THE EFFECT OF KEYNESIAN INVESTMENT NEXUS ON ASSET VALUE OF QUOTED FOODS AND BEVERAGES MANUFACTURING FIRMS IN NIGERIA

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Abstract

The study examines the effect of the marginal efficiency of capital theory on the asset value of quoted foods and beverages manufacturing firms in Nigeria. the parameters of the marginal Efficiency of Capital or Keynesian Investment Principles were Proxied by MRR, CC, ML, MMR and CF as our independent variables, while Asset Value of the quoted manufacturing firms represent our dependent variable. The study relied on panel time series data computed by the Nigeria Exchange Group Limited on twenty-one (21) foods and beverages manufacturing companies quoted in the Nigeria Exchange Group Limited. The data explored in this study covered between 2012 to 2021. The adopted expo-factor research design suitable for estimating cause and effect relationships, using the regressional estimating technique. Evidence from our findings indicated that there is aa significant statistical short and long-run relationship between Keynesian principles of investment decision of the firm and expected reward and asset value of quoted foods and beverages firms in Nigeria. Specifically, results indicated that MRR and ML correlated negatively with asset value while CC, CF and MMR correlated positively with asset value of our studied firms in Nigeria. Based on evidence before us, we conclude that the theory of marginal efficiency of capital which emphasized that investment decisions of firms is contingent on perceived expected returns has a strong influence on firms' asset value. Hence, we recommend among others that firms should actively manage their cost of capital and investments to increase the scale of their business with positive impact on asset value-achievable by managing their assets, capital and capital structure effectively, we also consider that if firms hardwired their business plans, have a robust management system, institutionalization of appropriate financial controls and strong financial and operational performances reputation of the firms will attract investors and the asset value will be enhanced through positive investors' perception etc.

Key Words: Keynesian investment nexus, asset value, market rate of return, marginal efficiency of capital etc.

Introduction

Business goals vary among firms and industry and the views of management in pursuance of these goals differ. Whatever is the case, the performance of firms depends on quality and sound decision which is a function of its growth and expansion-investment expenditure decision. They range from profit maximization to the maximization of shareholders' wealth and the maximization of stakeholders' value. This study is focused on Keynesian marginal efficiency of capital and asset valuation of quoted food and beverages firms in Nigeria. The study is underpinned by Keynes' theory, the goal of a firm is to maximize profit and, as a corollary, shareholders' wealth, with profit being the driving force. Shareholders' wealth will be measured in terms of asset value of the firm.

John Maynard Keynes' Keynesian interventions were, in part, in response to the great depression of 1929-1941. In General Theory, Keynes (1936) emphasized the vital role of investment as the driving force of influencing aggregate output, employment, and short run fluctuations in economic activity. The theory emphasizes that investment is the result of firms harmonizing the expected return on new capital, which he referred to as the marginal efficiency of capital (MEC), with the cost of capital, which depends primarily on the real interest rate. Keynes asserted that spending by households, businesses and the government, which he called aggregate demand, is the most important and influential driving force in an economy (Sarwat Jahan, Ahmed Saber Mahmud, and Chris Papageorgiou, 2014). Keynes theory of investment came after the theory of Irving Fisher (1930) on the relationship between inflation, and real and nominal interest rates (The Fisher Effect).

Keynes stated that there is an independent investment function in the economy. There are three types of policies that corporate managers must perfect to maximize the firm's value. These are investment, financing and dividend policies of these policies, investment expenditures play a key role in Keynes theory and in other theories of the business cycle. Macroeconomic theorists agreed on a basic framework that models the investment strategy of a profit-maximizing firm. However, empirical evidence has failed to give substantial support to this model, and this has been a source of frustration in investment modeling (Parker, Jeffrey, 2010). According to Keynesians, the term investment refers to real investment which increases capital equipment and results in higher levels of income and production. In Keynes view, the purchase of shares, bonds and other financial assets which exist in the stock market are simply transfers of assets and not real investment, as to him, they do not affect aggregate spending. The thrust of Keynes argument on investment is that businesses take investment decisions by comparing the yield on capital, otherwise called the marginal efficiency of capital (MEC), with the yield on real rate of interest. The marginal efficiency of capital is a function of expected returns on investment, the productivity of capital goods, and the supply price of capital. Keynes posits that businesses will make capital investments if the yield on capital is higher than the real rate of interest. If the real rate of interest is higher than or equal to the yield on capital, businesses will not make capital investments. Keynes argued for the importance of profit expectations rather than interest rates as determinants of the level of investment.

