

The Relationship between Real Earnings Management and Cost Behavior

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Abstract

Purpose- This research aims to examine the relationship between real earnings management (REM) and sticky Selling General and Administrative (SG&A) costs in the case of a developing economy.

Design/Methodology- The study employed a purposive sampling method. Fifteen firms listed on Ghana stock exchange were selected for the study. Data from the period of 2005 to 2014 were collected.

Findings- The study finds Ghanaian listed firm's SG&A cost to be sticky and also see these firms to manipulate earnings through REM. This study finds that REM through discretionary expenses and production cost increases sticky SG&A cost, whereas REM through cash flow reduces sticky SG&A cost. Overall, the results imply that REM exhibit sticky cost.

Practical Implications- The study informs managers that cost is not only fixed or variable but also behaves asymmetrically. The understanding of this concept could help managers to implement strategies that will lower the cost of doing business. Also, since some managers deliberately make decisions that lead to real earnings management and sticky cost, we, therefore, believe that this research will be of importance to regulatory bodies, policymakers, investors, and other stakeholders.

Introduction

This paper is an integration of financial accounting and management accounting topics, which are real earnings management and cost structure, respectively. Both are researches that have been linked to managerial opportunism. Cost is the expenditure incurred in the production of goods and services. In financial and management accounting, the cost is measured in monetary value, and it is one of the essential concepts. Costs are grouped into four broad elements, which are labor cost, material cost, expenses, and overheads. Each aspect may also be classified as manufacturing and non-manufacturing cost. Manufacturing cost is the cost that is directly involved in the production of goods (eg., direct labor cost, direct material cost, and direct overhead cost). Also, the non-manufacturing cost is the cost that cannot directly be linked to production (eg., SG&A cost, and Rent).

Furthermore, the traditional cost model classifies cost as fixed or variable and fixed and variable. However, recent studies have found the cost to behave differently from the conventional cost system (eg., Anderson et al., 2003). They claim that cost behaves in an asymmetric manner, which they termed as sticky cost.

The literature on sticky cost has been a popular topic of research over the last two decades among researchers studying the behavior of cost. According to Anderson et al., (2003), sticky behavior of cost is present if the rate at which a firm's cost increases as business operations increase is higher compared to its cost decrease as business operations declines. The traditional cost model, in contrast, indicates that variable cost increases or decreases in proportion to changes to activity volume (Noreen, 1991). A lot of researchers have conducted studies on the sticky behavior of cost (Weiss, 2010; He et al., 2010). Many have found the cost to be sticky among variables such as SG&A, COGS and adjustment cost (Liang et al., 2015; Anderson et al., 2003). Balakrishnan et al. (2004) found the cost to be sticky when they conducted a study on physical therapy clinics in the US.

Furthermore, Anderson et al. (2003) believe that managers intentionally create sticky cost behavior to achieve sure firm performance. In theory, this opportunistic behavior of managers has been documented by earnings management research (Roychowdhury, 2006; Graham et al., 2005). Broadly, we define earnings management as the strategies and techniques managers adopt in the preparation and reporting of firm performance, which hides the actual performance of the firm. Earnings management can be categorized into three broad topics, namely, accrual earnings management, real earnings management, and fraudulent accounting. This paper, however, concentrates on practical earnings management.

Moreover, there are different avenues for or types of real earnings management activities. For instance, managers can manage earnings through cash flow, production, discretionary expenses, SG&A, sale of fixed assets, research and development expenditure and many others. Our research concentrates on real earnings management through production, discretionary expenses, and cash flow from operations. Firm managers who indulge in practical earnings management change the underlying operational activities. For instance, Roychowdhury, (2006) found evidence indicating that managers overproduce to declare the lower cost of goods sold. Other examples also include delaying investment and selling fixed assets in an attempt to increase earnings (Gunny, (2005).

This research aims to examine the relationship between real earnings management and cost behavior. The study sought to; identify the cost behavior of SG&A, assess the existence of actual activity manipulations, and finally establish a relationship between real earnings management and cost behavior of listed firms in Ghana.

