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*Abstract***:** *The study investigated time-varying day-of-the-week (DOW) calendar effect in the selected African stock markets. This is important in the light of AMH, which challenged the persistence of market efficiency and by implication, market anomaly. We employed daily returns of All Share Index of the Nigerian Stock Exchange, the Johannesburg Stock Exchange, the Stock Exchange of Mauritians, the Casablancan Stock Exchange and the Tunisian Stock Exchange from 1998 to 2018. This study explored rolling window analysis of several alternative variants of nonlinear models of the GARCH family, notably the asymmetric TGARCH and EGARCH models, to track variation in the behaviour of the anomaly. The contribution of the study comes from the conclusion that the DOW effect disappears and reappears over time. This implies that behaviour of African stock markets is in compliance with the cyclical efficiency invented by the proponents of the AMH.*

Abstract: The paper investigates asset allocation of defined contribution (DC) plan in Ghana using the Tier 2 Master Trust Occupational Pension Scheme (MTOPS) as a case study. The paper focuses on comparing optimal asset allocation solutions under quantitative restrictions and prudent person's principle, and further assesses the risk exposure of portfolio returns using Conditional Value-at-risk (CVaR). The financial market invested by MTOPS predominantly consists of six financial assets: government securities and bonds, corporate bonds, the money market, listed equities, other collective investments and open and close end funds. Returns are modeled as a geometric Brownian motion and simulated for 10,000 scenarios over a 50-year time horizon. Most MTOPSs violated some quantitative restriction guidelines. MTOPS allocated higher Master Trust Funds (MTF) in low-risk assets: government securities and bonds, T-bills and cash deposits. High-risk assets are found to outperform low-risk assets in the long-term. Only MTOPSs with large market share allocated considerably in high-risk assets: corporate bonds and listed equities. Investment returns of 20.93% with 12.43% average portfolio risk were obtained under prudent man's rule compared to investment returns of 20.56% with 6.79% portfolio risk under restricted optimization. Given the investment returns over time, CVaR for the total portfolio was 12.81% in worst-case scenario.

Abstract: Over-indebtedness has emerged as a major factor that entrapped many rural households in poverty and a major cause of depression and rural suicide. Extant literature identified exogenous and endogenous drivers of over indebtedness but social and relationship factors that drive over indebtedness especially in developing country contexts have received limited attention. How these debts are accumulated as well as events that drive rural households into indebtedness need to be understood in order to address the negative implications of over-indebtedness. The objective of this study is to examine the incidence and drivers of over indebtedness among rural households in Nigeria as well as how participation in Ponzi schemes contributed to such rise in household consumer debt. The area of study is rural Southern Nigeria in which over 80% were poor. Households that participated in Ponzi schemes were identified using snowballing technique out of which 320 household heads were randomly selected as sample. Questionnaire was the instrument of data collection and data generated were analyzed using financial formulas and correlation coefficients. Findings revealed that incidence of over indebtedness was significantly high in Nigerian rural households owing to participation in Ponzi schemes, paying medical bills, house related cost, education of children, sending relatives abroad and cost of litigations. Ponzi scheme participants which cuts across sex, age, education and professional barriers were attracted by lure of affinity groups and speculation. They lost huge amount of money much of which was borrowed from family, friends and self-help groups; fueling the level of over indebtedness in rural areas. It is recommended that strict regulation of online and offline financial services should be enforced and financial literacy campaign should be pursued vigorously to reduce irrational and imprudent behavior. Initiatives in form of health insurance, effective mortgage market and educational support should be implemented in order to reduce the incidence of over indebtedness in rural areas.

Abstract: In South Africa, there exists a quest for financial literacy to promote inclusive growth in the country. Financial illiteracy is one of the aftermaths of imprudence and financial mismanagement that are common among the South African youth. The empirical strategy adopts a logistic multivariate regression model. The empirical investigation of financial literacy and financial management outcomes in this study finds that there is a positive and significant relationship between the financial management outcome and financial literacy, gender, educational attainment and living standards. Financial management has a negative and relationship with household size. The findings on the overall financial literacy of the South African youth showed that, generally, individuals in all provinces have inadequate or low financial resources with an overall mean correct percentage score of 80.69. The individuals, however, exhibited some appreciable financial knowledge of savings and borrowing. It is important for policy makers to develop an effective education programme based on the needs and financial literacy level of the youth.

