Yeyati, 2006). There are other factors, beside macro variables that have high explanatory power for dollarization models. Ajide, Raheem and Asongu (2019) explore the potency of globalization, as it involves the movement of goods and services which can be classified to be financial and non-financial. Further, the study decomposes globalization into economic, social and political forms. The increasing importance of the global entertainment industry has enhanced the use of foreign currencies among countries. The same argument holds for information dissemination, as a result of internet services usage (Asongu et al., 2018). Also, the diffusion of government policies involving transactions of Embassies, High Commissions and other foreign missions are conducted in foreign currencies. This being the case, it is expected that the underlying components of globalization will fuel dollarization.

2.3.4 Data and Methods

Dollarization is simply defined as foreign currency deposit as a ratio of broad money supply. The coverage of the three papers in this sub-section is exclusively limited to 21 countries in SSA, due to the following reasons: (i) the region is the most dollarized in the world, (Corrales et al., 2016); and (ii) high level of persistence, exceeding the 0.8 rule of thumb (Asongu et al., 2018). We source these data from the International Financial Statistics (IFS) of the International Monetary Fund (IMF).

What is clearly observed is that different papers used different estimation methodology for various reasons. For instance, Raheem (2018a) is based on NARDL approach proposed by Shin et al., (2014), which decomposes the variables of interest into positive and negative partial sums. Structural break is examined using the Bai and Perron (2003) test for two reasons. First, the test can endogenously detect up to five breaks. Second, the test is computationally easier in comparison to other tests such as the Bayesian vector error correction model. Raheem (2018b) followed the approach of Threshold Auto Regression Model of Hansen (1999) and later modified by Cancer and Hansen (2004). Ajide, Raheem and Asongu (2019) used Tobit regression because dollarization is considered a censored variable. The study further complements the above with instrumental variables in order to account for the endogeneity issue resulting from measurement error, reverse causality and omitted variable bias.

2.3.5 Results and the policy implications

The three dollarization papers in this appraisal's portfolio produced some very interesting results, which further enhanced the understanding of the subject matter. Raheem (2018a) shows that, indeed, asymmetry does matter, and there is the need to account for individual country-specific characteristics. Results of the paper also negate a theoretical argument in the sense that asymmetry was found for countries with the same level of dollarization and exchange rate (i.e. high dollarization and high exchange rate) as is the situation of South Africa and Sierra Leone. However, Ghana, a country with high dollarization and low exchange rate, has a symmetric effect. If the theoretical argument were correct, an asymmetric effect would have been reported in Ghana and a symmetric effect for Sierra Leone and South Africa.

Raheem (2018b) showcases that the optimal level of inflation that will mitigate an increase in the dollarization pressure is between 14-16%. In essence, countries in which levels of inflation do not exceed 16% might avoid unnecessary increase in dollarization. The study further seeks to know what happens when the optimal level of inflation is exceeded. There are two approaches to analyse this issue. The crude approach is to study the data to identify countries with an inflation rate of over 16% and examine the corresponding dollarization level. The scientific approach is to decompose inflation into low- and high-regimes and examine the consequences of each on dollarization. The results of both approaches point to the same direction that exceeding the optimal inflation level has a negative consequence of inducing higher dollarization episodes.

Interestingly, the economic component of the three globalization measures used in Ajide et al., (2019), has been found to have a weak influence on dollarization. More worrisome is the fact that previous studies found that globalization, which is similar to the economic globalization used in Ajide et al., (2019) has positive relationship with dollarization. An explanation of this mystery could be linked to the unofficial channels through which foreign currencies and assets enter the recipient country. Some studies have found that the high cost of foreign currencies transfers has encouraged the unofficial and illicit transfer of foreign assets around the world (Bettin and Zazzaro, 2012). This tend to undersize the effect of dollarization.

2.4 Financial Stability Objective

2.4.1 Theoretical arguments

Asset pricing models seek to provide theoretical explanations on stock markets pricing dynamics. These theories seek to describe how best to model and understand the pricing mechanisms of some financial assets. The most prominent theory is the Capital Asset Pricing Model (CAPM) of Sharpe (1964), and Mossin (1966). The main import of the theory is that return on assets is determined by the product of return on the market portfolio and the covariance between return on the asset and the return on the market portfolio. Succinctly put, the model describes the relationship between systemic risks and expected returns on assets. The model determines whether assets are justly valued after accounting for risks. Among other shortcomings of CAPM is the sole reliance on financial series in modelling asset prices.

In the contemporary era, there have been linkages and spillover effects between the financial series and some macroeconomic fundamentals.

The Arbitrage Pricing Theory (APT) of Ross (1976) aims to address this perceived gap. APT assumes that the return on an asset is a function of the linear relationship between expected returns and some macro fundamentals that measure systematic risks. Thus, the theoretical relationship among stocks, commodity market and cryptocurrency can be situated under APT. The hypothesized correlation between stocks and commodity is based on the assumption that investors are sensitive to both monetary policy tools and macroeconomic news. Thus, the activities surrounding macro variables and monetary tools are the main determinants of financial assets.

2.4.2 Gaps and contributions to the literature

One of the lessons learnt from the 2007/2008 financial crisis is the need to predict the dynamics of financial markets accurately and reliably. In order for this to be possible, certain conditions must be met. The first condition required for a correct predictability is the use of the correct predictors. Next is the need to account for some features of these predictors, when such exist (Fang and You, 2014). A large array of variables has been used as possible predictors (see Dassanayake et al., 2019 for a literature survey). Initial emphasis was based on financial variables. It has thus far been assumed that the dynamics of the financial markets are endogenous and closed to external influences. Another problem with the literature is that it has ignored some recent innovation in the global financial systems. These occurrences have opened up the new realities for the financial markets. For instance, the financialization of the commodity market is an important feature worth noting (Chen and Rogoff, 2003). In essence, some commodities are increasingly and synonymously used as proxies for the traditional financial assets. Interestingly, investors are increasingly diversifying their portfolios to these non-conventional assets. This is just as hedge and speculator managers conduct their transactions using commodities (Cheng and Xiong, 2014; Baker, 2016 and Chari and Christiano, 2017). Hence, there is the need to change the narrative to account for recent norms in the financial markets. Thus, commodities could be considered as viable predictors of financial markets. The second recent occurrence, recorded in the financial market, is the emergence, surge in usage and the market capitalization of the digital markets (Fry and Cheah, 2016; Blau, 2017; and Bariviera, 2017). Just like commodity financialization, the extent to which cryptocurrency matters for predictability of the financial markets is yet to be explored by existing studies.

