Effects of the Financial Crisis of 2007/2008 on the Performance of the Cement Industry in Nigeria

Anyakwu Meshack Ashibudike

Nigerian College of Accountancy, Kwall, Jos, Plateau State, Nigeria.

ABSTRACT: The study examined the effects of the financial crises of 2007/2008 on the performance of the cement industry in Nigeria. The study's objectives were to examine the effects of the financial crises on the profitability of the cement industry; and the Cost of production of cement in Nigeria. The study adopted an Ex-post facto research design and used secondary data collected from the audited annual reports of three (3) sampled cement companies from 2007 - to 2017. Data collected was analyzed using the Generalized Least Square statistical technique. Specific findings showed that financial crises have significant adverse effects on the profitability of cement companies and the Cost of cement production in Nigeria. The study recommended that cement companies look inwards for locally sourced raw materials to insulate their business from the vicissitude of international economic scenes.

KEYWORDS: Financial crises, profitability and Cost of cement production

1. INTRODUCTION

The significance of this study is borne out by the fact that the financial crisis has affected the volume of cement production in Nigeria in the last ten years. Cement productions and other associated by-products, such as pipes, culverts, and electric poles, to mention but a few, have reduced production drastically and are pretty expensive due to the financial crisis. Moreover, builders and construction engineers have low demand for cement products across Nigeria due to the high Cost of cement per bag. For instance, in 1999, a bag of cement costs five hundred to six hundred only, but between 2014 and 2018, it has increased to two thousand eight hundred and fifty nairas.

This high Cost of cement has brought untold hardship to Nigerians. The costs of government constructions contracts have doubled; people are finding it challenging to build or acquire houses; the Cost of house rents has increased, and mortgage institutions could not remedy the apparent housing deficit. Though a seemingly past economic event, the financial crisis has continued to generate lingering universal catastrophic circumstances resulting in scarcity of hitherto available resources, thereby incapacitating nations from meeting their economic targets, plans, and programmes to develop infrastructure (Abdul, 2008). The financial crisis in 2007 came as a result of a recession in the financial sector of the United States of America. It had spiral effects on the financial industry of many nations of the world; thus, it affected the performance of cement companies in Nigeria. High capital involved in setting up more cement factories has led to a cement supply gap resulting from the financial crisis. There is a decline in the number of existing cement companies in Nigeria. About six major cement manufacturers; Ashaka, Lafarge WAPCO, Dangote, Cement Company of Northern Nigeria (CCNN), Edo Cement (BUA) and UNICEM and several importers are still a huge supply gap.

A significant consequence of the financial crisis in the cement companies in Nigeria is the problem of demand versus supply inequality. Since the inception of cement companies in Nigeria, available supply has not met the ever-growing cement demand. Another challenge resulting from the financial crisis includes insufficient funding to carry out operations, especially on a large scale. Most cement companies in Nigeria have experienced low production, as the Cost of raw materials and the maintenance of machines are capital intensive. Also, the inability of the cement companies to provide alternative energy due to an erratic power supply has led to a high cost of production.

The financial crisis also brought about technological inadequacies and high overhead costs, which has led to the forced closure of some cement companies such as Nigercem Nkalagu in present-day Ebonyi State, Eastern Bulkcem and Ibeto Group. Although the Nigerian government has tried to mitigate the effects of the financial crisis on these cement companies through tax holidays, banning importation of bagged cement, the effects of the financial crisis persist.

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The broad objective of the study is to examine how the financial crisis of 2007/2008 affects the performance of the cement industry in Nigeria. Specific objectives include 1. To examine the effects of the financial crisis on the profitability of the cement industry in Nigeria. 2. To identify the effects of the financial crisis on Nigeria's cement industry's production cost.

The study hypothesized as follows:

H_o1: The financial crisis has had no significant effects on the profitability of the cement industry in Nigeria.

Ho2: The financial crisis has had no significant effects on the Cost of cement production in Nigeria.

The scope of the study is limited to selected firms in Cement companies in Nigeria (Dangote Cement Plc, Cement Company of Northern Nigeria (CCNN), and Lafarge WAPCO Plc) for the period 2007-2017. The justification for using this period is that it was the period of Nigeria's financial crisis, which witnessed turbulent times for the cement companies. This study is significant considering that this sector is critical to the entire industrial sector and the domestic life of Nigerians. The period it covers and the variables it examines fill the gap in existing literature concerning the effect of the meltdown of 2007/2008. Findings from the study will benefit the manufacturing sector, the regulating agencies, policymakers and the academia that may use it as input in further research. The study is divided into five sections. The following section dwells on the literature review; section three dwells on the methodology adopted for the study; section four on the conclusion; and section 5 provide policy recommendations.

