

## **Influential Article Review - Evaluation of Spillover Effects on Nigeria's Sovereign Bond Yields**

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*This paper examines finance. We present insights from a highly influential paper. Here are the highlights from this paper: This study examines the spillover effects of U.S. monetary policy normalization on Nigeria 10-Year Treasury bond yield between 2011 and 2017, using the vector error correction model approach. Our results reveal that domestic factors, such as exchange rate and inflation, rather than the U.S. 10-Year sovereign bond yield, are the key drivers of Nigeria 10-Year bond yield. Additionally, the spillover effect from the U.S. monetary policy was amplified by oil price shocks and changes in Nigeria's monetary policy rates. Our counterfactual analysis confirms the findings. For our overseas readers, we then present the insights from this paper in Spanish, French, Portuguese, and German.*

*Keywords: Tapering, Nigeria 10-year sovereign bond yield, Error correction model, Counterfactual analysis*

### **SUMMARY**

- Unit root tests. When the mean, variance, and covariance of a series are not constant over time, it implies that such series are non-stationary. When data contain unit roots, it means any result that derives from such data will be spurious.
- To establish the existence of a long-run equilibrium relationship between the variables, the Johansen cointegration test based on trace and maximum eigenvalue test statistics was conducted, and the results are presented in Table 4.
- VECM, impulse response functions and analysis. The IRF suggest that the response of the local currency bond yield to higher U.S. bond yield was positive, although initially insignificant .
- Observed and model-based yield estimates around «tapering talk». In this section, we estimated responses in the 10-Year sovereign bond yield as a result of the Fed's tapering announcements, in terms of the behavior of the 10-Year sovereign bond yield months before and after the announcement. Footnote1 The objective of this analysis is to examine the impact of rising U.S. bond yield on Nigeria sovereign bond yield.
- Counterfactual analysis. To establish the implications of a sustained rise in the U.S. Treasury yields on Nigeria's sovereign bond yield, we estimated two post-tapering scenarios for local currency sovereign bond markets. The objective of this exercise is to construct counterfactuals that could mimic predicted bond yields, if external and/or domestic fundamentals are unchanged.

- Impulse Response to Unchanged Domestic Fundamentals. In Fig. 10 below, we show that the predicted path of Nigeria bond yield followed an upward trend in both scenarios. However, the rise in bond yield associated with holding the domestic factors unchanged was higher than those associated with holding the U.S. rate unchanged.
- Robustness test. Our earlier results show that domestic factors such as exchange and inflation rates were the drivers of Nigeria 10-Year bond yield. There is a debate on the primary drivers of inflation and exchange rates in oil exporting countries. Using data that spanned from 1980 to 2011, Dauvin demonstrated that energy prices and terms of trade are the major determinants of real exchange rates and inflation in oil exporting countries.

## HIGHLY INFLUENTIAL ARTICLE

We used the following article as a basis of our evaluation:

Tule, K. M., Odoneye, O. J., Afangideh, U. J., Ebu, G. U., Udoh, E. A. P., & Ujunwa, A. (2019). Assessing the spillover effects of U.S. monetary policy normalization on Nigeria sovereign bond yield. *Financial Innovation*, 5(1), 1–16.

This is the link to the publisher's website:

<https://jfin-swufe.springeropen.com/articles/10.1186/s40854-019-0148-y>

## INTRODUCTION

One of the major issues on the front burner of policy discourse is the transition of emerging market economies from the impact of monetary policy normalization in the U.S. During the Great Recession of 2007–09, the Federal Reserve (Fed) adopted an unconventional approach to monetary policy with short-term nominal interest rates within the zero nominal lower bound for more than 6 years. In addition, the Fed's balance sheet size expanded more than four times its value of 2007. The U.S. monetary policy normalization strives to return the monetary policy to a state in which the Fed's nominal interest rate is above zero and the size of the balance sheet is reduced. It is also intended to return the monetary policy process to the pre-recession era in terms of ending the zero-interest rate policy. This would simultaneously lead to an increase in short-term market interest rates and transform the composition of the Fed's asset holdings to the pre-Great Recession era.

Both researchers and policymakers acknowledge that the withdrawal of monetary stimulus and eventual increase in interest rates by the Fed would have tremendous repercussions on emerging market economies. The impact of these repercussions could take the form of portfolio reversal, financial system vulnerability, or macroeconomic instability, and eventually lead to greater financial turmoil in the global financial markets.

Over the years, Nigeria's financial market has evolved in terms of both sophistication and interconnectedness with the global financial system. The level of development has improved considerably, and it is expected to respond to major external monetary policy shocks such as the Fed's monetary policy normalization after nearly a decade of quantitative easing (QE). Furthermore, it is observed that normalization of monetary policy in the U.S. has the potential of reversing investors' sentiment in developing and emerging economies (BIS, 2018; Goes et al., 2017; and Moore et al., 2013). In the medium-term, the U.S. monetary policy normalization is expected to continue to fuel investor expectations with the threat of possible reversal of capital flows. As observed by CBN (2015), "the expected policy normalization in the U.S. could accentuate capital flow reversals from emerging and developing economies and further tighten global monetary conditions, thus exerting greater pressure on exchange rates in those countries."

The analytical spotlight on the effect of the Fed's monetary policy normalization on emerging and developing economies has focused on China, South Africa, and Brazil; Chile, Colombia, Mexico, and Peru; Mexico and other emerging economies (Goes et al., 2017; and Moore et al., 2013). To the best of our knowledge, there is no study assessing the spillover effects of the Fed's monetary policy normalization on Nigeria's sovereign bond yield. Given the relative size of Nigeria's economy in the Sub-Saharan African (SSA) region and its interconnectedness to the global financial market, a study

that clarifies understanding of the spillover effects of Fed’s monetary policy normalization on Nigeria is imperative.

This study, therefore, aims to address this important research gap, by examining the effects of the U.S. 10-Year bond yield on Nigeria 10-Year sovereign bond yield. To achieve this objective, the remainder of the study is structured as follows: Section 2 presents the stylized facts; Section 3 reviews related literature; Section 4 describes the methodology; Section 5 presents the discussion and results, while Section 6 concludes the study.

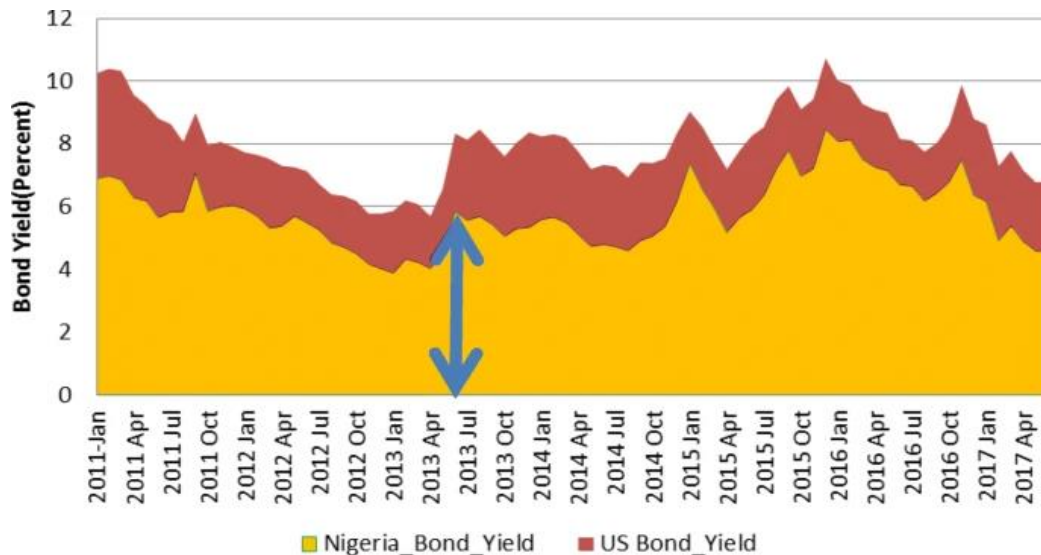
## CONCLUSION

The objective of this study is to examine the spillover effects of U.S. monetary policy normalization on Nigeria 10-Year sovereign bond yield. We employed the VECM model and observed a positive response for Nigeria 10-Year Treasury bond yield to higher U.S. bond yield. However, we observed that the U.S. 10-Year bond yield had a mild impact on Nigeria 10-Year Treasury bond yield for the period under review.