There are some statistical features, which when present and not accounted for, could alter the accuracy of the predictive models. These features include, among others, conditional heteroscedasticity, asymmetry, structural breaks and heterogeneity (Mollick and Assefa, 2013; Kilian and Park, 2009; Fang and You, 2014). Asymmetry is viewed from the spectrum that stocks react differently to the types of shocks; while heterogeneity is explained in the context that sectors behave independent of others. Surprisingly, previous studies have shied away from addressing these shortcomings in their empirical models. This could, potentially, be attributed to lack of necessary and useful empirical tools.

Isah and Raheem (2019) filled these perceived gaps by modelling the predictive power of the cryptocurrency (Bitcoin). In addition, beyond the conventional bi-variate predictive model, the study controls for the influence of QE. One of the advantages of cryptocurrencies is their potential to ameliorate the inflationary tendencies of QE and their resilience to turbulent financial environments. Salisu, Raheem and Ndako (2019) considered the role of commodity (oil) in forecasting stock prices. The study considered two features exhibited in the series specified in the models: asymmetry and heterogeneity. Asymmetry is considered by decomposing oil prices into positive and negative partial sums. In terms of heterogeneity, the study explored both aggregate and disaggregated stock prices.[10]

2.4.3 Data and methods

Isah and Raheem's (2019) choice of Bitcoin, from the large pool of other cryptocurrencies, is informed by its prominence as the most traded digital currency, with a large market capitalization (Salisu, Isah and Akanni, 2019). The aggregate S&P500 is used as proxy for the financial market. QE is measured using money supply and interest rate differentials. Salisu, Raheem, and Ndako (2019) used oil price as the predictor. Both aggregate and sectoral data are collected for the United States stock markets.

Stock price data is collected from the Bloomberg terminal, while oil price data is sourced from the International Energy Agency databank. The data source for Bitcoin is CoinDesk (https://www.coindesk.com/price). Data for the measures of QE is gotten from the IFS and Federal Reserve Economic Data databank. The analyses of Isah and Raheem (2019) and Salisu, Raheem and Ndako (2019) are based on the Westerlund and Narayan (2012, 2015) model because the model accounts for the inherent features, of the predictors, discussed above. Asymmetry is measured following Shin et al. (2014) partial sums decomposition approach.

2.4.4 Results and the policy implications

Isah and Raheem (2019) confirm that Bitcoin is able to make reliable forecast of stock prices. This accuracy is enhanced with the introduction of QE into the forecasting model. These results are robust across different measures of forecast performances, different sub-sample periods and forecast horizons. The attendant policy implication of this result is that, in addition to the already known policy tools, virtual currencies could be used as hedging tools. Based on the foregoing, there is need to formulate policies that would regulate the cryptocurrency markets, as they are currently unregulated by the monetary authorities. This is to avoid negative spillover effects on other sectors, should the market crash.

Salisu, Raheem and Ndako. (2019) made two major conclusions: (i) decomposition of oil prices into positive and negative partial sums (i.e. accounting for asymmetry) is germane in the predictability of stock prices and (ii) economic agents react more to positive shocks (i.e. positive partial sum). The implication of these results is that financial analysts and investors seeking to maximize returns may need to exploit this behaviour of economic agents in order

[10] The 12 sectors explored in the study are banking, consumer staples, consumer discretion, energy, financial, health, informational and technology, industry, material, real estates, telecommunication and utilities.

to produce a more accurate forecast for the US stock market. In addition, this information will be useful in the computation of hedging weights and hedging ratios for stocks in the presence of oil risk.

Chapter 3. Conclusion

This critical appraisal focuses on published works that examined two monetary policy objectives: sustainable economic growth and financial stability. The first policy objective identifies capital flows as an important source of economic growth and development. The two types of capital flows examined in this study are FDI and remittances. Thereafter, the consequences of capital flows, in the light of dollarization effect, are examined. The second policy objective dwells on how to accurately forecast the stock market, given that previous crises were not captured by the existing forecasting models, which also did not take into consideration the recent occurrences in the financial market.

Ajide and Raheem (2016) examine how institutional, political and economic forms of governance affect FDI inflows into the ECOWAS region. Results show that the weak institutional infrastructure accounts for the low FDI inflows to the region as compared to other regions in the continent. Similarly, Ajide, Adeniyi and Raheem (2017) find that institutional dynamics exacerbate investment volatility of selected remittances recipients' economies. On the flipside, remittances counteract investment volatilities. Ajide, Adeniyi and Raheem (2019) made additional findings as regards the business cycle taming tendencies of remittances. There are two general concluding remarks from this sub-theme: (i) there is the need to improve the institutional dynamics of the countries under investigation; (ii) remittances solve some macroeconomic problems (business cycles and investment volatility). Thus, policies should be designed to enhance the continuous receipt of remittances, a situation partly achievable by setting up policies that would seek to decrease the cost of sending remittances.

Raheem (2018a) introduced two new features into dollarization-exchange rate nexus: asymmetry and structural breaks. Results show the importance of these features in both the short- and long-run. In a bid to reduce dollarization episodes, policymakers should explore other channels beyond inflation, as exchange rate movements seem a plausible avenue to explore. Raheem (2018b) shows that countries where inflation levels are less than 14-16% seem to have low dollarization episodes. A larger proportion of SSA countries meet these criteria, however the region is classified as highly dollarized. Thus, this confirms that inflation has a weak power in explaining the increasing trend of dollarization in SSA countries. Ajide, Raheem and Asongu (2019) expand the determinants of dollarization by focusing on different dimensions of globalization: economic, political and social, while accounting for other control variables. While social and political dimensions of globalization are important, the influence of the economic form is somewhat weak. Succinctly put, previous studies have mainly focused on the economic causes and consequences of dollarization. More importantly, inflation has been identified as the main determinant of dollarization. The three studies in this sub-theme have shown that the influence of inflation and the economic form of globalization is overrated. Thus, it can be concluded that the dollarization episodes in SSA do not reflect the theoretical postulations. As such, policy implementations that aim to reduce the magnitude of dollarization should not necessarily be inferred from the theory. In other words, dollarization in SSA should be analysed differently, based on its unique relationship with some macroeconomic fundamentals.

Isah and Raheem (2019) show that aside from the hedging property of Bitcoin, stock markets could be accurately predicted using this digital currency. Other factors that have helped sustain the evolution of Bitcoin are also important in forecasting stock returns. The policy implication of this study is the need to have the market regulations policies formulated by the monetary authorities in order to avoid any potential spillover effect, should any mishap happen in the market. Salisu, Raheem and Ndako (2019) showed the importance of dichotomizing oil prices into positive and negative changes. Results reveal that stock markets react more to the positive changes compared with the negative partial sum decomposition. Market participants should factor the role of asymmetry in order to enhance hedging effectiveness.

