AGGREGATE ACCOUNTING EARNINGS, CAPITAL MARKETS AND GDP GROWTH: A CONCEPTUAL STUDY

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Abstract

Recent studies show that macroeconomic research has evolved the accounting research independency focusing on economic indices, without incorporating accounting aggregates. This paper seeks to investigate the informativeness of aggregate accounting earnings obtainable from the capital markets on Gross Domestic Product (GDP) growth. It potentially identifies the support base and framework for inclusion of accounting earnings aggregate into GDP compilations. The paper has implications for current practice in GDP computations as well as widening accounting research to macroeconomic level, as against individual firm-level.

Keywords: Aggregate accounting earnings, capital markets, GDP, market capitalisation, traded value.

INTRODUCTION

Gross domestic product (GDP) is one of the most common indicators used to indicate the health of a nation's economy. It represents the value of all goods and services produced over a specific time period within a country's borders. It is sometimes measured using the income approach with inputs compilation of employee compensation, operating surplus, consumption of fixed capital and indirect taxes minus subsidies. This measurement, however, fails to incorporate timely accounting data. In the US for example, 10.29% of the GDP is corporate profits as at 1st quarter of 2015 [1], and in Nigeria[1] operating surplus is as high as 78.9% of GDP as at 1st quarter of 2013 [2]. In Malaysia, the gross operating surplus stood at 62.6% of GDP for the year 2014 [3]. This trigger a question as to why corporate profits submitted for tax purpose are used to compile GDP instead of corporate earnings which is released immediately for financial reporting purpose. Indeed, the financial reports are usually audited nor later than six months after the financial year end, whereas

[1] Nigeria has experienced a major swing on its GDP in recent times. With a rebasing of the GDP, Nigeria became the largest economy in Africa in 2014. Two years afterwards South Africa regained its place as the largest by August 2016. Another recalculation of the GDP in October 2016 now puts Nigeria ahead. The fall in Nigeria's economy was attributed to depreciation of its domestic currency and the current economic recession. Although, the capital markets contribution is relatively low, inputs of aggregate level earnings when properly harnessed can be informative of the macro economy.

corporate profits submitted for tax purpose has a time lag of more than a year. This is so because corporate tax is computed on a preceding year basis. We therefore suggest that accounting earnings obtainable directly from the capital markets should be incorporated into GDP components measured through income approach. This would subsequently establish a link between the capital markets and the macroeconomy indicators. Accounting earnings are the amount of money a company earns in a given period, and presented in financial report. The aggregate includes earnings of several companies. Despite the valuable contributions that companies offered in driving the economy, there is a paucity of evidence in the literature on the informativeness of aggregate accounting earnings for GDP growth.

While research has focused on the link between accounting earnings and the bond market [4,5] earnings and the equity market [6], earnings and the macroeconomy [7] and the stock markets and economic growth [8], little attention is given to the link between the three variables; aggregate accounting earnings, capital markets and the macroeconomy. Specifically, the research did not consider the capital markets variables taken together, which consist of both the equity market as well as the bond market. This is because findings on the equity market may not necessarily apply to a corporate bond due to the fact that bonds have predetermined shorter maturities and different risk premium compared to equity stocks. While there is evidence of positive correlations among the variables there are also studies with a negative correlation. For example, aggregate returns and concurrent earnings correlate negatively [10]. Therefore, there is a need to further explore this inconsistency to establish causality among the variables.

Recent studies show that macroeconomic research to some extent has evolved independently from accounting research mainly carried out at firm-level [7], having a focus on economic indices, incorporating insufficient accounting information. This include the link between aggregate accounting earnings, the stock markets and GDP growth which to a large extent remains unexplored. Consistent with the relevance of accounting earnings is the assumption that all publicly available information on a firm's performance is captured in that year's accounting income numbers [10]. These income numbers have predictive elements which unfortunately, are ignored by macro forecasters.