Abstract: A business may use Asian options for improved portfolio protection and hedge market fluctuation risk. Asian options are lucrative derivative instruments due to the underlying average prices. The challenge with Asian options is that the dynamics of the averaged prices does not permit the direct use of the traditional Black, Scholes and Merton model for pricing. In this research, we derive an Asian option pricing model that is based on a differential equation, acting on only one state-space variable originally developed in the physical sciences. We found that the solution to this particular differential

EDITORIAL

I am very pleased to offer this special issue on the very important contemporary topics dealing with the **Recent Trends in Financial Innovation and Development in Emerging Markets**. Professor Pat Obi from Purdue University Northwest, USA is to be congratulated for developing such an excellent collection for our readers. All of the manuscripts are very insightful and thought provoking. These articles will add immensely to the growing body of knowledge.

The 1st paper by Adefemi A. Obalade & Paul-Francois Muzindutsi explores rolling window analysis of several alternative variants of nonlinear models of the GARCH family, notably the asymmetric TGARCH and EGARCH models, to investigate the day-of-the-week (DOW) calendar effect in the selected African stock markets. The authors employed daily returns of All Share Index of the Nigerian Stock Exchange, the Johannesburg Stock Exchange, the Stock Exchange of Mauritians, the Casablancan Stock Exchange and the Tunisian Stock Exchange from 1998 to 2018. Rolling estimation was applied in order to explicate the time-varying element of calendar anomaly, the aim being to ascertain whether the behavior of DOW is in compliance with the adaptive market hypothesis (AMH).

This study is vital in the light of the AMH, which challenges the persistence of market efficiency and by implication, market anomaly and proposes coexistence of efficiency and anomalies in a cyclical version. By the beginning of the 1990s, the debate on the efficiency of stock markets had split researchers into two camps: believers of the EMH on the one hand and proponents of behavioural finance (anomalies) on the other. The empirical studies on the subjects have been conflicting too − some reporting the presence of calendar anomalies and others the absence. The lack of consensus posed a serious problem for asset allocation and portfolio management and led to the advent of AMH. The implication of AMH to the stakeholders, especially the investors, is captured in the concluding part of this study.

The empirical findings from the rolling window GARCH analyses showed that the DOW calendar anomalies seem to disappear and reappear over time in the sampled African stock markets. The effect appears to be stronger in JALSH, SEMDEX and TUSISE but weak in NGSEINDX and MOSENEW. In essence, authors showed that the behaviour of selected African stock markets is in compliance with the cyclical efficiency invented by the proponents of the AMH. Thus, it may be more appropriate to describe African markets as adaptive markets rather than inefficient markets. The findings of this study imply that calendar anomaly may not be an all or nothing phenomenon; in the spirit of Lo (2004), the DOW effect may not be a universal constant but may be time varying and path dependent.

By implication, market participants may not view African stock markets as being anomalous in absolute form. It may be safe for investors to plan a flexible investment strategy to accommodate instability in calendar anomalies. However, investors need to ensure that gains of the anomalies, found in certain periods, cover trading and associated costs before efforts are made to exploit it. In addition, since investment strategy will wax and wane as a result of the instability, the investors are faced with the task of determining the market condition or environment suited to the success of their trading techniques.

Discussions on adequate pensions for retired workers has been a transnational challenge. The pension systems in many countries have been reformed to meet the current challenge of providing adequate pension for pensioners to alleviate wide spread poverty among retirees. Over the last decades, there has been profound shift from low risk defined benefit pension plans which provides smaller pension to high risk defined contribution pension plans which provided higher pensions based on the dynamics of the market. The underlining principle for the shift toward defined contribution plan is the option of employees making decisions on how their contribution could be invested with any quantitative restrictions as witnessed in most defined benefit plans.

The 2nd paper by Maxwell Baidoo Jnr, Charles Andoh & Godfred Alufa Bokpin investigates asset allocation of defined contribution (DC) plan in Ghana using the Tier 2 Master Trust Occupational Pension Scheme (MTOPS) as a case study. Even though, the Ghanaian pension system has seen gradual reforms over the years, there are quantitative restrictions on investments for fund managers. The paper focuses on comparing optimal asset allocation solutions under quantitative restrictions and prudent person's principle and further assesses the risk exposure of portfolio returns using Conditional Value-at-risk (CVaR).