The study findings strongly suggest that Nigeria 10-Year bond yield is more sensitive to domestic shocks than the Fed’s monetary policy normalization. This is contrary to Belke and Dubova (2018a, b), who reported that sovereign bond yield in emerging Asian economies responded significantly to changes in the U.S. and Eurozone bond yields. Our empirical results show that Nigeria bond yield was consistent with our model-based estimates in the weeks immediately before the U.S. Federal Reserve’s tapering announcement. Our counterfactual analysis suggests that policy makers in Nigeria probably undertook measures to contend with potential spillovers from the shifts in monetary policy expectations in the U.S., while contending with domestic factors like exchange rate and inflation, which are key determinants of Nigeria’s sovereign bond yield. Importantly, our result suggests that shocks from the U.S. long-term yields were amplified by oil price shocks and changes in Nigeria’s policy rate.

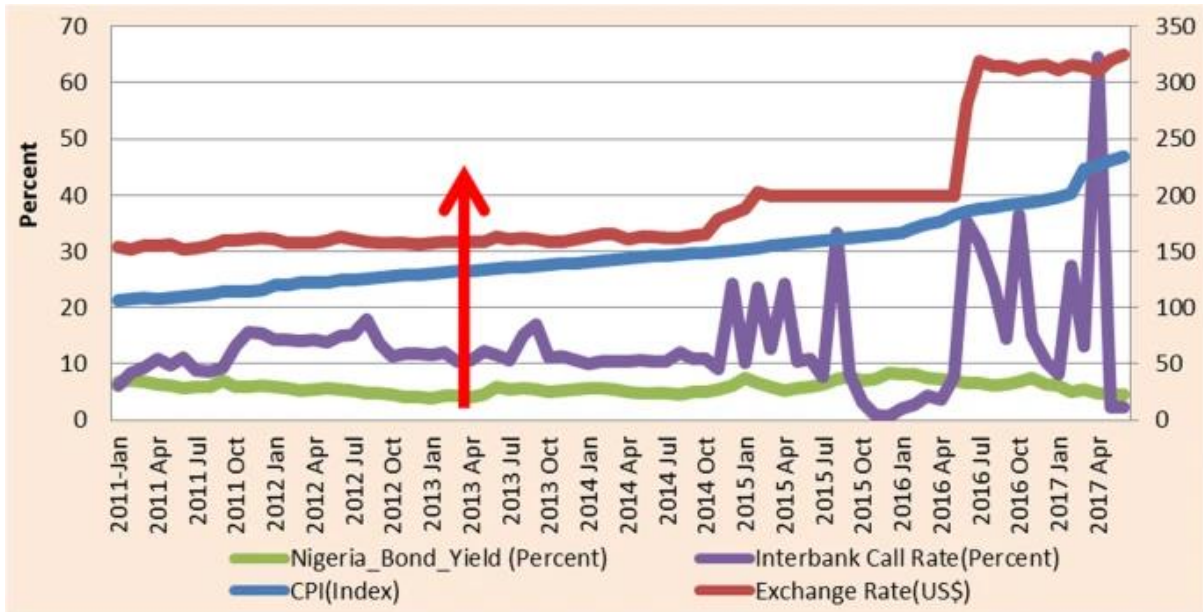
## APPENDIX

**FIGURE 1  
NIGERIA AND THE U.S.**

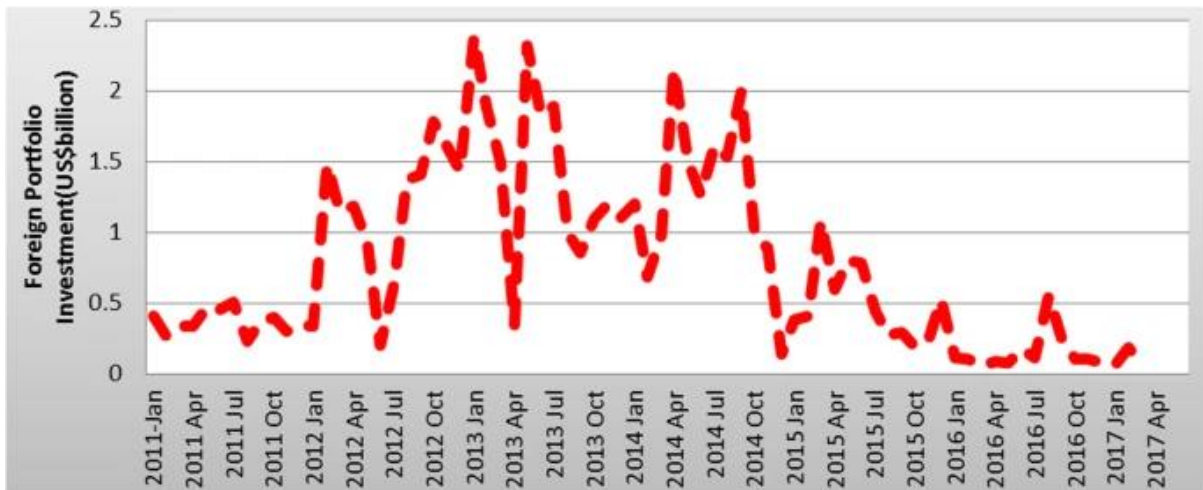


10-Year Bond Yield: January 2011–June 2017

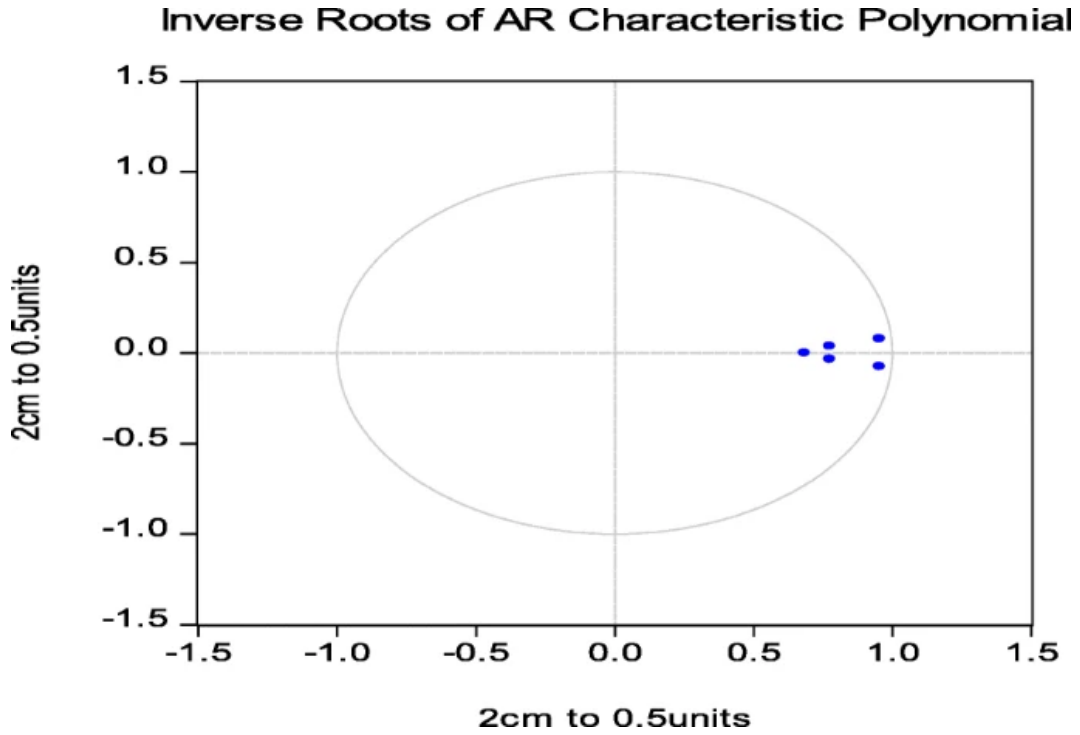
**FIGURE 2  
CPI, EXCHANGE RATE, BOND YIELD, AND INTERBANK CALL RATE: 2011MI–2017 M4**



