Analysis of Asymmetric Linkage between Financial Risk and Economic Risk in Nigeria: Application of Quantile Regression Approach

Dr. Yusuf Ayotunde Ayodeji

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I. INTRODUCTION

The Nigeria economy has been on a stable growth over the years after the global financial crisis experienced in the 2000s which spared no country from being affected (Kirikalleli & Onyibor, 2020). The country GDP reached an all-time high of 546.68 billion USD, but decreased to 375.75 billion USD in 2017 (World Bank, 2021), and begin to appreciate to 448.12 billion USD before it was hit by recession in 2020, reversing three years of recovery, as a result of a drop in crude oil prices caused by weak global demand and containment efforts to combat the spread of COVID-19. The country economy was in the process of recovery when the COVID 19 pandemic struck and not only Nigeria economy was disrupted, but the global economy, which according to some studies opined will to some extent has an effect on the financial soundness of some countries (ECB, 2020; Phan & Narayan, 2020). African Development Bank (2021) observed that several economic sectors in Nigeria were affected by the containment measures, and the contraction outweigh demand-driven expansions in certain sectors, such as financial and information and communications technology (ICT) sectors. Meanwhile, the overall real GDP of Nigeria shrunk by 3% in 2020 with inflation rose to 12.8% in 2020 from 11.4% in 2019. At the time Nigeria was struck with COVID-19, the Central Bank of Nigeria lowered the policy rate by 100 basis points to 11.5% to shore up the country's flagging economy (AFDB, 2021). The reflection of pandemic-related spending pressures and revenue shortfalls was observed on the widened of the fiscal deficit which is financed mostly by domestic and foreign borrowing from 4.3% in 2019 to 5.2% in 2020 (AFDB, 2021). As of the second quarter of 2020, Nigeria public debt stood at 85.9 billion which is about 25% of the country GDP and 2.4% higher than that of 2019 (AFDB, 2021). Therefore, Nigeria faces a major financial risk due to its high debt service payments, which are expected to be

over 50% of federally collected revenue. Furthermore, due to a drop in oil revenues and insufficient foreign financial flows, the country's current account status was forecast to remain in deficit at 3.7% of GDP. (AFDB, 2021). With the current challenges in Nigeria, some potential risk include reduced fiscal space, further depletion in foreign reserves which could result in sharp exchange rate depreciation and inflationary pressure, as well as the possibility of a resurgence in COVID-19 cases may escalate these dangers.

About the economic challenges in Nigeria which is similar to other emerging countries, Cevik, Dibooglu, and Kenc (2016) observed that owing to the economic and financial uncertainties of most emerging economies arises due to global crises, it might interest the global investors to consider evaluating the riskiness of the investment environment to ameliorate the unexpected losses. This corroborates the position of Cardarelli et al., (2011) that presented a "financial stress index (FSI)" in their study as a proxy for financial risk status and examined its effect on the economic downturn of the developing countries economy. It was demonstrated in the study that banking-related financial risk causes a substantial economic contraction. Similar research was performed by Balakrishman et al. (2011) which adapted the index and found a "spill-over effect" of the financial stress from advanced economies to emerging economies at the time of the global crisis in 2008. The study also demonstrates that in the emerging economies, the increase in the level of foreign reserves, fiscal balances, and the current account would reduce the effect of financial instabilities on the real economies. Moreover, a recent study by Kondoz et al., (2021) confirmed a bi-directional relationship between economic risk and financial risk in Venezuela, while a uni-directional causal relationship moving from economic risk to financial risk was found for Columbia and Peru. In addition, financial risk was found to significantly influence economic risk in Brazil and Argentina (Kondoz et al., 2021) and a feedback causal relationship was found between economic risk and financial risk at various frequencies and periods in China (Kirikkaleli, 2021).

Surprisingly, to the best of the author's knowledge, no study has examined the asymmetric association between financial risk and economic risk in Nigeria. Even though the few studies in this aspect on other emerging countries show mixed findings which is an indication that the pathway of the causal relationship between financial development and economic growth is still a moot topic. Meanwhile, Kirikkaleli (2021) opined that the difference in the causality pattern could be as a result of the studies focus on different data sets, regions and periods. Therefore, our study empirically investigates the nature and direction of the relationship between financial risk and economic risks for Nigeria. To the best of the authors' knowledge, this aspect of economic and financial development in Nigeria from the risk viewpoint employing the dataset from the "Political Risk Service (PRS) Group has not been performed in the context of Nigeria, hence this constitutes one of the novelties of this study. Given this, our study aims to provide an in-depth understanding of the literature through the exploration of the nexus between finance and economic within the risk model, specifically for Nigeria to contribute to the literature.