A growing number of accounting literature investigate the usefulness of firm-specific content of accounting information in taking economic decisions, but only a few examine its corresponding aggregate [11]. Gallo, Hann and Li [11] posited that aggregate earnings news contains information on monetary policy that practically has implications for investors and analysts forecast. A further investigation into other possible factors subsumed into accounting earnings information content is required.

Crawley [12] examined whether the aggregation of an individual firm-level earnings, in effect, changes the macroeconomic indicators' measurement which affects monetary policies. He utilised an asymmetric framework to study time series movement of yearly estimates of aggregate corporate profits. Consistent with aggregate level conditional conservatism the results showed that aggregate profits exhibit less sensitivity to positive aggregate news than to negative aggregate news. According to He and Hu [13], there is a positive relation between aggregate earnings and the stock market return. Also, there is a positive relation between stock market return and future economic growth [14-16]. However, there remain no empirical evidence on the triangular link between accounting earnings, capital markets and economic growth. The link is crucial because the capital markets play a pivotal role of access to corporate accounting information, and as a hub for macroeconomic measurement. An earlier attempt to link these variables excluded the

bond market, without establishing causality [17], while others excluded the equity market (see for example [5]). The use of alternative data set that incorporates both the bond as well as the equity markets, current sample and a holistic approach would be informative on the macro economy.

The purpose of the paper is to examine whether aggregate accounting earnings is significant to the economy. To investigate the informativeness of aggregate accounting earnings, market capitalisation, traded value and accounting practices as relates to GDP growth from the perspective of analysts and macro forecasters. The paper contributes to the field of accounting and economics studies, particularly linking the research gap on accounting earnings to the capital markets, as a macroeconomic driver. More so, it will inform policymakers, scholars and practitioners alike as to whether accounting earnings should be incorporated into GDP components measured through income approach, by macroeconomic forecasters and analysts, as opposed to the current reliance on economic data. The study seeks to extend the research on the informativeness of accounting earnings to the macro economy.

The paper is structured as follows. A literature review on the relationship between capital markets, aggregate accounting earnings and the GDP, and a theoretical framework are presented in Section 2. Section 3 is discussion while conclusion in Section 4 ends this paper.

LITERATURE REVIEW

Most accounting research has been carried out at a steady level independent of their aggregate macroeconomic implications. Only a few studies show that financial statement analysis at firm level could be useful in understanding the potentials of the macroeconomy [5, 7]. To understand the workings of the macroeconomy from an accounting perspective, it is necessary to underscore the importance of aggregate accounting earnings obtainable from the capital markets as the most critical variable to potentially better predict GDP growth. Indeed, GDP as a proxy for the macro economy is the most useful variable for aggregate economic measurement.

Gross Domestic Product

GDP represents the total value of goods and services produced in an economy within a specified period, which measures the size of the economy. It is the most important and widely used variable in macroeconomic growth analysis. It can be measured in three ways; the expenditure approach, production approach and income approach. The World Bank [18] favours GDP compilations using production approach, purported to be more reliable than the calculations based on either income or expenditure approach. The expenditure approach is the sum of purchases or expenditures by final consumers – individuals, businesses, governments and foreigners. All in all, this paper is concerned with the income approach analysis.

The income approach comprises of; employee compensation, operating surplus, consumption of fixed capital and indirect taxes minus subsidies. The operating surplus in this computation includes both government revenue and corporate profits. These corporate profits as noted in Konchitchki and Patatoukas [14] serves as proxies to aggregate accounting earnings. Thus, the GDP compiled by income approach which incorporates aggregate accounting earnings by company sector at the Stock Exchange will provide value added by industry and institutional analysis, to enable policy-makers focus on productive sources of business profits. In addition, the GDP analysis of Konchitchki and Patatoukas [14] provides a theoretical basis to understand contemporaneous of association between aggregate accounting earnings and its informativeness to GDP growth. It is a known fact that one of the components

currently in use to measure GDP by income is the corporate profits collected for tax purpose. So, we argue that aggregate accounting earnings are timelier than corporate profits and should be used instead.