**FIGURE 3**  
**FOREIGN PORTFOLIO INVESTMENT: 2011–2017**

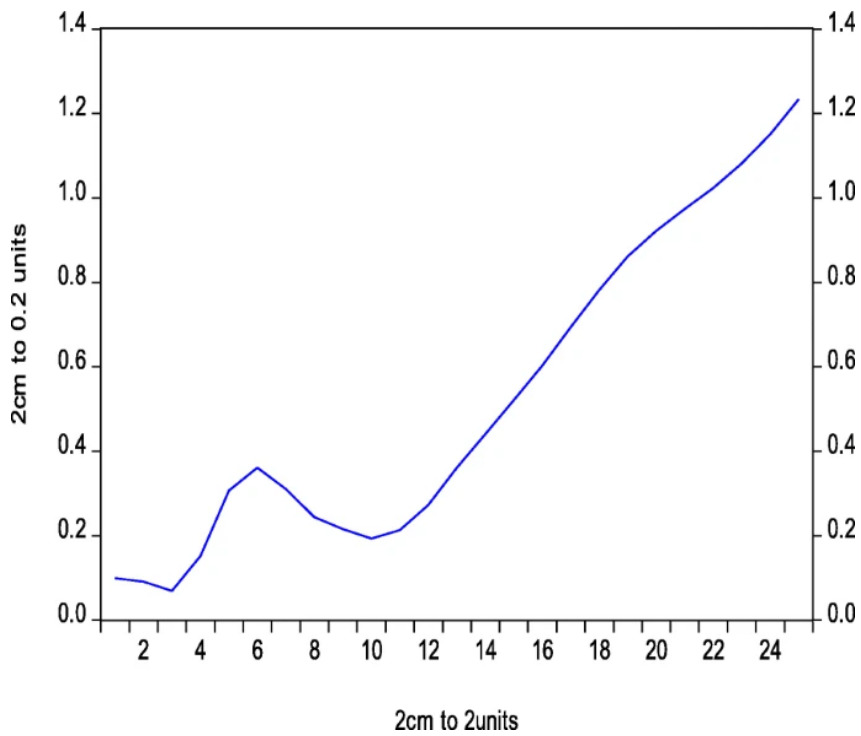


**FIGURE 4**  
**STABILITY TEST (GRAPH)**

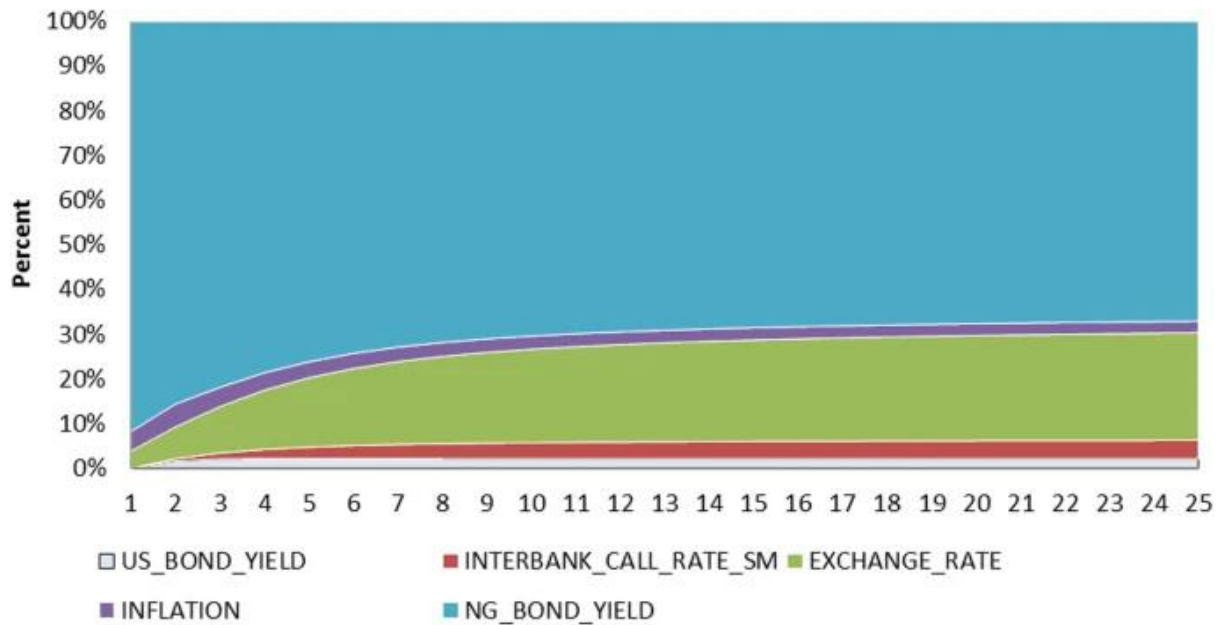


**FIGURE 5**  
**ACCUMULATED IMPULSE RESPONSE OF NIGERIA 10-YEAR BOND YIELD TO SHOCKS IN U.S. BOND YIELD**

Accumulated Response of MYM to Cholesky  
 One S.D. US\_BOND\_YIELD Innovation

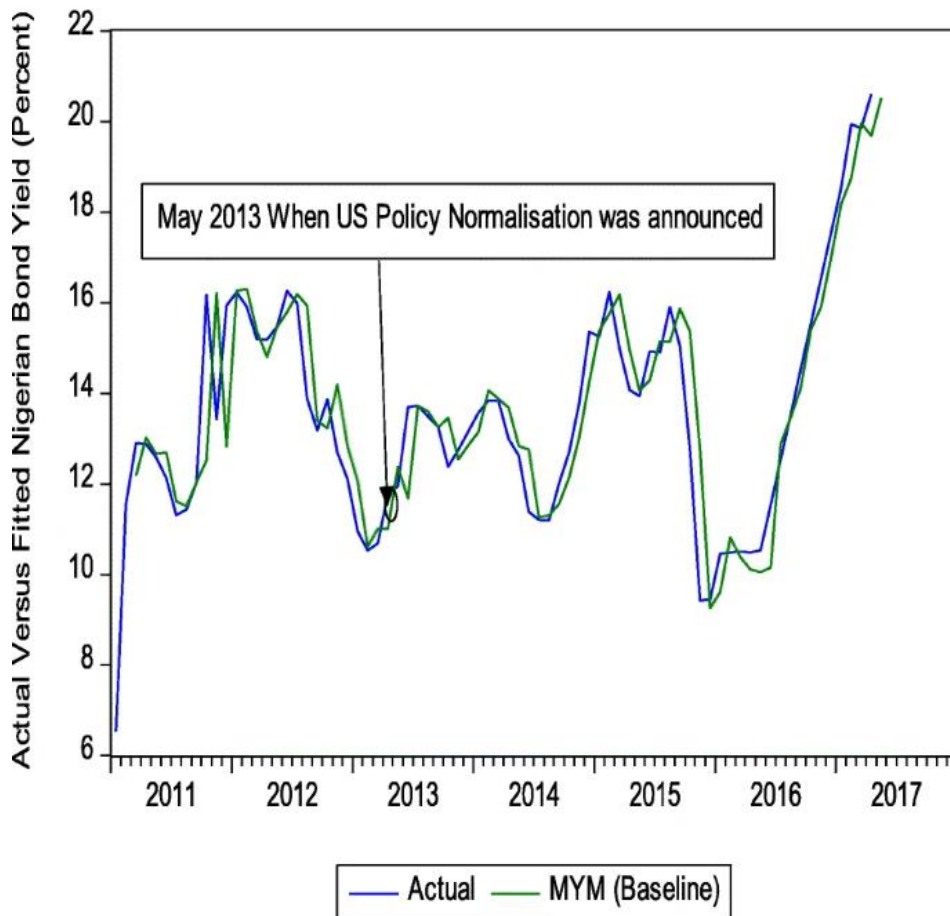


