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The impact of kidnapping on foreign ownership of firms in Nigeria

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Abstract

Nigeria is one of the countries in Sub-Saharan Africa (SSA) that has faced high incidents of kidnapping. As a result of that, some studies have investigated its determinants and economic consequences in Nigeria. However, no study is yet to investigate its impact on the foreign ownership of firms. This is a research void that this article has attempted to fill. Using the World Bank Enterprise Survey and the United Nations Office on Drugs and Crime, we found empirical evidence of the negative impact of kidnapping on the foreign ownership of firms. An increase in the kidnapping rate by one (1 per 100,000 of population) will reduce the foreign ownership of firms by 4.855–10.098% depending on the econometric model. There is also empirical evidence that the impact of kidnapping on foreign ownership will vary by geographical regions in Nigeria and by firm size. Policy implications were deduced from our findings.

KEYWORDS
foreign ownership, kidnapping, Nigeria, Sub-Saharan Africa

JEL CLASSIFICATION
F2, F21, O55

1 | INTRODUCTION

Nigeria is in the grip of a kidnapping epidemic (Falayi, 2019) and available data from the United Nations Office on Drugs and Crime show that Nigeria ranks third (behind South Africa and Cameroun) in the number of kidnapping cases in Sub-Saharan Africa (SSA) (UNODC, 2020). Kidnapping is one of several typologies of crime, and the macroeconomic implications of crime can be very devastating. In recent times, the economic consequences of crime, particularly at firm level, have become of immense interest and worthy of scholarly debate (Kimou, 2015; Rodgers, 2006). These interests stem from the fact that the entrepreneurial activities of firms have a relationship with economic development, job creation, spill-over effects, and, overall, macroeconomic stability (Mahofa, Sundaram, & Edwards, 2016; Pearlman, 2014). Nevertheless, such entrepreneurial activities need a quality business environment in order to thrive and to be sustainable. Available literature has shown that the presence of crime significantly erodes the quality of the business environment, either directly or indirectly. Firms operating in countries that are riddled with crime can experience a decline in profit and productivity. There is also the possibility that firms may be discouraged from expanding their business ventures when faced with high levels of crime (Mahofa et al., 2016). Therefore, our study is primarily motivated by the fact that Nigeria is considerably faced with high levels of crime. For example, the country ranks third in SSA (behind South Africa and Cameroun) in the average number of kidnapping cases over the period 2003–2017. Another motivation for this study is the importance of foreign investors, particularly the potential spill-over effects they can be generated with their presence on existing domestic firms. For a developing country such

as Nigeria, entrepreneurial activities and firms have important roles to play in the much needed economic and structural transformations.

Generally, crime in Nigeria and other SSA countries is high and can be attributed to a number of factors (Murray & Atilola, 2020). First, high levels of crime could be because of government inaction in combatting crime due to lack of a police presence, an under equipped security personnel, corrupt law enforcement agencies and inappropriate deterrent measures for culprits (Ajide, 2019; Islam, 2016). Second, inequality in income distribution, poverty, and long-term unemployment have also been linked to crime, such as kidnappings and robberies (Demombynes & Ozler, 2005; Guza, Musa, & Elijah, 2019; Jean-Claude, 2014). This is because individuals take to kidnapping or robbery since their outside options (legal activities) do not guarantee them short-term benefits that can satisfy their basic needs (Adekoya & Razak, 2016; Enamorado, Lopez-Calva, Rodriguez-Castelan, & Winker, 2016). Third, drugs production, possession and consumption, alcohol misuse, prostitution, and gambling are also associated with high levels of crime (Moser & McIlwaine, 2006; Oyelade, 2019). These illegal activities provide criminal elements with the opportunity and are enabling an environment for violence (Fajnzylber, Lederman, & Loayza, 2002).

At firm level, some of the financial and economic consequences of crime on firms have been studied. Empirical evidence shows that crime impacts negatively on financial performance and productive activities, erodes business confidence, and threatens private establishments and their assets (Pinotti, 2015; Enamorado et al., 2016). A study by Pearlman (2014) found that crime (robbery and extortion) harmed the financial performance of microenterprises in Mexico from 2008 to 2010. According to the study, the lack of an appropriate deterrent and institutional weaknesses have both allowed crime to fester; hence, its continuous negative effect on the performance of firms. Also, in their study of 32 sub-national entities of Mexico from 2003 to 2013, Cabral, Mollick, and Saucedo (2016) empirically confirmed the negative impact of crime on labor productivity. They attributed their findings to the panic associated with crime, which would have a negative impact on economic activity through the temporal or permanent closures of businesses and other related activities. In Trinidad and Tobago, Saridakis, Mohammed, and Sookram (2015) provided further support of the negative impact of crime on firm performance. The results of their study showed that firms that experience losses due to crime are less likely to be innovative or invest in innovative activities, both in the short-run and long-run. In Italy, small firms are more likely to be affected by crime when compared to large firms in a study by Ganau and Rodríguez-Pose (2018) over the period 2010–2013. In addition, organized crime negatively affected firms' productivity growth and eroded any benefit that was derived from industrial clustering.

Focusing on SSA countries, cross sectional data in 2007 for firms in four different cities in South Africa showed that theft, robbery, arson, and vandalism had a negative impact on firm performance as measured by sales. This was based on an empirical study by Moyo (2012). The study also showed that crime is regressive in nature because losses due to crime are more likely to be experienced by small firms rather than large firms. Bah and Fang (2015) modelled the impact of distortions that included crime, corruption, and so forth. on output and productivity in firms in 30 SSA countries. Their findings showed a negative relationship of these distortions on financial performance and factor productivity. Mahofa et al. (2016) found a negative relationship between crime and business start-ups in South Africa over the period 2003–2011. They argued that the reduction in expected profits is one of the channels through which crime deters business start-ups because of the cost that crime is likely to impose on firms. A similar conclusion was reached by Ajide and Ajisafe (2017); whereby, they showed that crime had a negative effect on the level of entrepreneurial activities in Nigeria. However, this was only observed in the short-run because in the long-run entrepreneurs would have used tax evasion and the poor institutional quality in Nigeria to overcome the cost of crime. Finally, a study by Kimou (2015) showed that crime had a negative and significant impact on a firm's level of profit and investment in Cote d'Ivoire. Accordingly, their results were attributed to the increased business costs associated with crime and the lack of appropriate enforcement laws in Cote d'Ivoire.