2. LITERATURE REVIEW

Financial Crisis

The term, financial crisis defines a period when financial networks and markets undergo sudden changes in expectations, develop (speculative) bubbles, witness falling prices and frequent bankruptcies, and create a markedly unstable or strained economy to the point where it may collapse (Sanusi 2010). It is when firms and industries experience difficult times in terms of economic stagnation. Eichengreen and Portes (1987:2) observed that a financial crisis is "a sharp change in asset prices that leads to distress among financial markets participants". A fall in value of any market instrument leads to a widespread effect within the industry and the economy. The interconnectedness of market intermediaries means that should a decisive decline occurs in one market sector, the effect will be immediately felt across other sectors. This is the primary reason a crisis brings devastating consequences to the economy.

The word "crisis" comes from the Latin root "crisis" (Pfaltzgraff, 2008), which connotes the decisive moment with complicated and severe consequences, scarceness, famine, and difficult or complex situations. All these were witnessed in the 2007 financial crisis. The financial crisis originated in the U.S. owing to a combined market failure that affected the financial, traditional mortgage, and subprime mortgage sectors. Although many have referred to the subprime mortgage crisis, it was far from the only subprime mortgage crisis. In a critical analysis, the underlying failures were in the policy and market structures, the subprime merely being the borrowers that bear the brunt of the blame.

When undue pressure mounted on the housing sector and bubbles developed, the financial sector focused on the profits it could generate and ignored the banking rules necessary to regulate and check profligacies. The policy failure made lenders target the subprime borrowers, which promised higher interest returns, brought the interest rate to 1%, and allowed the skewness of interest towards mortgage financing. Also, the policy failure made the Latin and African Americans targets' for fore-closures when the initial signs of market collapse appeared, and the regulatory authorities merely looked on.

While financial crises have common elements, they do come in many forms. According to Stijn and Kose (2013), the financial crisis is often associated with several phenomena, which include 1. substantial changes in credit volume and asset prices; 2. severe disruptions in financial intermediation and the supply of external financing to various actors in the economy; 3. large scale balance sheet problems (of firms, households, financial intermediaries and sovereigns); and 4. large scale government support (in the form of liquidity support and recapitalization). The 2007/2008 financial crisis started due to certain laxities in the U.S. financial system, which spread to Europe initially and then to another global market before lesser African markets.

Many concepts and theories have been developed to explain the sources and causes of financial crises. However, financial crises persist in the world economy. These forms of financial crises indicate that financial crises are typically multi-dimensional events and difficult to characterize using a single indicator. The literature has clarified some of the drawing factors of the crises, but it remains a challenge to identify their deeper causes definitively. It sometimes appears to be driven by "irrational" factors (Stijn & Kose, 2013). This irrationality is often revealed in sudden runs on banks, contagion and spillovers among financial markets, limits to arbitrage during times of stress, the emergence of asset busts, credit crunches, fire sales, and other aspects of financial turmoil.

According to Claessens (2013), there is different type's financial crisis; however, for this study, we shall restrict their discussions to the following: 1. currency crisis, 2. sudden stops crises, 3. foreign and domestics debt crises, and 4. banking crisis. A currency crisis occurs when destabilization in a currency's exchange rate, making it difficult for monetary policy instruments to

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control the fluctuations. It leads to a loss of confidence in the investors, who quickly shed off their holdings and hold their investments in a more stable currency. It can lead to a significant withdrawal of direct foreign investment and subsequent capital flight.

A sudden stop crisis involves the sudden withholding of direct foreign investment into that country. Models with sudden stops make a closer association with disruptions in the supply of external financing. These models resemble the latest generation of currency crises models. They focus not only on balance sheet mismatches – notably currency but also on maturity in financial and corporate sectors (Calvo, Izquierdo & Talvi, 2006). However, they tend to give greater weight to the role of international factors. For example, changes in international interest rates or spreads on risky assets are causing "sudden stops" in capital flows. These models can account for the current account reversals and the real exchange rate depreciation typically observed during crises in emerging markets.

Empirical studies find that many sudden stops have been associated with global shocks. Sudden stops often occur in countries with relatively small tradable sectors and sizeable foreign exchange liabilities. Sudden stops have affected countries with widely disparate per capita GDPs, levels of financial development, exchange rate regimes, and countries with different levels of reserve coverage. For several emerging markets, such as those in Latin America and Asia in the 1990s and Central and Eastern Europe in the 2000s, following a period of large capital inflows, a sharp retrenchment or reversal of capital flows occurred, triggered by global shocks caused by increases in interest rates or changes in commodity prices. Sudden stops are more likely with significant cross border financial linkages.