**FIGURE 6**  
**VARIANCE DECOMPOSITION OF NIGERIA 10-YEAR BOND YIELD**

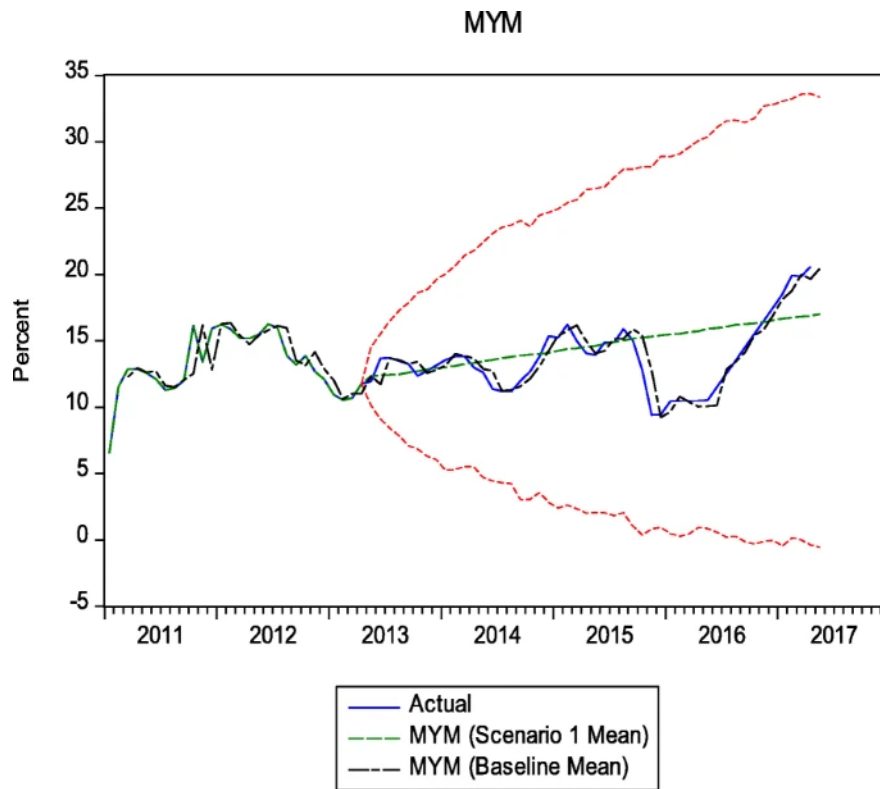


**FIGURE 7**  
**NIGERIA BOND YIELD: ACTUAL AND FITTED (BASELINE)**

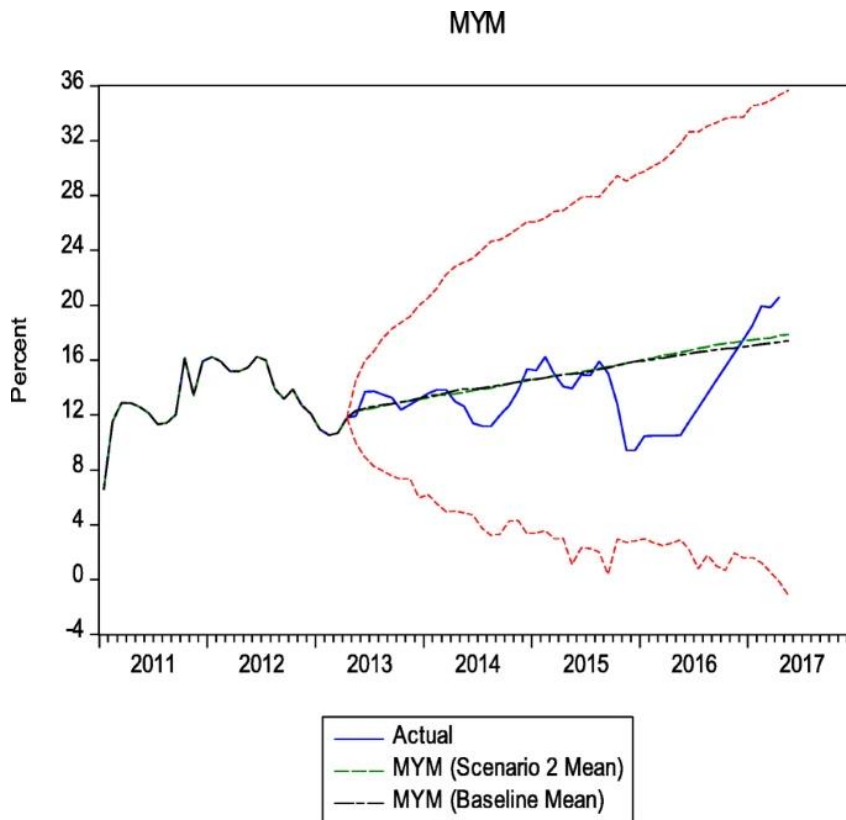
Nigerian Bond Yield: Actual and Fitted(baseline)



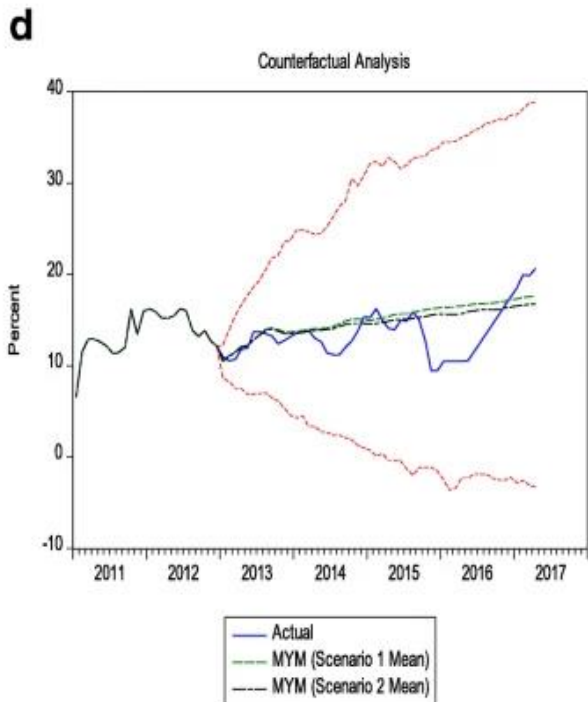
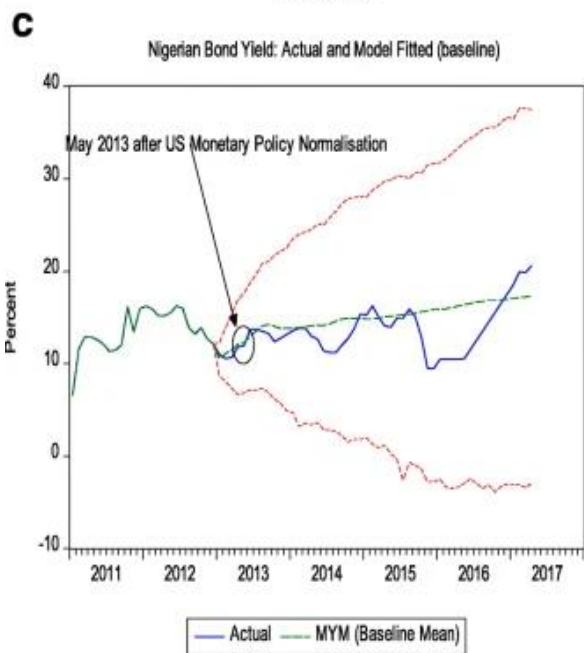
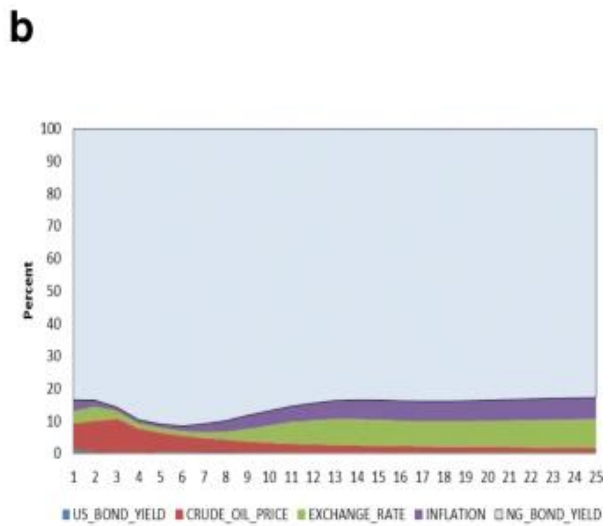
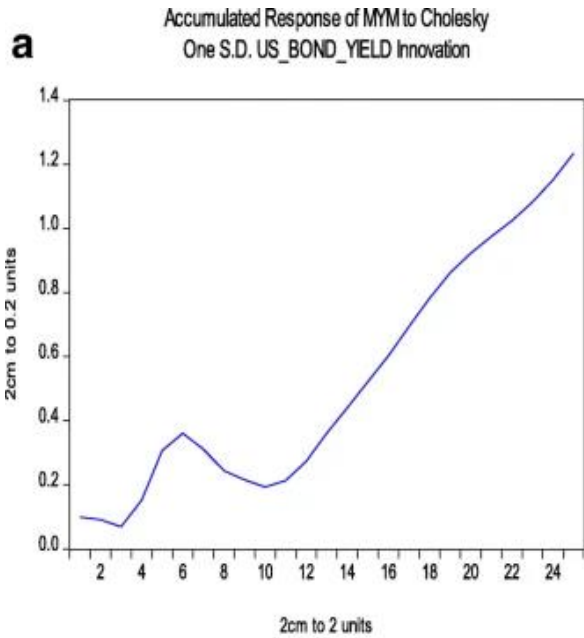
**FIGURE 8**  
**IMPULSE RESPONSE TO UNCHANGED U.S. TREASURY YIELD**



