Financing, Investing and Operating Leverages Components of Profitability and Post Earnings Announcement Stock Price Movement: Evidence from Nigeria

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ABSTRACT
This paper examines how the financing, investing and operating leverage components of accounting profitability impact on future stock price and market returns post earnings announcement. Our findings show that stock returns is a positive function of investing leverage and operating leverage components of accounting profitability and a negative function of financing leverage component within the earnings announcement period around 3 months after the balance sheet date. However, all the three components of accounting profitability are positively associated with stock prices 12 months after the balance sheet date. This suggests that the market revalues the information content of financing leverage component of profitability positively and thereby show that the market values the decision to use debt finance positively applies in the longer term and not within the earnings announcement period. Finally our findings suggest that investors value the information content of investing and operating leverage components of profitability positively both within the earnings announcement period and thereafter. The implication of the findings is that investors targeting firms with increasing financial leverage component of profitability can expect to make profit 12 months after the balance sheet date rather than within the earnings announcement period.

Keywords: Operating Income, stock price, debt finance, profitability, earnings announcement period

INTRODUCTION
The notion of financing, investing and operating activities has long been established even as accounting standards require the disaggregation of cash flows into these three components. The intuition for this categorization of cash flows is to assist investors to make better decisions. But the link between these activities and market returns however is rather murky as prior studies had accounted for the effect of only two of these three decisions associated with corporate activities. Using indirect measures termed degree of financing leverage and degree of operating leverage, prior studies such as Mandelker & Rhee (1984) thereby omitted and or failed to distinctly show the effect of investing leverage. Others used more direct
measures of operating profitability and financing profitability represented by return on net operating assets and return on net financial assets respectively (Nissim & Penman, 2003). Thus the comprehensive framework of analysis geared towards linking corporate activities with the market returns was yet to be established as requested by Foster (1978). To bridge this gap, Agburuga & Ibanichuka (2016a) used the Du Pont framework of financial analysis to derive the financing, investing and operating leverage components of profitability. This paper aims to extend this work by examining how the financing, investing and operating leverage components of accounting profitability impact on future stock price and market returns.

The rationale for the relations between profitability and market returns is that current earnings provide information for the prediction of future earnings and which in turn is the determinant of stock price (Nekrasov & Shroff, 2009). Agburuga & Ibanichuka (2016b) had established the relations between financing, investing and operating leverage components and future earnings and found that the components of profitability displayed properties that are consistent with the trade-off theory. The financing and operating leverage components of profitability were found to have negative and positive relations respectively to future earnings. It was further found that the investing leverage component was also negatively related with future earnings. Since future earnings determine the dividend payout and ultimately the stock price, it was necessary to see how the three components of profitability impact on future stock price and stock return hence the current study was carried out. Our finding shows that stock returns is a positive function of investing leverage and operating leverage components of accounting profitability and a negative function of financing leverage component within the earnings announcement period around 3 months after the balance sheet date. However, all the three components of accounting profitability are positively associated with stock prices 12 months after the balance sheet date. This suggests that after the initial delays, the market revalues the information content of financing leverage component of profitability positively. Furthermore, while the annual stock return is negatively related to financial leverage component and positively related to investing and operating leverages components of profitability, future stock price is positively related to all the three components of profitability. This suggests that the finding by Ross (1977) and Meyers & Majluf (1984) that the market values the information about the decision to use debt finance positively applies in the longer term and not within the earnings announcement period. Finally our finding suggests that investors value the information content of investing and operating leverage components of profitability positively both within the earnings announcement period and thereafter. The implication of the findings is that investors targeting firms with increasing financial leverage component of profitability can expect to make profit 12 months after the balance sheet date rather than within the earnings announcement period.