Overall, this critical appraisal, as discussed in the previous sections, has made significant contributions to the literature. However, they do not shy away from acknowledging some attendant shortcomings. The study acknowledges the existence of tension between the two monetary policy objectives mentioned therein. More importantly, the study focuses more on SSA countries. Essentially, this appraisal is unable to link both monetary policy objectives to all the income groups classification of countries (i.e. developing, emerging and developed). This shortcoming is majorly based on two factors. First, limited data availability. Most developing countries are notoriously prominent for unavailability and unreliability of dataset. Existing data on financial series are available in low frequencies. For meaningful analyses and insightful policy implications, models are estimated using high frequency dataset. This is due to the fact that decisions about the financial markets are made instantaneously. The second reason relates to the relevance of the subject matter. The issue of cryptocurrency arose in 2010 and did not get public attention until around 2013. Market participants who carry out transactions using cryptocurrency are based in the developed countries. In addition, studies on cryptocurrency have solely been linked to the developed countries. Hence, the relevance of conducting cryptocurrency analysis, on developing/emerging countries, would be vague. However, developing/emerging countries could take a cue, draw lessons and make inferences from their developed counterparts on their reactions to issues relating to cryptocurrency.

It should be mentioned that another limitation of this appraisal is the inability to pursue the first monetary objective using developed countries' dataset. Studies have shown that there has been renewed interest, since the 1990's, in economic growth among OECD countries (Bassanini and Scarpett, 2001, OECD, 2003). This renewed interest, among other things, arouse as a result of divergence in the economic growth rate of member countries. In an attempt to tame this rising tide of divergence, policymakers have set up policies to ensure the continuous economic growth by focusing on factors that drive long-term economic growth rate. An obvious avenue for future research is to focus on the growth trajectory of developed countries using a more recent dataset. In fact, this exercise becomes timely in the face of the current pandemic bewildering the global economy.

Another limitation relates to the first monetary policy objective of sustainable economic growth. As stated in the introductory chapter, the concept "sustainable" economic growth relates to continuous economic growth, without recourse to the ecological concept. Studies have shown that ensuring continuous economic growth is not compatible with maintaining ecological stability (Davidson, 2000). Singh (2014) provided a detail commentary on competing theories of development. One of the theories discussed is related to poverty and the ecosystem, coined the "green economic thought". This new thought views the economy as an interaction between the orthodox belief (i.e. money) and mater (i.e. nature or the ecosystem). The main theme of the thought is to examine the consequences of human activities on the environment. There is a dilemma among the "green economists". While the deep green economists advocate for zero growth in order to preserve the nature, the moderate green economists prefer some level of growth, which will minimally impair the nature. In a related paper, Singh and Bhusal (2014) argued that during periods of crises and uncertainties, government intervene to boost the economy, by formulating policies that seek to raise aggregate demand. The act of raising consumption level will feed into upsetting the ecosystem. Future studies should incorporate the influence of ecological dimension of sustainability as the current theme in the world has been advocating against global warming and climate change.

In what follows, we now identify the shortcomings of the individual papers and give suggestions on how future studies could expand the frontier of knowledge. Ajide and Raheem (2016) is limited in terms of the proxies of institutions adopted. The world governance indicators have been criticized for their perception-based approach of measurement. It has been argued that some features such as media and omitted variable biases could influence the perception of good or bad governance. The time in-varying nature of the data is a problem that cannot be over looked. The diversity of the data sources also suggests that more recent data should be construed as improvement of previous mistakes and shortcomings. Another important shortcoming of this paper is its inability to account for heterogeneity in the dataset. For instance, pooling Nigeria and Togo could be empirically invalid, as these countries have major differences in economic composition, FDI inflows and the level of institutional dysfunction. These differences could impinge the true causal linkage among variables in the model. Meanwhile, there are three avenues for future research: (i) using alternative measures of governance; (ii) employing some econometrics tools such as pool mean group that has the feature to tackle cross-sectional dependence and inherent heterogeneity that might be present in the data and (iii) replicating similar analyses for other sub-regions in the continent, in order to ascertain whether the conclusion reached can withstand change of dataset scrutiny.

Ajide, Adeniyi and Raheem (2017) and Adeniyi, Ajide and Raheem (2019) pursue similar research questions. Hence, both studies have three similar shortcomings, unless stated otherwise. First, these articles solely relied on remittances, as against other forms of foreign capital inflows. It could be the case that these other forms of capital inflows could solve the problems identified more effectively than remittances. Second, both articles also failed to account for region-specific characteristics. It is evident that regions are heterogeneously prone to some exogenous shocks (natural disaster, famine and drought). The inability to account for this could lead to bias in the results. Third, recent empirical studies have shown that the influence of remittances on macroeconomic indicators could be non-linear.

There are two peculiar shortcomings to Adeniyi, Ajide and Raheem (2019). First is the restriction of the measures of financial developments to money market. Probing further, the study only used two measures, which are classified as market depth, thus ignoring other financial markets classifications such as access, stability and efficiency. In fact, some studies have shown that financial market depth may not be the best measure (Raheem, 2016). Second, the study was unable to adequately justify the impressive performance of the private sector credit. This issue becomes important given the fact that a section of the literature has highlighted some of the negative consequences of this form of finance. Hence, the conclusion reached on private sector credit should be interpreted with caution and could be considered to be explorative in nature. Future studies could revisit the Adeniyi et al. (2019) by exploring the channels through which public sector could efficiently check the excessiveness or shortcomings of the private sector and its implication on the economy.

Future studies could improve on these identified gaps in the following suggested ways. First, other proxies for financial integration (e.g. foreign aid, portfolio, debt and equity investments) could be considered. We acknowledge that studies have extensively worked on the effect of these types of capital flows on selected macro variables. However, no such studies have followed our approach by investigating the trilogy among macro variables, other types of foreign capital flows and institutions. Second, there is the urgent need to conduct region-specific analyses. This will reveal if the results we have presented stand the test of changes in scope and data. In addition, innovations in the econometrics have helped develop tools that could salvage problems posed by non-linearity among variables. Recently, the World Bank launched a dataset for the four classifications of financial development. Future studies could make judicious use of this rich dataset. This is in addition to the fact that other financial markets, beyond the money markets should be reconnoitred. Future studies could revisit the Adeniyi et al. (2019) by exploring the channels through which public sector could efficiently check the excessiveness or shortcomings of the private sector and its implication on the economy.