Our study makes the following contributions to literature. Firstly it contributes to the literature on the relationship between earnings management and sticky cost. Prior studies provide strong evidence. For instance,

Xue and Hong (2015) found evidence indicating that both earnings management and sticky cost moves in the opposite direction, meaning as earnings management increases sticky cost diminishes. Consequently, the more a firm indulges in earnings management, the less sticky its cost will be. Also Hemati and Javid, (2017) provided evidence on the effect of real earnings management on sticky cost, but these and many other papers concentrate on accrual earnings management and sticky cost, and therefore provides very little evidence on the relationship between the three real earnings management proxies used in this study (i.e., real earnings management through; production cost, discretionary expenses, and cash flow from operations) and the behavior of SG&A cost. This study, therefore, addresses this issue by studying the relationship between the three individual real earnings management proxies and the cost behavior of SG&A. Our paper goes further to contribute by computing real earnings management as one variable from the three individual proxies and assessing its total effects on SG&A cost behavior. We do this by combining the standardized residuals of the three individual real earnings management proxies.

Secondly, our paper makes a further contribution to the existing literature by studying the presence of real earnings management and sticky behavior of SG&A costs among listed firms in Ghana. Previous studies on earnings management have been biased towards real earnings management in the Ghanaian context. For instance, Yiadom, (2016), and Amidu and Kuipo (2015) focused on accrual earnings management. It was also realized through the review of literature that cost behavior, sticky or non-sticky has not been discussed in the Ghanaian context. Therefore, there was a need to assess the existence of real earnings management and sticky behavior of cost from the viewpoint of a developing economy.

In measuring the behavior of SG&A cost of listed firms in Ghana, the model of Anderson et al., (2003) was adopted. The study tested the behavior of selling, general, and administrative cost (SG&A) of these firms. Furthermore, in measuring real earnings management, the study estimated the abnormal level of cash flow from operations, production cost and discretionary expenses using the logarithm model of Roychowdhury (2006). The study also used an ordinary least square (OLS) model to assess the relationship between real earnings management and cost behavior.

The rest of the paper is organized as follows. Section 2 deals with the review of the literature and the development of the hypothesis. Section 3 also talks about the data and methodology used in this study. Sections 4 present the results and discussion of the results. Finally, section 5 concludes.

Literature Review

Agency theory

Our research is grounded in agency theory. Agency theory suggests that no agent is trustworthy due to information asymmetry and the self-seeking behavior of agents. Due to shareholders' unavailability or lack of appropriate training to manage their businesses, they hire managers and leave the day to day decision making and running of the business in the hands of their firm managers. Agency theory predicts that these managers may act opportunistically, leading shareholders into putting in a mechanism that can monitor firm managers, which also results in agency cost (ICAEW, 2005). According to Anderson et al., (2003), agency problems may lead to sticky behavior of cost since managers intentionally manipulate cost in reaction to changes in sales. Kama & Weis (2012) also argue that managers deliberately manage production, which then leads to sticky behavior of cost.

Also, earnings management practices have been linked to the opportunistic behavior of managers by prior researchers. For instance, Gunny (2005) argues that managers deliberately reduce research and development expenditure to increase earnings.

Sticky cost

Due to the increase in the number of businesses and the complex nature of today's market competition, it is very important for management accountants to understand the nature and the behavior of cost in order to take timely decisions that could lower cost of doing business and increase cost-effectiveness so that companies can survive and pay back good returns to shareholders. The traditional cost model classifies cost as either fixed or variable, where the variable cost depends on activity level. When cost starts to behave in an asymmetric manner that is when we say cost is sticky (Anderson & Lanen, 2009). For instance, Banker et al., (2011) claimed that sticky cost or cost stickiness happens when managers intentionally decide to maintain unused resources instead of spending on adjustment cost when activity level decreases. This implies that firm managers can deliberately take decisions and steps that will lead to cost management.