**LITERATURE REVIEW**

The idea of linking the financing, investing and operating activities to earnings and ultimately to market returns is not entirely novel. Nekrasov & Shroff (2009) argued that since the value of the firm derives from earnings, it seems logical that the risk that the firm is exposed to be measured by reference to the economic fundamental, that is the source of value generating process inherent in the financing, investing and operating activities of the firm. They criticized the idea of using market returns to measure risk arguing that it is not clear which aspect of risk is being so measured. Rather than measure risk from accounting fundamental, in practice risk is measured by reference to market returns and the correlation of this risk with accounting beta and earnings becomes the justification and gives validity to the later. They therefore developed a model for estimating the value of the firm based on accounting fundamentals using the residual income valuation model that assumes that the value of the firm is the book value of equity plus the present value of the discounted future residual income. The residual income is the income remaining after charging for the cost of capital of the book value of assets at the beginning of the period. The idea of using market beta as the basis for establishing the relevance of accounting information has been criticized (Toms, Salama, & Nguyen, 2005). Consequently, a number of studies has been conducted using the alternative method of directly linking accounting fundamentals to the market beta. Kothari (2001) chronicles a number of these studies. A recent study relevant to the object of this paper of
examining the relationship of components of profitability to post earnings announcement stock price movement was carried out by Lim (2012). He disaggregated shareholder profitability (return on equity) into operating profitability and financing profitability. Operating profitability was further disaggregated into sustainable and unsustainable components with a view to establishing whether doing so had greater information content for stock return and equity valuation than aggregated profitability. Operating Income is earnings after Interest and Tax plus net interest expense. He disaggregated operating profitability into sustainable and unsustainable components to determine their usefulness in equity valuation. Sustainable Operating income is the sales less cost of goods sold, selling and distribution expenses, advertising and research and development expenses. Otherwise, sustainable income before tax is the profit before tax and before Interest expense thereby removing the impact of financing activities from profitability. He further defined sustainable income or profit after tax as the difference between sustainable income before tax and taxes on operating income with the later defined as the sum of reported taxes and tax on net financial expense (NFE). The tax on net financial expense is computed by applying the marginal tax rate on the net financial expense (financial expense less financial income). Unsustainable income after tax is the difference between operating income and sustainable operating profit after tax. The idea of sustainable operating income appears to be an attempt to compute the contribution towards the recovery of fixed costs. The unsustainable operating income appears to be a computation of the net profit remaining after charging fixed costs.

He reclassified the balance sheet into operating and financial assets and liabilities and the statement of comprehensive income as net operating profit after tax (NOPAT) and net financial expenses (NFE) or income (NFI) after tax. He then used the framework that decompose return on common equity (ROCE) into two additive components namely return on net operating assets (RNOA) and return on financial leverage (RFLEV) to derive the two variables used to explain whether the market differentiates between operating activities and financing activities. While RNOA is NOPAT divided by NOA, RFLEV is either NFE divided by NFO otherwise described as Net Borrowing Rate (NBR) or Net Financial Income (NFI) divided by Net Financial Assets) otherwise described as Return on Net Financial Assets (RNFA). Net Borrowing Rate occurs where the financial obligations exceed financial assets and Return on Net financial assets occurs where the financial assets exceed financial obligations.

With adjusted market return as the dependent variable and components of shareholder profitability and operating profitability as independent variables, he found that the market return is more closely associated with the return on net operating assets than with return on net financial assets. He estimated the adjusted market returns the difference between the market price three months after year end plus dividend and bonus shares and the market price Eight months before year end. It was also found that the market values the sustainable portion of operating profitability more than the unsustainable portion of operating profitability.

This study departs from Lim (2012) by examining comprehensively the process that links the three value generating activities to the firm value. This is achieved through examining the impact of the financing, investing and operating leverages components of profitability and relating it to not just estimation of stock return but also to equity valuation (stock price). This study is therefore particularly useful to investors in the Nigerian Stock Market and for corporate managers who can now estimate the impact of their financing, investing and operating decisions on the market returns.

**DATA, MEASUREMENT OF VARIABLES AND METHODOLOGY**

Panel data was manually collected from annual reports of sample firms listed on the Nigerian Stock Exchange from 2004 to 2015 for 480 firm years and 12,000 observations and after synthesis to remove missing and incomplete data this reduced to 300 firm years. Independent variables were measured following the profitability decomposition framework in Agburuga & Ibanichuka (2016a) as follows:-

\[
\frac{\text{Debt}}{\text{Equity}} \times \frac{\text{Profit}}{\text{Total Assets}}
\]
Investing Leverage Component (ILC) is the proportion of return on assets that is attributed to the capacity of investments in fixed (non-current) assets to generate income and computed as:

\[
\text{Fixed Assets \over Net Total Assets} \times \text{Profit \over Total Assets}
\]