Nallareddy and Ogneva [19] pointed out that government agencies estimate of GDP depends on multiple information sources. Sometimes the information is not available when the initial estimates are compiled. Consequently, the GDP components that is not available have to be calculated by the use of trend estimates to extrapolate information from previous estimates.

Hann, Li and Ogneva [20] investigated whether the real GDP growth estimates of macro forecasters fully incorporate aggregate earnings information and analysts' earnings forecasts. The ability of accounting variables to predict GDP growth forecast depends on the economists' controlling for their growth forecasts. Detail income statement information may not be accessible to the economists when making their GDP growth forecasts. The GDP remains the most closely watched macroeconomic measurement index that reflect national economic condition. This measurement index influence investors, policy makers and household decisions [12].

Aggregate accounting earnings

Aggregate accounting earnings constitute the summation of all firm-level accounting earnings in an economy. This aggregation of earnings is a valuable information source concerning the macro economy, as opposed to firm-level earnings [5]. According to Ball and Sadka [10], the blueprint and assessment of financial reporting should take an aggregate perspective. They affirmed that, although aggregate-level work is recent in accounting literature, it has gained considerable interests among scholars, particularly the aggregation of earnings. Accounting data can be leading indicators in some aspects of the economy because they depict real firms events, their products and factor markets [10]. Crawley [12] stated that aggregate corporate profits form a significant part of the US GDP. Earnings reflect a return on investment which can, in turn, be informative of the profitability or otherwise of new investments. This depends on the extent to which the rate of return on assets persists over time.

Konchitchki and Patatoukas [7] stated that aggregate accounting earnings growth is a leading indicator of future GDP growth, which predicts the macro economy, in particular for the one-quarter-ahead forecast horizon. It is still observed that professional macro forecasters do not fully incorporate the aggregate accounting earnings growth when forecasting GDP growth. Consequently, future GDP growth forecast errors are predictable based on accounting earnings data that are available to both financial analysts and professional macro forecasters in real time.

We opine that corporate profits presented for tax purpose which serves as input to the GDP are not timely for decision making. This is due to the fact that taxes are computed on a preceding year basis (PYB). In contrary, accounting earnings are prepared in conformity with international financial reporting standards (IFRS) and reported quarterly, half-yearly or annually [7]. This makes the data timely for inclusion in the current year GDP computation. The earnings are obtained earlier with at least a year ahead of corporate profits submitted for tax purpose.

To have a better understanding of the source of the macroeconomic content of aggregate earnings, Hann, Li and Ogneva [20] identified another alternative measure of aggregate earnings. They decompose aggregate of generally accepted accounting principles (GAAP) earnings, differentiating it from non-GAAP earnings. GAAP uses accrual basis, whereas non-GAAP earnings place emphasis on cash flow. Their first decomposition has GAAP earnings as earnings before interest and tax (EBIT) and non-core earnings taken as the difference between EBIT and net income. The non-core earnings comprise of interest expense, extraordinary items, special

items, non-operating income, discontinued operations, and tax expense. The second decomposition is on core earnings. Core earnings exclude all unusual items.

Crawley [12] pointed out that, since financial accounting data are utilised to create aggregate corporate profit and GDP measurements, any alteration in measurement applying GAAP at firm-level will ultimately affect the measurement of indicators at the aggregate level. For instance, the continuous use of fair-value method or convergence with IFRS could alter the measurability of aggregate corporate profits and the GDP. Hence, policymaking agencies require an understanding of the role firm- level accounting practices play in the national economy.

Conceptual framework

The notion that accounting data is not informative at the capital markets level is arguably as studies show evidence of accounting data effect to the macro economy [7]. Literature findings have mixed perspectives on the informativeness of accounting earnings on the stock market as well as on the economy. Patatoukas [21] showed evidence that changes in aggregate earnings correlate with value-relevant news about future cash flows as well as discount rates. He found that changes in aggregate earnings co-vary positively as it impacts on stock market prices. Usually, simple regression analysis of capital market returns on changes in aggregate earnings reflects the net impacts such that the market seems unresponsive to accounting earnings data. If aggregate accounting earnings provide information to the capital markets, then it is probable that the results would be robust for the macro economy. This would potentially establish causality from aggregate earnings to the macro level.

