The Impact of Unemployment on Corporate Debt Policy of Quoted Nigerian Firms

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Abstract

The impact of labour market friction on corporate debt policy remains an underexplored area in corporate finance. Unemployment risk is a considerable issue for workers but, despite this, workers' unemployment costs are largely absent from corporate financial theories, which typically do not emphasise labour market friction. This study investigates the interaction of labour unemployment risk with corporate borrowing in Nigeria. The population of study comprises all non-financial corporations quoted on the Nigerian Stock Exchange (NSE) for the period 1999-2014 out of which 50 companies that met the minimum data criteria were selected. Using panel data regression, the research documents its findings, providing new evidence that financing decisions interact with non-financial stakeholders. Specifically, the results support use of the capital structure as a weak bargaining tool for companies but also as a possible bargaining variable for workers. Employee bargaining increases with leverage. In other words, highly levered firms exert pressure on themselves to treat employees decently. Unemployment exerts a downward pressure on corporate borrowing. Thus, unemployment risk provides a partial explanation for the conservative financial policies of quoted Nigerian firms, thereby partly accounting for the low leverage puzzle for some firms. Given the significant unemployment problem in Nigeria, compounded by a weak social safety net for workers, the study recommends promotion of corporate policies that strengthen conservative debt usage in industries where human capital risk is concentrated.

Keywords: Capital structure, firm-specific characteristics, employees, unemployment risk, market conditions

Design/Methodology/Approach: The population of study comprises all non-financial corporations quoted on the Nigerian Stock Exchange (NSE) for the period 1999-2014 out of which 50 companies that met the minimum data criteria were selected. The paper uses panel data Ordinary Least Squares regression.

Purpose: This study investigates the impact of labour unemployment risk on corporate borrowing or the capital structure in Nigeria.

Findings: This study shows the interaction of financing decisions with non-financial stakeholders. Specifically, the results support use of the capital structure as a weak bargaining tool for companies but also as a possible bargaining variable for workers. Employee bargaining increases with leverage. In other words, highly levered firms exert pressure on themselves to treat employees decently. Unemployment exerts a downward pressure on corporate borrowing. Thus, unemployment risk provides a partial explanation for the conservative financial policies of quoted Nigerian firms, thereby partly accounting for the low leverage puzzle for some firms.

Research Limitations: The study is limited to an examination of non-financial companies in Nigeria.

Practical Implications: Non-financial borrowing is popular in the financing of Nigerian non-financial corporations because financial debt is costlier and firms may prefer to accumulate accruals or defer payments to non-contractual stakeholders than to debt finance providers.

Originality/Value: This work uses a corporate strategy approach to study the capital structure in a developing economy. By incorporating unemployment in a capital structure analysis, the study adds labour market friction to empirical corporate finance.

JEL: G30, G32, G33, J10, J21, J24, J31, J33, J41.

Introduction
Workers, being members of the non-financial stakeholders (NFS) group, bear significant costs during unemployment such as reduction in consumption, long delays before reemployment and significant wage cuts after returning to work. Displaced employees suffer psychological and social costs (Akintola-Bello, 2010, 2015a, 2015b). Workers' concerns about becoming unemployed may reduce their labour supply and may affect firms' policies on layoffs and wage setting, even when they are far from bankruptcy (Agrawal & Matsa, 2013; Brown & Matsa, 2016). Despite their magnitude, however, workers' unemployment costs are largely absent from theories in corporate finance, which typically do not emphasise labour market friction.

Traditional capital structure research focuses on the relationship between the firm and its financial claimants, without addressing employees or other stakeholders. As far back as Jensen & Meckling (1976), the modern firm has been understood as a nexus of contracts amongst disparate individuals such as financiers, employees, managers, customers and suppliers. Recent work shows how the incentive effects of capital structure can affect contracting between the firm and non-financial stakeholders, especially employees, customers and suppliers—a situation that can also generate feedback effects on capital structure (Foley-Fisher, Ramcharan & Yu, 2016; Cohn & Wardlaw, 2016). For instance, an economy's total labour input is a key determinant of how much gross domestic product (GDP) it can produce.

The productive capacity of an economy in turns determines its attractiveness as an investment destination to foreign investors who might be interested in committing funds through either debt financing or equity instruments or venture capital. This paper studies the impact of the worker unemployment problem on corporate financial (or debt) policy in Nigeria. As far as is known, this line of research in corporate finance, which combines labour market issues with financial policy, is still evolving. Important pioneering research attempts along this line include Titman (1984), Berk, Stanton and Zechner (2010), Agrawal and Matsa (2013), Serfling (2016) and Michaels, Beau Page and Whited (2019). Building on such pioneering work, this study examines the impact of labour unemployment, using data from an emerging African market, Nigeria. Nigeria is the most populous country in Africa and has a growing labour force that is characterised by different shades of unemployment. By examining theoretical issues postulated using data from industrialised countries, such as the United Kingdom, USA, Germany, France and other developed countries, and applying them to a developing African country, researchers can use the finance profession to ascertain the extent to which earlier results stand in a cross-country sense or the degree to which earlier results hold from a developing country perspective. Attempts made on the study of capital structure in Nigeria have emphasised the following issues: empirical tests of competing views of leverage, that is, the trade-off theory against pecking order (Adesola, 2009; Okoyeuzu, 2010); the impact of capital structure on performance (Olokoyo, 2012; Akinyomi, 2013); avoiding corporate failure through optimal structure (Adenikinju, 2009); agency effects (Ezeoha & Okafor, 2010); tax effects (Adelegan, 2006; Amah & Ezike, 2013); and the role of firm-specific characteristics (Aregbeyen & Periola, 2011). These studies, despite their robust analysis and impact on the Nigerian corporate

finance literature, do not capture labour market effects on capital structure in an economy fraught with high degrees of unemployment and underemployment.

This paper utilises panel data regression techniques to estimate the impact of labour unemployment and related labour market indicators such as human capital investment of firms and employee bargaining power on the corporate debt policy of quoted Nigerian firms. The corporate debt policy is revealed by the ratio of borrowing to the entire capital utilised in financing operations and long-term investments. The conservative debt policy describes the corporate debt ratios that are significantly lower than the static trade-off model prediction of optimal debt usage, thus implying that firms bypass potential tax benefits available whenever they do not raise debt financing to a theoretical debt capacity where the marginal tax benefits equal the marginal bankruptcy costs. The paper's key findings are that the unemployment rate exerts a downward pressure on corporate borrowing, corporate borrowing increases employee bargaining power through the potential of signaling and human capital investment has a negative impact on corporate borrowing behaviour. The view that corporate leverage can be utilised by the finance officer as a bargaining tool when negotiating contracts with employees is not supported by the empirical results from this study.

Regarding the structure of the paper, Section 1 reviews the literature on capital structure, labour market and unemployment dynamics. Section 2 describes the data and methodology for the study. Section 3 presents the data analysis and empirical results. Section 4 discusses the results and implications and section 5 concludes the study.

1. Theoretical Background on Labour Market, Unemployment and Debt

The labour market is any arrangement that facilitates the exchange of labour services, that is, any avenue whereby firms buy labour services from households. The clearing of this market, along with those for commodities and credit, determines the aggregates of work and output. On the other hand, unemployment describes the number of people who are looking for work but are unable to find any. The sum of unemployment and employment is the *labour force*. People who neither have jobs nor are looking for any are placed outside the labour force, while the ratio of the number of unemployed to the labour force is the *unemployment rate*. Moreover, while unemployment refers to unsuccessful jobseekers, the term *vacancies* describes the number of jobs that firms have been unable to fill (Barro, 2016; Blanchard, 2017). The theoretical foundations of the

labour market and issues bordering on unemployment are vast, encompassing the entire spectrum of the Classical, Neo-classical, Keynesian, Neo-Keynesian and New Classical Macroeconomic schools alongside the theories of endogenous growth. On its part, the foundation for the modern theory of capital structure began with the seminal papers of Modigliani and Miller (1958, 1963) and continues to varied extensions based on relaxation to the central assumptions of the papers with growing emphasis on taxes, bankruptcy, agency effects and information problems. An attempt will be made to review key theoretical issues on the labour market and unemployment here. A sketchy review of the capital structure theory is also done.

1.1   **Labour Market Models**

The Competitive Model
In traditional economic theory, the labour market is analysed like any other market, such as the product or financial markets. Thus, the model of the link between wage and employment focuses on a single competitive labour market, where wage is a function of the forces of demand for and supply of labour (Oni, 2006; Barro, 2016; Mankiw, 2016; Blanchard, 2017). In this labour market model, the assumption is that labour is homogeneous. Labour demand by the firm is a decreasing function of real wages, which implies that the level of wages is a direct function of labour productivity. The equilibrium employment and wages are achieved at a point where labour demand equals labour supply. The setting of a wage level above the equilibrium level would lead to a drop in the demand for labour, other things being equal. Consequently, workers whose productivity is below this wage level are shut out of the labour market and vice versa. The competitive model predicts as follows:
1)   that a rise in unemployment level could be ascribed to wages being above the equilibrium level, which may be due to wage rigidity
2)   that variation in human capital accounts for any wage differential.

Sources of wage rigidity include distortions resulting from the influences of trade unions and government minimum wage policy. The negative effects of a rise in wage on unemployment result from the combination of two elements: a *substitution effect* and a *scale effect*.

Substitution effect means that firms can decide to use less labour than capital when the former becomes more expensive, and they can substitute skilled labour for unskilled labour.

Scale effect results from the fall in sales due to cost increases leading to a reduction in the use of the factors of capital and labour, including low-skilled labour. The foregoing predictions of the competitive model are based on a number of assumptions, including the following:
1) homogeneity and, hence, substitutability of the labour force
2) a rise in wage (such as induced by minimum wage legislation) which covers the whole economy
3) all employees and potential workers (that is, jobseekers) having adequate information about existing job opportunities within the economy
4) all employers complying with the required rise in wage/salary
5) employers being wage/salary-takers, that is, having little or no influence in setting wages.