As can be seen thus far, existing studies have focused on the impact of crime (robberies, theft, etc.) particularly on financial performance, productivity, and innovative activities. More so, none of these studies have used the kidnapping rate to capture crime. Thus, no study has empirically investigated the relationship between kidnapping and the foreign ownership of firms not just in Nigeria but also in SSA countries. This is quite surprising, and, thus, our attempt is to fill this existing void in the literature and make this the main contribution of our study. Furthermore, unlike most single country studies, we extended our analysis to include marginal difference estimations. Marginal difference estimations allow for an estimation of the differences in the slopes of two regression lines. This way, we can capture differences in the impact of kidnapping on foreign ownership across geopolitical regions in Nigeria, as well as across different firm sizes. To achieve the aim of this study, we employed a survey of firm-level data in Nigeria, which is conducted by the World Bank Enterprise Surveys (WBES), and macrolevel data on kidnapping rate from the United Nations Office on Drugs and Crime (UNODC). The structure of the data is an unbalanced panel for the periods 2007, 2009, and 2014. The results of the empirical investigation showed that kidnapping rate is negative and significant to foreign ownership. An increase in kidnapping rate by one (1 per 100,000 of population) will reduce the foreign ownership of firms by 4.855–10.098% depending on the econometric model. Furthermore, based on the estimates of the marginal differences, the impact of kidnapping on foreign ownership varies by geographical regions in Nigeria and by firm size.

The rest of the article is structured as follows. Section 2 will present a brief background of kidnapping in Nigeria. Section 3 will present a review of the literature on the economic consequences of kidnapping or other typologies of crime, and develop the hypotheses for the study. The sample and data will be presented in Section 4. Section 5 will present the empirical strategy and discuss the results. Finally, Section 6 will conclude the article.

2 | BRIEF BACKGROUND OF KIDNAPPING IN NIGERIA

Kidnapping is not a new phenomenon. It is as old as the word itself and experienced across nations. However, the rate of kidnapping is not the same across economies (UNODC, 2020). Kidnapping in Nigeria is believed to have started in the oil rich region of the Niger Delta. Crude oil in the Niger Delta region is the main stay of Nigeria's economy. However, the region has suffered neglect and environmental degradation due to the activities of oil companies within the region. The oil spillage caused by the activities of these oil companies has negatively impacted the means of livelihood of the people of Niger Delta. Thus, the militants in the region resorted to kidnapping expatriates to attract government attention and press home their demands. What seems to have started in the Niger Delta region (South–South region) has increased and spread to different regions where it was rarely experienced two and a half decades ago. Currently, the report by the National Bureau of Statistics (hereafter known as NBS) reveals that there is no state in Nigeria that has not experienced incidences of kidnapping (NBS, 2017).

While the kidnapping within the Niger Delta region started as a result of agitation for fair treatment by the people of the Niger Delta, kidnap for ransom has turned into a lucrative business. For example, about 18.3 million US dollars was paid as ransom to kidnappers in Nigeria a decade ago (SBM, 2020). Evidence has shown that most of the kidnapping incidents in Nigeria occur in the Southern region (NBS, 2017; SBM, 2020).

3 | REVIEW OF LITERATURE AND HYPOTHESIS DEVELOPMENT

3.1 | The consequences of kidnapping and other typologies of crime

The UNODC (2020) shows a high rate of crime in SSA with Nigeria occupying third place in the number of kidnapping cases. This has some financial implications on existing business as much as it serves as a disincentive for foreign investors. A report by the SBM intelligence (2020) also shows an increasing financial burden due to the rising cases of kidnapping in Nigeria. Over 18 million US dollars have been paid as a ransom to kidnappers, during the period June 2011–March 2020. Even more frightening is the fact that the largest proportion (just below 11 million USD) of this ransom was paid in the last 4 years, thus indicating a worsening situation. Given that crime makes an economy less attractive to investors as much as it hinders the expansion of already existing firms (Mahofa et al., 2016). This supports the view of Ashby and Ramos (2013) in their study. Their study, which utilized the homicide rate as a measure of crime in Mexico, found that crime has a negative relationship with investment in financial management and real estate services. Therefore, the economic costs of crime or kidnapping can be direct or indirect. This includes monetary losses to kidnappers, investment disincentives, and extra costs on preventive measures, such as employing private security personnel. Governments in the countries that are riddled with crime will also be saddled with the increased expenditure on security, and, subsequently, results in the diversion of scarce resources from more productive activities. There are also the social effects of crime, which have implications on consumer behavior and interpersonal trust (Ene, 2018; Inyang & Abraham, 2013; Oriola, 2016). A detailed review of some of the empirical studies that have investigated the consequences of crime has been discussed in Section 1 of this article.

From a theoretical viewpoint, crime weakens the locational advantage of a country. This, therefore, highlights the importance of locational advantages for foreign investors. Thus, given the negative consequences of crime, the theoretical framework underpinning this study is the "L" of the ownership, location, and internalization (OLI) paradigm (Dunning, 2009; Lo, 2016). According to Dunning (2009), locational motives for foreign investment include natural resource seeking, market seeking, strategic asset seeking, and efficiency seeking. Within the locational motives, this study is more aligned to the efficiency seeking hypothesis given the key variable—kidnapping rate—that is employed in this study. While the above three locational factors could influence foreign investors, the evidence seems to suggest that efficient utilization of a firm's core competencies, offered by location with economic and institutional qualities, takes precedence (Trąpczyński, Halaszovich, & Piaskowska, 2020). This is an indication of how the costs associated with crime can deter foreign investors. For example, Daniele and Marani (2011) empirically demonstrated that crime reduces the attractiveness of a location. Based on the review, we propose the following hypothesis; given that kidnapping is a form of crime, and that it reduces the locational advantages of a country.