Foreign and domestic debt crises occur in an economy that borrows indiscriminately from domestic or foreign sources, thus experiencing a debt management crisis. The interest builds up, and loan repayment may be far too much to cope with, coupled with developmental challenges. This scenario may trigger several other internal disruptions within the economy, leading to a general economic breakdown.

Banking crises are pretty standard but perhaps not entirely understood due to frequency or the different aspects it occurs. Banks are inherently fragile, making them subject to runs by depositors. Moreover, problems of individual banks can quickly spread to the whole banking system. While public safety nets, including deposit insurance, can limit this risk, public support comes with distortions that can increase the likelihood of a crisis. Institutional weaknesses can also elevate the risk of a crisis. For example, banks heavily depend on the information, legal and judicial environments to make prudent investment decisions and collect interest on their loans. With institutional weaknesses, risks can be higher. While the banking crisis has occurred over centuries and exhibited some common patterns, the timing remains empirically hard to pin down.

Causes of Financial crisis

It is possible that the financial crisis of 2007-2009 has not been well understood in the media, in politics or academic discourses. It might as well be like the great depression of 1929 in the U.S. The public and the business communities tend to search for quality solutions without necessarily comprehending the complex causes of the crisis. The causes have been analyzed and blamed on people, structures, and nations. Many believe that the culprits were the bankers, their bonuses, greed, fraud, corruption, poor corporate governance, creative accounting, the management of mortgages, strategic complementarities and self-fulfilling prophesy, leverage finance, contagion, asset-liability mismatch, uncertainty and herd behaviour and so on. However, these myriad causes tend to widen the scope too far and make the solution slippery. Perhaps it will save time and effort to categorize the causes into regulatory failures and market structures. The former relates to the legal framework; the latter to the free enterprise system of capitalism. The unbridled interface of these two dynamics rocked the economy of the United States, shook off its financial base, closed down businesses and denied people daily bread through massive job losses.

Historical Development of Cement Industry in Nigeria

The colonial rule introduced cement building materials and the consequent need to establish administrative and developmental infrastructure. The whole idea of colonial rule was promoted by British commercial interests in Nigeria (Cain & Hopkins, 1980). It was, therefore, not surprising that, from the outset, the cement trade in Nigeria was dominated by British entrepreneurs. Specifically, several British cement traders –mainly agents of the Associated Portland cement Manufacturers (APCM), the British cement multinational, at the time, was the largest cement company in the world – constituted themselves into a syndicate, the Cement Marketing Company Limited, and took control of the cement importation business in West Africa. With the increasing demand for cement in Nigeria, Lord Lugard, the Governor-General, proposed the introduction of cement manufacturing in Nigeria in 1919. He argued that the importance of cement in capital projects, its high bulk and low value, made it an obvious choice as a pioneer industry (Hay, 1971).

Despite Lord Lugard's recommendation, the syndicate that dominated the importation and supply of cement in Nigeria did not consider establishing a local plant viable at the time. In 1926, for instance, it decided against the construction of a 25,000

tons cement factory near Makurdi and in Nkalagu, near Enugu, because the high Cost of electricity, which is crucial to cementing manufacturing, would make such factories uncompetitive when compared to the Cost of importing cement from the U.K.

However, the Cement Marketing Company Limited exploited its close relationship with the colonial government to push for the imposition of higher import tariffs on non-UK companies that tried to supply cement to Nigeria to protect British manufacturing interests. At the time, Germany, Belgium, Poland, Japan, and Italy could export cement to Nigeria at prices that were more competitive than cement imported by the British syndicate. Although the colonial government was able to impose discriminatory tariffs on Japanese cement imports into Nigeria in June 1934, it was unable to do the same for cement imported from other European countries. The U.K. had bilateral agreements with several European countries that precluded it from imposing such discriminatory tariffs. Despite its market disadvantages, the British syndicate maintained its dominance of the Nigerian market arguably because of its superior distribution network and marketing strategy. The company, for instance, had signed an agreement with its leading distributors not to distribute cement from any other country in Nigeria.

One direct consequence of the increased local demand for cement in Nigeria was the establishment of additional cement factories in the country. In 1978, for instance, APCM (U.K.) established its second Nigeria cement plant, WAPCO in Shagamu, with a production capacity of 900,000 metric tons. This was the same year that APCM changed its name to Blue Circle (U.K.). In 1979, Ashaka Cement, with a production capacity of 700,000 metric tons, was established in Gombe. In 1980, the Benue Cement Company commenced operations with a capacity of 900,000 metric tons. The Federal Government of Nigeria was the core investor in this company. The investment climate of the 1970s was very different from that of the 1950s and 1960s, during the era of the first generation of cement production plants. By the time these new cement companies were established, it was not possible for foreign business interests to own majority shares in Nigerian cement companies.