One of the criticisms against the competitive labour market model is that it does not reflect the complex real labour market world. Labour markets are neither homogeneous nor governed by strict competitive rules. Their functions vary from one nation to another, and even in each country from one sector (or region) to another. Therefore, the theoretical analysis of the link between wage and unemployment has to take cognizance of the real world where the competitive model's assumptions are violated.

Alternative Models
To explain unemployment and vacancies, economists introduce some type of 'friction' into the workings of the labour market (Mankiw, 2016; Barro, 2016; Blanchard, 2017). In the alternative models the main issue is that higher wages may generate effects other than increasing unemployment risk within the economy. Some employers have significant market power in setting wages, thus enabling them to take major decisions on workers they hire to fill identified *vacancies* as well as other terms of the employment contract, such as welfare, promotion and retrenchment.

The Monopsony Model
In the monopsony model of labour, employers are not subject to wage policies based on the idea that employers have a certain market power in setting wages such that labour supply is a positive function of the wages paid. This means that the higher the wages, the more abundant the labour force. High wage rate incentivises labour supply. In this context, the labour market is seen to have only one buyer of labour. Thus, if an employer desires to attract the available

labour force, he should respond by committing to higher wages. Higher wages would help him to retain his workers, thus maintaining a lower level of unemployment. The main limitation of this model rests on the assumption that the market is dominated by one employer. This is considered to be more theoretical than a representation of the real-world labour market. In addition, communication facilities existing today have improved workers' knowledge of vacancies in the labour market (Oni, 2006).

Another assumption underlying the monopsony model is that the firm does not pay its workers the value of their marginal product (the marginal product is higher than the marginal cost of labour). Consequently, there is room for increasing wages to a certain level without jeopardising the firm's profitability. Moreover, the minimum wage policy would drive wages upward leading to the hiring of more workers and thus to more production and higher profits. However, although the minimum wage might be associated with reduction in unemployment, it cannot be set at any level. Beyond a certain limit, say, when the marginal labour cost equals the marginal product, it might lead to a decrease in job prospects, at least for those workers whose marginal product is below the marginal cost of labour. Then the issue is whether or not these job losses would be compensated for by the job gains of workers whose productivity is higher than the minimum wage.

The Efficiency Wage Theory
This theory rests on the view that higher real wages can, through various mechanisms, lead to higher labour productivity. Efficiency wages exist are those deliberately fixed above the market clearing level so as to keep and motivate good workers. It is believed that wages set above the average would raise incentives to work and result in better economic performance through lower propensity of shirking and less absenteeism and better adaptation of workers. It suggests that in the absence of any wage regulation, and if unemployment is high and supply of labour abundant, wages can fall dramatically, leading to poverty among workers. It also suggests that such a fall in real wages will adversely affect both labour productivity and the profits of firms. There are four variants of this theory, viz: *nutritional*, *labour turnover*, *adverse selection* and *rent- sharing* (or *gift exchange*).

The *nutritional theory* focuses on the linkage between wages, nutrition and productivity. Its main idea is that employees should be granted wages high enough to meet their nutritional needs so that they can feed better and be more productive. Thus, the productivity of workers is assumed to be positively related

to workers' health and earnings. The theory predicts endogenously induced wage rigidity and, hence, it is said to be more relevant to developing countries where unemployment and poverty are rife.

Labour turnover theory states that turnover cost minimisation is the main reason that employers fix wages above the market clearing level. Labour turnover costs include cost of hiring and training new workers, interruption in the production process and loss of output, all of which reduce the profitability of firms. Thus, in order to reduce such costs, employers offer their workers higher wages to retain them.

Adverse selection theory considers higher wage rates (in the context of non-observable quality) as an incentive to attract a specific type of labour. On the basis of this, firms offer higher wages to attract a better and larger pool of suitable applicants from which it can select for employment. Employment of better quality workers would then lead to higher productivity.

The *rent-sharing* or *gift exchange theory* of George Akerlof states that higher wages induce loyalty and more commitment of workers. Thus, this may lead to increase in worker productivity. The greater the willingness of the firm to share its profits with workers, the more the latter's loyalty and commitment and, hence, the higher their productivity.

1.2. Unemployment and Human Resources Under-utilisation

High unemployment is both a social and an economic issue. Unemployment is an economic challenge because it signifies waste of a valuable productive resource: human capital. Unemployment is a major social problem because it triggers enormous suffering as unemployed workers struggle with reduced incomes and face a sustenance threat. During periods of high unemployment, economic distress spills over to affect people's emotions and family lives (Samuelson & Nordhaus, 2010: 651). The national output drops below the economy's potential GDP during major periods of high unemployment. While the economic cost of unemployment is certainly enormous, no monetary amount can adequately convey the human and psychological toll of long periods of persistent involuntary unemployment. The personal tragedy of unemployment can be seen through the futility of job searches of Nigerian graduates, with escalating social and moral vices almost becoming the most emblazoned banner of youth unemployment (Owualah, 2014). Psychological studies reveal that being fired

from a job is generally as distressing and painful for the victim as the death of a close friend or failure in school.

Okun's Law
The most distressing consequence of any recession is a rise in the unemployment rate. As output falls, firms need fewer labour inputs, so new workers are not hired and current workers are laid off or furloughed. The impact can be dramatic, as it turns out that unemployment usually moves inversely with output over the business cycle. This co-movement, first identified by Arthur Okun, is known as Okun's Law. It states "that for every 2 percent that GDP falls relative to potential GDP, the unemployment rate rises about 1 percentage point." This rule is useful in translating cyclical movements of GDP into their effects on unemployment.

Three Kinds of Unemployment
Three kinds of unemployment are typically identified: frictional, structural and cyclical. The movement of people between regions and jobs or through different stages of the life cycle is indicative of frictional unemployment. Because frictionally unemployed workers are often moving between jobs, or looking for better jobs, it is often thought that they are voluntarily unemployed. *Structural* unemployment signifies a mismatch between the supply of and the demand for workers. Mismatches can occur because the demand for one kind of labour is rising while the demand for another kind is falling and supplies do not quickly adjust. Structural imbalances could be observed across occupations or regions as certain sectors grow while others decline. This structural unemployment problem is a major issue in Nigeria because since the oil boom of the 1970s, the oil and gas sector has been generating economic growth at the expense of the agriculture, manufacturing and services sectors, which have experienced worrisome decline. The structural change that accompanied the oil sector's rise to dominance ultimately enhanced economic growth while reducing employment opportunities. The unemployment rate in coal-mining communities, for instance, remains high. In European countries high real wages, welfare benefits, debt crises and taxes have created high levels of structural unemployment for entire communities over the last decade (Samuelson & Nordhaus, 2010: 655). *Cyclical unemployment* exists when the overall demand for labour is low because there is a decline in output. Since the demand for labour (or employment) is a derived demand that is closely linked to output, a fall in output translates automatically to a decline in employment. As total spending and output falls, unemployment rises virtually everywhere. When the economy experiences a downturn, workers are massively laid off or furloughed.

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Understanding the causes of unemployment is a key challenge in the formulation of macroeconomic policies. Some unemployment (often called voluntary) would occur in a flexible-wage, perfectly competitive economy when qualified people choose not to work at the going wage rate. Unemployment may also be an efficient outcome where heterogeneous workers are searching for and testing different kinds of jobs (Samuelson & Nordhaus, 2010; Barro, 2016; Blanchard, 2017).

The theory of involuntary unemployment and sticky wages holds that the sluggish adjustment of wages produces surpluses and shortages in individual labour markets. According to the theory, the failure of sticky wages to adjust quickly to labour surpluses or shortages will lead to cyclical unemployment. If wages are above market-clearing levels, some workers are employed but other qualified workers cannot find jobs. Such unemployment is involuntary and also inefficient in that both workers and firms could benefit from an appropriate use of monetary and fiscal policies.

The linkages between unemployment, output and inflation and the implications are the major focus of macroeconomic policies, i.e. fiscal, monetary and trade policies. The theoretical nexus is the neo-Keynesian concept of 'potential output', which is often referred to as *natural output*. This level of output also corresponds to the natural rate of unemployment or what is referred to as the Non-Accelerating Inflation Rate of Unemployment (NAIRU). In this particular framework, the built-in inflation rate is determined endogenously, that is, by the normal workings of the economy. The economic literature identifies at least three factors that determine the natural rate of unemployment: unemployment insurance, the minimum wage and labour unions (Barro, 2016). For most developing countries, e.g. Nigeria, the idea of unemployment insurance is illusory and typically non-existent. However, there are minimum wage regulations and active labour unions.

Table 1 below displays selected macroeconomic indicators in Nigeria for 1986-2016 while Table 2 describes the behaviour of unemployment in Nigeria vis-à-vis the urban and rural dimension.