Scant studies have been conducted to inform the public about the association between economic risk and financial risk. That being said, the findings are often constrained to traditional scientific methodologies and generalized steps measures (Erbe et al. 1996; Dutta & Roy, 2011; Adebayo et al. (2020); Odugbesan & Adebayo, 2020; Sari et al. 2013; Sridi & Ghardallou, 2019). Recognizing the same concern, Sharif et al. (2020) stated that methodologies are critical in producing impartial analysis results and emphasized the importance of employing novel econometric techniques. Failure of current time series-driven results can persuade policymakers to implement efficient policies. The innovative quantile regression methodology was used in this analysis to assess the relationship between economic risk and financial risk in Nigeria. The primary motive for this research is to add to the current literature to assess the economic risk and financial risk nexus by utilizing the innovative quantile regression (QR) technique. The Quantile

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regression approach is characterized by its capability to discover the heterogeneous impact of covariates at different quantiles of the outcomes, as well as offers more robust and complete estimates in comparison to the mean regression when the normality assumption violated or the existence of outliers and long tails. As a result, the method appears to transform the quantile of one parameter into another, and the results have the opportunities to resolve questions about the interconnection between economic risk and financial risk at both higher and lower quantiles of time series data. With such a wide scale, this paper explores time-series dependency in Nigeria. We conclude that the findings of our study would provide significant direction for policy decision-making in Nigeria, and can as well be utilized by scholars and macroeconomic policymakers to take efforts by employing more suitable or alternative financial and economic decisions. The remainder of the paper is structured as follows: the review of appropriate studies are presented in Section 2; the description of data, sources and method of estimation was addressed in Section 3; and the result findings were presented in Section; while the study rounded up in Section 5 with the discussion, conclusion, and limitations, as well as the direction for future studies.

II. LITERATURE REVIEW

The financial and economic vulnerabilities around the globe, especially the current pandemic have triggered the interest of scholars and policymakers to explore the factors that contribute to these vulnerabilities. Over the years, several theoretical and empirical studies have examined the nexus between financial and economic activities. Meanwhile, the studies in the context are limited, thus the aim of this study is to investigate the possible effect of financial risks on economic risks in Nigeria.

The examination of the relationship between economics and finance in the literature revealed three main strands of hypotheses which are: the "finance-led growth", "growth-led finance", as well as the "feedback". Literature suggests that the "finance-led growth" and "growth-led" hypotheses

are about the study of Patrick (1966) which are "supply-leading" and "demand-following" correspondingly. According to Kondoz et al., (2021), the "supply-leading" suggests "that development services acts as a catalyst and boosts economic growth". This view corroborates the position of King & Levine (1993) who maintained that an improvement in financial development influences economic growth substantially. Meanwhile, McKinnon (1973) and Shaw (1973) suggested that the opposite position is valid where instability exists within the financial system of a nation, which could lead to a decrease in economic growth and makes the economic stability becomes frozen (Odugbesan & Rjoub, 2020; Adebayo et al. 2021; Odugbesan et al. 2020; Rjoub et al. 2021a; 2021b). As for the "demand-following", it suggests that financial activities are inactive and has no causal association with the economic growth process. This position infers that a "well-functioning" financial system is an antecedent of economic growth. Hassan, Sanches, and Yu (2011) posit that the third hypothesis which is "feedback" indicates a bi-directional causal link between financial development and economic growth.