Table 1: The First Generation Cement Plants Companies in Nigeria

Companies.	Date of Establishment	Capacity at Establishment (MTPA)
NIGERCEM	1957	120,000
EWEKORO	1960	700,000
BENDEL	1964	150000
CALCEMCO	1965	100000
CCNN	1967	100000

Source: *Manufacturing Association of Nigeria (2016)*

Table 2: Additional Capacity between 2003 - 2008.

Plant	Year	Amount	Capacity(MTPA)
WAPCO (Ewekero)	2003	GBP $130 million	1 M
BCC Expansion (Benue cement)	2004	$400 million	3 M
Obajana (OCP)	2006	$1.2 billion	5 M
Ashaka Cement	2008	$150 million	0.3 M
Unicem (Calabar)	2009	$840 million	2.5 M
TOTAL		$11.8M	10.8 M

Source: *Manufacturing Association of Nigeria (2016)*

Table 3: Cement Statistics in Nigeria 1986-2014

Year	Total production in Nigeria	Importation	Local production	Import percentage	Local percentage
1998	4,198,943	1,992,588	2,206,355	47.5	52.5
1999	5584794	3112685	2472099	55.7	44.3
2000	5621640	3336134	2285506	59.3	40.7
2001	81050000	5937000	2168000	73.3	26.7
2002	8112000	6041000	2071000	74.5	25.5
2003	8418000	6437000	1981000	76.5	23.5
2004	8257000	5920000	2337000	71.7	28.3
2005	9478000	6629000	2049000	69.9	21.6
2006	9972722	6753000	3219722	67.7	32.3

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2007	10969668	6327000	4642668	57.7	42.3
2008	13402880	6977000	6425880	52.1	47.9
2009	1467144	6719000	7955144	45.8	54.2
2010	1460000	5500000	9100000	37,7	62.3
2011	1720000	5200000	1200000	30.2	69.8
2012	1800000	1800000	1620000	10.0	90.0
2013	2130000	7500000	2055000	3.5	96.5
2014	2300000	7500000	2225000	3.3	96.7

Source: *Manufacturing Association of Nigeria* **(2014)**

Cement Industry in Nigeria and Effects of Financial Crisis

The crisis had mixed effects on the manufacturing sector in Nigeria. While there was a general biting reality in the sector, the cement industry took a spiral turn toward higher productivity, increasing local content, and consistently declining dependence on foreign content. Import of local content declined from 57.7 in 2007 to 30.32 in 2011 and 3.3 in 2014, showing a local increase in local production from 42.3 % to 69.8 % and 96.7%, respectively, within the same period. Total local consumption rose from 10.9 MMTPA to 17.2 MMTPA and 23 MMTPA in 2007, 2011, and 2014. This was possible because raw material supply is abundant for the industry within the country. The backward integration policy drew the attention of the manufacturers to this.

In the words of the Central Bank Governor of Nigeria (CBN), the global financial meltdown led to the crumbling of many businesses, including otherwise formidable corporate giants across the world (Soludo, 2008). In Nigeria, the Foreign Direct Investment (FDI) declined following the market shocks and the weakening confidence in the investors (Adamu, 2008; Aluko, 2008). The cement industry was not spared as the world giant; Lafarge shrank its investment in the sector. This, however, paves the way for Dangote Cement, a local player, to double its effort and take the lion's share in the market space. On the hills of the financial meltdown, the Nigerian foreign reserve fell from US$62,081 billion in September 2008 to US$53.000.36 billion in December 2008 (CBN, 2008). Foreign reserves deteriorated drastically, leading to a scarcity of foreign currency and an increased exchange rate. This put the banks in a precarious situation for lending to manufacturers. This also eroded investors' confidence in the stock market, making new capital issues difficult, and the stock prices have already plummeted.

Before the 2008 crisis, the capital market accumulated about N12.6 trillion around the first quarter of 2008. The public and private sector trooped in their numbers to raise funds. The financial meltdown has seen the capitalization eroded to about 5.4 trillion in the fourth quarter of 2009 (Aluko, 2008). Furthermore, the meltdown led to the reversal of portfolio investment, according to Udo and Ebong (2011).