Table 1: Selected Macroeconomic Indicators in Nigeria (1986-2016)

Year	UER	GDP Growth	Inflation	Capacity Utilisation	Population Growth	Lending Rate
1986	5.3	3.7	5.4	38.8	3.2	12.00
1987	7.0	0.2	10.2	40.4	3.3	19.20
1988	5.3	2.2	38.3	42.4	3.4	17.60
1989	4.5	7.0	40.9	43.8	2.0	24.60
1990	3.5	10.9	7.5	40.3	2.1	27.70
1991	3.1	2.2	13.0	42.0	2.7	20.80
1992	3.4	3.0	44.5	38.1	2.2	31.20
1993	2.7	2.7	57.2	37.2	3.4	18.30
1994	2.8	1.3	57.0	30.4	2.9	21.00
1995	1.8	2.1	72.8	29.3	2.8	20.80
1996	3.4	3.4	29.3	32.5	2.8	20.90
1997	3.2	3.2	8.5	30.4	2.8	23.30
1998	3.2	2.4	10.0	32.4	2.9	21.30
1999	8.2	2.8	6.6	34.6	3.3	27.20
2000	18.1	5.3	6.9	36.1	3.1	21.60
2001	13.6	4.6	18.9	42.7	3.1	21.30
2002	12.6	3.5	12.9	54.9	3.0	27.70
2003	14.8	10.2	14.0	56.5	2.8	21.60
2004	13.4	6.1	15.0	55.7	3.2	26.00
2005	11.9	6.5	17.9	54.8	2.4	17.95
2006	12.3	6.2	8.2	53.3	2.4	16.90
2007	12.7	7.0	5.4	53.4	2.4	16.94
2008	14.9	5.9	11.6	53.8	2.5	15.48
2009	19.7	6.9	12.5	58.9	0.4	18.36
2010	21.4	7.8	13.7	55.8	5.3	17.59
2011	23.9	4.7	10.9	56.1	3.3	16.02
2012	23.9	6.7	12.2	56.9	1.1	16.79
2013	23.9	5.4	8.5	58.3	4.4	16.72
2014	23.9	6.1	8.0	60.3	2.8	16.55
2015	29.2	2.7	9.0	53.7	2.1	16.96
2016	31.2	-2.1	18.6	50.7	NA	17.06

Sources: Central Bank of Nigeria, National Bureau of Statistics and CIA Factbook

Table 2: The Behaviour of Unemployment in Nigeria (1985-2016)

Year	Urban Rate (%)	Rural Rate (%)	National (%)
1985	9.8	5.2	6.1
1986	9.1	4.6	5.3
1987	9.8	6.1	7.0
1988	7.8	4.8	5.3
1989	8.1	3.7	4.5
1990	5.9	3.0	3.5
1991	4.9	2.7	3.1
1992	4.6	3.2	3.4
1993	3.8	2.5	2.7
1994	3.2	1.7	2.8
1995	3.9	1.6	1.8
1996	6.1	2.8	3.4
1997	6.0	2.6	3.2
1998	4.9	2.8	3.2
1999	5.5	2.5	8.2
2000	14.2	19.8	18.1
2001	10.3	15.1	13.6
2002	9.5	13.3	12.6
2003	17.1	13.8	14.8
2004	11.0	12.1	13.4
2005	12.9	14.2	11.9
2006	10.7	13.1	12.3
2007	17.4	13.9	12.7
2008	19.1	13.9	14.9
2009	19.1	13.9	19.7
2010	25.6	16.4	21.4
2011	18.4	26.2	23.9
2012	18.4	27.1	23.9
2013	18.4	26.4	23.9
2014	18.4	26.2	23.9
2015	22.5	32.0	29.2
2016	22.5	32.0	31.2

Sources: Central Bank of Nigeria (CBN), National Bureau of Statistics, IMF & CIA Factbook
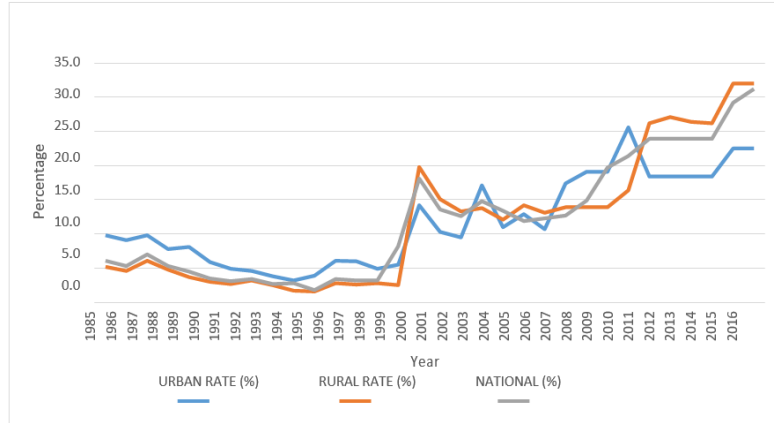
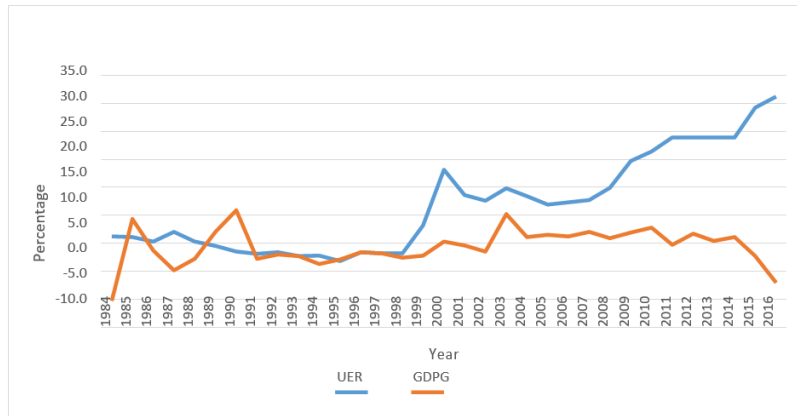**Figure 1: The Behaviour of Unemployment in Nigeria (1985-2016)**

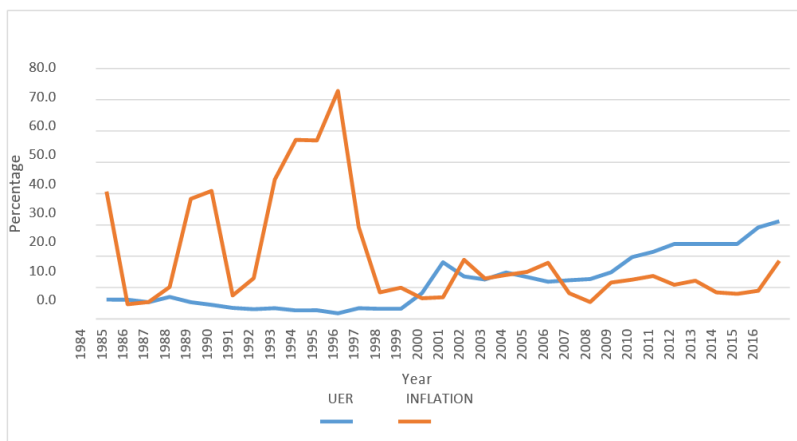**Figure 2: Unemployment and GDP Growth in Nigeria (1984-2016)**

Figure 3: Unemployment and Inflation Rate in Nigeria (1984-2016)
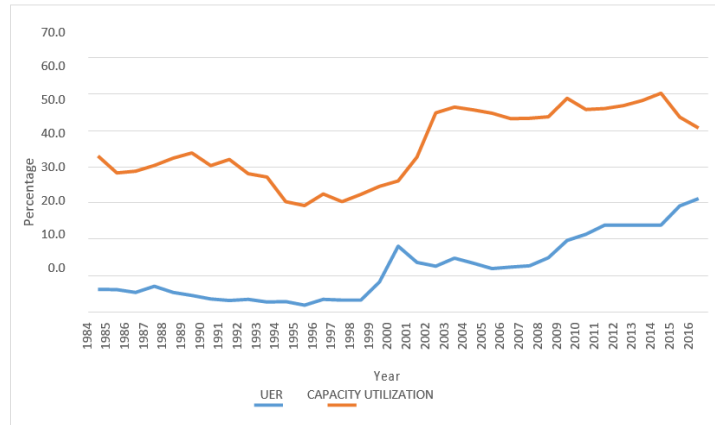
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Figure 4: Unemployment Rate and Capacity Utilization (1984-2016)
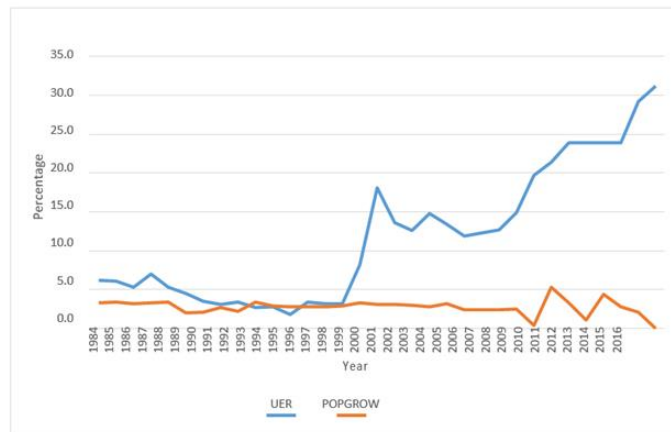

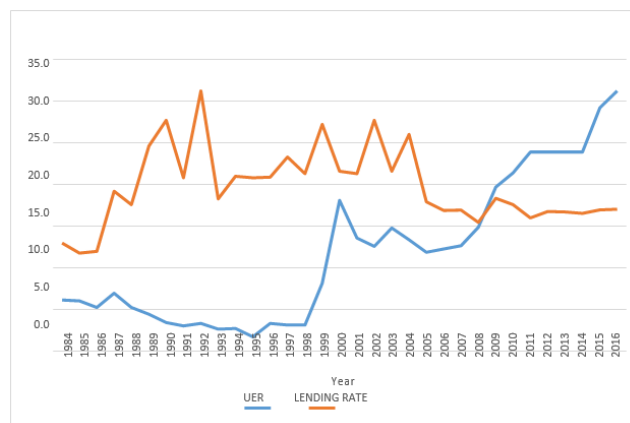**Figure 5: Unemployment and Population Growth (1984-2016)**

Figure 6: Unemployment and Lending Rate (1984-2016)

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Figure 3 captures the unemployment and inflation rate in Nigeria for the period wherein inflation peaked at 72.8% in 1995 but unemployment rose less sharply, showing a peak at 31% in 2016. Figure 4 displays the unemployment rate and capacity utilisation, with the unemployment rate showing a sensitive response to the utilisation ratio, that is, unemployment increased as capacity utilisation declined. Figures 5 and 6 embody the relationship between unemployment and population growth on the one hand and unemployment and lending rate on the other.