In his regression analysis, Shivakumar [17], examined the effect of aggregate earnings changes on changes in macroeconomic activities, using the most recently announced earnings that were standardised to avoid the use of stale information. The market sample includes only common stocks, and the macroeconomic activities are growth in real GDP, growth in industrial production, growth in real labour income, growth in real consumption, inflation, and growth in nominal GDP. The results showed that while aggregate earnings predict growth in nominal GDP, it did not account for real GDP. Similarly, the variable was negatively correlated with market returns and inflation. However, this is not consistent with the findings of Anilowski, Feng and Skinner [22], that indicate a positive association between market returns and earnings guidance. The predictions in this paper will be developed based on these contradictions in prior studies, and the changing nature of macroeconomic variables.

To recognise the link between accounting and the macro economy both from theoretical and empirical perspectives, Konchitchki [23] stressed the need to appreciate the role of accounting valuation and cost of equity in the macro economy. The macro economy affects firms giving room to a larger scale research in accounting, including valuation models that incorporate macroeconomic information. The firms' equity cost of capital is evaluated each trading day in the form of market capitalisation at the capital market. According to Konchitchki [23], the idea to link a firm's equity cost of capital to the macro economy is consistent with firms' operations and explains valuation dynamics. The extant macro accounting studies underscore the macroeconomic role in accounting valuation modelling of equity cost of capital. Another insight is to recognise that the link between accounting and the macro economy concerns how marginal substitution rate in consumption is a proxy in empirical research and valuation modelling. Particularly, research that links accounting fundamentals, valuation, and macroeconomic activities spur equity cost of capital modelling that is linear to accounting variables.

The dependent variable in this study is the GDP. This represents the yearly GDP growth, which corresponds to accounting earnings of the same period. The independent variables are aggregate accounting earnings obtainable from the capital

markets when released by the companies, and market size proxy by market capitalisation. Market size defines the capital markets' classification as either developed, emerging or frontier market. This can potentially determine the significance of accounting aggregates within a particular economy. The indicators are modelled to incorporate only equities while bonds are excluded, as equity holders are more responsive to accounting earnings. Also, market capitalisation valuations are equity based.

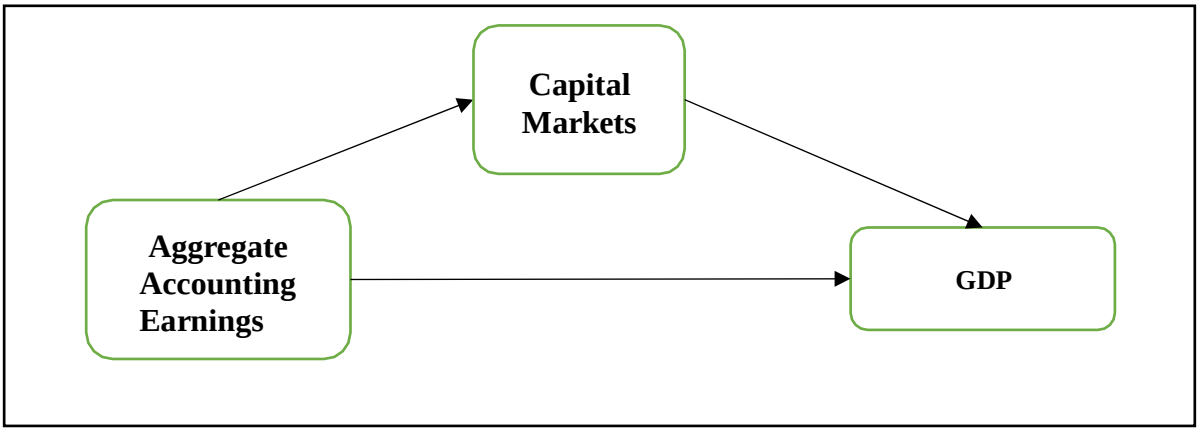
A cross-sectional or pooled regression analysis is usually carried out at the firm level, comparing many firms at the same period. Time series regressions involve quantities that are taken at successive times. The analysis tests whether firms with higher earnings have higher stock prices which ultimately affects the macro economy. The following regression model tests whether aggregate accounting earnings has a significant contribution to the GDP, taking into consideration the size of the capital markets in an economy. Figure 1 ilustrate this study conceptual framework