**FIGURE 9**  
**IMPULSE RESPONSE TO UNCHANGED DOMESTIC FUNDAMENTALS**



**FIGURE 10**  
**COMPARISON OF UNCHANGED DOMESTIC FUNDAMENTALS AND UNCHANGED U.S. TREASURY YIELD**



a Accumulated Impulse Response of Nigeria 10-Year Bond Yield to Shocks in U.S. Bond Yield (Introducing Crude Oil Prices). b Variance Decomposition of Nigeria 10-Year Bond Yield to Shocks in U.S. Bond Yield (Introducing Crude Oil Prices). c Baseline of Nigeria Bond Yield: Actual and Fitted (Introducing Crude Oil Prices). d Accumulated Impulse Response to Unchanged U.S. Treasury Yield (Introducing Crude Oil Prices)

**TABLE 1**  
**AUGMENTED DIKEY-FULLER UNIT ROOT TESTS**



|                       | Level      |                  |                | First Difference |                  |              | Remarks |
|-----------------------|------------|------------------|----------------|------------------|------------------|--------------|---------|
|                       | Constant   | Trend & Constant | None           | Constant         | Trend & Constant | None         |         |
| Exchange Rate         | -0.360970  | -1.851276        | 1.040777       | -6.093836***     | -6.180354***     | -5.963576*** | 1(1)    |
| Inter-Bank Call Rate  | -2.343387  | -2.630810*       | -0.219032      | -12.57201***     | -12.54419***     | -12.59757*** | 1(1)    |
| Nigeria Bond Yield    | -1.439778  | -1.613680        | 0.521529       | -8.766411***     | -8.356251***     | -8.375700*** | 1(1)    |
| US Bond Yield         | -2.697100* | -2.436492        | -1.150373      | -7.805880***     | -7.911789        | -7.820657    | 1(1)    |
| CPI                   | 3.365203** | 1.399136         | 3.057715**     | -2.408215        | -3.097197**      | -0.858834    | 1(1)    |
| Crude Oil Price       | -0.488318  | -2.443860        | -0.984044      | -6.876628***     | -6.830839***     | -6.835991*** | 1(1)    |
| Test critical values: | 1% level   |                  | -3.521579(***) |                  |                  |              |         |
|                       | 5% level   |                  | -2.901217(**)  |                  |                  |              |         |
|                       | 10% level  |                  | -2.587981(*)   |                  |                  |              |         |

**TABLE 2  
PHILLIPS-PERRON UNIT ROOT TESTS**

|                       | Level        |                  |                | First Difference |                  |              | Remarks |
|-----------------------|--------------|------------------|----------------|------------------|------------------|--------------|---------|
|                       | Constant     | Trend & Constant | None           | Constant         | Trend & Constant | None         |         |
| Exchange Rate         | 0.473251     | -1.193111        | 1.738914       | -5.944164***     | -5.953544***     | -5.886270*** | 1(1)    |
| Inter-Bank Call Rate  | -4.296061*** | -4.698666***     | -0.615243      | -13.75904***     | -13.81169***     | -13.34111*** | 1(1)    |
| Nigeria Bond Yield    | -2.262578    | -2.421348        | -0.835699      | -8.851768***     | -8.782396***     | -8.889599*** | 1(1)    |
| US Bond Yield         | -2.697100**  | -2.495068        | -1.137484      | -7.790616***     | -7.886657***     | -7.806582*** | 1(1)    |
| CPI                   | 3.928961***  | 1.544629         | 9.276122***    | -4.376189***     | -5.663140***     | -1.489529    | 1(1)    |
| Crude Oil Price       | -0.611807    | -2.612945        | -0.984044      | -6.817578***     | -6.770279***     | -6.830780*** | 1(1)    |
| Test critical values: | 1% level     |                  | -3.521579(***) |                  |                  |              |         |
|                       | 5% level     |                  | -2.901217(**)  |                  |                  |              |         |
|                       | 10% level    |                  | -2.587981(*)   |                  |                  |              |         |

**TABLE 3  
LAG LENGTH SELECTION CRITERIA**

| Lag | LogL      | LR        | FPE       | AIC       | SC        | HQ        |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|
| 0   | -1015.325 | NA        | 2088950.  | 28.74155  | 28.90089  | 28.80491  |
| 1   | -552.0382 | 848.2716  | 9.098197  | 16.39544  | 17.35150* | 16.77564* |
| 2   | -532.0508 | 33.78148  | 10.58920  | 16.53664  | 18.28942  | 17.23367  |
| 3   | -503.6191 | 44.04908  | 9.874375  | 16.43997  | 18.98947  | 17.45383  |
| 4   | -483.6507 | 28.12455  | 11.98200  | 16.58171  | 19.92793  | 17.91239  |
| 5   | -429.3661 | 68.81143* | 5.729779* | 15.75679* | 19.89973  | 17.40431  |

\* indicates lag order selected by the criterion

LR sequential modified LR test statistic (each test at 5% level), FPE Final prediction error, AIC Akaike information criterion, SC Schwarz information criterion, HQ Hannan-Quinn information criterion

**TABLE 4  
JOHANSEN COINTEGRATION TEST BASED ON TRACE AND MAXIMUM EIGEN-VALUES OF THE STOCHASTIC MATRIX**

| Trace Test |             |                  |                     | Maximum EigenValue |             |            |                     |
|------------|-------------|------------------|---------------------|--------------------|-------------|------------|---------------------|
| H0: Rank r | Ha: Rank =r | Trace Statistics | 0.05 Critical Value | H0: Rank r         | Ha: Rank =r | Statistics | 0.05 Critical Value |
| $r=0$      | $r=1$       | 84.68859         | 69.81889            | $r=0$              | $r=1$       | 39.85148   | 33.87687            |
| $r\leq 1$  | $r=2$       | 44.83710         | 47.85618            | $r\leq 1$          | $r=2$       | 25.59544   | 27.58438            |
| $r\leq 2$  | $r=3$       | 19.24166         | 29.79707            | $r\leq 2$          | $r=3$       | 14.87035   | 21.13162            |
| $r\leq 3$  | $r=4$       | 4.371317         | 15.49471            | $r\leq 3$          | $r=4$       | 4.189725   | 14.26460            |
| $r\leq 4$  | $r=5$       | 0.181593         | 3.841466            | $r\leq 4$          | $r=5$       | 0.181593   | 3.841466            |

Note: Trace tests indicate 1 cointegrating equation at the 0.05 level, while the max-eigenvalue also indicates 1 cointegrating equation

Source: Author's compilation using EViews

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## **TRANSLATED VERSION: SPANISH**

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

## **VERSION TRADUCIDA: ESPAÑOL**

A continuación se muestra una traducción aproximada de las ideas presentadas anteriormente. Esto se hizo para dar una comprensión general de las ideas presentadas en el documento. Por favor, disculpe cualquier error gramatical y no responsabilite a los autores originales de estos errores.