1.3. Capital Structure: Theory and Applications

Much of the empirical research since the groundbreaking work of Modigliani and Miller (1958) has focused on testing the implications of two competing views of capital structure, i.e. the trade-off theory and the pecking order view. The trade-off theory, which is adopted by many researchers, holds that firms have leverage targets that optimally balance the various costs (e.g. bankruptcy costs, stockholder-bondholder agency costs) and benefits (e.g. tax savings, mitigated stockholder-manager agency costs) of debt. The pecking order of Myers and Majluf (1984) and Myers (1984) postulates that firms follow a financing hierarchy designed to minimise the adverse selection costs of security issuance. Other views of capital structure choice include the agency and market conditions (or timing) models (Fama & French, 2012; Welch 2015).

The trade-off theory emphasises taxes and bankruptcy costs, while the pecking order stresses information asymmetry and the agency theories focus on agency effects. The market conditions model is an offshoot of the behavioural story of security prices' reaction (over- and under-) to economic events and calls attention to timing in security issuance. Empirically, the theories have experienced both successes and challenges. Each view succeeds in explaining a number of broad patterns in observed debt ratios, such as the association between leverage and various firm characteristics and the composite use of different sources of capital. However, no view has succeeded in explaining the observed heterogeneity in capital structures, leverage changes and security issuance decisions (DeAngelo & Roll, 2015; Demirguc-Kunt, Peria & Tressel 2020). Graham and Leary (2011) provide an overview of some empirical properties of corporate capital structures to highlight the successes and failures of empirical models. They conclude that the real sources of incremental knowledge in corporate debt policy will emanate from identifying economic forces that are most important to capital structure choices.

Costs of Financial Distress and Unemployment Risk – A Trade-off Theory
When promises to creditors are broken or honoured only with difficulty, then the firm is said to be financially distressed (Owualah 2000; Paseda, 2006; Paseda 2016; Brealey, Myers & Allen 2020). While at times financial distress may lead to outright bankruptcy, at other times it may simply mean "skating on thin ice." No doubt, financial distress can be quite expensive, as a firm may have to sell its assets at distress prices typically referred to as fire sale of assets. A more challenging situation arises if the firm loses flexibility in raising finance for new projects ("underinvestment" as a result of "debt overhang") or securing refinancing for existing investment and operating decisions. Refinancing severely distressed firms is generally difficult, time-consuming and costly to achieve due to debt overhang, bargaining issues and conflict among creditors (Rampini, Sufi & Viswanathan, 2014). Financial distress has many indirect costs. It may cause firms to avoid future commitments to their customers, who may be unwilling to purchase products whose value depends on future service or support from the firm. *Suppliers* may be unwilling to provide a firm with a critical inventory (or supplies) if they fear non-repayment (Barrot, 2016). The cost of financial distress to employees is one important cost that receives a great deal of media coverage. Most firms offer their employees explicit long-term employment contracts or an implicit promise regarding job security. However, during bankruptcy these contracts and commitments are often ignored and significant numbers of employees may be laid off. In anticipation of this, employees will be less willing to work for firms with significant bankruptcy risk and so may demand higher compensation to do so. Thus, hiring and retaining key employees may be costly for a firm with high leverage because the increased operating spend on wages and salaries, as well as the high debt servicing cost (or finance cost), may undermine the profitability and efficiency of the firm. In addition, financial distress has a significant effect on *management's attitude*. Because managers are more interested in their job security than the maximisation of shareholders wealth, they may avoid risky projects that promise to boost firm value owing to excessive managerial risk-aversion. The shareholders may expect the management to invest in risky, marginal projects that may lead to debtholders' wealth transfer (the overinvestment problem). Management may also avoid investment in profitable projects since, under an insolvency or distress, debtholders are likely to benefit more from such investments (the underinvestment problem). The pursuit of short-term profitability at the expense of long-term value maximisation is also a subtle tendency of a financially distressed firm. This tendency is usually as a result of a convex performance-related payoff that emphasises profitability and therefore

increases managerial incentives towards short-termism (Olowe, 2009; Diamond & He, 2014).

Employees and Risk

Leverage increases risk for employees, who are exposed to unemployment risk in the event of bankruptcy (Akintola-Bello, 2010, 2015a, 2015b). This (indirect) cost of financial distress may be ultimately borne by the company in the form of higher wages (Berk, Stanton & Zechner, 2010) and thus discourages the use of debt in a trade-off sense, with Agrawal and Matsa (2013) finding evidence that is consistent with this prediction. According to the authors, when a state (exogenously) increases unemployment insurance benefits, which have the effect of reducing the expected labour risk cost of financial distress, companies will increase debt usage. A hypothetical doubling of the unemployment insurance benefit increases the debt ratio by about 400 basis points. For a BBB firm, the authors estimate that unemployment-related financial risk costs the firm about 0.57% of its value. Similar results are reported in Brown and Matsa (2016) and Serfling (2016). In many developing countries, however, these unemployment insurance benefits are either virtually absent or, where they exist, ill-administered. The proposed Employee Compensation Bill (ECB) in Nigeria will make this line of study more exciting.

Labour Bargaining

While the above studies suggest high leverage can make labour contracting more costly, Brander and Lewis (1986) argue that management can use debt as a negotiating tool. For example, firms with a substantial debt load can argue that employees must take a pay cut to help the firm avoid (or emerge from) financial distress. An added implication of Brander and Lewis (1986) and related studies is that capital structure can affect how a firm competes in product markets. Several studies have shown strong empirical support for product market effects of debt policy, such as Miao (2005), Mackay and Phillips (2005).

Few studies investigate labour negotiations in detail. For example, Hennessy and Livdan (2009) model optimal debt choice as a trade-off between the bargaining benefits of debt and debt-related supplier disincentives. Their model predicts that leverage should increase with supplier bargaining power (e.g. unionisation rates) and decrease with the use of human capital in the production process. Matsa (2010) finds support for the unionisation prediction, exploiting the exogenous variation that comes from changes in state laws related to union power. Matsa found that an additional 10% unionisation leads to approximately a 100 basis

point increase in the debt ratios (as the firm presumably takes on debt as an eventual bargaining device).

Matsa (2010) implicitly assumes that companies can *ex ante* use debt (and the probability of financial distress) to negotiate with employees. To document whether this occurs *ex post* (which would justify the *ex-ante* assumption), Benmelech, Bergman and Enriquez (2010) investigated whether distressed airlines successfully bargain concessions from employees. They found that airlines are able to wring the largest concessions from employees, who would be hurt the most if an airline were to go bankrupt (e.g. highly paid pilots who work for airlines with underfunded pensions), a finding that I consistent with the idea that distress play an important role in labour negotiations in this setting.

2.   **Methods**

Data and Sample
This research utilised secondary data, use of which provides a systematic and empirical solution to research problems via already existing data. Data for the study were obtained from public sources, such as official publications of the Nigerian Stock Exchange (NSE) and the Central Bank of Nigeria (CBN). The data relating to market conditions were obtained from the daily official list of the Stock Exchange. Macroeconomic data were obtained from the CBN's *Statistical Bulletins* and *Annual Reports* and Accounts (various years). The final selection was in favour of companies with the highest data availability.

The population for this study is the number of quoted companies in Nigeria whose equities are listed on the Nigerian Stock Exchange (NSE) for the period 1999-2014. The number of such listed (quoted) equities was 221 as at December 2014. Equities are listed under 20 broad industry sectors. However, certain adjustments were necessary to derive our sample. First, the sample excluded the financial services sector because they are subject to specific rules (e.g. the Banks and Other Financial Institutions Act [BOFIA, 1991]) and the special high-leverage nature of financing is severely affected by exogenous factors (Miller, 1995). Therefore, following empirical patterns, the author focuses exclusively on non-financial corporations. Second, the author could not collect the necessary data for many of the smaller firms on the NSE. Consequently, this adjustment left the study with a balanced panel of 50 firms over the 1999-2014 period. The year 1999 was chosen as the start year to coincide with the release of the Investment and Securities Act (ISA, 1999) under the then new democratic regime in Nigeria.

As to the choice of end-year, 2014 was chosen because that was the most recent year with data availability for sample firms as at the time this research was conducted. The final sample for this study was biased towards a survivalist approach, because for the study period of 1999-2014 some companies' financial results were missing. The researcher also undertook stratification of sample in terms of companies selected for the study as displayed in Table 3 below.

Table 3: Distribution of Sample of Study

S/N	Sector	Population	Sample	Sample-population ratio (%)
1	Agriculture	6	4	66
2	Aviation/Airline	2	1	50
3	Automobile & Tyre	3	2	66
4	Breweries	7	3	43
5	Building Materials	7	3	43
6	Chemical and Paints	9	4	44
7	Computer	6	1	17
8	Conglomerate	8	4	50
9	Construction/Real	6	3	50
10	Engineering	3	1	33
11	Food and Beverages	18	6	33
12	Health Care	12	5	42
13	Hotels and Tourism	4	1	25
14	Industrial/Domestic	10	4	40
15	Oil and Gas	9	5	56
16	Packaging	8	0	0
17	Publishing	4	2	50
18	Road Transport	1	1	100
19	Textiles	3	0	0
	Total	126	50	40

Source: Underlying Data from the Nigerian Stock Exchange Factbook (Various Years).

The researcher is of the opinion that the sample is representative enough and there is no reason to believe that sample selection biases affected the results.

Model Specification, Estimation and Evaluation Procedures

Model Specification: This study follows empirical approaches.