This eventually led to the massive drop in equity wealth over the past years and the sharp decline in capital investment, indicating clear manifestations of the financial institutions' limits on foreign trade finances and bank credit. On the capital market, where long term finance is sourced for an organization's productive activities, during this period, there has been a capital market downturn divestment by foreign investors with attendant tightness coupled with the financial position of banks' increasing provisions for bad debt and lower profitability. The capital market happens to be the safest place to invest and source funds before the crisis of 2008 (Oladipupo, 2010). The global financial crisis affected the cement industry in Nigeria in 2009 compared to 2008, reflecting the sharp drop in global demand for commodities resulting from the crisis (UNCTAD, 2010). The Nigerian government experienced a sharp decline in trade and commodity prices in merchandise exports by over 25 per cent. Nigerian banks found it difficult to access trade credit in the United States and Europe. The price of crude oil fell by more than 50% per cent in February 2009 compared with the same month in 2008 (CBN, 2012 and IMF, 2009).

Between the end of 2007 and January 2014, the Nigerian stock exchange index declined by 62 per cent, and there has also been a significant reduction in market capitalization (CBN, 2012). The significant declines in net worth in stock markets increased the number of non-performing loans, and the Bank's financial position deteriorated. In 2009, several banks in Nigeria suffered significant losses from non-performing loans, forcing the Central Bank to inject funds into these institutions. (IMF, 2009).

Between the third quarter of 2008 and the first quarter of 2009, the Nigerian Naira depreciated against the United States dollar by more than 30 per cent. Sudden changes in exchange rate movement are very expensive and have negative effects on investment output and growth (Osakwe, 2009). External factors and domestic policy account for the varied impact on Nigeria.

Theoretical Review

The study reviewed three theories, the Austrians, the Marxist, and the Minsky theories, intending to explain practices related to the cement industries. The Austrian school of economic thought originated in late-19th and early-20th century Vienna in the Austrian empire with the work of Carl Menger, Eugen Böhm von Bawerk, and Friedrich von Wieser. Carl (1871) established

the central tenets of the school. Fundamentally, the reasoning of Austrian economists is based on methodological individualism – the concept that social phenomena result from the motivations and actions of individuals. Machlup (1981) summarized the views of Austrian economic thinking as methodological individualism; the idea that to explain economic phenomena, we have to go back to the actions (or inaction) of individuals; groups or "collectives" who act based on whatever knowledge they have or believe in having and whatever expectations they entertain regarding external developments and especially the perceived consequences of their intended actions. Opportunity costs influence their actions, time structure of production and consumption; consumer sovereignty; and political individualism.

However, the school has had its fair share of criticism on theory and empiricism. Some argue that the Austrian business cycle theory requires bankers and investors to exhibit a kind of irrationality because the Austrian theory posits that investors will be fooled repeatedly (by temporarily low-interest rates) into making unprofitable investment decisions (Gordon, 1988). Milton (1993) objected to the policy implications of the theory, stating that the theory has done more harm than good in rejecting government intervention in the economic process to restore equilibrium. This theory holds a potent relation to this study Albert partially. It pinpoints the critical role of the collective behaviours of individuals as economic agents in the society whose collective decisions can and do lead to upheavals we witness as economic crises. In this scenario, the failure of the subprime mortgage unit of the U.S. economy, not the whole economic system, sparked the crisis in the entire economy. However, this theory throws light on the effects of the financial crisis on cement industries in Nigeria, but it gives more insight into advanced capitalist societies. It does not reflect the underdeveloped capitalist society like Nigeria, which focuses on this research.

The Marxist philosophy used historical development to analyze how financial crisis occurs in capitalistic societies. The Marxist theory originated from the mid to late 19th century works of German philosophers Karl Marx and friedrich Engels. The theory borrows from the works of John Stuart Mill (the tendency of profits to fall), which comes about due to an imbalance between the producers of goods (workers) and the returns they enjoy from that place. From the Marxist point of view, the capitalistic society carries a potential economic conflict within it. It is incapable of maintaining equilibrium between profits accruable to owners of businesses and the workers who generate the profits. nevertheless, class conflict within the capitalistic society occurs due to the differences between the proletariat, the private ownership and the appropriation of profit by a small minority of the population known as the bourgeoisie. This class conflict could lead to social unrest and revolution (Hyse, 1991).

Hyman Minsky's Theory was propounded by Hyman Philip Minsky, an American economist, in 1960. His research showed that one of the features of financial crises in a capitalistic economy is a fragile financial system. He added that industries close down in third-world countries like Nigeria, Ghana, and other countries because of their inability to operate under economic recession. It is happening in Nigeria, where most cement industries such as Ibeto, Nigercem and other manufacturing cement industries have closed down. Minsky is sometimes described as a Post Keynesian economist because he supported some government intervention in the financial market, opposed some of the financial deregulation policies prevalent in the 1980s, stressed the importance of the federal reserve as a lender of last resort and argued against the over-accumulation of the private debt in the financial markets.