Financial assets such as loans and bank accounts represent contracts to pay interest and repay principal on borrowed money. Stocks represent partial ownership of a corporation, implying a right to vote on the governance of the corporation and to receive dividends as determined by the directors that the shareholders elect. In either case, the financial asset of one individual or corporation in the economy is offset by the financial liability of another person or corporation. The investment policy refers to both the size and type of growth pursued, and the projects undertaken. Once the amount and type of expansion has been decided, the financing policy is set, delineating the spectrum of financing methods or sources of fund that should be used to finance the expansion. According to Keynes and as said earlier, investment decisions are taken by comparing the marginal efficiency of capital or the yield with the real rate of interest. The underlying principles of Keynes' theory of investment do not differ significantly from the theories which assert that investment is the result of firms balancing the expected return on new capital.
Investment decision is vitally important to increasing the value of the firm. The basic investment decision is the decision to allocate funding sources. The decision on investment will directly affect the amount of investment profitability and the company's cash flows for future periods. The company's investment is aimed at prospering shareholders both now and in the future. Capital investment is one of the main aspects of investment decisions besides the composition of assets.

In addition to investment policy and funding decisions, dividend policy is a problem often faced by firms. Investment policy made by companies is influenced by the ability of companies to produce cash that can meet long-term and short-term needs or what is called company liquidity. Companies must maintain adequate liquidity to sustain the smooth running of business activities and maintain the confidence of stakeholders (Hidayat, 2010). The value of a company can be assessed through its stock price. It reflects the firm's ability to achieve expected profit, sales growth, and capital increase. Thus, if the stock value of a company is high, the value of the firm will be high too. Corporate value can also be measured using Tobin's Q formula, which is an economic ratio that is used to measure the market value of a company or an index to its book or replacement value. It is the total of stock market value and leverage market value divided by the book value of the company's assets. Tobin's Q formula is used to measure the amount of corporate value through potentially increasing stock prices, potential management of company's financial resources, and potential investment opportunities that will grow (Wolfe & Sauaia, 2003). It measures whether a firm or aggregate market is overvalued or undervalued.

Company value shows the value of assets owned by the company. The higher the value of the company, the higher the prosperity received by shareholders. This gives a positive signal to the company because by

increasing the prosperity of shareholders, they will continue to invest their capital in the company's activities. Thus, every company must show good performance in order to attract investors to invest their capital (Pandey, 2013). The stock price is an assessment of investors' confidence in a company. Investors estimate the value of a company by comparing the company's book value with market price. If the book value of a company is higher than the aggregate price of its shares, the company has a cheap stock price that shows the company's performance is not good. On the other hand, if a company has a higher aggregate market price than its book value, the company has a good rating from investors. It shows that the company's performance, in the viewpoint of investors, is good and it in turn increases the company's stock price (Harmono, 2011). The optimal value of the firm is important to management and investors. It is a reliable performance if management increases firm value. The increased value of the firm will attract investors to invest in the company, and that will help to increase the company's stock price (Widodo & Kurnia, 2016). This study will help us to understand Keynesian marginal efficiency of capital and asset valuation of quoted food and beverages firms in Nigeria from 2012 to 2021.

Literature Review

Theoretical Review

The study is anchored on the Keynesians' theory of investment. Keynes (1936) defined savings and investment to be essentially and continuously equal. Therefore, in this form, Keynes theory relies on the assumption that all private firms are organized and act as a single unit, or at least that the investment-goods and consumption-goods in industries are undertaken in some combination by the same firms. The central Keynesian solution for full employment output in developed economies is boosting aggregate demand through investment-driven growth. The extant study argued that the major problem with boosting aggregate demand through monetary expansions in developing countries is that stimulating aggregate demand might cause prices to rise before it produces full employment. Such a situation could cause price instability in developing economies. Furthermore, the study posits that in developing economies, at near full employment, the growth of aggregate demand is likely to create more unequal income distribution between capital and labour by favouring the latter, since factor inputs are deemed perfectly mobile.

The study argued that unlike Keynes who focused on the goal of full employment output in the economy, modern monetary and fiscal policies in developing economies should sacrifice the goal of near full employment in the economy.

Modern Portfolio Theory

Any investment firm should have a portfolio of investments in different types of investment to maximize returns and minimize risks. It is standard practice for PE firms to invest in a diversified portfolio to minimize risk and harness the returns of the various investment options on offer (Cumming, 2011). The modern portfolio theory (MPT) is a theory of finance that attempts to maximize expected portfolio returns for a given amount of portfolio risk, or equivalently minimize risk for a given level of return by carefully choosing the proportions of various assets. MPT models a portfolio as weighted combination of assets, so that the return of a portfolio is the weighted combination of the assets return. The process for portfolio selection is in two parts. The investor will typically observe and experience the stock based on which he forms his view of the future performances of the securities that are available. The next part is for the investor to decide on his choice of portfolio. One type of rule 17 concerning choice of portfolio is that the investor does (or should) maximize the discounted (or capitalized) value of future returns. Since the future is not known with certainty, it must be "expected or anticipted" returns which are discounted. The modified portfolio theory (MPT) attempts to lower the total variance of the return on a portfolio by integrating assets with returns that are not perfectly positively correlated. MPT also assumes that investors are rational, and the markets are efficient (Markowitz, 1952, 1999).