Moreover, the study of Goldsmith (1970) theoretically linked the stability of the financial system to macroeconomic soundness and financial structural dynamics. The study according to Eke et al. (2020) observed that in the "theory of institution", some actions and inactions have the capacity to influence politics and hence are instrumental to the success of the financial system. This position was evident in the study of Knoop (2013) who opined that in the context of emerging economies, poorly designed government policies and outrageous government borrowing can be disincentives, such as sabotaging credit information and winnowing financial repressions instead of promoting financial intermediation. Meanwhile, in recent times, rather than the underlying "finance-growth" hypothesis and perceptions, financial risk and economic uncertainty metrics are getting more attention from the researchers, owing to the unfavourable impact of country-based, regional, and global crises. Particularly, the current COVID-19

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pandemic took the world unaware and is wreaking havoc on global financial and economic operations (Phan and Narayan, 2020; Altig et al. 2020; Choi, 2020) especially in developing countries. Given these, the rise in financial and economic instabilities in most developing countries lends credence to the significance of the investigation of the link between economic and financial risks.

Empirically, several studies have supported the "finance-led growth" hypothesis (Cournede & Denk, 2015; Creel et al. 2015; Ertugrul et al., 2020; King and Levine, 1993; Levine et al., 2000; McKinnon, 1973). However, the opposing view was presented in some studies that rejected the "finance-based growth" hypothesis and opined that a sound financial system does not accelerate the economic development in a country (Colombage, 2009; Demetriades & Law, 2006; Drobyazko et al. 2020; Kirikkaleli, 2016; Odhiambo, 2008; Rousseau & Wachtel, 2002). Meanwhile, a uni-directional relationship between economic growth and financial development was demonstrated in the study of Zang & Kim (2007). Moreover, in respect of financial crises, the studies of Furceri and Mourougane (2012) and Olivaud and Turner (2014) have demonstrated a significant impact of vulnerable financial systems on economic stabilities, which is an indication that the vulnerabilities in the financial system should be detected to take regulatory efforts and maintain stability in the economy. Some significant financial risk factors such as foreign reserves, fiscal balances, and low current account were highlighted in the study of Balakrishman et al. (2011) and opined that the detrimental impact of financial uncertainties on economic operations can be ameliorated by putting into consideration several indicators of financial risk. The financial stress and economic activities in Turkey were investigated by Cevik et al. (2013) by developing the "Turkish Financial Stress Index". The study employed a bivariate VAR approach and found that financial stress has a significant causal relationship with Turkey economic instability. A similar study was undertaken by Cevik et al. (2016) within the context of emerging Asian economies and found financial stress to be significant economic activities that cause significant economic slowdowns for the sampled countries. This finding was corroborated by Aboura & Van Roye (2017) who study the situation in France and conclude that financial stress causes a significant deterioration in economic operation in the country. Meanwhile, some recent studies demonstrate a bi-directional relationship between economic risk and financial risk in Venezuela (Kondaz et al. 2021), similarly in China (Kirikkaleli, 2021), while a uni-directional relationship running from economic risk to financial risk was found for Peru and Colombia (Kondaz et al. 2021). In addition, financial risk was found to significantly influence economic risk in Brazil, Argentina, and China (Kirikkaleli, 2021; Kondaz et al. 2021).

However, the asymmetric association between economic growth and financial development from the perspective of risk has not been previously investigated in the context of Nigeria, especially using the risk indices from PRS Group. Therefore, our study aims to apply the quantile regression (QR) technique to explore the nature of the relationship, as well as the direction of the association between financial risk and economic risk in Nigeria to fill the existing gap in the economic and finance literature.

III.   METHODS

3.1. Data and Variables

Using the quarterly data ranging from 1984Q1 to 2018Q4, this research adds to the risk literature by investigating the asymmetric relationship of economic and financial risk in Nigeria. The data of economic risk and financial risk were sourced from the PRS Group, which are expressed in levels. ICRG constructed the economic risk index by employing these components: GDP per Head of GDP, Current Account as a Percentage of GDP, Annual Inflation Rate, Budget Balance as a Percentage and Real GDP Growth. The scale of measuring the economic risk is between 0 (high economic risk level) to 50 (low economic risk level), showing the strengths and weaknesses of the economy. However, the financial risk index

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contains the following subdivisions: Foreign Debt as a Percentage of GDP, Foreign Debt Service as a Percentage of Exports of Goods and Services, Current Account as a Percentage of Exports of Goods and Services, Exchange Rate Stability and Net International Liquidity as Months of Import Cover. Just like the economic risk measurement scale, the financial risk is also measured between 0 (high financial risk level) to 50 (low financial risk level), showing the ability of the country to pay its debt commitments.