The three papers in the dollarization sub-theme are based on the same dataset. The literature has identified two types of dollarization: deposit and loan. Research has shown that these types of dollarization are dissimilar and react differently to fundamentals and policy options. However, this claim cannot be verified due to data restrictions, hence the three papers in this portfolio are limited to deposit dollarization. Another limitation is the inability of the papers to offer plausible explanation as to the reasons why dollarization in SSA is able to defy theoretical reasoning. Furthermore, the three papers were silent on whether this defiance is also apparent in other regions with high levels of dollarization.

Reflecting on these perceived shortcomings, future studies could focus on: (i) using loan dollarization; (ii) proposing possible channels/reasons that clarify the defiance of theoretical underpinnings; and (iii) replicating the empirical exercise for other regions. Latin America promises to be an interesting target of focus as the region is largely similar to SSA, in terms of dollarization episodes, and socio-economic fundamentals. This will help proffer answers to the inquiry on whether the defiance is an "African phenomenon".

The two papers in the last theme of this critical appraisal are unique because they use recent methodology and predictors. The burgeoning of digital currency is well acknowledged in the literature. There are over a dozen of digital currencies, each with its own unique feature, thus making a general description of these currencies very difficult. One of the main shortcomings of Isah and Raheem (2019) is the use of a single digital currency. Hence, the results cannot be generalized to other forms of the digital currencies. As such, this research could be seen to be at the exploratory stage, hence there are numerous avenues for future research. Salisu, Raheem and Ndako (2019) argued for the importance of energy commodity in the predictability of stock markets. Market stakeholders can build their portfolio to reflect the presence of other commodities, other than oil. Thus, it is possible that other commodities possess more predictability information on stock price than oil price. A common shortcoming between the two papers is the scope of the study- the United States stock market. The predictors used in both papers are commonly traded around the globe. For instance, a strand of the literature has shown that digital currency is increasingly being traded in the emerging markets. Future studies could replicate these analyses in the following ways: (i) use other measures of digital currency; (ii) emphasis could be extended to non-oil commodities; and (iii) stock market, beyond that of the United States could be explored.

References

OECD (2003) The Sources of Economic Growth in OECD Countries, OECD Publishing, Paris, https://doi.org/10.1787/9789264199460-en.

Acosta, P., Calderon, C., Fajnzylber, P., and Lopez, H. (2008) "What is the Impact of International Remittances on Poverty and Inequality In Latin America?" *World Development*, 36(1), 89–114.

Acosta, P.A., Lartey, E.K.K., and Mandelman, F.S. (2009) "Remittances and the Dutch Disease". *Journal of International Economics*, 79,102–116.

Adeleke, I. A. (2014) "FDI-growth nexus in Africa: Does governance matter?" *Journal of Economic Development*, 393, 111–134.

Aggarwal, R., Demirgüç-Kunt, A. and Martinezpreria, M. S. (2011) "Do Remittances Promote Financial Development?" *Journal of Development Economics*, 96, 255-264.

Ahamada I, Coulibaly D (2011) "How Does Financial Development Influence the Impact of Remittances on Growth Volatility?" *Economic Modelling*, 28, 2748–2760.

Ajide, K., Adeniyi, O., and Raheem, I. (2014) "Does Governance Impact on the Foreign Direct Investment–Growth Nexus in Sub-Saharan Africa?" *Zagreb International Review of Economics and Business*, 17(2), 71–81.

Alguacil, M., Cuadros, A., and Orts, V. (2011) "Inward FDI and Growth: The Role Of Macroeconomic and Institutional Environment", *Journal of Policy Modeling*, 33(3), 481-496.

Andrade, P.A. (2016) "The Government of Nature: Post-Neoliberal Environmental Governance in Bolivia and Ecuador" in De Castro, F., Hogenboom, B. and Baud, M. (Eds.), Environmental Governance in Latin America, Palgrave-Macmillan (2016), 113-136.

Arango, S., and Nadiri, M., (1981). "Demand for Money in Open Economies" *Journal of Monetary Economics*, 7(1), 69–83.

Asiedu, E. (2002) "On the Determinants of Foreign Direct Investment to Developing Countries: Is Africa Different?" *World Development*, 30(1), 107–119.

Asiedu, E. (2006) "Foreign Direct Investment in Africa: The Role of Natural Resources, Market Size, Institutions and Political Stability". *The World Economy*, 29(1), 63–77.

Asongu, S. and Aminkeng. G. (2013) "The Economic Consequences of China-Africa Relations: Debunking Myths in the Debate." *Journal of Chinese Economic and Business Studies,* 11(4): 261-277.

Asongu, S.A. (2016) "Sino-African Relations: A Review and Reconciliation of Dominant Schools of Thought", *Politics and Policy*, 44(2), 351-383.

Asongu, S.A., and Nwackukwu, J. (2019) "ICT, Financial Sector Development and Financial Access" *Journal of the Knowledge Economy,*10, 465–490.

Asongu, S.A., Raheem, I.D., and Tchamyou, V.S. (2018) "Information Asymmetry and Financial Dollarization in Sub-Saharan Africa" *African Journal of Economic and Management Studies*, 9(2), 231-249.

Babatunde, M.A (2013). "Sino-Africa Investment Relations: The Good, the Bad and the Ugly", *Asia Pacific and Globalisation Review,* 3(1): 1-23.

Badeeb, R. A., and Lean, H. H. (2018) "Asymmetric Impact of Oil Price on Islamic Sectoral Stocks". *Energy Economics*, 71, 128–139.

Bahmani-Oskooee M, and Domaç I (2003) "On the Link Between Dollarization and Inflation: Evidence From Turkey" *Computational Economic Studies*, 45(3), 306–328.