Minsky argued that a mechanism pushing an economy towards a crisis is the accumulation of debt by the non-governmental sector, such as private sectors, such as the cement industries. From the above analysis, Minsky's theory captures the most salient features of the undeveloped capitalist third world, such as Nigeria and why cement industries are producing in a low quantity due to the financial crisis due to a fragile economy. Minsky's theory is the best fit for this study because it captures why financial crises affect firms in cement companies such as fragile or weak financial systems, economic recession, and private debt in the financial markets that affect the adequate performance of cement companies in cement companies Nigeria.

Review of Empirical Studies

Notta and VIachvei (2014) examined the impact of the financial crisis on firm performance in the case of Greek food manufacturing firms. The study aimed to assess the effect of the economic crisis on the performance of Greek dairy firms. The period covered extends before and after the global financial crisis of 2007-2008. The study adopted secondary data, a large sample of 128 diary firms. Findings showed that the larger the firms, the greater the profitability among dairy farms.

Yakubu and Akerede (2012) carried out a study on the impact of the financial crisis on the Nigeria Stock Exchange. The study covered the period before and after the financial crisis of 2008-2011. The study used least-square multiple linear regression. It concludes that the global financial meltdown harms the Nigerian economy.

Bhata and Sultan (2012) studied leverage risk, financial crises, and stock returns compared to conventional and socially responsible Islamic stocks. The paper critically assesses various stock models and their responses to a crisis. A sample of 4000 stocks drawn from 55 countries was used for the study. The study's three models are the sharia complaint, the conventional, and the socially responsible stock models. The authors wanted to know which of their stocks provided the most substantial buffer

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against crisis and thus, pressured the shareholders' investment. In general, they found out that an investor needs a selection from among the portfolios of stocks ranging across the three models. Each form of stock responds to crisis in varying degrees, but the socially responsible stock is the most resilient to crisis.

Narjoko and Hill (2007) examined winners and losers during a deep economic crisis: firm-level evidence from Indonesian manufacturing. The study sought to identify the impacts of the crises on Indonesia's deep economic crisis of 1997-1998. The study used the annual survey of large and medium firms conducted by Indonesia's Central Board of Statistics (BPS). The data covers 1993-2000, broadly classified into pre crisis, crisis, and post-crisis periods. Questionnaires were used to collect primary data. The result showed that the impact is highly variable rather than homogenous. Foreign ownership and prior export orientation are highly significant determinants of the survival and recovery of firms.

McGuinness (2015) examined the impact of the financial crises on the working capital of SMEs. The study examined the decision-making process in Small and Medium Scale Enterprises (SMEs) under financial constraints (in terms of SMEs ' use of trade credit). The study focused on the period of the global financial meltdown of 2008, and the entire period covered in the study ranged from 2003-to 2011. Findings from the study support the view that SMEs are a vital sector and far more resilient in any economy.

3. METHODOLOGY

The study used Ex-post facto research design. It also used the positivist research philosophy (the deductive approach and the mono method quantitative as its methodological choice). Positivism refers to working with observable social reality. The positivist research philosophy approach was used because the study is concerned with reality/facts associated with product manufacturing (Cement production). The methodology adopted is structured to involve hypothesis testing using statistical tools.

The study's target population consists of nine cement companies in Nigeria. Five of the cement companies are quoted on the Nigerian stock exchange, while the remaining four are not as of 2007. Therefore, the study population consists of the five (5) quoted companies on the stock exchange. The study used secondary data sourced from the audited annual financial statements of the three cement companies (Lafarge, Dangote and Cement Company of Northern Nigeria) in Nigeria from 2007 - to 2017. A sample of three cement companies that have operated successfully within the period under consideration was used.

Data collected was analyzed using the Generalized Least Square (GLS) Regression Techniques vides STATA Window 13. This process begins with the conduct of the pre-estimation test. For example, the Unit Root test was conducted on the data to ensure its normality and linearity. The Unit Root test was conducted using the Levin-Lin-Chu test. This test is more appropriate where the N/T is relatively small. It is also necessary to ensure that the data series is stationary. Regression results conducted in the absence of the Unit Root test may be spurious because the estimated parameters would be biased and inconsistent where the data series is not stationary (Hadri, 2000).

Data Analysis: The Unit Root Test

This test was conducted to ensure that the panel data used was stationary.