3.2. Methodology

To achieve the objective of this study, the flow of analysis to be undertaken in this study was depicted in *Fig 1*.
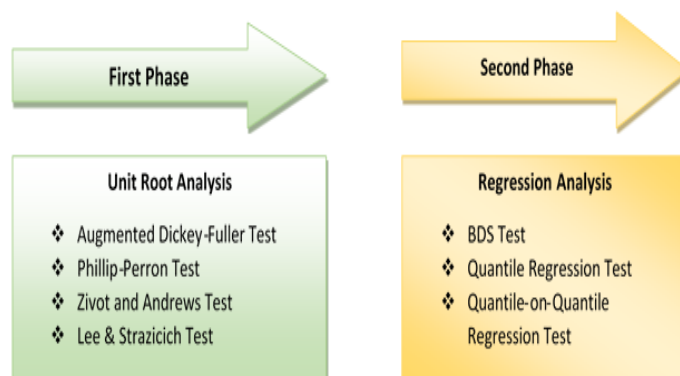

Figure 1: Flow of Analysis

The linear regression was the first method used in analyzing the interaction between two series but a progression was later developed by Koenker and Bassett (1979) known as the Quantile Regression framework (QRF). However, QAF is not immune from weakness, which is its inability to rightly capture dependence. During estimation, the interaction between two series does not consider the uncertainty at several conditional distribution levels. Sim and Zhou (2015) developed the Quantile on Quantile (QQ) method to solve the weakness of the QAF. Under the QQ method, the quantile of variable A or (B) acts as a function of variable B or (A). It helps to capture the changes in the relationship between the variables at every level of its conditional distribution, giving a representation of the dependence interaction. This allows for a better understanding of the relationship between the studied variables relative to other evaluation approaches (OLS (Ordinary Least Squares model) or Quantile Regression). However, it is based on the Non-Parametric Quantile Regression model which is defined in Equation 1 and 2 as follows:

$$X_t = \beta^\theta\left(Y_t\right) + \mu_t^\mu \quad (1) \quad Y_t = \beta^\theta\left(X_t\right) + \mu_t^\mu \quad (2)$$

where: the dependent variables for the equations above are X and Y, indicating that the effect of X (Y) on Y (X) are been investigated in this technique. θ and μ_t^μ represent the qth term of the quantile conditional distribution and the quantile's error term respectively while $\beta^\theta(.)$ is the unknown function since the previous information of interconnection between the two series investigated is undisclosed. Given the vital role in managing the smoothness in the estimates, the choice of appropriate bandwidth is essential for a non-parametric analysis. Increased bandwidth shows larger bias strength, while decreased bandwidth means greater estimated variance. To balance the estimated biases and uncertainty, the right choice of bandwidth is crucial, therefore for this study choice of bandwidth was restricted to h=0.05 which is based on Sim and Zhou (2015)'s work. However, this study undertakes the stationarity test by using the Augmented Dickey-Fuller (ADF), Philip Perron (PP), Zivot and Andrews and Lee & Strazicich unit-root test, Furthermore, the study uses the BDS test to ascertain the nonlinearity of the variables employed.

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IV. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

The pattern of the economic risk and financial risk for Nigeria between 1984Q1 and 2018Q4 was depicted in Figure 2 and the summary of the descriptive statistics for financial and economic risk was highlighted in Table 1. For range, the economic risk is from 13.502 to 39.500 while the financial risk is between 21.583 and 49.00. The median and mean for economic risk are 30 and 29.26 respectively while for financial risk are 35.08 and 35.96 respectively. Using the Jarque-Bera and P-value, economic risk and financial risk are not normally distributed around its mean.
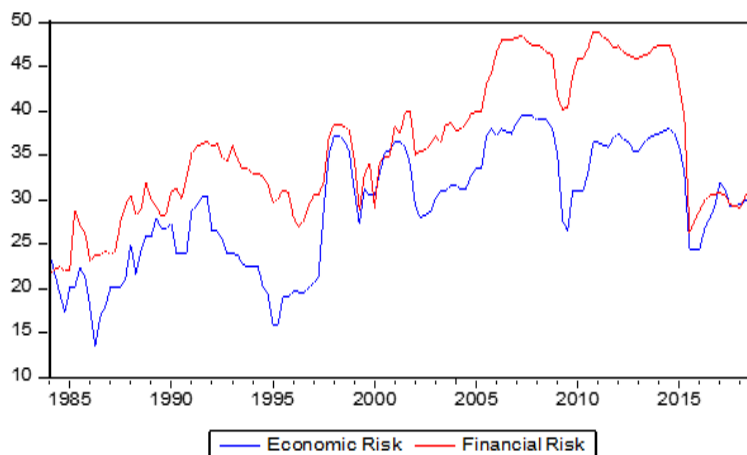