Bahmani-Oskooee, M. and Techaratanachai, A., (2001). "Currency Substitution in Thailand" *Journal of Policy Modeling*, 23(2), 141-145.
Bai, J., and Perron, P. (2003) “Critical Values for Multiple Structural Change Tests.” *Econometrics Journal*, 6, 72–78.
Baker, S. D. (2016) “The Financialization of Storable Commodities” University of Virginia, Charlottesville.
Peterson, D.L., and Halofsky, J.E. (2018) “Adapting to the Effects of Climate Change on Natural Resources in the Blue Mountains, USA”, *Climate Service*s, 10, 63-71
Barajas, A., Chami, R., Fullenkamp, C., Gapen, M. and Montiel, P. (2009) “Do Workers’ Remittances Promote Economic Growth?” IMF Working Paper IMF/WP/09/153. Washington, D.C.
Ghezzo, M., Pellixxato, M., De-Pascalis, F., Silvesteri, S., Umgiesser, G. (2018) “Natural Resources and Climate Change: A Study of the Potential Impact on Manila Clam in the Venice Lagoon”, Science of the Total Environment, 645, 419-430
Bariviera, A., Basgall, M., Hasperue, W., and Naiouf, M. (2017) “Some Stylized Facts of the Bitcoin Market”, *Physica A,* 484, 82–90.
BassaniniA, and Scarpett, S. (2001) “The Driving Forces of Economic Growth: Panel Data Evidence for the OECD Countries” OECD Economic Studies, 33(2), 9-56
Beck, T. H. L., Coyle, D., Dewatripont, M., Freixas, X., and Seabright, P. (2010). Bailing out the Banks: Reconciling Stability and Competition. (CEPR Report). CEPR.
Beck, T., Levine, R., and Loayza, N. (2000) “Finance and the Sources of Growth”. *Journal of Financial Economics*, 58(1):261–300
Bekiros, S.D. (2014) “Contagion, Decoupling and the Spillover Effects of the US Financial Crisis: Evidence from the BRIC Markets”, *International Review of Financial Analysis*, 33, 58-69.
Bernorth, K., and Pick, A., (2008) “Forecasting the Fragility of the Banking and Insurance Sectors”, *Journal of Banking and Finance*, 35(4), 807-818.
Bettin, G., and Zazzaro, A. (2012) “Remittances and Financial Development: Substitutes or Complements in Economic Growth?” *Bulletin of Economic Research*, 64(4), 509–536.
Błach, J. (2011) “Financial Innovations and their Role in the Modern Financial System – Identification And Systematization Of The Problem”, *Finance Internet Quarterly*, 7(3):13–26.
Blau, B. (2017) “Price Dynamics and Speculative Trading in Bitcoin”, *Research in International Business and Finance,* 41, 493–499.
Bluedorn, J., Duttagupta, R., Guajardo, J., and Topalova, P. (2013) “Capital Flows are Fickle: Anytime, Anywhere”. IMF Working Paper Series No WP/13/183. Washington DC.
Brown, M., De Haas, R., and Sokolov, V. (2013) “Regional Inflation and Financial Dollarization”, EBRD working paper 163. London.
Bugamelli, M., and Paterno, F. (2011). “Output Growth Volatility and Remittances”. *Economica*, 78,480-500.
Calvo, G., Izquierdo, A., Reinhart, C. (1996) “Inflows of Capital to Developing Countries in the 1990s”, *The Journal of Economic Perspectives*, 10(2), 123–139.

Calvo, G., Leiderman, L., and Reinhart, C. (1993) "Capital Inflows and Real Exchange Rate Appreciation in Latin America: The Role of External Factors" *IMF Staff Papers,* 40(1), 108–151.

Caner, M., Hansen, B.E., (2004) "Instrumental Variable Estimation of a Threshold Model", *Econometric Theory,* 20(5), 813–843.

Chami R, Hakura D.S., Montiel, P.J. (2012) "Do Worker Remittances Reduce Output Volatility in Developing Countries?", *Journal of Global Development,* 3(1), 1–23

Chami, R., Hakura, D., and Montiel, P. (2009) "Remittances: An Automatic Output Stabilizer?". IMF Working Paper 09/91. Washington D.C.

Chari, V.V., and Christiano, L. J. (2017) "Financialization in Commodity Markets" NBER Working Paper No. 23766, Massachusetts.

Chen, Y.C., and Rogoff, K., (2003). "Commodity-Currencies", *Journal of International Economics*, 60, 133–160.

Cheng, I. H. and Xiong, W. (2014) "The Financialization of Commodity Markets", *Annual Review of Financial Economics,* 6, 419-441.

Claessens, S. and Kose, M.A. (2013) "Financial Crises: Explanations, Types, and Implications" IMF Working Paper Series No WP/13/28. Washington DC.

Corrales J-S, Imam, P.A., Weber, S., Yehoue, E. (2016) "Dollarization in sub-Saharan Africa". *Journal of African Economies,* 25(1), 28– 54.

Craigwell, R., Jackman, M., Moore, W. (2010) "Economic Volatility and Remittances", *International Journal of Development Issues,* 9(1),25–42.

Dabic, M., Cvijanovic, V., Gonzalez-Loureiro, M. (2011). "Keynesian, Post-Keynesian Versus Schumpeterian, Neo-Schumpeterian. An Integrated Approach to the Innovation Theory", *Management Decision*, 49(2), 195-207.

Dassanayake, W., Jayawardena, C., Ardekani. I., and Sharifzadeh, H. (2019). "Models Applied in Stock Market Prediction: A Literature Survey" United Press Occasional and Discussion Papers Series (2019:1). Retrieved from http://www.unitec.ac.nz/ epress.

Davidson, C. (2000) "Economic Growth and the Environment: Alternatives to the Limits Paradigm", *BioScience*, 50,433–440.

De Nicolò, G., Honohan, P., Ize, A., (2003). "Dollarization of the Banking system: Good or Bad?" IMF Working Paper 03/146. International Monetary Fund, Washington DC.

De Soto, H. (2000). The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else. New York: Basic Book

Demirgüç-Kunt, A., Cordova, E.L., Prepia, M.S.M,. and Woodruff, C. (2011) "Remittances and Banking Sector Breadth and Depth: Evidence From Mexico", *Journal of Development Economics*, 95, 229-241.

Cao, P., Qin, L., and Zhu, H. "Local Corruption and Stock Price Crash Risk: Evidence from China" *International Review of Economics and Finance,* 63, 240–252

Detzer, D., Creel, J., Labondance, F., Levasseur, S., Shabani, M., Toporowski, J., Tyson, J., Consilandi, C., Gabbi, G., Matthias, M., Carrasco, C.A., Peinado, O., and Gonzalez, C.A.R. (2014) "Financial Systems in Financial Crisis — An analysis of banking systems in the EU" *Intereconomics*, 49, 56–87.

Dunning, J.H. (1977). “Trade, Location of Economic Activity and the MNE: A Search for an Eclectic Approach.” In Bertil Ohlin, Per-Ove Hesselborn, and Per Magnus Wijkman, The International Allocation of Economic Activity. London: Macmillan.

Ebeke, C. and Combes, J.-L. (2013). “Do Remittances Dampen the Effect of Natural Disasters on Output Growth Volatility in Developing Countries?”, *Applied Economics*, 45, 2241-2254.