Secondary data was obtained from the National Pension Regulatory Authority (NPRA) for MTOPS contributors. Data obtained were in the form of investment decisions of fund managers under various financial assets. The financial market invested by MTOPS predominantly consists of six financial assets: government securities and bonds, corporate bonds, the money market, listed equities, other collective investments and open and close end funds. Eight (8) out of the twenty-nine (29) MTOPS that are managed by fund managers currently in Ghana were selected for the study. The total Asset under Management (AUM) of the 8 MTOPS constituted approximately 82.01% in terms of market share of all the 29 MTOPS. Data extracted included annual investment returns on government securities, corporate bonds, fixed deposits, money market, collective investments, listed equities and open/close – end funds, expenses, contributions of members, total asset under management and benefits paid out to members from 2012 to 2016 when most pension schemes in Ghana were active and NPRA regulations were proactively enforced. Returns from investments are modelled as a geometric Brownian motion and simulated for 10,000 scenarios over 50-year time horizon.

The paper revealed that most MTOPSs violated some quantitative restriction guidelines. MTOPS allocated higher Master Trust Funds (MTF) in low-risk assets: government securities and bonds, T-bills and cash deposits. High-risk assets are found to outperform low-risk assets in the long-term. Only MTOPS with large market share allocated considerably in high-risk assets: corporate bonds and listed equities. Investment returns of 20.93% with 12.43% average portfolio risk was obtained under prudent man's rule compared to investment returns of 20.56% with 6.79% portfolio risk under restricted optimization. Given the investment returns over time, CVaR for the total portfolio was 12.81% in worst-case scenario. At optimal levels, portfolios with investment restriction maximize returns with less risk exposure while returns on unrestricted portfolios are slightly higher but associated with high-risk exposure. The implication is that high-return investment is associated with higher risk exposure.

In the context of the need to expand financial liberalization, especially in the underserved rural communities in Nigeria, **the 3rd study by Jude Kenechi Onyima** examines the extent to which participation in Ponzi finance schemes impoverishes rural households. To that end, data were collected from affected households in the period, 2014 to 2017. The study finds that a multiplicity of social factors causes many rural families to fall victim to these schemes.

Extensive studies have been conducted about the macroeconomic dynamics, business-related factors, and household issues that contribute to over-indebtedness in rural communities. In contrast, social and relationship factors that equally lead to this phenomenon have yet to be examined in the literature. This study finds that in many rural communities, social factors including participation in non-traditional credit schemes, exotic marriage and burial rites, conflict settlement, and the desire to educate family members overseas are known contributors to over-indebtedness. Some researchers have identified participation in Ponzi schemes as a form of financial illiteracy. But recent events have revealed that participation in these schemes is not necessarily driven by a lack of knowledge of their financial consequences but also the crave to attain a high social status in society. There is, additionally, the lure of affinity groups.

Although some behavioral patterns have been identified as drivers of over-indebtedness, sufficient analysis of how social and relationship factors drive this phenomenon has yet to be examined. On that basis, Onyima`s study is guided by three key objectives. The first is to determine the incidence of over-indebtedness among rural families that participated in Ponzi schemes. The second is to identify the drivers and the extent of participation in these dubious financial practices. Finally, the study investigated the linkages between participation in Ponzi schemes and the intensity of household over-indebtedness. Addressing this gap in the literature is imperative because a poor understanding of the drivers of over-indebtedness would undoubtedly prevent the development of helpful intervention strategies.

Participation in a Ponzi scheme may not be an overarching question in developed economies due to the existence of an effective regulatory and institutional framework. However, in developing economies, public corruption and novelties in digital and aggressive marketing techniques often increase the percentage of the population who fall victim to criminal financial schemes. These victims often fail to recover their funds. And this places a significant financial strain on their families, the financial system, and the economy at large.

The findings of this study reveal that there are social factors that drive household indebtedness which have not featured in the existing literature. In line with the hypothesis, these factors include participation in dubious investment schemes, exotic traditional ceremonies, wasteful litigations, and the financing of the education of family members overseas. The incidence of over-indebtedness among rural households that participated in Ponzi schemes was high, confirming the assertion that there is a significant correlation between participation in these schemes and over-indebtedness.