Figure 2: Trend of Economic Risk and Financial Risk (1984 – 2018)

The outcome of the conventional unit root test was described in Table 2. The unit root test was estimated to determine the stationarity nature of the series using the ADF and PP unit root test, which indicate that financial risk and economic risk are stationary since the null hypothesis is rejected at a 1% level of significance. All series are integrated at I(1). Furthermore, this study also investigated the stationarity nature in the presence of structural breaks by using the Zivot-Andrew (ZA) and Lee & Strazicich (LS) unit-roots. The conventional unit-roots outcomes are inconsistent because of their inability to incorporate structural breaks into the regression process. Table 3 reported the summary of the outcome of the ZA and LS unit-roots. At a 1% level of significance, the null hypothesis was rejected for all series, which displays that all series are stationary at I(1). The BDS test is used to confirm the linearity of the series. Table 4 reveals the outcomes of the BDS test, which show that economic risk and financial risk are not normally distributed. Using linear methods will report an inaccurate or inconsistent outcome, based on the results of the Jarque-Bera and BDS test in Tables 1 and 4 respectively. Therefore, a non-linear method was employed in examining the interaction between financial risk and economic risk in Nigeria, which is the novel quantile on quantile (QQ) regression, the innovation of Sim and Zhou (2015). According to Sharif et al. (2020), the QQ approach incorporates non-parametric and quantile regression approaches to identify the framework's asymmetric and spatial features over time.

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Table 1: Descriptive Statistics

	Economic Risk	Financial Risk
Mean	29.26672	35.96250
Median	30.00000	35.08333
Maximum	39.50000	49.00000
Minimum	13.50200	21.58333
Std. Dev.	6.735359	7.765963
Skewness	-0.241937	0.180077
Kurtosis	1.930277	1.931685
Jarque-Bera	8.040906	7.414210
Probability	0.017945	0.024548
Observations	140	140

Table 2: Unit roots without structural break

	Economic risk		Financial risk	
	Level	First Difference	Level	First Difference
ADF	-3.2527	-9.6096*	-1.9014	-11.2977*
PP	-3.0010	-9.4522*	-1.9731	-11.3190*
* denotes 1% level of significance.				

Table 3: Unit roots without structural break

Zivot–Andrews unit-root test						
Variables		Level		First Difference		Decision
		T-statistic	Break-Year	T-statistic	Break-Date	
Economic risk	K &T	-4.8779	1997Q3	-9.8266*	1995Q2	I(1)
Financial risk		-4.0968	2009Q4	-5.8514*	2000Q2	I(1)
Lee & Strazicich unit-root test						
		Level		First Difference		
		T-statistic	Break-Years	T-statistic	Break-Years	
Economic risk	K &T	-4.5450	1997Q1 2009Q3	-9.7545*	1987Q2 1995Q3	I(1)
Financial risk		-4.9857	1997Q4 2014Q3	-11.1100*	1947Q2 1995Q1	I(1)
Note:* portray 1% level of significance						

Table 4: Results of the BDS test for nonlinearity (1996)

Variables	M2	Prob	M3	Prob	M4	Prob	M5	Prob	M6	Prob
Economic risk	33.0622	0.000	34.5237	0.0000	36.4110	0.000	39.0501	0.0000	42.6783	0.000
Financial risk	41.0314	0.000	43.3014	0.000	46.0044	0.000	50.1420	0.0000	55.5684	0.000