ECB (2008) “Enhancing EU Arrangement for Financial Stability” Speech by Jean-Claude Trichet at the session "European Financial Supervision, Crisis Management on Financial Markets" European Parliament, Brussels, 23 January 2008. Accessed on February 28, 2020. Available at https://www.ecb.europa.eu/press/key/date/2008/html/sp080123.en.html

Fang, C. R., and You, S. Y. (2014). “The Impact of Oil Price Shocks on the Large Emerging Countries' Stock Prices: Evidence From China, India and Russia”. Intern*ational Review of Economics and Finance*, 29, 330–338.

Wei, F. and Kong, Y (2017) “Corruption, Financial Development and Capital Structure: Evidence From China”, *China Finance Review International*, 7(3), 295-322

Kim, J.B. and Zhang, L. (2016) “Accounting conservatism and Stock Price Crash Risk: Firm-Level Evidence”, Contemporary Accounting Research, 33(1), 412-441

Frame, W.S., Wall, L., and White, L.J. (2018) “Technological Change and Financial Innovation in Banking: Some Implications for Fintech” Federal Reserve Bank of atlanta Working Paper Series No. 11.

Fry, J., Cheah,E.-T. (2016) “Negative Bubbles and Shocks in Cryptocurrency Markets”, *International Review of Financial Analysis*. 47, 343–352.

Green, C. (2013) “Marketization and Yuanization: Economic Changes in the DPRK,” Yonsei Journal of International Studies, 5(1)111-118

Guichard, S. (2017) “Findings of the Recent Literature on International Capital Flows: Implications and Suggestions for Further Research” OECD Economics Department Working Paper No 1410. Paris.

Hansen, B.E., (1999) “Threshold Effects in Non-Dynamic Panels: Estimation, Testing, and Inference”, *Journal of Econometrics*, 93(2), 345–368.

Hirata, H., Kim, S.H., and Kose, M. A. (2004). “Integration and Fluctuations: The Case of MENA”, *Emerging Markets Finance and Trade*, 40, 48-67.

Hogenboom, B. (2014) “South American Minerals at the Crossroads of Global Markets, National Politics, and Local Needs”, in F. de Castro, P. van Dijck and B. Hogenboom (eds), The Extraction and Conservation of Natural Resources in South America. Recent Trends and Challenges. Cuaderno Series 27 (Amsterdam: CEDLA), 1–22

Honig, A., (2005). “Fear of Floating and Domestic Liability Dollarization”, *Emerging Market Review*, 6(3), 289–307.

Honohan, P., and Shi, A., (2002). Deposit Dollarization and the Financial Sector in Emerging Economies. In: World Bank Policy Research Working Paper, No. 2748. Washington DC.

Ize, A., and Levy-Yeyati, E. (2003) “Financial dollarization,” *Journal of International Economics*, 59(2), 323–347.

Jammazi, R. and Aloui, C. (2010) “Wavelet Decomposition and Regime Shifts: Assessing the Effects of Crude Oil Shocks on Stock Market Returns”, *Energy Policy*, 38(3), 1415-1435.

Jihoud A (2015) “Remittances and Macroeconomic Volatility in African Countries”. IMF Working Paper WP/15/49. Washington DC.

Kamin, S. B., and Ericsson N. R. (2003). “Dollarization in Post-Hyperinflationary Argentina.”, *Journal of International Money and Finance,* 22 (2), 185–211.

Kessy, P. (2011) “Dollarization in Tanzania: Empirical Evidence and Cross-Country Experience” International Growth Centre Working Paper11/0251 International Monetary Fund, Washington DC.

Kilian, L., and Park, C. (2009). “The Impact of Oil Price Shocks on the U.S. Stock Market”, *International Economic Review*, 50, 1267–1287.

Koepke, R. (2015) “What Drives Capital Flows to Emerging Markets? A Survey of Empirical Literature.” IIF Working Paper. Institute of International Finance, Washington, DC.

Kokenyne A., Ley J., and Veyrune R. (2010) ‘Dedollarization’, IMF Working Papers No. 188. Washington, D.C.

Levine, R., Loayza, N., and Beck, T. (2000) “Financial Intermediation and Growth: Causality and Causes”, *Journal of Monetary Economics*, 46, 31–77.

Levy-Yeyati, E. (2006) “Financial Dollarization: Evaluating the Consequences”, *Economic Policy*, 21(45), 61-118.

Levy-Yeyati, E. and Zuniga, J. (2016) “Varieties of Capital Flows: What do we know?” Inter-American Development Bank Discussion Paper No IDB-DP-425. New York.

Mishra, P. (2007) “Emigration and Wages in Source Countries: Evidence from Mexico”, *Journal of Development Economics*, 82, 180–199.

Mollick, A.V. and Assefa, T.B. (2013) “U.S. Stock Returns and Oil Prices: The Tale from Daily Data and the 2008–2009 Financial Crisis” *Energy Economics*, 36(1) 1-18.

Mossin, J. (1966). “Equilibrium in a Capital Asset Market”, *Econometrica,* 35, 768–783.

Narayan, P.S. Phan, H.B., Sharma, S. and Westerlund, J. (2016) “Are Islamic Stock Returns Predictable? A Global Perspective” *Pacific-Basin Finance Journal*, 40, 210-223.

North, D. C. (1990). Institutions, institutional change and economic performance. Cambridge: Cambridge University Press.

Okwurume, C.N. and Onuoha, B.C. (2019). “Currency Swap and Competitive Advantage: A Case Study of Nigeria and China”, *International Journal of Advanced Academic Research,* 5(3), 33-45.

Olayiwola, A.S., and Fasoye, K. (2019) “Does China’s Currency Swap Agreements have Impact on the U.S dollar’s Exchange Rate in Nigeria?”, *Global Journal of Human-Social Science*, 19(3), 31-38.

Phiri A (2012) “Threshold Effects and Inflation Persistence in South Africa”, *Journal of Finance and Economic Policy,* 4(3), 247–269.

Pinho, C., and Madaleno, M. (2016). “Oil prices and Stock Returns: Nonlinear Links across Sectors”. *Portuguese Economic Journal*, 15, 79–97.

Raheem, I.D. (2016) “‘More Finance’ or ‘Better Finance’ in Output Growth Literature: Evidence from a Global Perspective “, *Journal of International Economic Studies*, 30(1), 61-68.

Raheem, I.D. and Asongu, S.A. (2018) “Extending the Determinants of Dollarization in Sub-Saharan Africa: The Role of Easy Access to Foreign Exchange Earnings”, Research in International Business and Finance, 45, 106-120.