Based on Kale a n d Shahrur's (2007) finding that less debt is used by companies that have relationship-specific investments (e.g. strategic alliances

and joint ventures) with suppliers and customers, the present study regressed the debt ratio against some firm-specific characteristics ($\mathbf{X}$) and indicators of relationship-specific investments (RSI) with suppliers and customers scaled by assets for sample firms. An inverse relationship between debt usage and relationship-specific investments is expected. Thus, <u>MODEL IA</u>:

$$D_{it} = f(\mathbf{X}_{it}, RSI_{it}) \qquad\qquad (2.1).$$

On the employees' angle, debt ratio was regressed against the control factors as well as unemployment rate. In the absence of unemployment insurance benefits in most emerging markets, the inverse relationship between debt usage and unemployment risk (UER) is expected to be more severe in Nigeria relative to the industrialized economies in Europe and North America. Therefore, the function can be expressed thus:

<u>MODEL IB</u>:

$$D_{it} = f(\mathbf{X}_{it}, UER_t) \qquad\qquad (2.2).$$

In addition, to underscore the impact of labour bargaining or unionisation, the study follows the Hennessy and Livdan (2009) model, which states that leverage should increase with bargaining power (e.g. unionisation rates, UNR) and decrease with the use of human capital in the production process.

<u>MODEL IC</u>:

$$D_{it} = f(\mathbf{X}_{it}, UNR_{it}, STC_{it}) \qquad\qquad (2.3)$$

Taken together, the null hypothesis is H0: βRSI, βUER, βUNR, βSTC = 0; Alternative H1: β's ≠ 0.

<u>Model Estimation</u>: Panel data regression estimation techniques are utilised for the study.

The models are estimated by the Ordinary Least Squares (OLS) estimators.

Model Evaluation: The measurement problem of leverage is overcome through three alternative measures of leverage or debt ratios, i.e. the book leverage (BL) that captures all liabilities (both financial and non-financial debt), the market leverage I that captures financial debt only but whose equity computation utilises the market value of equity and the market leverage II expressing the debt ratio that captures all liabilities in market value. The book leverage exceeds one for firm years where the value of book equity is negative. The explanatory variables have been scaled to either an income statement item or total or net assets to ensure they are of decimal or percentage magnitude. However, there may be a few exceptions such as the ratio of market value to book assets of the firm (GROW), firm size measured as the natural logarithm of sales, liquidity measured as the acid test or quick ratio (QUICK) and firm age measured as the natural logarithm of age since incorporation. Omission of variables may be a concern as only firm-level covariates are considered. However, the firm-level variables are adequate to address the key objective of uncovering the attributes of firms that are zero-levered. The familiar augmented Dickey-Fuller (ADF) and Phillips Perron (PP) tests for the presence of unit roots in the variables show satisfactory results, that is, the variables are stationary at level and first difference I(1). A simple correlation matrix of the covariates indicates that there is no problem with multicolinearity of the variables. The Durbin-Watson d statistic also confirms the absence of a serial correlation problem in error terms.

The explanatory variables are described in Table 4 along with theoretical expectations regarding the signs and sizes of the coefficients of the covariates.

Table 4:   Determinants of Capital Structure and their Expected Signs and Magnitudes

S/N	Explanatory Variable	Definition	Indication	Expected Sign	Expected Magnitude
1	MTR	Marginal tax rate, Tax expense divided by Earnings before tax as in Barakat and Rao (2013).	Effect of debt tax shield	+	$0 < \beta_{MTR} < 1$
2	NDTS	Non-debt tax shield, following DeAngelo and Masulis model, (Depreciation+ Investment tax credit)/ Total assets less current liabilities	Substitute for the debt tax shield	-	$-1 < \beta_{NDTS} < 0$
3	TANG	Tangible assets defined as PPE divided by total assets less current liabilities.	Collateral, a measure of debt capacity (Cerqueiro, *et al*, 2016).	+/-	$-1 < \beta_{TANG} < 1$

4	GROWTH	Growth opportunities, measured by the ratio of market-to-book value of the firm or market to book value of equity.	Growth	-	$-1 < \beta GROW < 0$
5	SIZE	Size defined as the natural logarithm of Sales (LNS)	Size effect	+	$0 < \beta SIZE < \infty$
6	VOL	Volatility of earnings defined as the standard deviation of EBIT scaled by Total Assets less current liabilities	Business Risk	-	$-1 < \beta VOL < 0$
7	PROF	Defined by ROCE or ROA = Earnings before Interest and Taxes/ Total Assets less current liabilities	Profitability	+/-	$-1 < \beta PROF \leq 1$
8	QUICK	A stricter measure of liquidity relative to current ratio. Quick ratio is defined as Current assets less inventory divided by current liabilities	Liquidity. Myers & Rajan (1998), Daley & Green (2016)	+/-	$-1 < \beta QUICK \leq 1$
9	R&D	Research & Development plus other intangible assets / (Total Assets – Current Liabilities)	Asset Uniqueness or intangibility	-	$-1 < \beta RD < 0$
10	DEF	Financing deficit = change in total assets+ dividends - profit after tax OR net decrease in cash and cash equivalents scaled by (Total assets less current liabilities).	Adverse selection in external financing	+	$0 < \beta DEF \leq 1$ OR $\beta DEF = \beta PO = 1..(3.9)$
11	DIV	Dividend payout ratio defined as Dividends divided by Profit after tax (PAT)	1) Asymmetric information. Low	-	$-1 < \beta DIV < 0$
		or Dividend per share (DPS) divided by Earnings per share (EPS). This variable was utilized in Barakat and Rao (2013)	payout firms will prefer debt over equity financing. 2)Effect of personal taxes – relative advantage of dividend to interest income		
12	E	Expected inflation proxied by the treasury bill rate	Impact of macroeconomic conditions on	+	$0 < \beta INF < 1$
13	AGE	Ln (Number of year since incorporation).	Impact of the firm's age on financing decisions. AGE may be correlated with SIZE.	+	$0 < \beta AGE < 1$

14	UNQ	Uniqueness dummy (for distress risk) that takes the value of one for firms producing computers, semiconductors, chemicals and allied, aircraft, space vehicles and other sensitive industries, and zero otherwise.	Asset uniqueness/Industry uniqueness.	-	$-1 < \beta_{UNQ} < 0$
15	RSI	Measured as bought in materials and services divided by depreciation.	Relationship-specific investments with suppliers and customers	-	$-1 < \beta_{RSI} < 0$
16	UER	Unemployment rate. Unemployment risk is a substantial concern for workers. Workers' concerns about becoming unemployed reduce their labour supply and affect firms' policies on layoffs and wage setting (Agrawal & Matsa, 2013; Brown & Matsa, 2016, Serfling, 2016).	A control variable: Unemployment Risk, measuring impact of employees' exposure to unemployment on capital structure. Agrawal & Matsa (2013) find that labour market frictions affect corporate financing decisions	-	$-1 < \beta_{UER} < 0$
17	UNR	Unionization ratio measured as natural log of value-added per employee.	Unionization ratio, the higher the ratio, the greater the employees' bargaining power. Measures the impact of labour bargaining on	+	$0 < \beta_{UNR} < 1$
18	STC	Staff costs to depreciation ratio.	STC, albeit historical, is a measure of human capital intensity in the production	-	$-1 < \beta_{STC} < 0$
19	RAT	A dummy variable representing debt rating. Assumes the value of one if firm has rated debt and zero otherwise.	Access to debt markets.	+	$0 < \beta_{RAT} < 1$

20	TS	Term spread measured as the difference between returns on Treasury Bond and Treasury Bills.	Debt market conditions. Higher term spread indicates higher term premium required by investors.	-	$-1 < \beta_{TS} < 0$
21	ASI	Growth in the NSE All-Share Index measured in percentage.	Equity market conditions.	-	$-1 < \beta_{ASI} < 0$
22	CPS	Private credit to GDP ratio.	A measure of expansionary credit or otherwise in the economy	+	$0 < \beta_{CPS} < 1$
23	EMC	Equity market capitalization to GDP ratio.	A measure of the buoyancy of the equity	-	$-1 < \beta_{EMC} < 0$
24	GB	Measured as government borrowing to GDP ratio as in Graham, Leary & Roberts (2014).	Government borrowing impact on corporate borrowing. GB may crowd out corporate borrowing.	-	$-1 < \beta_{GB} < 0$
25	GDPG	GDP growth rate	General macroeconomic conditions	-/+	$-1 < \beta_{GDPG} < 1$

Source: Author's compilation from review of empirical literature

3.   Results

This section presents the empirical results of the study. Table 5 presents the summary statistics. Again, the main aim is to determine the impact of labour unemployment on the corporate capital structure choice of selected firms.

For robustness, the following levels of explanatory variables are included in line with some empirical studies:
1)   Firm-level and industry variables
2)   The marginal tax rate
3)   Human capital investment proxy represented by staff costs (STC), employee bargaining power represented by the unionisation ratio (UNR) and relationship-specific investments (RSI)
4)   Unemployment rate and selected macroeconomic variables such as GDP growth (GDPG), term spread (TS), the all-share index (ASI), credit to private sector (CPS), equity market capitalization (EMC).