The Keynesian Theory of Absolute Income Hypothesis

According to Froyen (1996, 1998), Keynes in his theory argues that consumption is a key element in income determination. Based on the fundamental psychological law, men are disposed to increase their

consumption as their income increases but not as much as an increase in their income. According to his psychological law, the Keynesian consumption function equals:

$$C = a + bY_{Da} > 0,\ 0 < b < 1$$

C is real consumption and YD is real disposable income, which is equal to GNP minus taxes. The intercept is a, it measures the consumption at zero levels of income. The parameter b is the Marginal Propensity to Consume (MPC) which measures the increase in consumption per unit increase in the disposable income ($\Delta C/\Delta YD$). The ratio of consumption to income is termed as the Average Propensity to Consume, which is written as follows:

$$APC = \frac{C}{Y_D} + \frac{a}{Y_D + b}$$

The APC is greater than the MPC, by the amount a/Y. Hence the APC declines as Income increases. This implies that as income of the households rise, they consume a small fraction of income, which means that their larger portion of income is saved. The Marginal Propensity to Save (APS) is a larger fraction of income equals (1-APC), or

$$APS = 1 - a/Y_D - b = -a/Y + (1 - b)$$

If the disposable income (Y_D) is equal to zero, savings is negative or very low, and, generally, the income-savings relationship is not proportional. The theory assumes that rich people save more than poor people, other things being constant (Froyen, 1996, 1998).

Profitability Theory of Investment Behaviour

The profitability theory of investment behaviour regards undistributed profits or retained earnings rather than cash flows as sources of internal funds for the procurement of business machinery and equipment. However, it is also important to note that there is a close linkage between profitability and liquidity theories of investment behaviour. This is because profitable mature firms which are likely to be dominant players in well-developed competitive markets are normally more liquid than small firms which are either on the take-off stage or on the growth phase of the product life cycle. Another version of the liquidity theory maintains that when profits and retained earnings are low, firms reduce investment in long-term projects. Hence, firms' future investment decisions are affected by savings from past earnings and current profits (Stiglitz and Weiss, 1981).

Liquidity/Cash Flow Theory of Investment Behaviour

The role played by cash flows in firms' private fixed investment decisions is highly contentious in theoretical literature (Cohn, 2011, Eshun, M. E., Adu, G., & Buabeng, E., 2014). Most of the debate in empirical literature is focused on understanding whether cash flows are an important determinant of fixed investment behaviour especially, its role in alleviating credit frictions and whether it proxies for omitted or mismeasured investment opportunities (Kim, J. & Kim, H. & Woods, D., 2011). Early investment behaviour models particularly the works of Kuh and Meyer (1957), and Tinbergen (1939) emphasised the importance of financial considerations, especially liquidity or cash flows and expected profitability on a firm's investment behaviour. Due to investigations by Kuh and Meyer (1957), the liquidity or cash flows theory became a major investment theory in explaining business fixed spending behaviour of firms.
Tinbergen (1938).

The Flexible Accelerator Theory of Investment Behaviour

The flexible accelerator model of investment behaviour originates from the same premise that says the larger the gap between the existing capital stock and the desired capital stock, the greater is the firm's rate of investment (Hicks, 1950, Eisner & Robert, 1963, Goodwin, 1948, & Junakar, 1972). Hence, to produce any given level of output there must be an optimal or cost minimizing level of desired capital that is required by a firm. The equation for the desired capital stock is of the form: $C* = \propto Yt$: where $\propto$ is the capital-output ratio which depends on the relative price of capital and labour and Ytm is the level of output at time tm.

However, the capital-output ratio represented by ∝ which is often assumed to be constant in the simple accelerator theory is allowed to vary with changing output in the flexible accelerator theory.

Unlike in the simple accelerator, the flexible accelerator theory proposes that firms do not carry a one-off business equipment spending in a given period but plan to close a fraction of the gap between the desired capital stock C* and the actual capital stock C in each period, in response to increasing output and product demand. The desired or optimum level of investment in business equipment is the total fixed capital stock that firms would want to have in the long run to support the growing demand for products (Hicks, 1950). This translates to a net investment equation of the form: $I =\propto C* - Ctm-1$, where I is net fixed investment spending, C* represents the firm's desired capital stock, Ctm-1 denotes last period's fixed capital stock, while ∝ shows the partial adjustment coefficient. The equation suggests that if there is a gap between the actual business equipment stock and the desired business equipment stock, firms will plan to get rid of a certain fraction, ∝, of this gap each period by making incremental investment in installed productive capacity.