People who participated in Ponzi schemes were individuals who felt the need to make quick money and keep up with the Joneses, as it were. Further, they were victims of the aggressive marketing tactics of the schemers and also, individuals who succumbed to the influence of trusted friends and pressure from peers. Funds invested in these schemes were borrowed mostly from family members, friends, and informal sources. In almost all cases, these funds were never recovered from the Ponzi operators. Unlike in previous studies where participation in Ponzi schemes were found to be driven by sheer greed and ignorance, participation in Ponzi schemes in this case was driven more by the lure of affinity groups, desire to meet societal expectations, and the influence of trusted friends. As a result, participants cut across the educated, the vulnerable, and the elderly.

The study by Onyima contributes in identifying the often-ignored drivers of over-indebtedness in a developing economy. These factors have become increasingly significant and deserve closer attention by scholars and policy makers. Quality and affordable education as well as the availability of employment opportunities should curtail the necessity to send family members overseas to be educated. In many instances, this has become a huge debt burden, especially for the rural poor. A reformed judicial system that provides litigants with the option for out-of-court settlement should also reduce the need to pursue formal and expensive litigation. Most importantly, a strong financial regulation that monitors and supervises offline and online financial services should be instituted by regulators. This is in addition to a financial literacy campaign designed to educate the rural public on the dangers of falling victim to Ponzi scheme operators.

Improving the levels of financial literacy in South Africa is necessary to promote and achieve inclusive growth in the country. Promotion of consumer awareness, consumer education and consumer protection are essential to sound financial decision making and achieve individual financial wellbeing. **The 4th study by Mulatu F. Zerihun & Dinah M. Makgoo** examines the effects of financial literacy on financial management outcomes among employed youth in South Africa. For the empirical analysis, the authors used survey data from the South African Social Attitude Survey (SASAS) carried out by the Human Science Research Council (HSRC) in 2012.

Authors employed the multivariate logistic model to examine the odds of outcomes. Financial literacy is the ability to process economic information and make informed decisions about financial planning, wealth accumulation, debt, and pensions. In most countries, even among developed economies, the level of financial literacy is generally low. Financial illiteracy has the potential to lead to financial crisis as was the case in the 2008 Global Financial Crisis. That crisis began in the U.S. and affected many countries around the world. Since then, there has been an increasing number of studies analysing the likely impacts of financial literacy globally. So far, most studies have focused on assessing the levels of financial literacy among different family backgrounds, economic groupings (poor, rich), geographical areas (urban, rural) and demographic factors (age, gender, and education) at a country level.

The motivation for this study stems from the low levels of saving and investment among South Africa's youth. To the best of authors` knowledge, there is paucity of studies that have investigated the effects of financial literacy on (personal) financial management in South Africa. The objective of Zerihun & Makgoo study is to examine the understanding and knowledge of financial management outcomes among the employed youth in South Africa. Without an understanding of basic financial concepts, people are not well equipped to make decisions related to financial management. People who are financially literate can make informed financial choices regarding saving, investing, borrowing, and more. Financial knowledge is especially important in times where increasingly complex financial products are easily available to the public. Governments in many countries are promoting access to financial services and this can be seen by the rapidly rising number of people with bank accounts and access to credit. Moreover, changes in the pension landscape transfer decision-making responsibility to participants who previously relied on their employers or governments for their financial security after retirement.

The interpretation for the logistic regression results in this study uses the odds ratio for both categorical and continuous predictors. An odds ratio greater than 1 reflects the increase in the odds of an outcome of 1 with a one unit increase in the predictor; odds ratios less than one reflect the decrease in odds of that outcome with a one-unit change. Zerihun & Makgoo study has unveiled financial literacy as the key predictor of behavioural nature of South African youth in their financial management decisions. In addition, this study finds that there is a positive and significant relationship between financial management outcomes and financial literacy, gender *(1=males, 0=females),* educational attainment and living standards. The findings in this study corroborates the findings of previous studies reviewed in this paper. The authors recommend promoting financial literacy through formal and informal education approaches with the objective of improving financial knowledge. In this regard government and policy makers should recommend for mandated financial education in academic institutions and workplaces. The authors further recommend that studies should be conducted on how South African youth can get assistance to save for their retirement and find ways to make smart investment decisions. In this regard programs targeting specific groups are likely to be more effective than a one-size-fits-all financial education program. Specifically designed and tailored financial literacy programs should be targeted to specific groups of the population since people have different preferences and economic circumstances.