Table 5: Summary Statistics of Variables Used in the Study

VAR	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera
BLT	0.6870	0.6053	9.2630	-0.3396	0.5595	8.1587	100.46	16255616.00
ML1T	0.2729	0.1902	0.9959	0.0000	0.2605	0.8387	2.64	4903.77
ML2T	0.4656	0.4284	0.9970	0.0525	0.2558	0.3316	1.97	2495.79
DMS	0.7545	0.8092	1.0453	0.0000	0.2120	-1.3618	4.90	18328.52
MTR	0.2855	0.3016	13.3333	-16.3462	1.0649	2.0583	153.92	37944563.00
NDTS	0.1179	0.0771	1.3270	-0.9339	0.1547	2.3142	18.39	429669.30
TANG	0.6241	0.6350	3.0970	-4.5480	0.5432	-2.8335	30.96	1355217.00
GROW	1.6307	1.7763	96.4290	-1090.00	40.2090	-25.2730	681.22	770000000
SIZE	15.2322	15.4420	20.2930	0.0000	2.9717	-2.5688	13.60	231119.40
VOL	0.5036	0.1062	16.4410	-2.2449	2.1285	6.3166	42.23	2826856.00
PROF	0.2133	0.2147	4.7059	-8.3240	0.6764	-4.2574	60.14	5556220.00
QUICK	0.6925	0.6279	2.9950	0.0000	0.4181	1.7562	7.85	59735.46
RD	0.0225	0.0000	0.8929	0.0000	0.0971	6.3678	47.35	3544312.00
UNQ	0.6195	1.0000	1.0000	0.0000	0.4855	-0.4924	1.24	6756.17
DEF	0.2103	0.1331	14.2350	-4.3168	0.8064	7.4961	132.76	28402908.00
DIV	0.4150	0.3723	7.0833	0.0000	0.4746	4.5288	55.21	4674762.00
EINF	0.1119	0.1177	0.1888	0.0400	0.0401	0.0681	2.21	1075.42
AGE	3.7149	3.7612	4.5109	0.3367	0.4040	-1.8264	11.37	138787.60
RSI	28.8231	17.7678	489.8000	0.0000	37.8098	5.3563	53.44	4425239.00
UNR	7.4596	7.5613	38.4515	-10.1330	2.6341	-0.6697	40.04	2286998.00
STC	3.0289	2.2743	26.5270	0.2749	2.8950	4.2265	25.54	964591.20
RAT	0.1777	0.0000	1.0000	0.0000	0.3823	1.6861	3.84	20111.58
UER	0.1681	0.1480	0.2390	0.0820	0.0510	0.2195	1.67	3281.44
CPS	0.1599	0.1690	0.3690	0.0090	0.0820	0.7615	3.83	5019.50
EMC	0.1670	0.1336	0.4928	0.0629	0.1015	1.9908	6.93	52064.94
MPR	0.1240	0.1225	0.1900	0.0613	0.0347	0.0892	2.39	679.81
TS	0.8955	0.9024	0.9768	0.8211	0.0429	0.0649	2.12	1309.06
ASI	0.1755	0.1893	0.7473	-0.4577	0.3421	-0.1451	2.06	1611.62
GB	0.3761	0.3307	0.7410	0.1974	0.1441	1.2003	3.62	10240.71
GDPG	0.0746	0.0670	0.2130	0.0040	0.0421	1.9275	7.85	63937.20

From the summary statistics in Table 5 above several facts can be deduced as statistical features of the variables utilised for the study. First, the relationship between the three measures of leverage is revealing of the relative weights of financial to non-financial debt in corporate balance sheets. For instance, the relative ***means*** of market leverage measure I, which captures only financial liabilities relative to book leverage, suggests that over 60 percent of corporate liabilities are non-financial. In other words, book leverage ratios are often 2.55 times as high as the market-based leverage ratio I (ML1). The magnitude of book leverage over market leverage is most pronounced in firms and industries where the book equity is depressed or even negative (e.g. agriculture, automobile and breweries [2005-2007]). The relative ratio of Market leverage I to Market Leverage II suggests a lower percentage of non-financial liabilities at 43 percent. The conventional reason for higher book-based leverage measure relative to market-based leverage measure is that the book values of equity might, on average, be less than the market values of equity. However, this notion does not hold in Nigeria because, for many of the sample firms, market equity was less than the book equity for most of the study period. The relative ratios of the leverage ***median*** statistics reveal that non-financial liabilities could in fact be representing 69 percent of corporate liabilities when ML1 and BL are compared. However, the comparison between ML1 and ML2 median values moderates the proportion of non-financial liabilities to total corporate liabilities to 56 percent. Thus, before any rigorous analysis, it is clear that non-financial liabilities are significant sources of financing for modern corporations in Nigeria.

The non-financial stakeholders (NFS) variables, i.e. RSI, UNR and STC, show significant a dispersion away from their mean values. The exception is UER, which is more of a macroeconomic variable and shows relative stability over the study period. Firm-by-firm analysis and industry-by- industry analysis reveal where the effects of these NFS are concentrated.

Figure 7 displays the graph of the book leverage, market leverage and debt maturity structure.
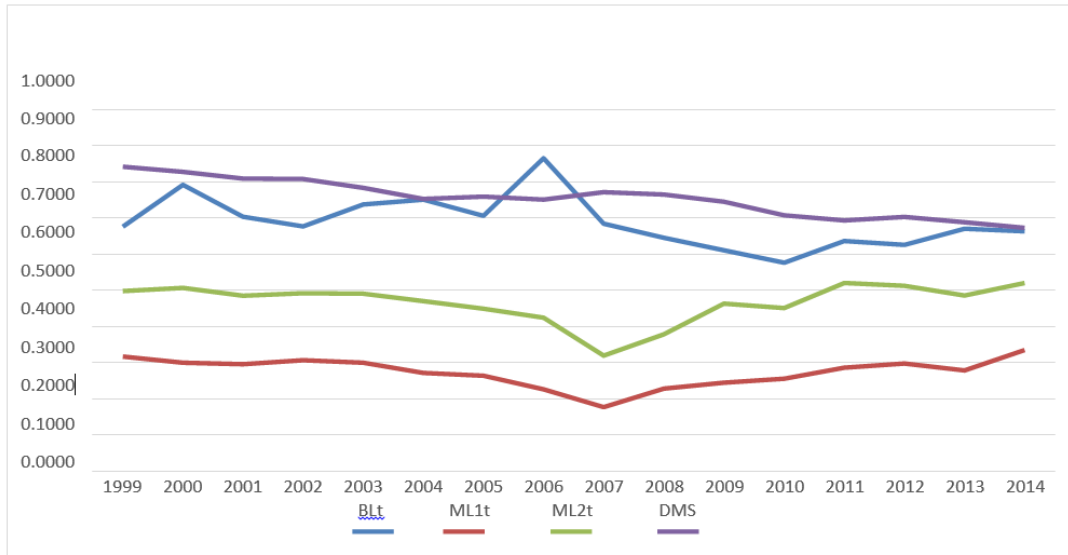
Figure 7: Book Leverage, Market Leverage and Debt Maturity Structure (1999-2014)

BLt represents the book leverage measure of the average firm per annum. ML1t is the market leverage measure for financial debt only. ML2t is the market leverage measure for all liabilities – both financial and non-financial liabilities. DMS is the debt maturity structure. The primary leverage measure for this study, however, is the ML1t – the market leverage capturing financial debt.

The Interaction of Capital Structure with Employees/Human Capital

Following the empirical framework, the debt ratio is regressed against some firm-specific characteristics ($\mathbf{X}$) and indicators of human capital (such as staff costs, unionisation ratio as a measure of employee bargaining power and the unemployment rate) and relationship-specific investments (RSI) with suppliers and customers scaled by a measure of capital consumption allowance (depreciation) for sample firms. Thus,

MODEL:

$$D_{i,t} = f(\mathbf{X}_{i,t}, STC_{it}\ UNR_{it}, UER_t, RSI_{it},) \qquad (3.1).$$

Tables 6, 7 and 8 present the regression results of leverage on human capital and non-financial stakeholder variables. In Table 6, the dependent variable is the book leverage. For Table 7, the dependent variable is market leverage ratio I. In Table 8, the dependent variable is market leverage ratio II.

Table 6:   Capital Structure, Human Capital and Indicators of Non-financial Stakeholders

-Book Leverage Regression Dependent Variable: BLT
Method: Pooled EGLS (Period weights) Cross sections included: 50
Total pool (balanced) observations: 39900
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.422049	0.000330	1277.726	0.0000*
BLT(-1)	0.472360	0.000230	2053.837	0.0000*
RSI	0.000411	9.84E-07	417.6825	0.0000*
UNR	-0.010698	1.59E-05	-671.8011	0.0000*
STC	0.006256	2.33E-05	268.4092	0.0000*
UER	-0.061786	0.000951	-64.99560	0.0000*
	Weighted Statistics			
R-squared	0.996159	Mean dependent var		16.09440
Adjusted R-squared	0.996159	S.D. dependent var		100.2322
S.E. of regression	0.488206	Sum squared resid		9508.521
F-statistic	2069354.	Durbin-Watson stat		1.039842
Prob (F-statistic)	0.000000			
	Unweighted Statistics			
R-square	0.229243	Mean dependent var		0.687400
Sum squared resid	9636.594	Durbin-Watson stat		2.133574

*Significant at 1%

Market Leverage, Human Capital and Unemployment

Table 7: Capital Structure and Indicators of Human Capital Risk
-Market Leverage Regression
Dependent Variable: ML1T
Method: Pooled EGLS (Period weights) Cross sections included: 50
Total pool (balanced) observations: 39900
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.053393	0.000117	457.2507	0.0000*
ML1T(-1)	0.794135	0.000106	7462.549	0.0000*
RSI	0.000174	1.15E-06	151.6170	0.0000*
UNR	-0.004215	1.34E-05	-315.7259	0.0000*
STC	-0.001565	2.55E-06	-612.7216	0.0000*
UER	0.266877	0.000568	470.0744	0.0000*
Weighted Statistics				
R-squared	0.999595	Mean dependent var		2.590933
Adjusted R-squared	0.999595	S.D. dependent var		17.56262
S.E. of regression	0.155524	Sum squared resid		964.9413
F-statistic	19699799	Durbin-Watson stat		1.460899
Prob(F-statistic)	0.000000			
Unweighted Statistics				
R-squared	0.641608	Mean dependent var		0.273255
Sum squared resid	969.9727	Durbin-Watson stat		1.964790