Raheem, I.D., Oyinlola, M.A. (2015) “Financial Development, Inflation and Growth in Selected West African Countries”, *International Journal of Sustainable Economies*, 7(2), 91–99.

Robinson, J. Acemoglu, A.D., and Johnson, S. (2005). Institutions as a Fundamental Cause of Long-Run Growth. Handbook of Economic Growth 1A: 386-472.

Rochon, L. and Rossi, S. (2003) “Dollarization Out, Euroization In”, *International Journal of Political Economy*, 33(1), 21-41.

Rodrik, D. (2004). Getting Institutions Right: Institutions and Economic Performance(Forum). CESifo DICE Report: Journal for Institutional Comparisons; The international platform of Ludwig-Maximilians University’s Center for. Economic Studies and the Ifo Institute, 2(2): 10-15

Rose, A.K. 2000. "One Money, One Market: The Effect of Common Currencies on Trade", *Economic Policy*, 15(30), 9-45.

Ross, S.A. (1976). “The Arbitrage Theory of Capital Asset Pricing”, *Journal of Economic Theory,* 13, 341–360.

Sahay, R., Vegh, C.A., (1996) Dollarization in transition economies: evidence and policy implications. In: Mizen, Pentecost (Eds.), The Macroeconomics of International Currencies: Theory, Policy, and Evidence, UK: Cheltenham.

Sala-i-Martin, X., (1997) "I Just Ran Two Million Regressions”, *American Economic Review, American Economic Association*, 87(2), 178-183.

Salisu, A.A., Isah, K., Akanni, L. (2019) “Improving the Predictability of Stock Returns With Bitcoin Prices”, *North American Journal of Economics and Finance,* 48, 857–867.

Salvatore, D. (2001). “Which Countries in the Americas Should Dollarize?” *Journal of Policy Modelling*, 23(3), 347–355.

Savastano, M.A., (1992) “The Pattern of Currency Substitution in Latin America: An Overview?”, *Revista de Analisis Economico*, 71(1), 29–72.

Sezer, O.B., Gudelek, M.U., and Ozbayogi, A.M. (2020) “Financial Time Series Forecasting with Deep Learning: A Systematic Literature Review: 2005–2019” *Applied Soft Computing Journal*. https://doi.org/10.1016/j.asoc.2020.106181.

Sharma, S.C., Kandil, M., and Chaisrisawatsuk, S. (2005) “Currency Substitution in Asian Countries”, *Journal of Asian Economies*, 16(3), 489-532.

Sharpe, W.F. (1964) “Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk”, *Journal of Finance*, 19, 425–42.

Shin, Y., Yu, B., and Greenwood-Nimmo, M. (2014). In W. C. Horrace (Ed.), Modelling asymmetric cointegration and dynamic multipliers in an ARDL framework.

Singh, P. (2014) “The Competing Theories of Development and Underdevelopment: A Critical Evaluation from an Eco-Socialist Perspective” *LIMES Plus*, 11(3), 117-146.

Singh, P. and Bhusal, L.N. (2014), “Austerity, Welfare and Eco-Socialism with Special Reference to the UK”, *Economic and Political Weekly*, 49(39):111-118.

Smith, R. and Nanrayan, P.K. (2018) “What Do We Know About Oil Prices and Stock Returns?”, *International Review of Financial Analysis*, 57, 148-156.

Solow, R.W. (1999) Chapter 9 Neoclassical growth theory. Handbook of Macroeconomics Volume 1, Part A, 637-66.

Tanzi, V. (1995), “Corruption: Arm’s-length Relationships and Markets” In Fiorentini, G. and Peltzman, S., editors, The economics of organized crime, Chapter 7. Cambridge University Press, 161–80

Trabelsi, N. (2017). “Asymmetric Tail Dependence between Oil Price Shocks and Sectors of Saudi Arabia System”, *Journal of Economics Asymmetry*, 16, 26–41.

Tufano, P. (2003). Financial Innovation, in Handbook of the Economics of Finance: Volume 1A Corporate Finance. G.M. Constantinides, M. Harris, and R. Stulz, eds. Amsterdam: North Holland, 307-335.

Westerlund, J., and Narayan, P.K. (2012) “Does the Choice of Estimator Matter When Forecasting Returns?”, *Journal of Banking and Finance*, 36, 2632–2640.

Westerlund, J., and Narayan, P.K. (2015), “Testing for Predictability in Conditionally Hetoroscedasticity Stock Returns”, *Journal of Financial Economics*, 13(2), 342–375.

Winkelried, D., and Castillo, P. (2010). “Dollarization Persistence and Individual Heterogeneity.” *Journal of International Money and Finance,* 29 (3), 1596–1618.

Winkler, A., Mazzaferro, F., Nerlich, C., and Thimann, C. (2004) “Official Dollarisation/Euroisation: Motives, Features and Policy Implications of Current Cases” European Central Bank Occasional Paper Series No. 11. Frankfurt, Germany.

Wouterse, F. (2010) “Remittances, Poverty, Inequality and Welfare: Evidence From the Central Plateau of Burkina Faso”, *Journal of Development Studies,* 46(4), 771–789.

Yinusa, D. O (2009) “Macroeconomic Fluctuations and Deposit Dollarization in Sub-Saharan Africa: Evidence from Panel Data”. MPRA paper No 16259. Munich.

Appendix A

Contributions of the candidate

Conceptualization of Ideas

This involves thinking of what needs to be done, the design of relevant research question(s), the aims and objectives of the study as well as contribution to the literature. In some cases, there might be additional tasks such as determining a suitable dataset and estimation technique.

Literature Review

The starting point of this role dwells on evaluating related studies (theoretical and empirical). It should be noted that not all related studies are relevant. As such, attempts are made to highlight and document the relevant studies. This highlight should show the present state of the literature.

Estimation and Result Interpretations

There are three tasks involved in this section. First, there is need to identify the required data and source the data from relevant databanks. Second, it is imperative to determine the most suitable statistical tools to be used. Finally, upon estimation/analysis, the results will be explained in non-technical terms for easy understanding.

Conclusion

This gives a snapshot of the objective of the study, a summary of the results and corresponding policy implications. In some cases, this section provides future research directions.

Score allocation

I would like to enumerate my contributions to the list above based on the role assigned and/or played.

Sole Author

I am the sole author of two articles (Papers 4 and 5). Thus, I did the conceptualization of ideas, literature review, empirical analysis, results interpretations and conclusion. Hence, these papers are 100% credited to my effort.