Asian options are derivative instruments that derive their value form the averaged underlying prices. The averaging of the underlying prices can be considered as inhibiting market volatility and therefore expose Asian option investors to a more stable future payoff profile. The underlying price averaging is precisely the reason why Asian options are generally considered to provide a welcome degree of investor protection from the unexpected vagaries of the underlying markets. In **the 5th study by Angelo Joseph & Jan Kruger**, the goal is to focus in on an approach originally developed in physics to price Asian options.

Asian option prices are challenging to estimate, due to the arithmetic average evaluation inputs that cannot directly be cast into the traditional Black, Scholes and Merton option-pricing framework. The constraint exists because an arithmetic average set of lognormal prices is not normally distributed. Asian option prices must, therefore, be approximated, and this induces a risk management issue over the life-time of the derivative instrument. These implications are addressed in the risk section of the study.

A further limitation is that Asian options with either averaging strike prices or averaging spot prices are well researched and published. Unfortunately, Asian options where both the strike and spot prices are averaged are rarely treated in the literature. An Asian option pricing model based on a physics differential equation are theoretically derived in the pricing section of the study. The model are theoretically shown to price any Asian option, including options where both the strike prices and the spot prices are averaged.

The derived option pricing model was stressed by generating fixed strike Asian option prices and comparing it to simulated prices at market volatilities ranging from 10% to 70%. The Asian option pricing model was found to generate prices for options with both averaging strike prices and averaging spot prices within reasonable confidence.

Overall, Joseph & Kruger study demonstrates that an Asian option pricing model can be developed using an approach that originated in physics. Such a pricing model is important for the effective risk management of derivatives where Asian option prices have to be confidently estimated. Furthermore, the Asian option pricing model is shown to not only be fit for pricing fixed strike Asian options but can also be used to price Asian options where both the strike prices and the spot prices are averaged.

N. Delener, Ph.D.
Editor-in-Chief

NOTE FROM THE EDITORS

As an interdisciplinary indexed journal, *The Journal of Global Business and Technology (JGBAT)* serves academicians and practitioners in the fields of global business and technology management and their related areas. JGBAT is also an appropriate outlet for manuscripts designed to be of interest, concern, and applied value to its audience of professionals and scholars.

Readers will note that our attempt to bridge the gap between theory and practice has been successful. We cannot thank our reviewers enough for having been so professional and effective in reiterating to contributors the need to provide managerial applications of their research. As is now obvious, the majority of the articles include a section on managerial implications of research. We wish to reiterate once again our sincere thanks to JGBAT reviewers for having induced contributors to answer the "so what?" question that every *Journal of Global Business and Technology* article is required to address.

Thank you for your interest in the journal and we are looking forward to receiving your submissions. For submissions guidelines and requirements, please refer to the Manuscript Guidelines at the end of this publication.

N. Delener, Ph.D., Editor-in-Chief
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INTRODUCTION: A NOTE ON FINANCIAL REFORMS, INNOVATION AND DEVELOPMENT IN THE EMERGING MARKETS OF AFRICA

Pat Obi, Guest Editor

This special finance issue of the *Journal of Global Business and Technology (JGBAT)* consists of articles focusing on financial trends and innovations in the emerging markets of Africa. The first paper utilizes nonlinear GARCH models to investigate the day-of-the-week effect in five major African stock markets. An important contribution of this study is its attempt to reconcile the adaptive market hypothesis a la Lo (2005) with the efficient market hypothesis. In a case study, the second article examines the risk dynamics and portfolio performance of a defined contribution retirement plan in contrast to the low risk but low-income design of a defined benefit plan. The widespread use of Ponzi schemes in many developing economies as a get-rich-quick tool is the thrust of the third study. The author employs survey data to find that several social factors, including the lure of affinity groups, drive many families, especially those in underserved rural areas, to fall victim to these schemes.