> **Hypothesis 1.** *There is negative relationship between kidnapping and the foreign ownership of firms.*

3.2 | Why the level of foreign ownership of firms in Nigeria may not be the same across geopolitical regions

As previously argued, kidnapping can be viewed as an obstacle, and it increases the cost of operating a business in any economy, and, hence, is likely to deter investment. Roxas, Chadee, and Erwee (2012) found that crime and theft have the highest negative impact on firms operating in South Africa. Besides, there are other forms of obstacles identified in the literature that can affect the activities of firms. For example, using data from five states cutting across the South-South and South-East geopolitical zones in Nigeria, Ede (2021) has found statistically significant differences on the firm's perception of obstacles across states. The obstacles examined in the study include corruption, political instability, poor infrastructure, and financial constraint. The report by the NBS in Nigeria has documented incidents of kidnapping across the states in Nigeria (NBS, 2017). The report has not only revealed the severity of kidnapping in Nigeria, it also highlighted the regional differences in the kidnapping rate with the South-East region having the highest number of incidents.

TABLE 1 Variable category, definitions, and expected signs

Variable category	Variable definitions	Variable measurement	Expected sign
Dependent variables			
% of foreign ownership	Refers to the percentage of firm *i* that is owned by private foreign individuals, companies, or organizations in Nigeria and in year *t*	Measured in percentage terms (0–100) of the share of firm *i* that private foreign individuals, companies, or organizations own in Nigeria and in year *t*	
Key independent variables			
Kidnapping rate	It is the unlawful detainments and taking away of a person against their will in Nigeria and in year *t*. this is normalized per 100,000 of population.	This is measured as a rate. That is, normalized per 100,000 of population.	−
Firm-level control variables			
Sales (log)	The total amount of revenue in firm *i* for that financial year *t*.	It is measured in local currency unit (LCU) but then logarithm transformed for the econometric estimations.	+
Electricity (obstacles)	The perceived degree to which poor electricity delivery is an obstacle to business operations by firm *i* in year *t*.	It is in a scale of 0–4 with 0 meaning no perceived obstacle and 4 severe competition.	−
Tax administration (obstacles)	The perceived degree to which tax administrators are an obstacle to business operations by firm *i* in year *t*.	It is in a scale of 0–4 with 0 meaning no perceived obstacle and 4 severe competition.	−
Competition against unregistered businesses	The perceived degree of competition (from unregistered firms) on the main product of firm *i* in year *t*.	It is in a scale of 0–4 with 0 meaning no perceived competition and 4 intense competition.	−
Inadequate workforce (obstacle)	The perceived degree to which an inadequate pool of the local workforce is an obstacle to business operations by firm i in year *t*.	It is in a scale of 0–4 with 0 meaning no perceived competition and 4 intense competition.	−
Total exports (% of goods produced)	The percentage of total goods sold outside of the domestic market by firm *i* in year *t*.	It is expressed in percentage terms for firm *i* in year *t*.	+
% of largest owner	This is the percentage of the firm *i* that is owned by the largest owner in Nigeria in year *t*	Measured in percentage terms (0–100) held by the largest owner of firm *i* in Nigeria and in year *t*	−
Country-level control variables			
Income (growth rate)	This measures the growth of income by all Nigerian citizens in year *t*. GDP is the sum of gross value added by all the resident producers in the economy.	It is expressed in percentage terms for Nigeria and in year *t*	+
Real exchange rate	This refers to the exchange rate determined by national authorities or to the rate determined in the legally sanctioned exchange market in year t	It is expressed in the local currency units relative to the United States dollar	+
Bank assets (% of GDP)	It is the total asset held by deposit money banks in Nigeria in year *t*	Expressed in percentage of GDP for Nigeria in year *t*	+

While kidnapping could be considered a serious challenge in Nigeria, Obarisiagbon and Aderinto (2018) have suggested that kidnapping is more prevalent within the South-South and South-East geopolitical zones in Nigeria. Although, recent data shows the North-East, North-West, and North-Central geopolitical zones now have the highest number of kidnapping incidents (SBM, 2020). Therefore, volatile geopolitical regions are less likely to attract foreign owners. This is because foreign owners may be discouraged from investing in those regions when they wholly consider the security situation in Nigeria and not just in those most volatile regions. In a similar study, Daniele and Marani (2011) have revealed variations in the organized crime rate across and within regions in Italy. While the study has shown that crime is higher in Mezzogiorno than the rest of Italy, it has also revealed a significant difference within the Southern region. This could serve as an increased deterrence to foreign investment in such regions. Given the above, we, therefore, propose the following hypothesis:

Hypothesis 2. *The level of foreign ownership of firms will not be the same across geopolitical regions in Nigeria.*

3.3 | Will firm size matter on the impact of kidnapping?