Co-authorship

- Conceptualization of ideas, literature review and conclusion (50%)

The article numbers 1 and 7 are relevant for this category. I claim 50% credit for these articles.

- Literature review, result interpretation and conclusion (40%)

The article number 8 falls under this category. I claim 40% credit for this article.

- Analysis, result interpretation and conclusion (40%)

The article number 6 is related to this category. I claim 40% credit for this article.

- Literature review, Analysis, result interpretation and conclusion (40%)

The article numbers 2 and 3 are related to this category. I claim 40% credit for these articles.

Appendix B
Letters from my Co-authors

DEPARTMENT OF ECONOMICS
FACULTY OF SOCIAL SCIENCES
UNIVERSITY OF LAGOS, AKOKA, YABA, LAGOS, NIGERIA

Mobile: +2348023538215
Unilag Tel: +234 1 545 4891-3, 4938637-9 Ext.: 1280/1268
E-mail: hodeconomics@unilag.edu.ng
rdauda@unilag.edu.ng, rissydauda@yahoo.com
Website: www.unilag.edu.ng

Professor Risikat Oladoyin S. Dauda
M.Sc. (Hons.), Ph.D. (Kharkov), PGDE (Lagos)
Head of Department

January 15, 2020

Dear Mr Raheem,

In response to your request and email dated 15th January 2020, I write this email to you. We have co-authored some published articles to which your contributions span various aspects. Below, I have highlighted your contributions and awarded you credits:

Title	Publication Details	Ibrahim's contributions	Credit ratings (%)
Institutions-FDI Nexus in ECOWAS Countries	***Journal African Business,*** 17(3) pp 319-431	Conceptualization of ideas, literature review and conclusion	50
Remittance, Institutions and Investment Volatility Interactions: An intercontinental Analysis	***South African Journal of Economics***, 85(4) 553-569	Literature review, Analysis, result interpretation and conclusion	40
Dollarization and the "Unbundling" of Globalization in sub-Saharan Africa	***Research in International Business and Finance***,47, 398-409	Analysis, result interpretation and conclusion	40

I hope this satisfies your request. If there are other information you will want me to add, please feel free to get across.

Sincerely,

Dr. Kazeem Ajide

DEPARTMENT OF ECONOMICS
SCHOOL OF ECONOMICS
UNIVERSITY OF IBADAN, IBADAN, NIGERIA.

***Head of Department*:**
Professor Emmanuel O. Ogunkola
B.Sc. (Econ), M.Sc. (Econ), Ph.D. (Ibadan)

Tel: 234-8035062430
E. Mail: econsui@yahoo.com

17th January 2020

Dear Ibrahim Raheem,

Re: Clarification on Our Published Paper

I sincerely hope that this meets you well.

Sequel to your email on January 15, 2020 seeking clarification on one particular paper that we co-authored, I wish to provide the following details: that the paper titled "Remittances and Output Growth Volatility in Developing Countries: Does Financial Development Dampen or Magnify the Effects? is a joint publication by you, myself and Kazeem Ajide; that this paper is published in the journal "Empirical Economics" handled by Springer; that you (Ibrahim Raheem) made significant contributions to the conception of the ideas that culminated in the paper and took active lead in drafting the Literature Review, executing the Analysis, interpreting the Results as well as writing the Conclusion; that your inputs in the paper is sufficient to assign 40% of total contributions to you.

While it has been an absolute pleasure collaborating with you in the past, I look forward to further intellectual engagements with you and hope that the gains from mutual learning will continue to accrue and accumulate incrementally.

Kindly do not hesitate to contact me if you need additional details.

Many thanks and kind regards

Yours faithfully,

OluwatosinAdeniyi PhD
saino78@yahoo.com; +234 703 327 5062.

Re: Co-authors contribution acknowledgment

From: Kazeem Isah (kzamboja@yahoo.com)

To: i_raheem@ymail.com

Date: Wednesday, 15 January 2020, 16:04 GMT

Dear Mr. Raheem,

Thank you for your email. I can confirm that you conceptualized the idea, reviewed the relevant literature, provided the dataset and concluded the paper. It should be noted that your contributions were not limited to these sections of the articles. As such, you are awarded 50% credit of the article.

Kind regards

Kazeem O. Isah
Center for Econometric and Allied Research (CEAR),
Department of Economics, University of Ibadan,
Ibadan, Oyo State, Nigeria
Mobile: +234 806 964 0162

On Wednesday, January 15, 2020, 09:54:57 AM GMT, Ibraheem Raheem <i_raheem@ymail.com> wrote:

Dear Dr Isah,

I trust this email meets you well. I write based on the above caption. For record keeping and academic sake, I would like you to state the nature of my contributions and the credit allocated (in %) in respect of our paper titled ""The Hidden Predictive Power of Cryptocurrencies and QE: Evidence from US Stock Market" and published in Physica A.

While thanking you for your prompt response, please accept my warmth regards,

Ibrahim.

CENTRE FOR ECONOMETRIC AND ALLIED RESEARCH (CEAR)

UNIVERSITY Of IBADAN, IBADAN, NIGERIA

Director:
OLOFIN, S. O.
B.Sc., M.Sc., (Ibadan). M. A, Ph.D(Princeton)
Professor of Economics

January 15, 2020.

Dear Ibrahim,

<u>Re: Confirmation of Co-Author's Contribution</u>

Thank you for your email and trust you are doing great. It is my pleasure to confirm that you are a co-author to an article with the following details:

Salisu, A. A., Raheem, I.D and Umar, B.N (2019) "A sectoral analysis of asymmetric nexus between oil price and stock returns" International Review of Economics and Finance, 61(1), 241-259.

Though, you have contributed in all sections of the said article, your involvement in the literature review, empirical results interpretation and concluding sections is quite substantial. I am of the opinion that awarding you 40% as your contribution is justified. Should you require further clarification, please let me know.

My best wishes,

Afees A. SALISU, PhD
Research Professor, Centre for Econometric & Allied Research, University of Ibadan, Nigeria.
University Professor & Doctoral Advisor, Global Humanistic University, Curacao, Netherlands Antilles.
International Research Expert, Ton Duc Thang University, Vietnam.
ResearchGate: https://www.researchgate.net/profile/Afees_Salisu
Scopus: https://www.scopus.com/authid/detail.uri?authorId=55392158900
Google Scholar: https://scholar.google.com/citations?user=LFjZ534AAAAJ&hl=en
Phone: +234-803-471-1769.
Email: adebare1@yahoo.com; aa.salisu@cear.org.ng; afees.adebare.salisu@tdtu.edu.vn