In the fourth article, the authors specify a multivariate logit model to investigate the impact of financial literacy on consumer wellbeing. The negative impact of ill-informed financial decisions on the broader economy is also discussed against the backdrop of lessons learned from the 2008 Global Financial Crisis. Perhaps the reason that most emerging economies escaped the brunt of that crisis was because of their limited involvement in the use of poorly constructed financial derivatives, widely blamed for that crisis. With that as a segue, the final paper wonders if Asian options are a better risk management alternative than the more traditional American or European-style options. Using a novel estimation model borrowed from physics, the study demonstrates how Asian options, which derive their value from the averaged underlying prices, are better at limiting market volatility and by that, produce more stable future payoffs. The findings of these studies have broad implications in terms of how emerging economies can continue to strengthen their presence in the global economy.

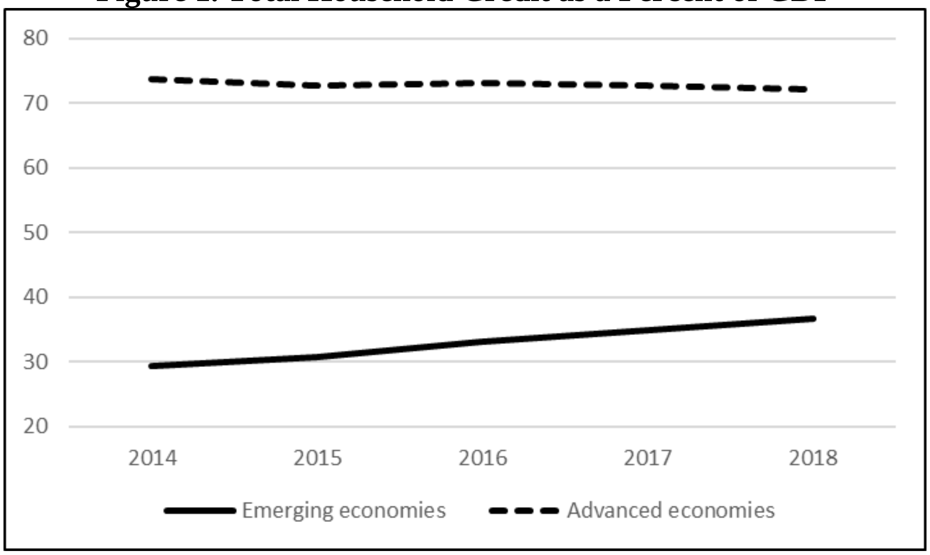
As the global economy continues to expand at a steady pace, so have many economies in the developing world. Compared to previous decades, Africa's economic pulse appears to have quickened in recent years. Propelled by a series of market reforms and financial deregulations, several African economies have made great strides in improving the quality of life of their citizens. According to the World Bank, in 2018, Sub-Saharan Africa grew at a pace that mirrored the global rate of 3.1 percent (Global Economic Prospects 2018). This growth rate was projected to increase in subsequent years.

The 2018 report by the Bank for International Settlement suggests that economic activity in Africa has been fueled primarily by inroads in international trade, easy monetary policies, and positive consumer sentiments. In an earlier study, Jacque (2001) explained that the economic dynamics of emerging markets are driven by the skillful transfer of financial innovations to those markets committed to deregulating their financial sector. The inclusion of financial derivatives and securitization of consumer finance, as part of a process for disintermediating traditional banking and managing risk, should help reduce the cost of living for many households in the region. It should also aide in improving access to capital. Perhaps it is in this respect that the introduction of innovative derivatives such as those suggested in this issue might prove useful. But it also poses a challenge.

While emerging economies have greatly increased the efficiency of, and access to, financial markets, substantial risks to economic stability remain. The rapid introduction of new financial instruments like derivatives and asset-backed securities, as well as the entry of new investments like hedge funds and private equity, raise questions as to how these economies would fare should another severe downturn occur.