Operating Leverage Component (OLC) is the proportion of the return on assets attributed to the operating efficiency of equity-financed working capital and computed as

\[
\text{Working Capital \over Net Total Assets} \times \text{Profit \over Total Assets}
\]

Profit represents net profit after interest and tax. Also following Agburuga & Ibanichuka, we use the following as control variables:- Return on Equity (ROE) and Change in Return on Equity (ΔROE), natural logarithms of book to market ratio (LBM) and market value (LMV). We then tested the following pooled regression equations:

\[
\text{Equation 1} \\
\text{ASR}_t = \alpha_0 + \alpha_1\text{FLC}_t + \alpha_2\text{ILC}_t + \alpha_3\text{OLC}_t + \alpha_4\text{ROE}_t + \alpha_5\Delta\text{ROE}_t + \alpha_6\text{LBM}_t + \alpha_7\text{LMV}_t + \epsilon_t
\]

\[
\text{Equation 2} \\
\text{FSP}_{it+1}= \delta_0 + \delta_1\text{FLC}_t + \delta_2\text{ILC}_t + \delta_3\text{OLC}_t + \delta_4\text{ROE}_t + \delta_5\Delta\text{ROE}_t + \delta_6\text{LBM}_t + \delta_7\text{LMV}_t + \mu_{it}
\]

Annual Stock Return (ASRₜ) is Stock return is measured as adjusted stock price (being stock price plus dividend and bonus issues) two months after financial year-end on 31st December less stock price ten months before that date in order to have a one year buy and hold period. This is similar to Soliman (2008) who allowed only eleven months buy and hold period. Future Stock Price (FSPₜ₊₁) is the stock price one year from a given balance sheet date.

RESULT AND DISCUSSION
Presented below as Table 1 and Table 2 are the result of the adjusted pooled regression estimates based on equation 1 and 2 above and incorporating lagged dependent and lagged independent variables to control the effect of serial correlation in residuals. This result shows the significantly improved goodness of fit of the regression models when compared to the original model, although it did not completely eliminate the problem of serial correlation in regression model depicted in equation 1 above.

The impact of FLV, ILV and OLV on ASR was tested and is found that the overall significance of the relationship between corporate profitability components and annual stock returns is weak given the low percentage of coefficient of determination. The negative adjusted R-squared statistic suggests model misspecification and this was confirmed by the consistently low Durbin-Watson statistic in the original and adjusted pooled OLS regression. It suggests that there are other factors other than the components of corporate profitability that impact on annual stock return. It might also suggest that stock returns do not fully reflect information content of corporate profitability components as suggested by Soliman (2008).

Other previous studies had earlier suggested the inability of investors to fully utilize information available to predict future stock performance (Ou & Pennman, 1989; Maines & Hands, 1996). The result of the both the original pooled regression estimate and the adjusted pooled regression estimate in Table 1 below consistently show through the F-statistic and Significance F that the impact of FLV, ILV and OLV on ASR is not significant, leading to the acceptance of the null hypothesis that there is no statistically significant relationship between them. The beta coefficients of the regression model indicated that the relationship between components of corporate profitability and ASR were also not significant at 95% level of confidence. However annual stock return (ASR) is positively and incrementally related with both ILV and OLV and negatively related with FLV. This finding show that while ASR impounds information on ILV and OLV positively, the reverse in the case for FLV despite the presence of element of serial correlation in the residuals. This finding corroborates the result of prior literature (Sloan, 1996) who found similar differentials in the relationship of earnings components. They found that accrual component and cash flow component of earnings had decreasing and increasing impact respectively, on their ability to predict
future earnings and stock returns. This study adds to the prior effort and suggests that the negative differential of the accrual component of earnings may be driven by the FLV which is a measure of the profit attributed to financial leverage. Gutherie (2006) argues that if firms have higher levels of investment in fixed assets, it increases the fixed cost as well as the bankruptcy cost associated with the risk of abandonment. The combined effect of both fixed cost and bankruptcy cost may compel firms to reduce risk of default in obligations to third parties associated (financial leverage). The reason for this being that it is easier to liquidate obligations to debt holders than to abandon or liquidate investment in fixed assets. Hence the higher the level of persistence of ILV and OLV the higher the likelihood that FLV will be negatively related to ASR as managers seek to reduce the business risk. In the current study, I observe that the level of persistence of both ILV and OLV are relatively high and this may have impacted on investors’ immediate reaction to information on reported earnings. The negative relation of FLV to annual stock return might also be indirect evidence of the operation of the trade off theory which that states that firms trade-off financial leverage in place of operating leverage (Mandelker & Rhee, 1984; Gutherie, 2006) might be a phenomenon associated with stock returns within the earnings announcement period.