There seems to be a growing consensus on the relevance of firm size in relation to a firm's ability to cope with various obstacles within the business environment. Robson and Obeng (2008) found that larger sized firms have more resources to cope and/or overcome the obstacles encountered. Thus, these studies are highlighting the impact of financial constraint on smaller firms. In South Africa, Roxas et al. (2012) have found that theft and crime have the greatest negative significant impact on firm performance in smaller firms, thereby confirming their disadvantaged positions in comparison to larger firms. Therefore, it is an indication that size is an important characteristic of firms and provides a compelling reason to why firms may respond to obstacles differently. This is sometimes called liability of smallness (Aldrich & Auster, 1986; Fackler, Schnabel, & Wagner, 2013), implying that small firms are more likely to exit than larger firms. Based on the above crime-related obstacle, we propose the following hypothesis:

Hypothesis 3. *The impact of kidnapping on foreign ownership will be less in large firms.*

4 | SAMPLE AND DATA

4.1 | Sample country

The sample country for this study is Nigeria and the data covers all firms sampled by the World Bank (WBES) for the periods 2007/2009, and 2014. However, the structure of the data is not a balanced panel because some firms have missing data over the two time periods. Furthermore, panel data for Nigerian firms from the WBES is not

TABLE 2 Summary statistics

Variable	Mean	*SD*	Min.	Max.
Percentage of foreign ownership	2.199	10.413	0.000	100.000
Kidnapping (per 100,000 of population)	0.314	0.094	0.189	0.456
Sale (LCU, million)	652.000	17,800.000	0.018	673,000.000
Electricity (obstacles)	2.678	1.269	0.000	4.000
Tax administration (obstacles)	1.512	1.162	0.000	4.000
Competition against unregistered businesses	1.419	1.158	0.000	4.000
Inadequate workforce (obstacle)	1.057	1.116	0.000	4.000
Total exports (% of goods produced)	9.161	23.904	0.000	100.000
% of largest owner	93.291	17.654	0.000	100.000
Income (growth rate)	6.608	1.963	3.657	8.100
Real exchange rate	146.752	14.254	125.808	158.553
Bank assets (% of GDP)	91.957	4.609	84.957	95.109

Abbreviation: LCU, local currency unit.

TABLE 3 Correlation matrix

		1	2	3	4	5	6	7	8	9	10	11	12
1	Percentage of foreign ownership	1.000											
2	Kidnapping (per 100,000 of population)	0.064	1.000										
3	Sale (LCU, million)	0.059	0.089	1.000									
4	Electricity (obstacles)	−0.090	0.041	0.148	1.000								
5	Tax administration (obstacles)	−0.049	0.255	0.088	0.219	1.000							
6	Competition against unregistered businesses	−0.063	−0.085	−0.052	0.108	0.016	1.000						
7	Inadequate workforce (obstacle)	0.033	0.240	0.028	0.149	0.230	0.076	1.000					
8	Total exports (% of goods produced)	0.248	0.083	−0.119	−0.142	−0.081	−0.119	0.063	1.000				
9	% of largest owner	−0.241	−0.083	−0.113	0.037	−0.068	0.047	−0.067	−0.208	1.000			
10	Income (growth rate)	0.160	0.277	−0.321	−0.308	−0.088	−0.016	0.078	0.361	−0.131	1.000		
11	Real exchange rate	0.149	0.721	−0.182	−0.201	0.069	−0.056	0.181	0.301	−0.137	**0.994**	1.000	
12	Bank assets (% of GDP)	0.093	0.088	−0.135	−0.084	−0.049	0.019	0.040	0.136	−0.028	0.418	0.347	1.000

Abbreviation: LCU, local currency unit.

available prior to 2007 and after 2014. The kidnapping data were collected from the United Nations Office on Drugs and Crime. The kidnapping data corresponds to the years the firm level data were also collected (i.e., 2007/2009 and 2014).

4.2 | Variable description

Foreign ownership was the dependent variable while kidnapping was the main independent variable. Foreign ownership is the percentage of a firm that is owned by private foreign individuals, companies, or organizations (WBES, 2015). Kidnapping is the unlawful detainments and taking away of a person against their will for the purpose of demanding an illicit gain or material benefit for their liberation, or in order to oblige someone to do or not to do something (UNODC, 2020). However, the kidnapping data were normalized per 100,000 of the population (kidnapping rate). Table 1 presents the variable category, definitions, and expected sign.

4.3 | Preliminary data analysis

The summary statistics are given in Table 2. At the mean, the percentage of foreign ownership is 2.199. While some firms have no association with foreign ownership (minimum, 0%), some firms are wholly foreign owned (maximum, 100%). On average, kidnapping was 0.314 per 100,000 of population. This value at the mean, for the period under review, works out at, approximately, 510 incidents of kidnapping. This is quite a relatively large number and will most likely pose a threat to the external business environment of Nigeria. The same interpretation at the mean can be applied to the rest of the summary statistics given in Table 2. The coefficients of the correlation matrix, given in Table 3, do not reveal that the analysis will suffer from problems of multicollinearity. Although, the real exchange rate and income growth rate are highly collinear, these variables were not used together in the same model.

5 | EMPIRICAL STRATEGY AND DISCUSSION OF RESULTS

5.1 | Empirical strategy

The data for the analysis are an unstructured panel and for the period, 2007/2009, and 2014. The OLS technique was used in estimating the benchmark regression. However, the analysis was extended using the fixed effects technique. The reasons for using the fixed effects are due to its associated benefits over the OLS technique. First, the technique can help control for the heterogeneity across firms in our sample. Second, the fixed effects can also help to control the time-invariant variables within the firms in our data. Third, the technique also allows for a higher degree of freedom by taking into account the cross-section and time dimensions of our data (Baltagi, 2008). There is a possibility that our analysis may be subject to reverse causality. That is, the relationship running from foreign ownership to kidnapping. This can be envisaged in a situation whereby the reduction in foreign investors would lead to a lack of investors, entrepreneurial activities, and, subsequently, unemployment. Studies have shown that unemployment is one of the main determinants of kidnapping (Ugwuoke, 2011).

The generalized method of moments (GMM) and the 2SLS estimations are some of the widely used techniques in addressing issues of reverse causality. However, the GMM technique is not practical given the unbalanced structure of the panel and the varied time periods. The 2SLS would require valid instruments that are completely exogenous to foreign ownership and whose effect on foreign ownership is only through the channel of kidnapping. However, to our knowledge, such data is not available, and, thus, we believe that the fixed effects technique will be consistent and that the inferences drawn from the results will be valid. The mathematical equation of the fixed effects model is presented as follows:

$$\text{Foreign ownership}_{it} = \alpha_0 + \beta_i \text{Kidnapping rate}_{it} + \sum_{k=1}^{k=10} \delta_k \text{Control variables}_{it} + \mu_i + v_{it}$$

Where i represents individual firms and time t is time. $\delta_{k,1-10}$ are firm-level and country-level control variables. β and δ are the coefficients to be estimated, and μ_i and v_{it} represent the disturbance terms. The firm-level variables are sales, electricity (obstacles), tax administration (obstacles), competition (obstacles), inadequate workforce (obstacles), total exports (% of goods produced), and percentage of largest owner. The country-level variables are growth rate of national income, real exchange rate, and bank assets (% of GDP).