## **INTRODUCCIÓN**

Uno de los principales temas en el frente del discurso político es la transición de las economías de mercados emergentes por el impacto de la normalización de la política monetaria en los Estados Unidos. Durante la Gran Recesión de 2007-09, la Reserva Federal (Fed) adoptó un enfoque no convencional de la política monetaria con tasas de interés nominales a corto plazo dentro del límite inferior nominal cero durante más de 6 años. Además, el tamaño del balance de la Fed amplió más de cuatro veces su valor en 2007. La normalización de la política monetaria de Estados Unidos se esfuerza por devolver la política monetaria a un estado en el que la tasa de interés nominal de la Fed esté por encima de cero y se reduzca el tamaño del balance. También se pretende devolver el proceso de política monetaria a la era anterior a la recesión en términos de poner fin a la política de tipos de interés cero. Esto conduciría simultáneamente a un aumento de las tasas de interés del mercado a corto plazo y transformaría la composición de las participaciones de activos de la Fed en la era anterior a la Gran Recesión.

Tanto los investigadores como los encargados de formular políticas reconocen que la retirada del estímulo monetario y el eventual aumento de las tasas de interés por parte de la Fed tendrían enormes repercusiones en las economías de mercados emergentes. El impacto de estas repercusiones podría tomar la forma de reversión de la cartera, vulnerabilidad del sistema financiero o inestabilidad macroeconómica, y eventualmente conducir a mayores turbulencias financieras en los mercados financieros globales.

A lo largo de los años, el mercado financiero de Nigeria ha evolucionado tanto en términos de sofisticación como de interconexión con el sistema financiero mundial. El nivel de desarrollo ha mejorado considerablemente, y se espera que responda a importantes perturbaciones de la política monetaria externa, como la normalización de la política monetaria de la Fed después de casi una década de flexibilización cuantitativa (QE). Además, se observa que la normalización de la política monetaria en los Estados Unidos tiene el potencial de revertir el sentimiento de los inversionistas en las economías en desarrollo y emergentes (BIS, 2018; Goes et al., 2017; y Moore et al., 2013). A mediano plazo, se espera que la normalización de la política monetaria de los Estados Unidos continúe alimentando las expectativas de los inversores con la amenaza de una posible reversión de los flujos de capital. Como lo observó el CBN (2015), "la normalización de las políticas previstas en los Estados Unidos podría acentuar las reversiones de los flujos de capital de las economías emergentes y en desarrollo y endurecer aún más las condiciones monetarias mundiales, ejerciendo así una mayor presión sobre los tipos de cambio en esos países".

El foco analítico sobre el efecto de la normalización de la política monetaria de la Fed en las economías emergentes y en desarrollo se ha centrado en China, Sudáfrica y Brasil; Chile, Colombia, México y Perú; México y otras economías emergentes (Goes et al., 2017; y Moore et al., 2013). Hasta bien que sabemos, no hay ningún estudio que evalúe los efectos de contagio de la normalización de la política monetaria de la Fed en el rendimiento de los bonos soberanos de Nigeria. Dado el tamaño relativo de la economía de Nigeria en la región del África subsahariana (SSA) y su interconexión con el mercado financiero mundial, es imperativo un estudio que clarifique la comprensión de los efectos de contagio de la normalización de la política monetaria de la Fed en Nigeria.

Este estudio, por lo tanto, tiene como objetivo abordar esta importante brecha de investigación, examinando los efectos del rendimiento de los bonos de 10 años de los Estados Unidos en el rendimiento de los bonos soberanos a 10 años de Nigeria. Para lograr este objetivo, el resto del estudio se estructura de la siguiente manera: La Sección 2 presenta los hechos estilizados; Sección 3 reseñas relacionadas con literatura; La Sección 4 describe la metodología; La Sección 5 presenta el debate y los resultados, mientras que la Sección 6 concluye el estudio.

## CONCLUSIÓN

El objetivo de este estudio es examinar los efectos de contagio de la normalización de la política monetaria estadounidense en el rendimiento de los bonos soberanos de 10 años de Nigeria. Empleamos el modelo VECM y observamos una respuesta positiva para el rendimiento de los bonos del Tesoro de Nigeria a 10 años para obtener un mayor rendimiento de los bonos estadounidenses. Sin embargo, observamos que el rendimiento de los bonos a 10 años de los Estados Unidos tuvo un impacto leve en el rendimiento de los bonos del Tesoro a 10 años de Nigeria para el período objeto de examen.

Los resultados del estudio sugieren firmemente que el rendimiento de los bonos de 10 años de Nigeria es más sensible a las perturbaciones internas que la normalización de la política monetaria de

la Fed. Esto es contrario a Belke y Dubova (2018a, b), quienes informaron que el rendimiento de los bonos soberanos en las economías asiáticas emergentes respondió significativamente a los cambios en los rendimientos de los bonos de Estados Unidos y la Eurozona. Nuestros resultados empíricos muestran que el rendimiento de los bonos de Nigeria fue consistente con nuestras estimaciones basadas en modelos en las semanas inmediatamente anteriores al anuncio de la Reserva Federal de los Estados Unidos. Nuestro análisis hipotético sugiere que los encargados de la formulación de políticas en Nigeria probablemente emprendieron medidas para hacer frente a posibles repercusiones derivadas de los cambios en las expectativas de política monetaria en los Estados Unidos, al tiempo que se enfrentan a factores internos como el tipo de cambio y la inflación, que son determinantes clave del rendimiento de los bonos soberanos de Nigeria. Es importante destacar que nuestro resultado sugiere que los shocks de los rendimientos a largo plazo de los Estados Unidos se amplificaron por las perturbaciones de los precios del petróleo y los cambios en la tasa de políticas de Nigeria.

## **TRANSLATED VERSION: FRENCH**

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

## **VERSION TRADUITE: FRANÇAIS**

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## **INTRODUCTION**

L'un des principaux enjeux du discours politique est la transition des économies de marché émergentes de l'impact de la normalisation de la politique monétaire aux États-Unis. Pendant la Grande Récession de 2007-2009, la Réserve fédérale (Fed) a adopté une approche non conventionnelle de la politique monétaire avec des taux d'intérêt nominaux à court terme dans la limite nominale nulle inférieure pendant plus de 6 ans. En outre, la taille du bilan de la Fed a augmenté plus de quatre fois sa valeur de 2007. La normalisation de la politique monétaire américaine s'efforce de remettre la politique monétaire dans un état où le taux d'intérêt nominal de la Fed est supérieur à zéro et où la taille du bilan est réduite. Il vise également à remettre le processus de politique monétaire à l'ère d'avant la récession en termes de fin de la politique de taux d'intérêt zéro. Cela conduirait simultanément à une hausse des taux d'intérêt du marché à court terme et transformerait la composition des avoirs de la Fed à l'ère d'avant la Grande Récession.

Les chercheurs et les décideurs reconnaissent que le retrait des mesures de relance monétaire et, éventuellement, la hausse des taux d'intérêt par la Fed auraient d'énormes répercussions sur les économies de marché émergentes. L'impact de ces répercussions pourrait prendre la forme d'un retournement de portefeuille, d'une vulnérabilité du système financier ou d'une instabilité macroéconomique, et éventuellement conduire à de plus grandes turbulences financières sur les marchés financiers mondiaux.