Model: $gdpg_{it} = \alpha_{it} + \beta\Delta X_{it} + msize_{it} + \varepsilon_{it}$

Where;
gdpg is GDP growth for the year,
ΔX is aggregate accounting earnings growth for the year,
msize is the market size proxy by the market capitalisation,
ε is the error term.

Figure 1

Conceptual Framework



Theoretical framework and hypotheses development

Aggregate accounting earnings and GDP

Accounting information plays a major role in the capital markets, which in turn is a key driver and indicator of how an economy thrives. However, the link between accounting earnings and the macro economy remains relatively unexplored [7]. Studies indicate positive correlations between accounting earnings and economic growth. For example, Konchitchki & Patatoukas [7] found a significantly positive association between the two variables. Similarly, Anilowski, Feng and Skinner [22], found a positive correlation between earnings guidance and market returns at the macro level. However, Shivakumar [17] showed mixed results, where aggregate earnings were negatively correlated with real GDP,

but predicts growth in nominal GDP, simultaneously. Also, in Kothari, Lewellen and Warner [9], aggregate returns and concurrent earnings correlate negatively.

In another study, Gkougkousi [5] explored the link between accounting earnings and the economy and observed that aggregate earnings incorporate information that is different from firm-specific earnings. For this reason, findings on the firm-specific relation between earnings and asset prices cannot be generalised at the aggregate level. He argued further that the earnings in connection with returns at the aggregate level could be driven by both, the expected and actual news component of earnings aggregate changes. However, in more recent studies, Gallo, Hann and Li [11] indicated that aggregate accounting earnings incorporate macroeconomic contents that can explain unemployment, inflation and the GDP. Also, the market revises its expectation in anticipation macroeconomic policy surprises.

Crawley [12] examined whether accounting conservatism at firm level goes beyond aggregate accounting profits to influence GDP measurements. He found that GDP measurements react more to negative news than positive news at the macro level. He also documents that firm-level changes in earnings arising due to fair value measurements or convergence between IFRS and GAAP subsequently affects the measurement of aggregate level earnings. This in turn has implication for GDP measurement where corporate profits are inputted. The economic policy makers will ultimately have the ability to consolidate their understanding of aggregate level accounting earnings and how it measures up to the macro economy.

In their study, Bernstein and Arnott (2003) showed that dividends grow more slowly than GDP. Also, earnings could not grow faster than the macro economy because it contributes only in part to GDP. For this reason, a key driver of GDP growth is the creation of new enterprises, which have potentials to generate earnings. These earnings will as well serve as input to the GDP.

Anilowski, Feng and Skinner [22] examined the information contents of aggregate earnings guidance. They implied that earnings guidance is informative to the overall earnings trend within the economy. This trend affects macroeconomic variables like GDP growth, industrial production and market returns. They examined whether aggregate earnings guidance has an effect on aggregate stock returns. The basis of their contention is not a little reasoning that since earnings guidance is informative at the firm-level, it is informative at the aggregate level. The effect of this aggregate guidance on market returns depends on stock market valuations; that is, the investors' expected cash flows, and expected returns.

Based on the preceding information, the following hypothesis is proposed:

H_1: There is a positive relationship between aggregate accounting earnings and GDP.