4.2. Quantile on Quantile (QQ) regression

The influence of financial risk on economic risk was depicted in Fig. 3 at different conditional distribution levels combining the lower and upper quantile of economic risk (0.10-0.90) with the lower and upper quantile of financial risk (0.10-0.90). There is a strong positive effect of financial risk on economic risk is established at lower quantile to medium quantile of financial risk (0.1-0.75) with lower quantile to upper quantile of economic risk (0.1-0.95). But the level of the positive effect of financial risk on economic risk weakens at the upper quantile of financial

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risk (0.80-0.95) with lower quantile to the upper quantile of economic risk (0.1-0.95). In conclusion, it is observed that all quantile (either low, medium or high) of financial risk are positively influenced at all quantile (either low, medium or high) but at low and medium quantile the positive influence is stronger. This means that an increase in financial risk will positively affect economic risk in Nigeria.
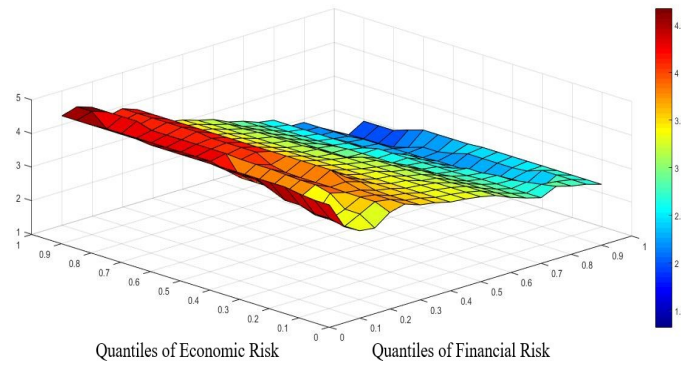

Figure 3: Influence of Financial Risk on Economic Risk

The effect of economic risk on financial risk in Nigeria was depicted in Figure 4. At low quantile (0.1-0.4), the effect of economic risk is negative with low quantile of financial risk (0.1-0.3), indicating that the increase of economic risk reduces financial risk. But in low quantile (0.1-0.5) the effect of economic risk is positive with medium and upper quantiles (0.6-0.95). Moreover, the effect of economic risk at medium to upper quantile (0.5-0.95) on financial risk at low and upper quantile (0.1-0.95) is positive. Therefore, the influence of economic risk on financial risk is positive in Nigeria, which means the increase in economic risk will impact financial risk positively. Furthermore, this outcome indicates that there is a feedback effect between economic risk and financial risk in Nigeria.
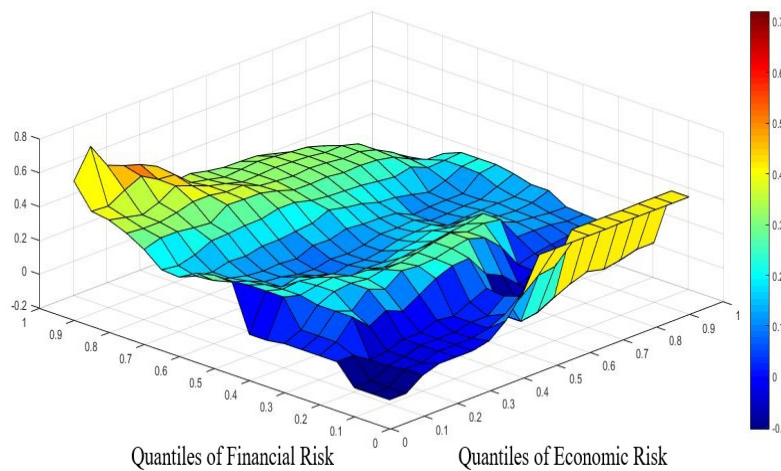

Figure 4: Influence of Economic Risk on Financial Risk

The significance of coefficients does not exist because the QQR is a nonparametric method. The estimates of the quantile regression are decomposed into the different quantiles of the explanatory variables by employing the QQR method (Bouri et al., 2017). Therefore, estimates