These control variables are guided by theoretical and empirical arguments, and in particular, the location (L) hypothesis of the eclectic theory (OLI). According to the location (L) hypothesis, the international mobility of factors of production and created endowments of host countries will influence the decision of foreign firms to move into host markets. This will include macroeconomic and efficiency factors, quality of institutions, infrastructure, labor, human resources, and so forth. (Dunning, 1980; Dunning, 1988; Dunning, 2000). For example, financial performance is one of the factors that foreign investors focus on. Given the "liability" of foreignness[1] associated with foreign owned firms, foreign investors are often incentivized by the financial performance of firms. Furthermore, given that foreign owned firms may operate with a shorter time frame than domestic owned firms, financial performance, therefore, becomes an important determinant of foreign investors because it reveals information on the current performance of firms (Dill, Jirjahn, & Smith, 2016). Al-Amarneh, Al-Kilani, and Kaddumi (2011), in their study, confirmed that a positive relationship exists between institutional investors and good financial performance. An empirical study by Prasanna (2008) also reached the same conclusion in the context of India. Their study showed that financial performance variables are some of the factors influencing foreign investors.

Furthermore, the obstacles to firms' activities, due to poor electricity supply, can imply that there are concerns with the quality of existing infrastructures in host countries. The poor quality of

infrastructure also represents a bottleneck to investment activities and weakens the investment climate. These have the potential to deter foreign investors or to limit their level of engagement or association with firms (Mukim & Nunnenkamp, 2012). Obstacles to firms' activities due to poor electricity supply also increases the energy cost for firms, and evidence has shown that energy cost is an important factor for foreign investment (Berköz, 2005). There is empirical evidence in a study by Zhang (2001) in support in that the increasing level of foreign investors in China was due to the country's improving infrastructure. Ali, Fiess, and MacDonald (2010) showed empirical evidence of the importance of quality infrastructure in attracting investments from abroad.

Inefficient administrative procedures and a cumbersome bureaucratic system can deter or reduce the presence of foreign investors. For our study, this was captured using obstacles to the business operations of firms due to the bureaucratic tax administration. These inefficiencies and bureaucratic systems increase costs and contribute to delays in business operations and investment decisions. This is even worsened when they are intentionally allowed by public officials for the purpose of exploiting firms corruptly (Morisset & Neso, 2002). Some empirical studies have been carried out in validation of this argument. For example, Rajan (2004) showed the existence of a negative impact on foreign investment due to administrative and "hassle" costs. Emmanouilidis and Karpetis (2019) also empirically confirmed that bureaucratic burdens adversely affected the foreign investment and participation in a panel of countries. From a management and an economic point of view, competition may reduce the profitability or expansion of firms, particularly when the increased competition is from unregistered or informal firms (Pérez, Kunc, Durst, Flores, & Geldes, 2018). A study by Ok (2004) concluded on an adverse effect of the activities of unregistered businesses on the total volume of investment of firms with foreign capital operating in Turkey.

For foreign investors, the skilled workforce in the host country is an important factor in their decision to invest or sustain their investment. Therefore, any obstacle that investors face with recruiting the needed workforce for their business activities is likely to depress their level of investment (Carstensen & Toubal, 2004). Noorbakhsh, Paloni, and Youssef (2001) empirically showed that, in a sample of developing countries, the skilled workforce is an important determinant of foreign investment and that its importance has become increasingly greater through time. The propensity and degree of a firm's exports may imply openness to the global world. Thus, the openness of the host economy becomes a determining factor in the decision of foreign investors in expanding their activities abroad (Kandiero & Chitiga, 2006). This was the case when Liargovas and Skandalis (2012) investigated the impact of a country's openness of foreign investment. Ownership concentration may negatively influence foreign investment, particularly in countries with weak legal shareholder protection. This is because it will costly for a parent shareholder to monitor their foreign subsidiaries and hold managers accountable (Lskavyan & Spatareanu, 2011). An empirical study by Panicker, Mitra, and Sensarma (2016) showed that ownership concentration or concentrated shareholdings had a negative relationship with foreign investments in the Indian IT industry.

On the macrolevel variables, the market size, as can be captured by the income growth of the host country, is also an important factor for foreign investors (Okafor, Piesse, & Webster, 2015). Erdal and Tatoglu (2002) and Asiedu (2006) showed empirical evidence that market size was a positive and significant factor for foreign investments. Foreign investors can easily expand their engagement if they come from home countries with a stronger currency that is relative to that of the host country's currency (Aliber, 1970; Kusluvan, 1998). This is because the appreciation of a home country's currency would lower the costs of assets abroad (Chen, Lin, & Yang, 2015). This is the case in Mauritius where the exchange rate was an important motivating factor for foreign investors (Babubudjnauth & Seetanah, 2019). The financial sector of the host country is important to foreign investors. Similar to local firms, foreign firms often require financial services, such as overdraft facilities, loans, and so forth. from the host economy. A developed financial sector will also help in facilitating financial transactions between foreign firms and their relevant stakeholders in the host economy (Kinda, 2010). In a sample of countries, Hermes and Lensink (2003) showed a positive relationship between financial development and foreign investment.