Table 4. Results of Unitroot Test for Variables in Equations 3.2 & 3.3

Variable	t –Statistics	P-Value
dcap	-7.22*	0.000
exchr	-1.36*	0.000
infr	-2.91*	0.001
roa	-0.61*	0.002
cof	-0.31*	0.004
cop	-1.36*	0.003

Note: The Unit root test was conducted using Levin-Lin & Chu (LLC) technique to determine the trend and intercept. The variables are: Capital inflows (dcap), Exchange rate (exchr), inflation rate (infr), Return on Assets (roa), Cost of finance (cof), and Cost of production (cop) * = Implies significant at 1%. All variables are first differenced (transformed to Order 1).
Source: Field Study, 2018.

The Unit Root test results shown in table 4 indicated the Levin-Lin & Chu (LLC) statistics with their corresponding P-values. The test was conducted using the Akaike information criteria at lag 1. Results showed that the probability value of each variable is smaller than the alpha value at 1%. Thus, the null hypothesis that the panel contains a unit root was rejected at a 1% significance

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level. All the specified variables are I (1) variables (integrated to order 1). Therefore, our specified variables would yield plausible regression output based on the Unit Root Test.

To show the effects of the financial crisis on the performance of cement companies in Nigeria, the estimation procedure used by Yakubu and Akerele (2012) was adopted and modified as:

$$Y_t = \alpha_0 + \alpha_1 X_t + \varepsilon_t \qquad \qquad \text{... (3.1)}$$

Where, Y_t = Performance measure (Dependent variable), X_t = Independent variable, α_0 = The intercept term, α_1 = Coefficients and ε_t = Disturbance term

Model Specification: Model 1

Profitability = f (Capital inflow, Exchange rate, Inflation rate and Error term)

$$ROA_t = \alpha_0 + \alpha_1 CAPINF_t + \alpha_2 FOREX_t + \alpha_3 INFR_t + \varepsilon_t \qquad \text{... (3.2)}$$

Where; α_0 = the intercept term, $\alpha_1, \alpha_2, \alpha_3$ = the regression parameters (that is, coefficient of explanatory and control variable), ROA = Return on asset (Industrial average) for cement industries at period t, CAPINF = Capital Inflow at period t, FOREX = Foreign Exchange Rate at period t, INFR = Inflation Rate at period t, t = time-series dimension (ranges from I to T), ε_t = disturbance term

On apriori ground: The entire explanatory variables in the model are expected to be inversely related to the dependent variables *(that is, $\alpha_1 < 0$; $\alpha_2 < 0$; $\alpha_3 < 0$)*.

Decision Rule: The decision rule is based on the computed value of **t, P-value and R^2 tests. t-test :** The t-test shows the individual significance of the co-efficient. If the computed value is less than the table value, accept the null hypothesis and reject the alternative; otherwise, reject the null hypothesis and accept the alternative. **P-Value** (Probability Value): If the calculated P-Value is more excellent than 5%, do not reject the Null Hypothesis order wise, reject the Null Hypothesis and accept the alternative. **R^2:** The R^2 (that is, the coefficient of determination) shows the proportion of the total variable in the dependent variable, which is explained by the explanatory variable in a regression model. The closer the R^2 is to 1, the stronger the explanatory power of the estimated regression line.

Testing Hypothesis One

H_o: financial crisis has no significant effects on the profitability of the cement industry in Nigeria.

Table 5. Results of Random Effects Model on the Relationship Between
Financial Crises Indicators and Profitability of Cement companies – Model 1

Variable (roa)	Coef	Std Error	Z Stat.	P-Value
dcap	0.004	0.058	0.06	0.951
logexchr	-1.515*	0.416	-3.64	0.000
infr	0.021	0.015	1.40	0.162
constant	3.837*	0.043	17.99	0.000
R^2 = 0.349				
Rho = 0.800				
Wald X^2 (lag 3) = 13.37*				0.004

*Note: The dependent variable roa (return on assets) * = significant at 1%, the independent variables are dcap = capital inflows, logexchr = exchange rate, infr = inflation rate, rho = correlation coefficient between the cross-sectional units, R^2 = Coefficient of determination.*

Source: Field Study, 2018.

The results reported in table 5 show that the coefficient of global financial crises indicators: dcap, logexchr and the moderating variable: infr are 0.004, -1.515 and 0.021, respectively. This showed that dcap and infr have a positive relationship with roa. However, logexchr has a significant inverse relationship with roa. Rho, which measured the correlation across units (that is, the direction of movement of the variables within cross-sectional units), is positive at 0.800, which showed that all the variables across units are positively correlated.

Overall the financial crises indicators jointly contributed 35% (R2) to variations in roa. On individual basis, a 1% change in exchr would lead to a reduction in roa to the tune of 151%. Furthermore, since the observed P-value of Wald (X^2) lag three at 0.000 is less than the critical alpha value at 5%, the null hypothesis is rejected. The researcher concludes that the financial crisis has had significant effects on the profitability of the cement industry in Nigeria.