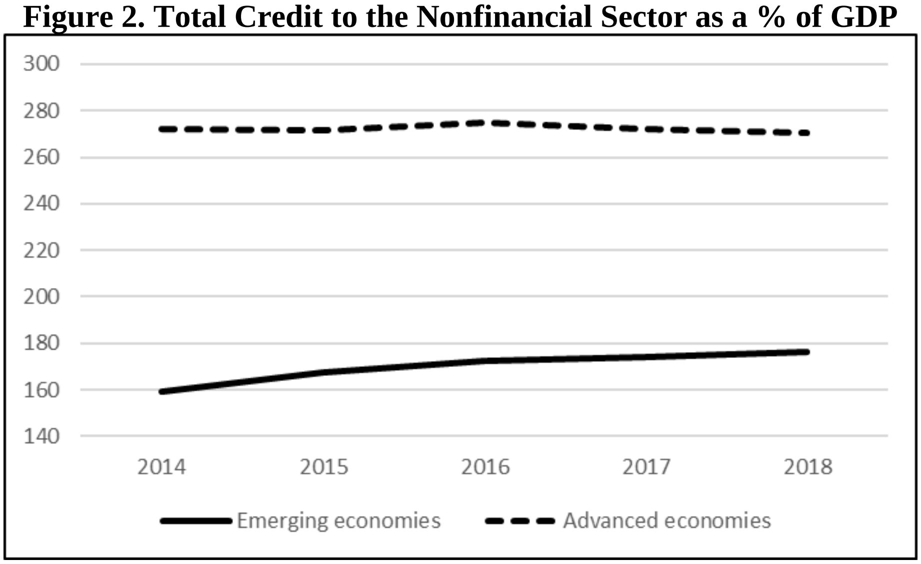
The Global Financial Crises of 2008 was a wakeup call to many countries. The devastating economic impact that resulted from the use of excessive leverage and nebulous financial products cannot soon be forgotten. That crisis discouraged many banks from lending which in turn stifled global growth (Cramer et al, 2009). Ten years on, risks in the form of rising household debt are increasingly apparent. Figures 1 and 2 show the steady increase in both core household debt and credit to nonfinancial sector for emerging economies. Both macroeconomic statistics appear to be trending toward excessive leverage for these economies.

Figure 1. Total Household Credit as a Percent of GDP



Aggregates based on conversion to US dollars at PPP exchange rates
Source: BIS, “Credit to the non-financial sector” (https://stats.bis.org/statx/srs/table/f1.1)

Figure 2. Total Credit to the Nonfinancial Sector as a % of GDP



Aggregates based on conversion to US dollars at PPP exchange rates
Source: BIS, “Credit to the non-financial sector” (https://stats.bis.org/statx/srs/table/f1.1)

Systematic risks such as rising geopolitical tensions and the resurgence of protectionist sentiments appear to slow the gains that have been made during the past decade. Further, some of the leading African economies like Algeria, Egypt, Kenya, Nigeria, and South Africa have been mired in a series of macroeconomic headwinds, including political unrests, terror attacks, and persistent labor strikes. The consideration of these risk dynamics should prove beneficial as these economies carefully weigh the merits of market reform and financial deregulation against what the former U.S. Federal Reserve Chairman, Alan Greenspan, refers to as irrational exuberance.

There is also another aspect of risk unique to many African countries. For years, commodities have dominated, and continue to dominate the economic landscape of many countries in Sub-Saharan Africa. Unfortunately, this overreliance on commodities often comes with considerable downside risks. The persistent slump in commodity prices has led to adverse effects on the growth momentum, especially for single commodity-dependent economies like Nigeria, Congo, and Angola. In its 2019 economic report, the African Development Bank Group concluded that to alleviate the growth problem in the region, more FDI inflows would be required toward these resource-rich countries. And to diversify their economies, all the countries should strive to improve their quality of governance and expand education as well as access to capital in order to increase the size of their middleclass consumers. Doing this, it argues, would ensure more stable economic and political conditions.

Many African economies have continued to undergo structural changes designed to improve their economic prospects. These changes have occurred mostly in the form of regulatory reforms in financial services, an example of which is the removal of interest rate cap in Kenya in 2019. At the micro level, Ayyagari (2011) determined that access to external financing is associated with greater firm innovation in these economies. The author further noted that having a highly educated workforce, family owned businesses, and exposure to foreign competition are trends that support greater firm innovation. Mishra (2018) finds that while not risk free, financial innovations improve financial intermediation as well as reduce financial risks. The author argues that both aspects lower the cost of capital for firms, are welfare enhancing, and should ultimately bode well for emerging economies.

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