Assuming that different firms also make different investment decisions due to investment lags during the delivery of new business equipment then, in aggregate, the effect of an increase in demand on the fixed capital stock is distributed over time. This implies that the fixed capital stock at time tm is dependent on all the previous levels of output given the equation: $C* = f(Ytm, Ytm-1, Ytm-2, Ytm-n)$, where Y represents the level of output in a particular period, further implying that the equation can be rewritten as follows; $Itm\ n =\propto y\ n\ i\ (Ctm-1* - Ctm-i-1*)$, where $It\ n$ represents the net investment from period 1 to n periods. The actual net fixed investment carried out by a firm is the one that minimizes costs in the trade-off between having too little or too much or fixed capital stock and incurring stock adjustment costs, ∝. The above equation through successive substitutions can be reduced to; $Itm\ n =\propto yi\ i\ (\triangle Ytm-1)$. If a firm's expectations about future output are not static, then the net investment in replacement or new business equipment in the period tm should be an aggregate of all the expected future levels of output. The future levels of output in turn should be functions of past output and any other past variables that are important in forming expectations of future firm output.

The lags represent delays caused by procurement, shipping logistics, eventual installation of machinery and the consequent demand for productive capacity, and also show that physical capital adjusts gradually to recent firm-level experience. The flexible accelerator theory supposes that rational investors would avoid overreacting to short-term changes in the demand for their products by consumers, this is more so because the capital resources required to replace plant and equipment are not always in liquid forms. Therefore, the flexible accelerator model subliminally proposes that prospects of increasing a firm's output in the future can be extrapolated from the past trends of a firm's sales and output hence, determining the level of the desired fixed capital stock.

Keynesian Theory of Investment

John M. Keynes (1936) and Irving Fisher (1930) argued that investments are made until the present value of expected future revenues, at the margin, is equal to the opportunity cost of capital. This means that investments are made until the net present value is equal to zero. An investment is expected to generate a stream of future cash flows C(t). Since investment I, represents an outlay at time O, this can be expressed as a negative cash flow, - C_0. The net present value can then be written as:

$$NPV = -C_0 + \int_0^{\infty} C(t)e^{g-r)t}dt$$

Where, g denotes growth rate and r the opportunity cost of capital (discount rate). If the expected return on investment, i, is above the opportunity cost of capital, r, investment will be worthwhile. When r = i the NPV = 0. The return on investment, i, is equivalent to Keynes' marginal efficiency of capital and Fisher's internal

rate of return. From equation (2.1) the PV of an investment, I, can be written as $C_1/(r - g)$, implying that PV/I = 1.

Fisher referred to the discount rate as the rate of return over costs or the internal rate of return. Keynes, on the other hand, called it the marginal efficiency of capital (Baddeley, 2003). The fundamental differences are risk and uncertainty and how expectations are formed. Keynes did not regard investment process toward equilibrium. Hayek (1941, 2007) and Fisher (1930) on the other hand, regarded investment as an optimal adjustment path towards optimal capital stocks. In Keynesian theory, investments are not determined by some underlying optimal capital stock. Instead, genuine or radical uncertainty takes a central position. Keynes believed that humans were animal-spirited and that this, combined with irrational and volatile expectations, made the thought of investment as an adjustment process toward equilibrium futile. Keynes (1936) showed that business equipment spending was progressively done by firms until the present value of future streams of revenue generated by the equipment, at margin, were equal to the opportunity cost of capital (discount rate) or until the net present value was equal to zero. Keynes (1936) rejected the micro foundations of fixed investment behaviour that were based exclusively on technological conditions of capital productivity. Keynesians rule out the classical assumption that an economy automatically reverts to full employment output quickly and reliably and emphasise the vital role of private fixed investment behaviour in the theory of aggregate output and employment.

The fundamental determinants of investment behaviour include expectations of demand relative to existing capacity, ability to generate investment funds and uncertainty. Another central theme of Keynes' autonomous investment theory is that although total savings and investment must be identical ex-post, domestic savings and investment decisions are generally taken by separate decision makers in a firm. According to Keynes, the investment or marginal revenue demand curve is extremely volatile because it relies on firms forming expectations of the profitability of business fixed investment. Keynes theory emphasizes that business equipment spending is a result of firms balancing the expected return on marginal efficiency of capital with the cost of capital, which also primarily depends on the real interest rate capable of causing changes in the corporation's asset value.