Aggregate accounting earnings and the capital markets

Prior studies have long established that capital markets react positively to firm-level earnings news [9-10]. However, Easton, Harris and Ohlson [24] found that there is a contemporaneous association between aggregate accounting earnings and capital markets return. The study shows that aggregate earnings are more likely to become less important in an elongated aggregation period. They argued that shorter windows of the period can minimise the consequence of confounding information. The findings were corroborated by Kothari et al. [9] where they reported a negative correlation between aggregate returns and concurrent earnings.

To corroborate this claim, Patatoukas [21] pointed out that, while firm-level findings show strong or even positive association between earnings changes and market returns, the converse is the case for aggregate level earnings. This is surprising because the positive change in aggregate earnings should result in favourable cash flow news and higher stock prices. The study showed that aggregate earnings correlate with newer information relevant for stock market valuation. The research examined the effect of firm-level earnings using simple regressions of stock market returns on changes in earnings [21]. The coefficient of the estimated slope is referred to as "earnings response coefficient" and shows how stock prices react to earning changes.

Firm-level studies commonly use earnings change to measure cash flow news. Consistent with expected future cash flow, Patatoukas [21] found evidence of a significant positive earnings response coefficient. The earnings response coefficient reflects the reaction of the stock market prices to all relevant news - both cash flow and discount rate news incorporated in aggregate earnings changes. With the existence of all value, relevant news embedded in aggregate earnings changes, a significantly positive earnings response coefficient is expected. Consistent with long equity duration concept, the results indicate that stock prices react to all aspect of expected stock market returns at the slightest change [21].

Nallareddy and Ogneva [19] found that firm-level accounting earnings growth estimates can potentially predict employment variable as a predictor in macroeconomic research. Similarly, the aggregation of these earnings at the macro level has the incremental function of predicting unemployment and GDP growth. This information is not fully incorporated into the initial GDP estimates. Similarly, Cready and Gurun [4] showed evidence of a negative relation between aggregate market returns and earnings announcement. This was inconsistent with He & Hu (2014) who discover a positive relation between aggregate earnings and the stock market return. This points to research design issue where Jaffe et al. [25] re-examined the effects of a longer sample period to show evidence of a relationship between Earnings Price ratios (E/P), stock returns and effects of size. In their calculations, market value has marginal economic significance than E/P ratio. Similarly, Kothari, Lewellen and Warner [9] examined the effect of aggregate earnings news on the stock market. Previous studies show that individual firms' stock prices respond positively to earnings news. This news depends on several other factors to fully reflect the information in earnings. Their analysis aims to understand the link between aggregate earnings surprises and market returns. They found little evidence that stock prices have a slow reaction to aggregate earnings news.

Anilowski, Feng and Skinner [22] showed that the correlation analysis of stock market returns with aggregate guidance yields mixed results. Seasonal changes in earnings guidance do not correlate with contemporaneous market returns on a quarterly basis. Though there was evidence of a weak positive correlation when earnings guidance and returns are measured on a monthly basis. Also, there was evidence that market returns are correlated with earnings guidance issued by the larger stocks in each quarter. Anilowski, Feng and Skinner [22] concluded that it is the macroeconomic news that possibly drives both the aggregate guidance and the market returns, rather than earning guidance driving returns. This they say because their results provide insufficient evidence to establish causality between aggregate earnings guidance and stock market returns.

Having determined that aggregate corporate earnings be the means by which aggregate earnings guidance can be informative of capital markets return, Shivakumar [17] underscored the need to first understand the link between earnings news and stock market returns. He identified three alternative effects of aggregate earnings news on market returns which include the effect on aggregate future cash flow, the effect on aggregate discount rate through real activity, or the effect on discount rate through inflation. These three effects are not mutually exclusive.

Based on the preceding information, the following hypothesis is proposed:

H_2: There is a positive relationship between aggregate accounting earnings and the capital markets.