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for the QQR methods can be validated depending on how exactly they complement the QR coefficients. Fig 5 indicates that the plots for the estimates for quantile regression and the average estimates for QQR of the slope that measure the effect of financial risk on economic risk in Nigeria. It indicates that at different quantiles under consideration, the average estimates for QQR of the slope parameters are relatively similar to the estimates of the quantile regression. These plots provide adequate proof that the outcome for the QQR approach of the effect of financial risk on economic risk is positive in Nigeria is valid since the quantile regression estimates confirm it. Fig 6 depicts the graphical plots for the estimates for quantile regression and the average estimates for QQR of the slope which measures the influence of economic risk on financial risk. From the plot, the average estimates for QQR are comparatively similar to the estimates of the quantile regression across different quantiles. Since there is a close similarity in trends, therefore, the outcome of the QQR method is valid.
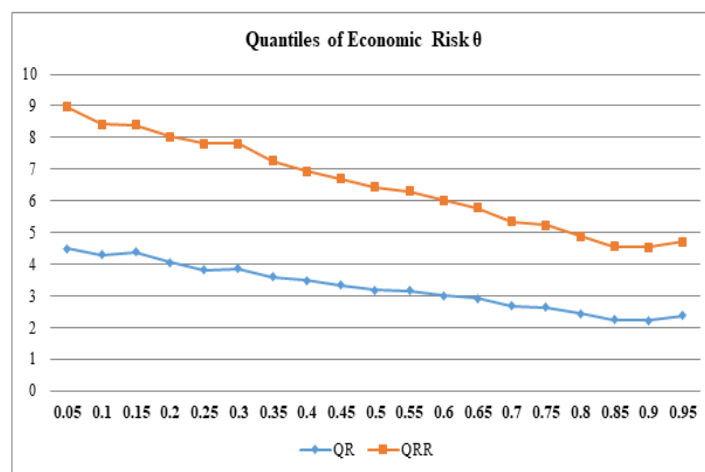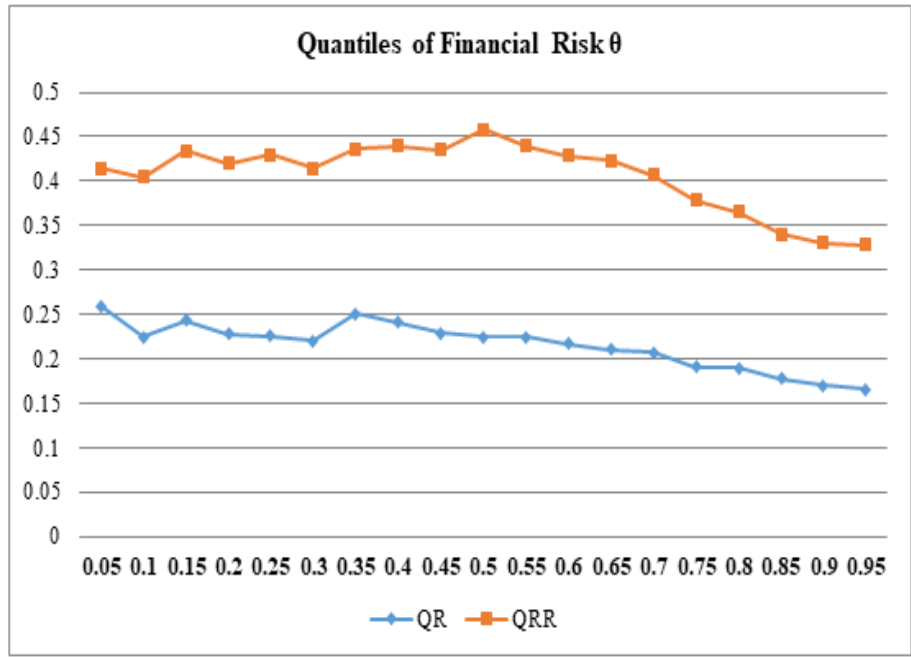

Figure 5: Quantiles of Economic Risk

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Figure 6: Quantiles of Financial Risk

4.3. Discussions

This section contains a comprehensive analysis focusing on the preceding findings. From Fig 3, based on the quantile on quantile outcome for the impact of financial risk on economic risk indicates that financial risk has a positive interconnection with economic risk in Nigeria, indicating the increase in Nigeria's financial risk will impact the country's economic risk positively. However, on the other hand, the quantile on quantile outcome for the influence of economic risk on financial risk also indicated that economic risk positively interacts with financial risk in Nigerian as shown in Fig 4. Therefore, when the economic risk increases in Nigeria, financial risk will be positively affected. This indicates a feedback hypothesis between financial risk and economic risk in Nigeria. These outcomes are consistent with the studies of Cournede & Denk, 2015; Creel et al. 2015; Ertugrul, Ozun, and Kirikkaleli, 2020 who established a positive linkage between financial risk and economic risk. However, the effect of financial risk on economic risk is stronger compared to the effect of economic risk on financial risk in Nigeria, supporting the "supply leading" perspective of Patrick (1966).