5.2 | Benchmark results

The benchmark results of the relationship between kidnapping rate and foreign ownership of firms are given in Table 4. First, we estimated using the pooled OLS technique (models 1 and 2). Second, the fixed effects model was estimated (models 3 and 4). Due to collinearity issues, models 1 and 3 were estimated with only one country-level control variable—income (growth rate). Regardless of the estimation technique, there is evidence of a negative relationship between kidnapping rate and foreign ownership of firms. Using the fixed effects estimation technique, and for model 3, an increase in kidnapping rate by one (1 per 100,000 of population) will reduce foreign ownership in firms by 10.098%. Thus, our Hypothesis 1 for this study is empirically supported and largely consistent with the existing debate of the economic consequences of kidnapping. We use the following arguments to justify the negative relationship between kidnapping and foreign ownership in Nigerian firms.

First, trust, freedom, and social cohesion are some of the values that foreign investors value when engaging in productive activities in a host country. However, kidnapping erodes these values, thereby making it difficult for foreign investors to sustain their investment (Robles, Calderón, & Magaloni, 2013). Second, kidnapping creates numerous economic and investment uncertainties. These uncertainties will make it difficult for foreign investors to sustain their level of investment (Carboni & Detotto, 2016). Third, it is one of the drivers for foreign investors in the potential demand for goods and services and commercial activities in a host country. However, the psychological fear associated with incidents of kidnapping can alter the consumption behaviors and commercial activities in a host country. The implication of such alterations is likely to reduce the appeal of a host country, and, thus, a reduction in the activities or engagement of

TABLE 4 Regression results of kidnapping rate and foreign ownership

Dependent variable: % of foreign ownership	Panel OLS Model 1	Panel OLS Model 2	Fixed effects Model 3	Fixed effects Model 4
Main independent variable				
Kidnapping (per 100,000 of population)	−9.855*	−5.096	−10.098***	−4.855*
	(5.692)	(5.225)	(3.159)	(2.277)
Firm-level control variables				
Sales (log)	1.461***	1.445***	1.384**	1.372**
	(0.533)	(0.526)	(0.596)	(0.586)
Electricity (obstacles)	−0.380	−0.402	−0.561*	−0.597*
	(0.306)	(0.305)	(0.290)	(0.295)
Tax administration (obstacles)	−0.484*	−0.475*	−0.439	−0.422
	(0.263)	(0.260)	(0.388)	(0.379)
Competition against unregistered businesses	−0.902	−0.936*	−0.823*	−0.865*
	(0.552)	(0.558)	(0.434)	(0.450)
Inadequate workforce (obstacle)	−0.088	−0.087	−0.052	−0.053
	(0.200)	(0.200)	(0.272)	(0.266)
Total exports (% of goods produced)	0.100***	0.100***	0.092***	0.092***
	(0.029)	(0.030)	(0.029)	(0.029)
% of largest owner	−0.096***	−0.096***	−0.095***	−0.096***
	(0.027)	(0.027)	(0.021)	(0.020)
Country-level control variables				
Income (growth rate)	0.947***		0.933***	
	(0.281)		(0.262)	
Real exchange rate		0.097***		0.090***
		(0.036)		(0.026)
Bank assets (% of GDP)		0.083		0.104
		(0.057)		(0.071)
Constant	−0.139	−17.045**	0.88	−17.184
	(4.468)	(7.813)	(4.818)	(11.135)
F stat	6.670	6.030	29.070	31.000
Prob. >*F*	0.000	0.000	0.000	0.000
No. of Obs.	1,019	1,019	1,019	1,019
Year/firm/industry effects	No	No	Yes	Yes
R-square/within	0.145	0.147	0.142	0.144

Note: Standard errors in parentheses.
*Significance at the 10% level.
**Significance at the 5% level.
***Significance at the 1% level.

foreign investors (Robles et al., 2013; Velásquez, 2020). Fourth, kidnapping, or crime in general, impacts negatively on productive activities, increases the cost of doing business, and represents a threat to private property. Fifth, the heightened security challenges from kidnapping, or other forms of crime, increase the perceived expropriation risk by firms. In turn, this increases the expectation of future losses on investments, thereby deterring foreign investors from expanding their productive ventures (BenYishay & Pearlman, 2014). Finally, foreigners are often the ones that are most targeted by kidnapping gangs in Nigeria. Thus, there is a negative effect in their level of engagement with productive investments in Nigeria.

With respect to the firm-level control variables, financial performance, as measured by sales, is positive and significant across all models. Based on Table 4, model 3, a 10% increase in sales will increase the foreign ownership of firms by 0.1319 $(\log 1.1 \times 1.384)$. This shows that foreign investors have a positive view towards the financial performance of firms. Amongst other things, the financial performance of a firm demonstrates or can enhance stability,

productivity, innovation, and firm value (Fang, Palmatier, & Steenkamp, 2008; Pawels, Srinivasan, Silva-Risso, & Hanssen, 2003). These are the things that can incentivize foreign investors, and, thus, the positive relationship between the two. Poor quality of infrastructure, as captured by obstacles to business operations due to poor electricity supply, is negative but only significant in the fixed effects estimations. Regardless of significance, there is an economic negative relationship between the poor quality of infrastructure and foreign ownership. This finding agrees with the theoretical argument that the poor quality of infrastructure weakens the investment climate, adds to the cost of doing business, and, thus, it has a negative impact on foreign ownership. Inefficient administrative systems, as captured by the obstacles that firms are faced with when dealing with tax officials, is also negative. Again, regardless of the inconsistency in the statistical significance across the models, there is still an economic negative relationship between poor administrative systems and foreign ownership. This shows that foreign investors are put off from engaging in a host country when faced with exploitative bureaucracies.