Capital markets and GDP

To assess the correlation between the stock market and GDP, there is a need for empirical indicators of stock market size and liquidity, as well as GDP indicators. Employing a variety of measures gives a broader insight of the link between the stock market and economic growth rather than using a singular indicator. Market capitalisation as a proxy for capital markets which measures the stock market size is the total value of listed shares on the exchange. Some research use capitalization as an indicator of stock market development [15,24], while others use stock market return [7,23]. A measure of liquidity is value traded, which is the value of shares traded on the exchange divided by GDP [15]. Theoretical models of capital markets liquidity and economic growth motivates value traded directly. Value traded measures trading volume and should accordingly positively reflect liquidity in the economy. Whereas value traded, reflect trading about the size of the macro economy, turnover measures trading compared to the stock market size [15]. However, one pitfall of value traded is that rising prices lead to increasing in value traded, particularly when the fundamentals predict massive corporate profits. Market capitalisation is similarly influenced by rising prices. Levine and Zervos [15] implied that both values traded and market capitalisation indicators should be included in a regression because when value traded significantly correlates with economic growth while controlling for market capitalisation, the price effect will not dominate the relationship between value traded and economic growth.

Levine and Zervos [15] presented results coefficient that indicates a positive association between market capitalisation and economic growth, which was strongly influenced by a combined cross-country effect. However, the capitalisation did not enter the regression significantly when some countries were removed. For these countries, the stock market size on a general note is not robust for predictors of growth indicators. Overall, studies continue to corroborate the findings that stock markets development indicators have an economically and statistically significant positive influence on economic growth (Beck & Levine, 2004).

Based on the preceding information, the following hypothesis is proposed:

H_3: There is a positive relationship between capital markets and GDP.

Aggregate accounting earnings, capital markets and GDP

The idea of exploring the informativeness of macroeconomic content of accounting earnings are encouraging (see for example [7,10,19,4,17]). Specifically, Healy and Palepu [27] document evidence of the usefulness of earnings forecast in capital market transactions. These capital market activities have implication for the macro economy [23].

Although previous studies show a positive relation between stock market return and the macro economy, [5,14,15], there remains no empirical evidence on the link between accounting earnings, capital markets and economic growth. Earlier attempts to link these variables excluded the bond market, without establishing causality Shivakumar [17] while Gkougkousi [5] excluded the equity market. To appreciate the relationship between aggregate earnings, capital market returns and

the macro economy, Shivakumar [17] asserted that each of these three variables affects each other with a high degree of interrelatedness. Corporate sector as a component of GDP is likely to correlate with other GDP components. This naturally leads to a theoretical mechanism for firms' behaviour and how they can explain, and predict macroeconomic activity [7].

To discover how new information in aggregate earnings absorbs into stock market prices, a comprehensive account for contemporaneous components of expected stock market return have to be taken into consideration. This includes inflation, discount rate, and the equity risk premium. More evidence can be expected on the informativeness of accounting data for the macro economy [21].

Although research in economics and finance have made considerable progress in linking capital markets returns to macroeconomic activities, but little studies exist on the link between aggregate accounting earnings and either capital markets return or the macro economy [17]. In their investigation of the informativeness of aggregate earnings guidance and stock market returns, Anilowski, Feng and Skinner [22] asserted that if earnings guidance is prevalent, then its aggregate can potentially produce timely information on aggregate accounting earnings and the macroeconomy. This will ultimately affect capital markets returns. Saini [28] added that it appears intuitive that aggregate earnings would be informative of future GDP growth. The study demonstrates that market volatility among others has a significant impact on the ability of earnings to predict GDP.

Shivakumar [17] suggested that investigation at the micro-structural level can shed light on whether or not the markets respond to earnings or any other contemporaneous information with which accounting earnings aggregate is being correlated. For example, where earnings news is correlated with information that is being released at the macroeconomy, then a correlation between the earnings aggregate news and market returns might be observed, even when the market only responds to the announcement at the macro level. Such correlations are likely to be questioned whether or not capital markets efficiently use lagged values information of aggregate earnings in predicting macroeconomic announcements.