Since the significance of coefficients does not exist due to the nonparametric nature of the QQR approach. A robustness check was undertaken to establish the validity of the QQR approach's outcome. Plotting the estimates of the quantile regression and estimates for the QQR methods alongside each other across different quantiles. These plots in Fig 5 and 6 validate the outcome of the QQR methods, thereby ensuring that conclusion can be made from the outcome of the QQR methods.

Parallel to the present findings, Nigeria's debt crisis began about two decades after the country's independence in 1960, increasing from ₦82.4 million to ₦489 million in 1970 (Bangura, 1987; Obansa, 2005), marking deterioration in overall economic performance, a chronic payment balance, the craving gap in government income and expenditure, a collapse in social services and infrastructure, increasing inflation, an acute decline in the basic consumption sector. With these issues in mind, Nigeria has been compelled

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by World Bank and other international donor organizations to adopt the Structural Adjustment Programme (SAP) in 1986. SAP was designed to address the export generation, especially in the agricultural sector, maintain macroeconomic stability, prevent overvalued exchange rates, reforms and restructuring economic consumption and output trends, restrict price distortions and strong dependence on crude oil exports and minimize the importation of consumer goods. However, SAP was unable to address the rest of these economic problems: such as price stability, economic prosperity, full employment, and balance of payment equilibrium were a mirage as foreign deficits continued to rise and the fiscal deficit grew more than ever. More recently, on 19 February 2015, the Naira was devalued from ₦168/$1 to ₦199/$1 while the Naira in the parallel market moves from ₦196.13/$1 to ₦213.2/$1. However, since March 2015, the official rate of the CBN remains fixed at ₦197/$1, causing a massive gap and extreme exchange rate instability in the parallel market. However, the inflation rate rose steadily over time to 9.01% in December from 8.1% in February, which continued to rise to the end of 2016 (Federal Republic of Nigeria, 2017). From these findings, we can conclude that financial stability plays a vital role in sustaining a favourable economic situation in Nigeria. Therefore, to achieve economic stability in the country, policymakers need to develop a policy that will reduce the nation's financial uncertainty.

V. CONCLUSIONS

With an economic growth rate of approximately 4.63% annually from 1990 to 2018, considering the domestic and global instability in finance during the whole period, along with the lack of empirical evidence for the asymmetric relationship between economic risk and financial risk in Nigeria, which motivates this study to investigate the asymmetric relationship using the novel quantile-on-quantile (QQ) approach. This current study would doubtless open an insightful discussion on the connection between financial and economic growth in China from a risk perspective, by the quarterly dataset for the duration of 1984Q1 until 2018Q4 is used from the PRS Group in this article. Thus, to the authors' understanding, no prior study has examined these associations utilizing the novel quantile- on-quantile (QQ) approach.

The Q-Q method is distinguished by its capacity to apply the concepts of quantile regression and non-parametric estimation analysis. As a consequence, the approach appears to transform one parameter's quantile into another, and the findings have the potential to respond to questions about the interconnection between economic risk, and financial risk at both lower and higher quantiles of time series data. From the Jarque-Bera and BDS outcome, the series is not normally distributed.

The empirical outcome of the Q-Q method shows that: (i) the impact of economic risk on financial risk is positive; (ii) the impact of financial risk on economic risk is positive. This shows that a feedback association between financial risk and economic risk in Nigeria. This outcome is consistent with the findings from the Quantile regression approach as a robustness check. The following policy considerations are derived from this outcome: (i) to reduce financial uncertainty, the Minister of Finance and Central Bank of Nigeria should have a sound economic climate, especially in terms of economic growth, per capita income, inflation, and the current account; and (ii) foreign debt, liquidity, trade, and exchange rates should be regulated, and a steady growth rate should be achieved. However, this research allows for good research findings to be reported, further studies in other developed countries should be carried out.

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