Conceptual Review

Keynesian Investment Principles

To Keynes, since investment is volatile and dependent on firms' expectations of the profitability of investment, so long as the expected yield on their investment exceeds the real interest rate, new investment will take place. Keynes rejected the notion that investment was based exclusively on technological conditions of capital productivity but emphasized monetary factors and finance and uncertainty as the basic determinants of investment (Fazzari and Athey, 1987). Keynes began by rejecting the classical assumption that the economy automatically reverts to full employment quickly and reliably (Udonsa, 2012). Under conditions where markets do not clear, he argued, a shortage of aggregate demand may prevent the economy from producing at full capacity. Since investment is the component of aggregate demand that falls most strongly in business-cycle downturns, it was a natural candidate for Keynes in his search for the causes of these declines in demand.

The underlying principles of Keynes's theory of investment do not differ much from the theories that we study today. Keynes used different terminology and ignored some of the subtleties that later theoretical work has filled in, but his basic framework was similar both to that of classical economists and to the framework we use today (Parker, Jeffery 2010). The theory asserts that investment decisions are determined by a balance between the expected return on new capital and the cost of capital which depends on the real interest rate. Keynes called this expected return the marginal efficiency of capital (MEC), asserting that investments will be made once it (MEC) is higher than the interest rate.

Keynes and classical economists emphasized diverse kinds of fluctuations within this similar framework. Classical (and often modern) economists usually emphasized the effect that changes in real interest rates have on investment. This effect occurs as firms move up and down on their downward-sloping investment-demand curves (Parker, Jeffery, 2010, Uchendu, 2013). Keynes believed that the large fluctuations in

investment were due to shifts in the investment-demand curve itself rather than to movements along the curve. According to Keynes's theory, the investment-demand curve is volatile because it depends on firms' expectations of the profitability of investment.

Keynesian and the Marginal Efficiency of Capital

The Keynesian hypothesis of marginal efficiency of capital is based on the rate of discount that compares the present value of the net expected revenue from the capital invested with the cost of capital. The concept plays a key role in the Keynesian theory of investment; the level of investment is determined by the marginal efficiency of capital relative to the rate of interest. If the marginal efficiency rate is higher than the rate of interest, investment will be stimulated. If it is not, investment will be discouraged. This concept is based on the ordinary mathematical technique of computing present value of a given series of returns discounted at a specified discount rate (Okon & Osinimu, 2017). Keynes argues that when an entrepreneur buys investment goods, in reality he buys the right to a series of future incomes that he expects to earn (during the useful lifetime of the capital good) by selling the product after the subtraction of current expenses (Iyoha, 2004). More specifically, Keynes defines the marginal efficiency of capital as being equal to that rate of discount which would make the present value of the series of annuities given by the returns expected from the capital asset during its life just equal to its supply prices. He further notes that the supply price of the capital good should not be confused with its current price, but rather with the price which would just induce a manufacturer newly to produce an additional unit of such assets, what is sometimes called its replacement cost (Eregha, 2010).

Clearly, the definition of the MEC depends on expected and not on current or past profits and also these expected profits of a project are not evaluated against a stock of capital but rather against the flow of capital, that is, the increment of the existing capital stock, in particular the price of new equipment investment. Thus, Keynes notes that the MEC depends on the rate of return expected to be obtainable on money if it were invested in a newly produced asset, not on the historical result of what an investment has yielded on its original cost if we look back on its record after its life is over (Eregha, 2010). It is interesting to note that the assumption of expected returns is necessary to Keynes to be consistent with his overall theory of effective demand, according to which the decisions to invest determine savings.

Investment: The Keynesians Opinion

Keynes (1933) defined investment as the production of new capital goods, plants and equipment. He also refers to investment as real investment and not financial investment. Investment is a conscious act of an individual or any entity that involves deployment of money (cash) in securities or assets issued by any financial institution with a view to obtaining the target returns over a specified period. Wondwesen (2011) opined that Keynesian theory helps investment to play a critical role both as a component of aggregate demand as well as a vehicle for the creation of productive capacity on the supply side and in determining medium run growth rates. Securing investment funds is an essential issue for every national economy. The central problems of such financing are in fact the accumulation of necessary capital, but also its adequate distribution. With the opening of their own economies to foreign capital, countries in transition, those that move from centralized market organization to free markets, are trying to achieve market allocation of the same. However, such activities, in the opinion of most economists, lead to dependence on external capital inflows, which further implies a direct spillover of external economic shocks into the domestic economy. The literature emphasizes the importance of domestic sources of financing economic growth.