Table 1: Result of Adjusted Pooled OLS Regression Test of Components of Corporate Profitability and ASR with additional Independent variables of Lagged Dependent and Independent Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>28.93612</td>
<td>64.74605</td>
<td>0.446917</td>
<td>0.6553</td>
</tr>
<tr>
<td>ASR(-1)</td>
<td>0.223351</td>
<td>0.080320</td>
<td>2.780752</td>
<td>0.0058</td>
</tr>
<tr>
<td>FLV</td>
<td>-0.439013</td>
<td>1.015359</td>
<td>-0.432372</td>
<td>0.6658</td>
</tr>
<tr>
<td>FLV(-1)</td>
<td>0.663793</td>
<td>1.008950</td>
<td>0.657905</td>
<td>0.5112</td>
</tr>
<tr>
<td>ILV</td>
<td>5.196763</td>
<td>36.93936</td>
<td>0.140684</td>
<td>0.8882</td>
</tr>
<tr>
<td>ILV(-1)</td>
<td>-6.174820</td>
<td>35.63478</td>
<td>-0.173281</td>
<td>0.8626</td>
</tr>
<tr>
<td>OLV</td>
<td>30.23418</td>
<td>46.43649</td>
<td>0.651087</td>
<td>0.5156</td>
</tr>
<tr>
<td>OLV(-1)</td>
<td>-10.92866</td>
<td>47.83493</td>
<td>-0.228466</td>
<td>0.8195</td>
</tr>
<tr>
<td>ROE</td>
<td>-0.337187</td>
<td>5.790636</td>
<td>-0.058230</td>
<td>0.9536</td>
</tr>
<tr>
<td>ΔROE</td>
<td>-0.006590</td>
<td>4.137395</td>
<td>-0.001593</td>
<td>0.9987</td>
</tr>
<tr>
<td>LBM</td>
<td>-3.118180</td>
<td>4.522571</td>
<td>-0.689471</td>
<td>0.4911</td>
</tr>
<tr>
<td>LMV</td>
<td>-2.188182</td>
<td>3.593807</td>
<td>-0.608876</td>
<td>0.5431</td>
</tr>
</tbody>
</table>

R-squared 0.036540 Mean dependent var 4.372400
Adjusted R-squared -0.003757 S.D. dependent var 84.36398
S.E. of regression 84.52232 Akaike info criterion 11.75456
Sum squared resid 1878878. Schwarz criterion 11.91239
Log likelihood -1604.53 DURBIN-WATSON stat 1.644123
F-statistic 0.906763 Durbin-Watson stat 1.644123
Prob(F-statistic) 0.534330

Source: Author’s Computation using Eviews version 9.0

The unreported test result of the original regression model represented by equation 1 above shows that R-squared statistic was 0.267 and that the adjusted R-squared statistic was 0.246. This compares favorably with the result of prior earnings-return studies which Kothari (2001) is computed to be 0.25. He contends however that the serial correlation in the residuals responsible for the low level of coefficient of
determination is due to problems of errors-in-variables and omitted-variables. The adjusted pooled regression test in Table 2 above corrects this error and returns a coefficient of determination of 0.843 and adjusted R-squared of 0.836. In a similar effort, Kothari found that the coefficient of determination increased from 0.25 to 0.50.

The relationship between $ILV$, $OLV$ and future stock Price ($FSP$) were all positive the original and adjusted pooled regressions. On the other hand, $FLV$ changed from negative in the original pooled regression estimate to positive in the adjusted regression estimate. This suggests that the negative coefficient earlier reported in Table 4.06 was biased by the problem of omitted-variable though now corrected. However the Significance $F$ in both models were far below 5% hence the null hypothesis that corporate profitability components have no statistically significant impact on future stock price was therefore rejected.