Based on the preceding information, the following hypothesis is proposed:

H_4: The capital markets affect the relationship between aggregate accounting earnings and GDP.

To establish the need for the mediation in this hypothesis, Baron and Kenny [29] outlined three conditions that is related to this paper. First, aggregate accounting earnings must affect the stock market [9,13,24]. Second, aggregate accounting earnings must affect economic growth [7,11,17,22]. Last, stock market must affect economic growth [15,26]. Figure 1 above depict these relationships. As mentioned elsewhere in this study, the literature shows positive relationships, with a few others yielding otherwise.

Discussion

A review of literature shows that aggregate accounting earnings are informative to GDP. It is indeed considered as the most important macroeconomic variable. This was supported by recent empirical findings [5,7,17]. However, the literature did not indicate whether capital markets have a significant influence on the relationship between aggregate accounting earnings and GDP. This paper appears to potentially provide newer insight on developments specific to capital markets tier classification. It has implication for interdependence and correlations among global capital markets while underscoring the effects of local economic factors in each market.

By the theoretical works of Ball and Brown [10], the accounting income numbers in the capital markets which in turn has an effect on the economy still have continuing relevance. For example, positive earnings expectation from a firm can motivate more investment into the economy. Similarly, when accounting earnings are aggregated, the same effect is attained at the macroeconomic level.

To investors and policy makers, the usefulness of fundamental accounting information poses a critical decision-making circumstance. There is no adequate knowledge of the role aggregate accounting earnings play in affecting monetary policy decisions and its implication on the relationship between the earnings and aggregate stock market returns. Using monetary policy news, Gallo, Hann and Li [11] found aggregate earnings to be informative of contemporaneous policy surprises affecting stock returns. Altogether, their findings are consistent with the monetary policy surprises, in which aggregate earnings incorporate policy surprises and the capital market responds negatively to policy news. This leads to a negative aggregate earnings-returns relationship.

Further, the accounting earnings aggregate from the capital markets should be incorporated into GDP computations by income approach. This gives a timely information than the traditional corporate profits which proxy for accounting earnings all along, causing a time-lag period of one to two-year period.

Conclusion

In conclusion, this paper reveals an attempt to investigate the informativeness of accounting earnings obtainable from the capital markets, on the macro economy. Moreover, whether the earnings should be incorporated into GDP components measured through income approach, as opposed to the current reliance on only economic data. This paper contributes to knowledge in both accounting and economics by exploring the relevance of aggregate earnings at the macroeconomic level. Review of literature shows that accounting aggregates are informative at macro- level.

An increasing body of research currently focuses on the macroeconomic content of corporate information disclosure [20]. The studies showed evidence of significant information on aggregate earnings about the macro economy [7]. However, the nature of this information remains unexplored to a large extent. Hann, Li and Ogneva [20] attempted to decompose the source of the macroeconomic content of the information in aggregate earnings into the core and non-core income components. They found that aggregate GAAP net income information content predicts real GDP growth, and it is incremental to other macro-indicators. This emerges mainly from the non-core earnings components.

Patatoukas [21] found a significant positive relationship between aggregate accounting earnings changes and future market returns surprises. The association between the aggregate earnings and discount rate news cuts across every component of the expected market returns. Particularly, review of expectations concerning future inflation, real riskless rate, and the implied equity risk premium. Also, the univariate analysis of the association between aggregate earnings and newer information regarding expected market return suggest a weak or probably negative association between aggregate earnings and market return.

Also, the need to examine the link between aggregate accounting earnings, the stock markets and the macro economy has promising implication both for policy makers (enable them to make better policies so that resources are channelled into the market) and scholars (to contribute to the debate on accounting earnings and the stock markets. The theoretical platform for the investigation has been set by Konchitchki and Patatoukas [7] and other researchers whose contributions are included in this paper. Further research should consider the exploration of more accounting

information that could be useful at the macroeconomic level, rather than at firm level only.

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