As expected, competition from unregistered firms is negative and mainly significant across all models. This shows that firms, when faced with increased competition from informal firms, will less likely be attractive to foreign owners because such a type of competition as this is likely to reduce the profitability and expansion motives of firms. The obstacles that firms face with recruiting an adequate workforce for their business operations, is negative but insignificant across all models. Its insignificance may be attributed to the fact that firms operating in low wage economies, like Nigeria, may not be overly concerned with local skill gaps. This is because these firms are able to import partially skilled expatriate labor to bridge this local skill shortage (Wood, Mazouz, Yin, & Cheah, 2014). The percentage of goods produced that are exported, is positive and significant across all models. This result demonstrates the importance of openness, global connectedness, and access to external markets for foreign investors operating in Nigeria. There is a negative relationship between ownership concentration (percentage of largest owner) and foreign ownership. It is often believed that, in countries with weak legal shareholding protection, parent shareholders will find it difficult to monitor their foreign subsidiaries and to hold their manager accountable for their actions. Subsequently, there is very little desire to increase their stake in such firms (Lskavyan & Spatareanu, 2011). Furthermore, dominant owners may have goals that are misaligned with those of other stakeholders in the firm. Such misalignment may not be in the interest of the firms, and, in some cases, could lead to excessive spending, selfish preferences, and diversion of funds (Pedersen & Thomsen, 2003). All these will most likely deter foreign investors.

Country-level measures had the expected signs. Income growth rate was positive and significant to foreign ownership, thus confirming the importance of market size for foreign investors. Foreign investors would want to seek out host countries where they are able to expand and maximize profit. The real exchange rate was positive and significant as well. This result is in accordance with the Aliber's (1970) theory of exchange rate and foreign investment. Foreign owners are able to increase their stakes and assets in firms when their home country currency is relatively stronger in comparison to their host country. Financial sector development, as captured by bank assets (% of GDP), is positive but mainly insignificant. Although, the financial sector is important for foreign investors, this result may indicate that foreign investors rely less on the financial sector in Nigeria for financial services, such as overdraft facilities and loans.

5.3 | Estimating marginal differences by geographical regions

Available statistics and evidence show that incidents of kidnapping in Nigeria are not even across the six geopolitical regions in Nigeria. For the period under review, the South-East and South-South geopolitical regions had the highest number of kidnapping cases[2]. This is then followed by the North-West and North-East geopolitical regions (Ngwama, 2014). Although recently, the trend has now been reversed with the Northern regions recording more kidnapping cases (SBM, 2020). Therefore, it is important to estimate the marginal differences[3] of the impact of kidnapping in Nigeria on foreign ownership across these geopolitical regions. Our expectation is that firms operating in those volatile regions will see less of foreign ownership because of the entire outlook of kidnapping incidents in Nigeria. The results of these interactions are given in Table 5. Kidnapping remained negative and significant for most of the regions and the sizes of the coefficients also differ. Thus, our Hypothesis 2 for this study is empirically supported. Kidnapping will have a greater negative impact on foreign ownership in the South-East region. For example, in Nigeria, an increase in kidnapping rate by one (1 per 100,000 of population) will reduce foreign ownership by 15.466 percentage points in firms located in the South-East region. This is not surprising considering that the South-East region in the period under review led in kidnapping cases in Nigeria (Ngwama, 2014; Obarisiagbon & Aderinto, 2018; Okoli & Agada, 2014). Kidnapping in the North-East, North-West, and North-Central is also negative and significant. The sizes of the coefficients are not considerably different for these three geopolitical regions. An increase in kidnapping rate by one (1 per 100,000 of population) will reduce foreign ownership by 10.487, 9.572, and 10.353 percentage points in firms located in the North-East, North-West, and North-Central regions, respectively. Again, this is expected given that these regions are the least commercially active, the most economically deprived, and are faced with other security and political challenges, such as terrorism and banditry (Awodola & Oboshi, 2015; Hansen, Jima, Abbas, & Abia, 2016). Results of the South-West and South-South regions are negative but contrary to expectation, this relationship is not significant. Nevertheless, we infer a plausible reason why this relationship is not significant. The South-West and South-South are the main commercial hubs of Nigeria with massive commerce, trade, and global links (Ajayi, 2007; Ezejiofor, Adigwe, & Echekoba, 2015). Thus, this may help explain why kidnapping in Nigeria is economically negative to foreign ownership but not statistically significant.

TABLE 5 Marginal effects of foreign ownership of firms across geopolitical regions in Nigeria.

Dependent variable: % of foreign ownership	Fixed effects Model 1 North-East Region	Fixed effects Model 2 North-West Region	Fixed effects Model 3 North-Central Region	Fixed effects Model 4 South-East Region	Fixed effects Model 5 South-West Region	Fixed effects Model 6 South-South Region
Main independent variable						
Kidnapping (per 100,000 of population)	−10.487***	−9.572**	−10.353***	−15.466***	−5.913	−10.756
	(2.664)	(3.233)	(3.254)	(4.266)	(5.439)	(7.234)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.887	0.787	1.044	1.309	2.077	0.911
	(4.835)	(4.815)	(4.741)	(4.884)	(4.325)	(4.766)
F stat	27.650	32.620	43.380	34.210	33.240	43.200
Prob. >*F*	0.000	0.000	0.000	0.000	0.000	0.000
No. of Obs.	1,019	1,019	1,019	1,019	1,019	1,019
Year/firm/industry/ regional effects	Yes	Yes	Yes	Yes	Yes	Yes
R-square within	0.142	0.143	0.144	0.143	0.145	0.142

Note: Standard errors in parentheses. Control variables from the previous table are included but for brevity, they are not reported. The coefficients are like those in Table 4.
*Significance at the 10% level.
**Significance at the 5% level.
***Significance at the 1% level.