Au fil des ans, le marché financier nigérian a évolué en termes de sophistication et d'interconnexion avec le système financier mondial. Le niveau de développement s'est considérablement amélioré et devrait répondre à d'importants chocs de politique monétaire extérieure tels que la normalisation de la politique monétaire de la Fed après près d'une décennie d'assouplissement quantitatif (QE). En outre, on observe que la normalisation de la politique monétaire aux États-Unis a le potentiel d'inverser le sentiment des investisseurs dans les économies en développement et émergentes (BRI, 2018; Goes et coll., 2017; et Moore et coll., 2013). À moyen terme, la normalisation de la politique monétaire américaine devrait continuer d'alimenter les attentes des investisseurs avec la menace d'une éventuelle inversion des flux de capitaux. Comme l'a observé CBN (2015), « la normalisation prévue des politiques aux États-Unis pourrait accentuer l'inversion des flux de capitaux des économies émergentes

et en développement et resserrer davantage les conditions monétaires mondiales, exerçant ainsi une pression accrue sur les taux de change dans ces pays ».

Les projecteurs analytiques sur l'effet de la normalisation de la politique monétaire de la Fed sur les économies émergentes et en développement se sont concentrés sur la Chine, l'Afrique du Sud et le Brésil; Le Chili, la Colombie, le Mexique et le Pérou; Mexique et autres économies émergentes (Goes et coll., 2017; et Moore et coll., 2013). À notre connaissance, aucune étude n'évalue les effets de la normalisation de la politique monétaire de la Fed sur le rendement des obligations souveraines du Nigéria. Compte tenu de la taille relative de l'économie nigériane dans la région de l'Afrique subsaharienne et de son interconnexion avec le marché financier mondial, une étude qui clarifie la compréhension des retombées de la normalisation de la politique monétaire de la Fed sur le Nigéria est impérative.

Cette étude vise donc à combler cet important déficit de recherche, en examinant les effets du rendement des obligations américaines à 10 ans sur le rendement des obligations souveraines à 10 ans du Nigéria. Pour atteindre cet objectif, le reste de l'étude est structuré comme suit : la section 2 présente les faits stylisés; La section 3 passe en revue la littérature connexe; La section 4 décrit la méthodologie; La section 5 présente la discussion et les résultats, tandis que la section 6 conclut l'étude.

## CONCLUSION

L'objectif de cette étude est d'examiner les effets de retombées de la normalisation de la politique monétaire américaine sur le rendement des obligations souveraines à 10 ans du Nigéria. Nous avons utilisé le modèle VECM et observé une réponse positive pour le rendement des obligations du Trésor nigérian à 10 ans à un rendement obligataire américain plus élevé. Toutefois, nous avons observé que le rendement des obligations américaines à 10 ans avait un léger impact sur le rendement des obligations du Trésor à 10 ans du Nigéria pour la période considérée.

Les résultats de l'étude suggèrent fortement que le rendement des obligations à 10 ans du Nigéria est plus sensible aux chocs intérieurs que la normalisation de la politique monétaire de la Fed. Cela va à l'encontre de Belke et Dubova (2018a, b), qui ont indiqué que le rendement des obligations souveraines dans les économies émergentes asiatiques répondait de manière significative aux variations des rendements obligataires des États-Unis et de la zone euro. Nos résultats empiriques montrent que le rendement des obligations nigérianes était conforme à nos estimations fondées sur des modèles dans les semaines qui ont suivi l'annonce de la Réserve fédérale américaine. Notre analyse contrefactuelle suggère que les décideurs politiques nigériens ont probablement pris des mesures pour faire face aux retombées potentielles des changements dans les attentes de politique monétaire aux États-Unis, tout en faisant face à des facteurs nationaux comme le taux de change et l'inflation, qui sont des déterminants clés du rendement des obligations souveraines du Nigéria. Fait important, notre résultat suggère que les chocs des rendements à long terme des États-Unis ont été amplifiés par les chocs des prix du pétrole et les changements du taux directeur du Nigéria.

## TRANSLATED VERSION: GERMAN

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

## ÜBERSETZTE VERSION: DEUTSCH

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## EINLEITUNG

Eines der Hauptthemen im politischen Diskurs ist der Übergang der Schwellenländer von den Auswirkungen der geldpolitischen Normalisierung in den USA. Während der Großen Rezession von 2007-09 verfolgte die Federal Reserve (Fed) einen unkonventionellen Ansatz in der Geldpolitik mit kurzfristigen Nominalzinsen innerhalb der Null-Nominal-Untergrenze für mehr als 6 Jahre. Darüber hinaus hat sich die Bilanzgröße der Fed mehr als viermal so stark vergrößert wie 2007. Die Normalisierung der US-Geldpolitik zielt darauf ab, die Geldpolitik in einen Zustand zurückzusetzen, in dem der Nominalzinssatz der Fed über Null liegt und die Höhe der Bilanz reduziert wird. Außerdem soll der geldpolitische Prozess in die Zeit vor der Rezession zurückgeführt werden, um die Nullzinspolitik zu beenden. Dies würde gleichzeitig zu einer Erhöhung der kurzfristigen Marktzinsen führen und die Zusammensetzung der Vermögenswerte der Fed in die Zeit vor der Großen Rezession umwandeln.

Sowohl Forscher als auch politische Entscheidungsträger erkennen an, dass die Rücknahme der geldpolitischen Impulse und eventuelle Zinserhöhungen durch die Fed enorme Auswirkungen auf die Schwellenländer haben würden. Die Auswirkungen dieser Auswirkungen könnten in Form von Portfolioumkehr, Anfälligkeit des Finanzsystems oder makroökonomischer Instabilität erfolgen und schließlich zu größeren Finanzturbulenzen auf den globalen Finanzmärkten führen.

Im Laufe der Jahre hat sich Nigerias Finanzmarkt sowohl in Bezug auf Raffinesse als auch in Bezug auf die Vernetzung mit dem globalen Finanzsystem entwickelt. Das Entwicklungsniveau hat sich erheblich verbessert, und es wird erwartet, dass es auf große außenpolitische Schocks wie die normalisierte Geldpolitik der Fed nach fast einem Jahrzehnt quantitativer Lockerung (QE) reagieren wird. Darüber hinaus wird beobachtet, dass die Normalisierung der Geldpolitik in den USA das Potenzial hat, die Stimmung der Anleger in Entwicklungs- und Schwellenländern umzukehren (BIS, 2018; Goes et al., 2017; Und Moore et al., 2013). Mittelfristig dürfte die Normalisierung der US-Geldpolitik die Erwartungen der Anleger mit der Drohung einer möglichen Umkehr der Kapitalflüsse weiter anheizen. Wie cbn (2015) beobachtete, "könnte die erwartete Normalisierung der Politik in den USA die Umkehr des Kapitalflusses aus Schwellen- und Entwicklungsländern verstärken und die globalen monetären Bedingungen weiter verschärfen und damit den Druck auf die Wechselkurse in diesen Ländern erhöhen."

Das analytische Rampenlicht auf die Auswirkungen der geldpolitischen Normalisierung der Fed auf Schwellen- und Entwicklungsländer konzentrierte sich auf China, Südafrika und Brasilien; Chile, Kolumbien, Mexiko und Peru; Mexiko und andere Schwellenländer (Goes et al., 2017; und Moore et al., 2013). Nach bestem Wissen und Gewissen gibt es keine Studie, die die Spillover-Effekte der geldpolitischen Normalisierung der Fed auf nigerias Staatsanleihenrenditen bewertet. Angesichts der relativen Größe der nigerianischen Wirtschaft in der afrikanischen Region südlich der Sahara (SSA) und ihrer Verflechtung mit dem globalen Finanzmarkt ist eine Studie, die das Verständnis der Spillover-Effekte der geldpolitischen Normalisierung der Fed auf Nigeria klarstellt, unerlässlich.