Table 2: Result of Adjusted Pooled OLS Regression Test of Components of Corporate Profitability and $FSP$ with additional Independent variables of Lagged Dependent and Independent Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>$t$-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$C$</td>
<td>-64.58447</td>
<td>49.59630</td>
<td>-1.302203</td>
<td>0.1941</td>
</tr>
<tr>
<td>$FSP(-1)$</td>
<td>0.962185</td>
<td>0.032671</td>
<td>29.45083</td>
<td>0.0000</td>
</tr>
<tr>
<td>$FLV$</td>
<td>0.056149</td>
<td>0.666782</td>
<td>0.084209</td>
<td>0.9330</td>
</tr>
<tr>
<td>$FLV(-1)$</td>
<td>0.214222</td>
<td>0.661396</td>
<td>0.323894</td>
<td>0.7463</td>
</tr>
<tr>
<td>$ILV$</td>
<td>16.59489</td>
<td>24.71612</td>
<td>0.671420</td>
<td>0.5026</td>
</tr>
<tr>
<td>$ILV(-1)$</td>
<td>7.984755</td>
<td>23.42313</td>
<td>0.340892</td>
<td>0.7335</td>
</tr>
<tr>
<td>$OLV$</td>
<td>17.58819</td>
<td>32.71713</td>
<td>0.537584</td>
<td>0.5914</td>
</tr>
<tr>
<td>$OLV(-1)$</td>
<td>7.923828</td>
<td>31.69551</td>
<td>0.249998</td>
<td>0.8028</td>
</tr>
<tr>
<td>$ROE$</td>
<td>-2.889039</td>
<td>3.814661</td>
<td>-0.757351</td>
<td>0.4496</td>
</tr>
<tr>
<td>$\Delta ROE$</td>
<td>3.096711</td>
<td>2.721636</td>
<td>1.137812</td>
<td>0.2563</td>
</tr>
<tr>
<td>$LBM$</td>
<td>-1.088606</td>
<td>3.151518</td>
<td>-0.345423</td>
<td>0.7301</td>
</tr>
<tr>
<td>$LMV$</td>
<td>2.545554</td>
<td>2.672260</td>
<td>0.952585</td>
<td>0.3418</td>
</tr>
</tbody>
</table>

R-squared 0.843383 Mean dependent var 71.95448
Adjusted R-squared 0.836145 S.D. dependent var 136.6093
S.E. of regression 55.29814 Akaike info criterion 10.91017
Sum squared resid 727776.5 Schwarz criterion 11.07920
Log likelihood -1351.771 Hannan-Quinn crit. 10.97820
F-statistic 116.5122 Durbin-Watson stat 1.936505
Prob(F-statistic) 0.000000

Source: Author’s Computation using Eviews version 9.0
Future Stock Price (FSP) is the price of shares one year ahead. The 12 months window invariably allows investors the chance to fully impound the information in reported corporate profitability. The positive relationship between FLV, ILV and OLV with FSP as shown by the adjusted pooled regression estimates shows the level of persistence of these corporate profitability components and future stock price which is several months post earnings announcement. This finding supports the efficient market hypothesis that links current earnings to stock prices. It shows the ability of these components of corporate profitability to provide value relevant information to investors. The above finding above substantially supports the earlier finding by Soliman (2008) that profitability components he measured were usefully associated with stock returns.

CONCLUSION
The investing leverage and operating leverage components of profitability were both positively associated with post earnings announcement stock return and future stock price 12 months post balance sheet date. The financial leverage component of profitability however was found to be negatively related to stock return during the earnings announcement period but the market priced it positively 12 months post balance sheet date, suggesting that the prior finding (Ross, 1977; Myers & Majluf, 1984) that the market values information about financial leverage is a longer term post earnings announcement period phenomenon.

RECOMMENDATION AND FUTURE RESEARCH
Investors can benefit from the change in the relations between financial leverage component of profitability and market returns from negative during the earnings announcement period to positive post earnings announcement period by constructing and investing in a portfolio of firms that have high financial leverage component of profitability. Future research should examine whether the change in components of profitability will have more or different information content than that provided in this study by the level of corporate profitability components.

REFERENCES