Other determinants of investments demand are the activities of the stock market (as measured by the stock market index), level of capacity utilization by firms, profitability of current investment which induces future investment, the level of depreciation allowance, the extent of government deficits and of course the exchange rate (Heim, 2008). Heim (2008) found out that that capacity utilization has no significance with government investment (which leads to crowding out or in of other investment) which is the most important variable of the eight Keynes hypothesized. In addition, investment can be seen as a function of the difference between the market value of the additional unit of capital and its replacement cost (Tobin, 1969),

and can generally be divided into autonomous and induced investment which, according to Heim (2008) can be considered reversible and irreversible.

Empirical Review

Mwaniki and Omagwa (2017) studied the relationship between the asset structure and the financial performance of the firms quoted under the commercial and service sector at the NSE, Kenya. The target population by the study was the secondary data from the annual reports of the firms. The asset structure is analysed in terms of property, plants and equipment, current assets, intangible assets, and long-term investments and funds, which formed the independent variables. The dependent variable of interest was the financial performance of the firms and was measured in terms of: earning per share; return on assets; return on equity, profit margin (return on sales); and current ratio, by aid of a composite index. A census was done on the entire firms listed under this sector by the year 2014, for a five-year period, 2010 to 2014. A document review guide was used to collect the secondary data from the financial statements of the firms under study. A multiple regression analysis (standard) was conducted with the aid of statistical programs SPSS version. The results of the study show that asset structure had a significant statistical effect on the financial performance. In particular, the study found that property, plants and equipment, and long-term investments and funds have a statistically significant effect on financial performance, while current assets and intangible assets do not have statistical significance on financial performance sectors.

Okwo, I.M., Okelue, U.D., & Nweze, A. (2012) assessed the impact of a company's investment in fixed assets on its operating profit margin. The study is based on a sample of four companies in the Nigerian brewery sector over an eleven-year period from 1999 to 2009. The operating profit margin was taken as the dependent variable while the independent variables were Sales/Net Fixed Assets ratio, Interest Rates, Foreign Exchange Rate, and Inventory/Cost of Sale ratio. The findings of the study was that though the relationship between the level of investment in fixed assets and its impact on the operating profit was positive, the result was not statistically significant. Therefore, the result did not suggest any strong positive impact of investment in fixed assets on the operating profit of brewery firms in Nigeria. Olatunji, T.E. & Tajudeen A.A. (2014) examined the effect of investment in fixed assets on profitability of selected Nigerian banks. Data were obtained from annual reports and accounts of thirteen selected Nigerian commercial banks for the period from 2000-2012. The relationship between the dependent variable (net profit) and independent variables (Building, Land, Leasehold premises, fixtures and fitting, and investment in computers) indicated that there was a significant relationship between them. The study concluded that investments in fixed assets had strong and positive statistical impact on the profitability of banking sector in Nigeria. Mawih (2014) on some listed manufacturing companies showed that the fixed assets had impact on ROE but not on ROA. In relation to intangible assets. Nigeria. Mawih (2014) on some listed manufacturing companies showed that the fixed assets had impact on ROE but not on ROA. In relation to intangible assets,

Martina (2015) investigated the relationship between tangible assets and the capital structure of Croatian small and medium-sized enterprises. The study was conducted on a sample of 500 Croatian SMEs for the period between 2005 and 2010. The data used for the empirical analysis were taken from companies' annual reports. The results of the research found that tangible assets are differently correlated with short-term and long-term leverage. The relationship between tangible assets and short-term leverage was negative and statistically significant in all observed years. The relationship between tangible assets and long-term leverage was positive in all observed years and statistically significant. The results showed that small and medium-sized companies use their collateral to attract long-term debt, which means that small and medium-sized companies use lower costs and the interest rate of long-term debt in relation to short-term debt. These findings are consistent with the trade-off theory which predicts a positive relation between leverage and tangibility (Frank, M. Z., & Goyal, V. K., 2009), and also with the pecking order theory, which is generally interpreted as predicting a negative relation between leverage and tangibility (Koralun-Bereźnicka, 2013).

ZhengSheng and NuoZhi (2013) on the optimal allocation of asset structure and business performance illustrated that asset structure research had more application value and significant meaning in determining financial performance. This study sought to consider asset structure of the commercial and services firms listed at the NSE Kenya as the independent variables, to determine how they affect the dependent variable, which in this case is the financial. Akintoye and Olowolaju (2008) examined optimising macroeconomic investment decision in Nigeria. The study employed both the ordinary least square and vector auto regression frameworks to stimulate and project inter-temporal private response to its principal shocks namely, public investment, domestic credit, and output shocks. The study found low interest rate to have constrained investment growth. The study resolved that only government policies produce sustainable output, steady public investment, and encourage domestic credit to the private sector to promote private investment.