Diese Studie zielt daher darauf ab, diese wichtige Forschungslücke zu schließen, indem die Auswirkungen der Rendite zehnjähriger US-Anleihen auf die Rendite zehnjähriger nigerianischer Staatsanleihen untersucht werden. Um dieses Ziel zu erreichen, ist der Rest der Studie wie folgt strukturiert: Abschnitt 2 stellt die stilisierten Fakten dar; Abschnitt 3 behandelt verwandte Literatur; Abschnitt 4 beschreibt die Methodik; In Abschnitt 5 werden die Diskussion und die Ergebnisse dargestellt, während Abschnitt 6 die Studie abschließt.

## SCHLUSSFOLGERUNG

Ziel dieser Studie ist es, die Spillover-Effekte der Normalisierung der US-Geldpolitik auf die Rendite zehnjähriger Nigerianischer Staatsanleihen zu untersuchen. Wir verwendeten das VECM-Modell und beobachteten eine positive Reaktion auf die Rendite zehnjähriger nigerianischer Staatsanleihen auf eine höhere Rendite von US-Anleihen. Wir stellten jedoch fest, dass die Rendite zehnjähriger US-Anleihen einen leichten Einfluss auf die Rendite zehnjähriger Nigerianischer Staatsanleihen für den Berichtszeitraum hatte.

Die Ergebnisse der Studie deuten stark darauf hin, dass die Rendite zehnjähriger nigerianischer Anleihen empfindlicher auf innenpolitische Schocks reagiert als die geldpolitische Normalisierung der Fed. Dies widerspricht Belke und Dubova (2018a, b), die berichteten, dass die Renditen von Staatsanleihen in den asiatischen Schwellenländern deutlich auf Veränderungen der Anleiherenditen in den USA und der Eurozone reagierten. Unsere empirischen Ergebnisse zeigen, dass die Rendite der nigerianischen Anleihen in den Wochen unmittelbar vor der tapezierenden Ankündigung der US-Notenbank mit unseren modellbasierten Schätzungen übereinstimmte. Unsere kontrafaktische Analyse legt nahe, dass die politischen Entscheidungsträger in Nigeria wahrscheinlich Maßnahmen ergriffen haben, um mit potenziellen Ausstrahlungen aus den Verschiebungen der geldpolitischen Erwartungen in den USA fertig zu werden, während sie mit inländischen Faktoren wie Wechselkurs und Inflation zu kämpfen haben, die wichtige Determinanten der nigerianischen Staatsanleiherenditen sind. Wichtig ist, dass unser Ergebnis darauf hindeutet, dass die Schocks der langfristigen US-Renditen durch Ölpreisschocks und Änderungen des nigerianischen Leitzinses verstärkt wurden.

### **TRANSLATED VERSION: PORTUGUESE**

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### **VERSÃO TRADUZIDA: PORTUGUÊS**

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### **INTRODUÇÃO**

Uma das principais questões no discurso político é a transição das economias de mercado emergentes do impacto da normalização da política monetária nos EUA. Durante a Grande Recessão de 2007-2009, a Reserva Federal (Fed) adotou uma abordagem não convencional da política monetária com taxas de juro nominais de curto prazo dentro do limite nominal zero inferior por mais de 6 anos. Além disso, o tamanho do balanço da Fed expandiu mais de quatro vezes o seu valor de 2007. A normalização da política monetária dos EUA esforça-se por devolver a política monetária a um estado em que a taxa de juro nominal da Fed está acima de zero e a dimensão do balanço é reduzida. Pretende-se também devolver o processo de política monetária à era da pré-recessão em termos de pôr termo à política de taxas de juro zero. Isto conduziria simultaneamente a um aumento das taxas de juro de mercado de curto prazo e transformaria a composição das participações sociais da Fed na era pré-Grande Recessão.

Tanto os investigadores como os decisores políticos reconhecem que a retirada de estímulos monetários e um eventual aumento das taxas de juro por parte da Fed teriam repercussões tremendas nas economias de mercado emergentes. O impacto destas repercussões poderá assumir a forma de inversão de carteira, vulnerabilidade do sistema financeiro ou instabilidade macroeconómica, e eventualmente conduzir a uma maior turbulência financeira nos mercados financeiros globais.

Ao longo dos anos, o mercado financeiro da Nigéria tem evoluído tanto em termos de sofisticação como de interligação com o sistema financeiro global. O nível de desenvolvimento melhorou consideravelmente, e espera-se que responda a grandes choques de política monetária externa, como a normalização da política monetária da Fed após quase uma década de quantitative easing (QE). Além disso, observa-se que a normalização da política monetária nos EUA tem o potencial de inverter o sentimento dos investidores nas economias em desenvolvimento e emergentes (BIS, 2018). Vai et al., 2017; e Moore et al., 2013). A médio prazo, espera-se que a normalização da política monetária dos EUA continue a alimentar as expectativas dos investidores com a ameaça de uma possível inversão dos fluxos de capital. Como observado pela CBN (2015), "a normalização da política esperada nos EUA poderia acentuar as inversões dos fluxos de capital das economias emergentes e em desenvolvimento e



apertar ainda mais as condições monetárias globais, exercendo assim uma maior pressão sobre as taxas de câmbio nesses países".

Os holofotes analíticos sobre o efeito da normalização da política monetária da Fed nas economias emergentes e em desenvolvimento centraram-se na China, na África do Sul e no Brasil; Chile, Colômbia, México e Peru; México e outras economias emergentes (Goes et al., 2017; e Moore et al., 2013). Pelo que sabemos, não há nenhum estudo que avalie os efeitos da normalização da política monetária da Fed sobre o rendimento das obrigações soberanas da Nigéria. Dada a dimensão relativa da economia da Nigéria na região da África Subsaariana (SSA) e a sua interligação com o mercado financeiro global, é imperativo um estudo que esclareça a compreensão dos efeitos da normalização da política monetária da Fed na Nigéria.

Este estudo visa, portanto, colmatar esta importante lacuna de investigação, examinando os efeitos do rendimento das obrigações norte-americanas a 10 anos sobre o rendimento das obrigações soberanas da Nigéria a 10 anos. Para atingir este objetivo, o restante do estudo é estruturado da seguinte forma: a secção 2 apresenta os factos estilizados; Secção 3 revê literatura relacionada; A secção 4 descreve a metodologia; A secção 5 apresenta a discussão e os resultados, enquanto a Secção 6 conclui o estudo.

## CONCLUSÃO

O objetivo deste estudo é examinar os efeitos da normalização da política monetária dos EUA sobre o rendimento das obrigações soberanas da Nigéria a 10 anos. Empregamos o modelo VECM e observámos uma resposta positiva para a Nigéria a 10 anos de rendimento das obrigações do Tesouro para um maior rendimento das obrigações dos EUA. No entanto, observámos que o rendimento das obrigações norte-americanas a 10 anos teve um ligeiro impacto no rendimento das obrigações do Tesouro da Nigéria a 10 anos para o período em análise.

Os resultados do estudo sugerem fortemente que o rendimento das obrigações da Nigéria a 10 anos é mais sensível aos choques domésticos do que a normalização da política monetária da Fed. Isto é contrário a Belke e Dubova (2018, b), que relataram que o rendimento das obrigações soberanas nas economias asiáticas emergentes respondeu significativamente às mudanças nas yields das obrigações dos EUA e da Zona Euro. Os nossos resultados empíricos mostram que o rendimento das obrigações da Nigéria foi consistente com as nossas estimativas baseadas em modelos nas semanas imediatamente anteriores ao anúncio da Reserva Federal dos EUA. A nossa análise contrafactual sugere que os decisores políticos na Nigéria provavelmente tomaram medidas para enfrentar potenciais repercussões das mudanças nas expectativas de política monetária nos EUA, ao mesmo tempo que se mantêm em conflito com fatores internos como a taxa de câmbio e a inflação, que são determinantes fundamentais do rendimento das obrigações soberanas da Nigéria. O nosso resultado sugere que os choques dos rendimentos a longo prazo dos EUA foram amplificados por choques nos preços do petróleo e alterações na taxa de política da Nigéria.

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