*Significant at 1%

Table 8:   Capital Structure, Human Capital and Indicators of Non-financial Stakeholders

-Market Leverage II Regression
Dependent Variable: ML2T
Method: Pooled EGLS (Period weights)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.113755	0.001030	110.4206	0.0000*
ML2T(-1)	0.733663	0.000327	2242.945	0.0000*
MTR	-0.000843	0.000146	-5.783127	0.0000*
NDTS	0.134746	0.000992	135.8001	0.0000*
TANG	-0.028931	0.000225	-128.5465	0.0000*
GROW	9.29E-06	1.63E-05	0.569632	0.5689
SIZE	-0.004059	4.74E-05	-85.69353	0.0000*
VOL	0.000784	7.13E-05	10.99809	0.0000*
PROF	-0.010657	0.000142	-74.93327	0.0000*
QUICK	-0.040905	0.000157	-260.2630	0.0000*
RD	0.068268	0.001096	62.28199	0.0000*
UNQ	0.016338	0.000174	94.08029	0.0000*
DEF	-0.013853	0.000190	-72.99044	0.0000*
DIV	-0.046407	0.000193	-239.8879	0.0000*
EINF	0.216304	0.001144	189.1147	0.0000*
AGE	0.011708	0.000244	48.00781	0.0000*
DDTA	0.015060	0.000331	45.43620	0.0000*
RSI	9.65E-05	2.18E-06	44.20906	0.0000*
UNR	-0.005367	3.49E-05	-153.7032	0.0000*
STC	0.000753	4.27E-05	17.62009	0.0000*
UER	0.500258	0.001360	367.9474	0.0000*
	Weighted Statistics			
R-squared	0.997584	Mean dependent var		2.535417
Adjusted R-squared	0.997582	S.D. dependent var		8.766455
S.E. of regression	0.138106	Sum squared resid		760.6215
F-statistic	823166.1	Durbin-Watson stat		1.723842
Prob(F-statistic)	0.000000			
	Unweighted Statistics			
R-squared	0.702446	Mean dependent var		0.465999
Sum squared resid	775.9525	Durbin-Watson stat		1.963687

*Significant at 1%

The relationship-specific investment variable (RSI) was significant and positive, explaining changes in book debt ratio marginally by 0.21 percent. Thus, leverage increased marginally with relationship-specific investments. This positive relation is subject to some interpretations as follows:

- That leverage is a weak bargaining variable in the strategic toolkit of companies when negotiating contracts with suppliers, vendors, employees or even customers. The idea that high leverage ratio can be used to persuade non-financial stakeholders to accept less favourable terms or reduce resource pricing does not have empirical support.

- That leverage is used as a bargaining variable by employees, suppliers, vendors and other providers of resource inputs to negotiate for more favourable contractual terms. In other words, a significant rise in corporate borrowing by companies in stable industries may be indicative (indeed as predicted by asymmetric information models, such as the pecking order) of brighter future prospects that the employees may ride on to press for better conditions of service. The same argument holds for the relationship with suppliers, vendors, joint venture partners, etc.

More specifically, on the employees' angle, the debt ratio was regressed against the control factors and the unemployment rate. In the absence of unemployment insurance benefits in most emerging markets, the inverse relationship between debt usage and unemployment risk (UER) is expected to be more severe in Nigeria relative to the industrialised economies of Europe and North America. In addition, to underscore the impact of labour bargaining or unionisation, leverage should increase with bargaining power (e.g. unionisation rates, UNR) and decrease with the use of human capital in the production process. The unionisation ratio (UNR) or employee bargaining power is measured by reference to value-added statements. Thus, UNR is the natural logarithm of value-added per employee per annum. Human capital can be measured by the *ratio of staff costs to total assets* (STC) or *ratio of annual staff costs to capital consumption*. The main weakness of the STC metric is that it is a historical variable. Given that $D_{it} = f (X_{it}, RSI_{it}, UNR_{it}, STC_{it}, UER_t)$, Table 9 describes the relative impact of the employees and other non-financial stakeholder variables on debt choice.

Table 9:   The Impact of Employees and other Non-Financial Stakeholders on Capital Structure Choice

S/N	LEVERAGE DEFINITION	R^2 WHEN RSI, UNR, STC AND UER ARE THE ONLY EXPLANATORY VARIABLES	R^2 WHEN RSI, UNR, STC AND UER ARE USED WITH OTHER FIRM- AND INDUSTRY VARIABLES	SIMPLE AVERAGE OF MARGINA L EFFECT OF NON-FINANCIAL STAKEHOLDERS	REMARKS/RESULTS
1	Book Leverage	23%	31%	(1%-23%) 12%	Leverage increases with RSI and STC but declines with UNR and UER. The positive RSI relation implies leverage is a weak bargaining variable and NFS would not accept reduction in resource pricing when firms negotiate contracts. Rather, increase in debt ratios may signal firm's brighter prospects to the NFS and thus stimulate
2	Market L1	64%	67%	(1%-64%) 32.5%	Leverage decreases with UNR and STC but increases with RSI and UER. As the need to invest in human capital increases and employee bargaining increases, so should firms use debt less aggressively. Since financial distress costs would increase with the unemployment rate, the positive UER relation poses a challenge for the trade-off
3	Market L2	67%	70%	(1%-67%) 34%	Leverage increases with RSI, STC and UER but declines with UNR. Similar remarks hold as point 2 above.

Source: Author

The result shows that leverage is an increasing function of relationship-specific investments (RSI) and human capital investment (represented by STC) but a declining function of employee bargaining power and unemployment. Thus, the bargaining power and unemployment variables have the expected signs.

Taken together, leverage is a weak strategic bargaining variable with employees in particular and non-financial stakeholders generally. In terms of the capital structure–employee relation hypothesis (H0), the empirical results support the

view that capital structure decisions interact with contracts with employees and the null hypothesis of no interaction is, thus, rejected.

4.0   Discussion

This study's approach allows identification of the impact of shocks to unemployment risk on corporate debt policy, without requiring explicit measures of worker risk aversion to unemployment. The absence of unemployment insurance in Nigeria, as in most developing countries, aggravates the costs that workers face when unemployed. Two key metrics for ascertaining the impact of labour unemployment on corporate debt policy are unionisation ratio (or employee bargaining power) and human capital investment.

Capital Structure as a Bargaining Variable with Employees

Capital structure decisions interact with non-financial stakeholders in the Nigerian corporate sector. Generally, non-financial stakeholders (NFS), such as employees (providers of human capital), suppliers (providers of input resources for production), vendors and joint-venture partners, can exert significant influences on capital structure decisions. The relations between leverage and the NFS variables are consistent with the pecking order model, which in itself is an outcome of the asymmetric information problem.

The bargaining power of employees, expressed as the unionisation ratio, also has a negative relationship with leverage. When employees increase the value added to the organisation, then they have a basis to negotiate for promotions, improved welfare, salary increment, etc. However, aggressive use of debt has the potential to curtail this bargaining power, especially for industries with high earning volatility and human capital intensity in the production process. This finding is consistent with recent empirical literature, which is just emerging.

The Severity of Labour Unemployment as Partial Explanation for Debt Conservatism

The unemployed population in Nigeria constitutes a growing proportion of the population. Prior work has demonstrated that the youth population faces a relatively higher level of unemployment than their prime-age counterparts (Onwioduokit, 2006). From the empirical result of this study, there is an inverse relation between leverage and the unemployment rate, which could serve as the proxy for absence of unemployment (or social security) benefits. Since leverage increases the financing risk of firms, bankruptcy probability increases with unfavourable macroeconomic conditions.

Bankruptcy could pose significant externalities, including loss of jobs, for employees with unique skills; all other things being equal, the higher the unemployment rate, the less levered firms should be. Debt conservatism is more pronounced in industries with production technologies characterised by greater labour intensity and industries that experience seasonal and frequent layoffs, such as construction. This finding is consistent with a recent results, e.g. Brown and Matsa (2016).

Moreover, there is a positive impact of human capital investment on corporate debt policy when debt policy is measured as financial debt to total capital. This points to possible greater employee bargaining power with increase in corporate borrowing. However, this cannot be a general result across all sectors since an industry-by-industry analysis of the relative impact of human capital on debt ratios was not conducted. Firms that face greater financing constraints are the most prone to cost cutting through frequent employee layoffs.

Overall, the decline in corporate borrowing as a result of increase in employee bargaining is marginal and more concentrated in unique and unstable industries (such as aviation, chemical and paints, computer, construction, engineering technology as well as oil and gas) characterised by earning volatilities. Generally, these results buttress the pecking order argument of greater use of leverage as a signaling device to less-informed contractual parties of brighter future prospects for the organisation.

5.0. Conclusion

This paper has evaluated the impact of labour unemployment on the borrowing behaviour or capital structure of quoted Nigerian firms. The empirical tests using micro-data on selected firms and macroeconomic data such as unemployment, economic growth and inflation all point to a common conclusion. Rising macroeconomic risk, such as increase in unemployment, exerts downward pressure on corporate borrowing. It is also true that the effect of unemployment on corporate debt policy is not evenly distributed across the industries selected for this study. The industries where this effect is concentrated include aviation, chemical and paints, computer, construction (affected also by seasonal unemployment), engineering technology as well as oil and gas. The volatility of earnings of these industries combines with the unemployment factor to expose employees with unique skills to the risk of job loss.

There are many possible recommendations arising from the results. CFOs seeking to use debt as a strategic bargaining variable with the non-financial stakeholders should exercise caution because corporate borrowing may accentuate the bargaining powers of the latter rather than curtail them. More specifically for employees, corporations operating in industries with production technologies characterised by greater labour intensity should pursue conservative financial policies, e.g. moderate use of debt, when human capital investment is at risk, especially during periods of high unemployment. As Stewart Myers puts it,

> To succeed, a corporation requires a co-investment of financial capital from the outside and human capital that is built up inside the business…. When you ask people to make an investment of human capital in your firm, you do not then do things – like raising the leverage ratio too high – that would needlessly put that investment at risk.