Mahmudul and Gazi (2009) in their study in Jordan on stock investment (based on the monthly data from January 1988 to March 2003) found that interest rate exerts significant negative relationship with share price for markets of Australia, Bangladesh, Canada, Chile, Colombia, Germany, Italy, Jamaica, Japan, Malaysia, Mexico, Philippine, South Africa, Spain, and Venezuela. For six countries from this sample, they argued on the availability of significant negative relationship between changes of interest rate and changes of share price. Vance Lesseig and Duane Stock (1998) studied the effect of interest rates on the value of corporate assets and the risk premia of corporate debt, dealing directly with how a firm's relationship to interest rates affects its debt. The results show that the strength of the relationship between firm value and interest rates (interest-rate risk) can have a significant impact on the value of a firm's debt, with the most powerful results occurring when the volatility of firm value is high and the term structure has a steep slope. It is neutral when the term structure is flat.

Modestus and Nsonwu (2021) empirically assessed Variation in Interest Rates and Investment behaviour in Nigeria for the period 1981 and 2019. Time series data on interest rate, inflation rate, exchange rate and gross fixed capital formation obtained from the Central Bank of Nigeria, National Bureau of Statistics, World Bank Development Indicators were estimated using the error correction mechanism of autoregressive distributed lag (ARDL). The findings of the study show that a negative and significant relationship exists between interest rate and gross fixed capital formation in Nigeria in the period of study. The implication of this is that a unit increase in prime lending rate will lead to a decrease in investment by 0.02 units. Based on these findings, they recommended the issue of high interest rate with hidden transaction costs by banks must be vigorously addressed by the monetary authorities. The Central Bank of Nigeria should put in place policies that will stabilize the monetary policy rate (MPR) so as to keep the lending rate low in order to stimulate investment. The Central Bank should mandate banks to channel mobilized savings to investors in the form of loans. Monetary authorities should make policies which would help to boost the savings culture of the people. This could be done by increasing the deposit rate which would lure the people to deposit their money in banks, thereby increasing the supply of loanable funds. This would lead to a fall in lending interest rate and, eventually, a rise in investment. Ni, Yensen & Huang, Paoyu & Chiang, Pinhui & Liao, Yulu (2019) studied cash flows from operating, investing, and financing activities to determine their effect on firm value. They found that firms raising funds for capital budgeting projects can enhance their firm value, resulting in cash inflows from financing activities and cash outflows to investing activities.

Methodology

The study adopts the correlation research design in estimating or exploring the relationship between the Keynesian marginal efficiency of capital concept and the asset value of quoted manufacturing food and beverages firms. This approach is found useful as the study aim at studying the cause and effects relationships. The data employed in the study is time series based. The study adopted the multiple regression model in the analysis. The secondary data relied on, is compiled by the Nigeria Exchange Group Limited on 21 of our studied firms.

Model Specification

The study adopted the panel data method of data analyses which involved the fixed effect, the random effect and the Hausman test.

$AV = f(MRR, CC, ML, MMR, CF)$ (1)

We transformed equation 1 to equation 2 to econometrics forms:

Pooled Effect Model

$AV = \beta_0 + \beta_1 MRR + \beta_2 CC + \beta_3 ML + \beta_4 MMR + \beta_5 CF + \mu$ (2)

Where:

AV	=	Assets value
MRR	=	Market rate of return
CC	=	Cost of Capital
ML	=	Market liquidity
MMR	=	Money market rate
CF	=	Cash flow
μ	=	Error Term
$\beta_1 - \beta_5$	=	Coefficient of Independent Variables to the Dependent Variables
β_0	=	Regression Intercept

Results and Findings

Keynesian marginal efficiency of capital and asset value of quoted food and beverages firms in Nigeria.

Table 1: Random Effects - Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	113.056783	6	0.0000
Cross-section random effects test comparisons:			
Variable	Fixed	Random	Var(Diff.)	Prob.
CC	0.420357	1.393864	0.069593	0.0002
CF	0.065629	-0.029708	0.004767	0.1673
MKTR	0.074220	0.018035	0.000435	0.0070
ML	-0.019314	-0.055226	0.000339	0.0512
MRR	-0.596600	1.886483	0.377710	0.0001
ECM(-1)	0.342657	0.908666	0.003084	0.0000