Effects of the Financial Crisis of 2007/2008 on the Performance of the Cement Industry in Nigeria

Model 2

Cost of Production = f (Capital inflow, Exchange rate, Inflation rate and Error term)

$COP_t = \alpha_0 + \alpha_1 CAPINF_t + \alpha_2 FOREX_t + \alpha_3 INFR_t + \varepsilon_t$ ... (3.4)

Where; COP = Cost of Production (Industrial average) for cement industries at period t

Testing Hypothesis Two

H_0: Financial crisis has no significant effects on the Cost of cement production in Nigeria.

Table 6. Results of Random Effects Model on the Relationship Between

Financial Crises Indicators and cost of production of Cement companies – Model 1

Variable (cop)	Coef	Std Error	Z Stat.	P-Value
dcap	0.042	0.037	1.12	0.263
logexchr	1.952*	0.267	7.31	0.000
infr	-0.025*	0.009	-2.63	0.009
constant	1.407	0.902	1.56	0.119
R^2 = 0.701				
Rho = 0.987				
Wald X^2 (lag 3) = 56.92*				0.000

*Note: The dependent variable cop (cost of production) * = significant at 1%, the independent variables are dcap = capital inflows, logexchr = exchange rate, infr = inflation rate, rho = correlation coefficient between the cross-sectional units, R^2 = Coefficient of determination.*

Source: Field Study, 2018.

The results reported in table 6 show that the coefficient of global financial crises indicators: dcap, logexchr and the moderating variable: infr are 0.042, 1.952 and -0.025, respectively. This showed that dcap and logexchr have a positive relationship with cop. However, infr has a significant inverse relationship with Cost of production, while exchange rate has a significant positive relationship. Rho, which measured the correlation across units, is positive at 0.987, which showed that all the variables across units are positively correlated.

On an individual basis, a 1% change in exchr would lead to an increase in Cost of production to the tune of 195%, while a 1% change in infr would reduce the Cost of production to the tune of 2.5%, Overall, the financial crisis indicators jointly contributed 70.1% (R^2) to variations in cop thus, indicates a strong relationship. Furthermore, since the observed P-value of Wald (X^2) lag three at 0.000 is less than the critical alpha value at 5%, the null hypothesis is rejected. The researcher concludes that the financial crisis has significant effects on the cost of cement industry production in Nigeria.

Discussion of Findings

Based on the result in table 5 for hypothesis one, the researcher rejected the null hypothesis and concluded that the financial crisis had significant effects on the profitability of the cement industry in Nigeria. Findings indicate that financial crises have significant adverse effects on the profitability of cement companies in Nigeria. This result supports Yakubu and Akerede (2012) that financial crises negatively affect the economy. This is because the exchange rate becomes unfavourable due to capital flight. This finding implies that the unfavourable exchange rate reduces firm profitability, and, by extension, has adverse effects on the Nigerian economy.

Based on the result in table 6 for hypothesis two, the researcher rejected the null hypothesis and concludedd that financial crises have significant effects on the cost of cement production in Nigeria. Findings from the study showed that inflation has significant adverse effects on the Cost of production during the period under review.

4. CONCLUSION

The study has shown that the consequence of the financial crisis of 2007/2008 is the high Cost of cement which has brought untold hardship to Nigerians. The costs of government constructions contracts doubled; builders found it challenging to build or acquire houses; the Cost of house rents doubled, and mortgage institutions could not remedy the obvious housing deficit. The financial crisis also caused insufficiency in industry funding operations, especially on a large scale. Most of the cement companies in Nigeria experienced low production due to the high Cost of raw materials and lack of efficient maintenance of machines which are capital intensive.

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The the financial crisis also brought about technological inadequacies and high overhead costs which led to the closure of some cement companies such as Nigercem Nkalagu in present-day Ebonyi State, Eastern Bulkcem and Ibeto Group. Although the Nigerian government has tried to mitigate the effects of the financial crisis on these cement companies through tax holidays, banning the importation of bagged cement. Yet, the effects of the financial crisis persist.

The study concludes that the 2007/2008 financial crises have significant adverse effects on the profitability of cement companies and the cost of cement production in Nigeria. Findings further showed that inflation has significant adverse effects on the Cost of production during the period under review.

5. RECOMMENDATIONS

The study recommended that the cement industry in Nigeria should look inwards in terms of sources of raw materials and local technology for their production. Research and development should be intensified to enable the building and assemblage of machines to produce the product. This will reduce the overhead Costs of production and consequently improve profitability.

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