In this regard, the Federal Government of Nigeria should intensify efforts towards promulgation of the Employee Compensation Bill into law, as argued by Akintola-Bello (2010). The resulting social security safety net will boost employee morale for the required compensation for potential job loss. Diminished exposure to unemployment risk through a well-designed employee safety net is especially important in a populous country like Nigeria where unemployment is a major economic problem. The legal and institutional framework for compensating workers who lose their jobs will go a long way in reducing the exposure of human capital to risks that corporations alone cannot control. Calls by the Ministry of Labour and Productivity to companies not to lay off are at best produce result through moral suasion, because when times are hard companies will be much more concerned about cost containment than revenue growth.

There are many possible directions for future research, which could be more obvious by keenly following discussions on the findings. For instance, many of the explanatory variables utilised for this study are, in their own right, explainable by many exogenous factors. Therefore, structural models that incorporate the endogeneity of these explanatory variables are promising avenues for further research. Structural estimation will attempt to fit a model directly to data in order to assess the quality of the fit, identifying parameters that govern technology, preferences and largely time-invariant institutional characteristics. Specifically, structural estimation fits optimisation models to real-world firms in

order to ascertain if the models' results conform to real-world data. Estimating models is useful because it allows estimation of parameters that can be used to quantify the primitives that shape firm behaviour.

The study has presented new evidence that capital structure is a weak bargaining variable when firms are negotiating contracts with employees. As far as is known, this study is first to evaluate the impact of labour unemployment on the financing decisions of quoted Nigerian firms. This area is not typical with empirical corporate finance research. The study may also be viewed as a starting point for evaluating the impact of the various national governments' payroll stimulus packages for firms in the wake of the COVID-19 economic crisis, especially with respect to the relationship between unemployment and leverage as well as the impact of the fund on strategic debt choice. Ben-Nasr (2019) and Michaels, Beau Page and Whited (2019) provide some evidence for this reasoning. The study is related to Paseda and Obademi (2020) and Paseda and Adedeji (2020), which offer evidence on the conservative capital structures of Nigerian firms.

The findings suggest the importance of providing both a theoretical motivation for, and empirical measures of, unemployment impact on corporate financial policy. Theoretical explanations might be further developed along the lines of the incentive signaling approach to corporate finance. This time around, the signaling will be to less-informed workers and potential workers relative to the management of the corporations. Specifically, quantifying the industry-by-industry impact of labour unemployment on capital structure, dividend policy and investment decisions would be promising avenues for future research.

List of Abbreviations: Not Applicable.

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APPENDICES

Appendix 1: Description of Selected Macroeconomic Variables Used in the Corporate Debt

Regressions

Table A.1 below captures some macroeconomic indices in Nigeria that were utilized in the study.

Table A.1: Selected Macroeconomic Indicators in Nigeria (1999-2014)

UER represents unemployment rate. CPS represents credit to private sector scaled by GDP at current prices. EMC is the equity market capitalization measured as market capitalization of listed equities divided by GDP, MPR is the monetary policy rate. TS is the term spread measured as the difference between rates of return on Treasury Bills and long-term Government securities. All Share Index growth is captured by ASI. The ratio of government borrowing to GDP is captured by GB while GDPG represents annual growth in GDP.

YEARS	UER	CPS	EMC	MPR	TS	ASI	GB	GDPG
1999	0.0820	0.0920	0.0629	0.1800	0.9572	-0.0716	0.1974	0.0040
2000	0.1810	0.0790	0.0694	0.1350	0.9048	0.5401	0.2003	0.0540
2001	0.1360	0.1110	0.0940	0.1431	0.9148	0.3520	0.2781	0.0840
2002	0.1260	0.0090	0.0960	0.1900	0.9768	0.1071	0.2892	0.2130
2003	0.1480	0.1110	0.1336	0.1575	0.9364	0.6584	0.3307	0.1020
2004	0.1340	0.1250	0.1688	0.1500	0.9280	0.1956	0.3556	0.1050
2005	0.1190	0.1260	0.1727	0.1300	0.8525	0.0101	0.3533	0.0650
2006	0.1230	0.1230	0.2277	0.1225	0.8722	0.3780	0.4323	0.0620
2007	0.1270	0.1780	0.4928	0.0875	0.8516	0.7473	0.7410	0.0700
2008	0.1490	0.2860	0.2864	0.0981	0.8379	-0.4577	0.6160	0.0590
2009	0.1970	0.3690	0.2012	0.0744	0.8211	-0.3378	0.5808	0.0690
2010	0.2140	0.1860	0.1449	0.0613	0.8574	0.1893	0.3470	0.0780
2011	0.2390	0.1690	0.1037	0.0919	0.9286	-0.1631	0.2970	0.0470
2012	0.2390	0.2040	0.1251	0.1200	0.9024	0.3545	0.3189	0.0670
2013	0.2390	0.1970	0.1651	0.1200	0.8941	0.4719	0.3544	0.0540
2014	0.2390	0.1920	0.1290	0.1225	0.8923	-0.1614	0.3275	0.0610

Source: Author's analysis

Appendix 2: Employee Bargaining/ Unionization Ratio Across Industries (1999-2014)

The unionization ratio, measured as the natural logarithm of value added per employee, has an inverse relationship with market leverage measure I (ML1$_t$) based on a simple pearson product moment correlation coefficient of -0.085 (or -8.5 percent). Employee bargaining is strongest in the following sectors: Oil and Gas, Building Materials, Breweries, Conglomerates, Automobile, Health Care, Food and Beverages and Agriculture. Computer, Construction and Road Transport Sectors have the least employee bargaining power. Figure A.1 presents the graph of the employee bargaining or unionization ratio across the industries for the period 1999-2014 while human capital investment is displayed in Figure A.2.
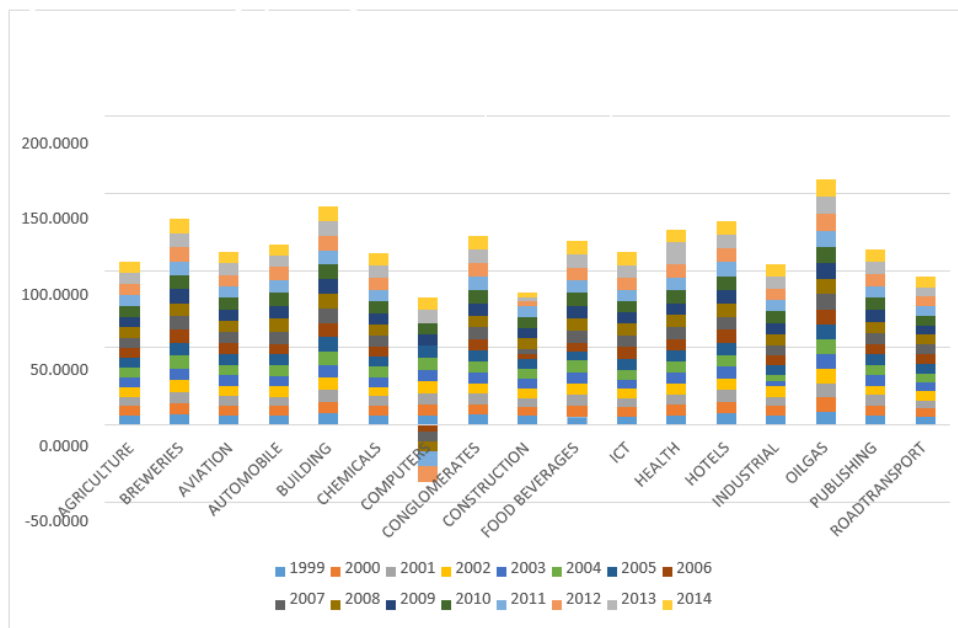

Figure A.1: Employee Bargaining/Unionization Ratio Across Industries (1999-2014)

Appendix 3: Human Capital Investment/ Staff Costs Across Industries (1999-2014).

The sectors with relatively huge human capital investment include: agriculture, aviation, automobile, chemical and paints, computer, conglomerates, construction (affected also by seasonal unemployment), food and beverages, engineering technology/ICT, hotels and oil and gas.
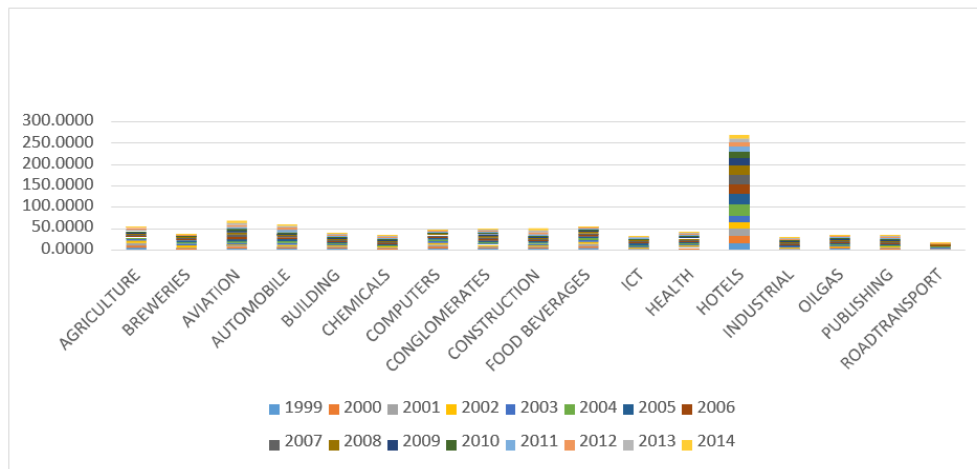

Figure A.2: Human Capital Investment across Industries (1999-2014)