Source: Extract from E-View Statistical Package 9.0 2023

Table 2: Regression Results-Asset Value

Variable	Coefficient	Std. Error	t-Statistic	Prob.
	Quadrant A: Pooled Effect Model			
CC	1.324464	0.554038	2.390565	0.0177
CF	-0.035957	0.137054	-0.262355	0.7933
MMR	0.119526	0.129339	0.924131	0.3564
ML	-0.266945	0.266486	-1.001721	0.3176
MRR	1.816138	0.690908	2.628624	0.0092
C	13.62319	6.366890	2.139693	0.0335
R-squared	0.103942	Mean dependent var		19.84939
Adjusted R-squared	0.083851	S.D. dependent var		3.776059
S.E. of regression	3.614280	Akaike info criterion		5.433514
Sum squared resid	2913.053	Schwarz criterion		5.523480
Log likelihood	-616.1373	Hannan-Quinn criter.		5.469808
F-statistic	5.173583	Durbin-Watson stat		0.197983
Prob(F-statistic)	0.000164			
	Quadrant B: Fixed Effect Model			
CC	0.420357	0.332724	1.263381	0.2081
CF	0.765629	0.085818	3.764754	0.0054
MMR	0.074220	0.052233	1.420952	0.1571
ML	-0.019314	0.118100	-0.163536	0.8703
MRR	-0.896600	0.665756	-2.896124	0.0214
C	19.52336	3.581423	5.451286	0.0000
ECM(-1)	0.342657	0.060984	5.618777	0.0000
	Effects Specification			
Cross-section fixed (dummy variables)				
R-squared	0.902479	Mean dependent var		19.82345
Adjusted R-squared	0.887052	S.D. dependent var		3.778859
S.E. of regression	1.269988	Akaike info criterion		3.445720
Sum squared resid	285.4781	Schwarz criterion		3.914207
Log likelihood	-325.9091	Hannan-Quinn criter.		3.635192
F-statistic	58.49985	Durbin-Watson stat		1.681353
Prob(F-statistic)	0.000000			
	Quadrant C: Random Effect Model			
CC	1.393864	0.202761	6.874402	0.0000
CF	-0.029708	0.050964	-0.582916	0.5606
MMR	0.018035	0.047892	0.376571	0.7069
ML	-0.055226	0.116656	-0.473410	0.6364
MRR	1.886483	0.255971	7.369906	0.0000
C	8.673860	2.864759	3.027780	0.0028
ECM(-1)	0.908666	0.025199	36.05926	0.0000
	Effects Specification			
			S.D.	Rho
Cross-section random			0.000000	0.0000
Idiosyncratic random			1.269988	1.0000

Weighted Statistics			
R-squared	0.835599	Mean dependent var	19.82345
Adjusted R-squared	0.830643	S.D. dependent var	3.778859
S.E. of regression	1.555116	Sum squared resid	481.2587
F-statistic	168.5763	Durbin-Watson stat	2.090037
Prob(F-statistic)	0.000000		
Unweighted Statistics			
R-squared	0.835599	Mean dependent var	19.82345
Sum squared resid	481.2587	Durbin-Watson stat	2.090037

Source: Extract from E-View Statistical Package 9.0 2023

Table 3: Summary of Major Findings

Model Asset Value		
CC	0.2081	Not significant
CF	0.0054	Significant
MKTR (-)	0.1571	Not Significant
ML (-)	0.8703	Not Significant
MMR	0.0214	Significant

Source: E-View 9.

Summary

This study presents strong argument in favor of the view of Keynes with respect to his theory of marginal efficiency of capital. The theory argued that firm's investment decisions is a function of the expected rate of return. That if the expected rate of return on investment is equal to or lower than the costs of the investment option, firms will not invest except otherwise. Our results indicated strongly that investments decisions of firms have significant influence on asset value of firms. Specifically, MRR and ML correlated negatively with asset value, while CC, CF and MMR correlated with asset value positively. This implies that changes in investment decisions had significant influence on firms' asset value. Up to 88.7% or 89 percent.

Conclusion and Recommendations

Based on established evidence on the effect of Keynes investment principles and asset value of quoted foods and beverages firms, firms will invest if the incremental investment is higher than the real interest rate. Again, firm's investment options affect asset value and that maximizing investment decisions will lead to maximizing returns, increase revenues, reduce costs will in turn increase corporations' asset value, resulting to impressive reputation of the firm and the eventual appreciation of the firms' value or share price. On this note, this study support Keynesian view on investment and return.

i. That firms should actively manage their cost of capital and investments to increase the scale of their business with positive impact on asset value-achievable by managing their assets, Capital and capital structure effectively,

ii. we also consider that if firms hardwired their business plans, have a robust management system, institutionalization of appropriate financial controls and strong financial and operational performances reputation of the firms will attract investors and the asset value will be enhanced through positive investors' perception.

iii. Firms should boost their capital flow through generation of more revenues, managing down debts and optimizing payments of liabilities to suppliers, investors' confidence would have been increased of the company's performance, this will drive the firm's value which will in turn reflect in the asset value.

iv. To have a positive market liquidity which similarly impacts asset value, firms should work their business plans into the Nigerian fiscal policy regime, exchange rate and the overall regulatory environment as these will enhance investor confidence and market sentiment. In general, the higher the liquidity of the assets, the higher their returns.

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