5.4 | Estimating the marginal differences by firm size

It is also important that we estimate the marginal effect of kidnapping on foreign ownership by firm size. For a developing country like Nigeria, size usually is an important determinant for success, productivity, and survival (van Biesebroeck, 2005). Furthermore, larger firms have huge financial resources and sustainable global networks (Calof, 1994). Therefore, estimating the marginal differences by firm sizes[4] will present some interesting dimensions to this study. The results are given in Table 6. As can be seen from that table, kidnapping remained negative and significant to foreign ownership, but the sizes of the coefficients differ. The impact of kidnapping is larger in small firms compared to large firms. Thus, we have empirical evidence to support our Hypothesis 3. An increase in kidnapping by one (1 per 100,000 of population) will reduce foreign ownership by 12.623, 9.291, and 8.667 percentage points in small, medium, and large firms, respectively. In addition to some of the advantages presented above that large firms benefit from or possess, there are other plausible reasons why the impact of kidnapping on foreign ownership is less for large firms. First, due to their financial resources, large firms can acquire more additional security and other private policing measures for the protection of their employees, business interests, and assets. Second, large firms are more attractive to foreign investors due to their innovative activities, geographical market base, and ownership advantages (Brouthers, Brouthers, & Werner, 1996). Finally, for a developing country like Nigeria where institutions are weak, large firms easily enjoy numerous benefits, such as political connections, economies of scale, access to license and government contracts (De & Nagaraj, 2014). These may help reduce their exposure to kidnapping or crime in general.

TABLE 6 Marginal effects of kidnapping rate and foreign ownership by firm size

Dependent variable: % of foreign ownership	Fixed effects Model 1 Firm size: small	Fixed effects Model 2 Firm size: medium	Fixed effects Model 3 Firm size: large
Main independent variable			
Kidnapping (per 100,000 of population)	−12.623***	−9.291**	−8.667**
	(2.937)	(3.133)	(4.033)
Control variables	Yes	Yes	Yes
Constant	2.122	1.254	1.176
	(4.311)	(4.689)	(4.669)
F stat	49.720	49.380	26.380
Prob. >*F*	0.000	0.000	0.000
No. of Obs.	1,019	1,019	1,019
Year/firm/industry effects	Yes	Yes	Yes
R-square within	0.145	0.144	0.142

Note: Standard errors in parentheses. Control variables from the previous table are included but for brevity, they are not reported. The coefficients are like those in Table 4.
*Significance at the 10% level.
**Significance at the 5% level.
***Significance at the 1% level.

6 | CONCLUSION

6.1 | Summary

This article presented an empirical investigation of the relationship between kidnapping and foreign ownership of firms in Nigeria. The empirical analysis was based on an unbalanced panel of firms for the periods 2007/2009, and 2014. There is yet to be an empirical study on the relationship between kidnapping and foreign ownership of firms not just in Nigeria but in SSA. The results of the empirical investigation showed that kidnapping rate is negative and significant to foreign ownership. Furthermore, based on the estimates of the marginal differences, the impact of kidnapping on foreign ownership varies by geographical regions in Nigeria and by firm size. Other factors, such as obstacles by tax administrators, competition from unregistered businesses and ownership concentration, also have negative relationships with foreign ownership. Based on the results of this article, we deduce the following policy implications.

First, available evidence abounds of some of the deep-rooted causes of kidnapping. Therefore, it is important for policymakers in Nigeria to initiate and sustain strong policies that will help address some of these deep-rooted causes of kidnapping. Second, in July 2020, lawmakers in Nigeria passed a bill amending the jail term for kidnapping from 10 years to life imprisonment (Iroanusi, 2020). However, like most laws passed in Nigeria, implementation is usually weak and the law enforcement agencies, including the judiciary, are often not adequately empowered. Therefore, these bodies should be adequately empowered to apply the appropriate punishments for kidnappers. Third, developed and advanced countries may also assist Nigeria in combatting the menace of kidnapping. This is because kidnapping, or related crimes, if left unchecked can negatively impact the vested interests that foreign investors, from those developed countries, have in Nigeria.

Irrespective of the scholarly contributions of our study, there are still a few limitations. First, we could have employed another measure of crime besides the kidnapping rate for robustness purposes. For example, incidents of robbery could have been used. However, data for the number of robbery incidents are not available. Second, the structure of our data and lack of an appropriate instrument have not made it feasible to apply the estimation techniques like the GMM and 2SLS, respectively. These techniques could have helped in addressing any potential endogeneity concerns. Third, it is important to note that statistics on crime can be unreliable (often underestimated), so our results may suffer from measurement errors. Nevertheless, it is safe to assume that the kidnapping data, which we have used from the UNODC, provided us with at least some reasonable and accurate information.

6.2 | Managerial implications

From a managerial perspective, this study offers some insights for managers seeking to sustain the level of foreign ownership in their firms or even to attract foreign investors. It may seem advantageous for firms to do so given the benefits they derive when associated with some level of foreign ownership. First, the findings of this study have reinforced the consequences of insecurity on the foreign ownership of firms. While it appears that the level of security provided by the government of Nigeria is inadequate (as shown in the prevalence of crime and instability), managers should explore effective ways to complement what the government currently offers. This can be done through employing the services private security providers and investments in modern technologies that can help fight crime. Such a complementary effort will help to safeguard their business interests and operations. Second, managers should reassess their strategies when seeking to expand their business operations particularly in geopolitical regions where kidnapping in more prevalent. A scale back of operations into those regions should be adopted until security challenges are considerably addressed. Third, since the findings show that small firms are more likely to see a reduction in foreign ownership due to incidents of kidnapping, it is important for managers of small firms to explore sound and profitable opportunities of merging with other small or medium firms. This may afford them the financial resources to bear the costs of private security.

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ENDNOTES

[1] The liability of foreignness includes the social and additional costs of doing business abroad that local firms are not affected by. These costs can be a source of competitive disadvantage for foreign firms and their business sub-units (Eden & Miller, 2004; Zaheer, 1995).

[2] For more detailed information of kidnapping cases across the six geopolitical regions in Nigeria, see Ngwama (2014); SBM Intelligence (2020); and SBM (2020).

[3] Marginal difference allows for an estimation of the differences in the slopes of two regression lines. We have carried out these estimations using an interaction of regional dummies with the kidnapping rate in Nigeria.

[4] Marginal difference allows for an estimation of the differences in the slopes of two regression lines. We have carried out these estimations using an interaction of firm size dummies with the kidnapping rate in Nigeria.

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