Furthermore, He et al. (2010) conducted a study on sticky SG&A cost behavior and its rate of change in Japan. They found that Japanese firms SG&A costs are sticky and it is similar to US firms. Besides, they pointed out that managers may manage costs due to two main issues. The first one may be due to agency problems. According to agency theory, agency problems arise when managers make decisions that maximize their utilities instead of making decisions that maximize the services of their agents. This means managers may decide to maintain unutilized resources that come with a cost even though sales revenue may be declining. The second issue, according to He et al. (2010) may be due to managers' uncertainty about the future. Managers may decide to retain unused resources because they assume it may be of use soon when sales increase again.

Similarly, Kama & Weiss (2012) found two possible sources of sticky cost. Firstly, they found that companies that were limited in terms of technology exhibited sticky costs. Secondly, they found that managers deliberately interfere in production to fulfill their desires, which then leads to cost stickiness in the long run. Aside from these issues, corporate governance characteristics such as gender and age of chairperson have also been linked to cost stickiness in firms (Liang et al., 2015). Nonetheless, Anderson et al. (2003) found a sample of listed firms in the US to have sticky SG&A costs. They discovered that SG&A went up by 0.55% when revenue increased by 1% as compared to a decline of 0.35% when revenue went down by 1%.

Similarly, Kokotakis et al. (2013) conducted a study on sticky cost on Greek food, beverages, and tobacco limited companies. They sampled 438 limited companies for 12 years. They found that a 1% increase in revenue leads to a rise in the expense of about 1.011% while a 1% decrease in income leads to a reduction in expense of about 0.905%. However, Weiss (2010) and Banker et al. (2013) found the cost to be anti sticky. The latter claims that expenses are anti sticky when the economy is weak. Based on the literature reviewed we propose our first primary hypothesis as; listed firms in Ghana exhibit sticky behavior of cost.

Real earnings management

Healy & Wahlen, (1999) define earnings management as "Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting practices." From this definition, it is clear that managers have ulterior motives the moment they indulge in earnings management. There are a lot of motivations for managers to indulge in earnings management. Examples are the debt covenant motivation, the bonus plan motivation, and also the political cost motivation. Also, Management can manipulate earnings through accruals, fraudulent accounting, or through real activities. This paper concentrates on real activities manipulations, also known as real earnings management. Roychowdhury, (2006) define real activities manipulation as "Management actions that deviate from normal business practices, undertaken with the primary objective of meeting certain earnings threshold." According to this definition, managers adopt strategies that go off course from the expected way of conducting business to achieve a specific target. He found evidence indicating that managers manipulate

earnings through real activities to escape reporting annual losses. He further found that managers offered price discounts to customers to temporarily boost sales. He also documented that management indulges in overproduction to announce lower COGS.

Furthermore, he found evidence indicating that firm managers decrease discretionary expenditures so that they can improve reported margins. Moreover, Gunny (2005) found evidence indicating some strategies managers use to manage earnings through real activities. She noted that managers reduce R&D expenditure to increase revenue. Managers also manipulate SG&A expenditure so that revenue could be improved. She also mentioned that managers sometimes time the recognition of loss or profit made on the disposal of assets and investment. Also, Bushee (1998) found evidence that managers decrease R&D expenditures so that they can achieve earnings benchmarks. Besides, Graham et al. (2005) conducted a study by surveying financial managers about factors that determine decisions on reported earnings and voluntary reporting. They found that 78% of the managers surveyed had a motive to sacrifice economic value to manipulate financial reporting perceptions. Recent researchers have detected that managers have switched from accrual-based earnings management to real earnings management since it is hard to detect. For instance, Cohen et al. (2008) documented that firm managers have switched from accrual manipulations to real activities manipulation during the post-Sarbanes-Oxley period. Various regulatory bodies are now aware of the effect of accrual earnings management and, therefore, have put in place robust measures to detect and sanction culprits. Due to this reason, managers now manipulate earnings via real activities, which are hard to detect. We, therefore, propose our second primary hypothesis as; listed firms in Ghana manage earnings through real activities.

Sticky cost and real earnings management

Hemati and Javid (2017) did a study on the effects of earnings management and corporate governance on expense stickiness. They sampled 112 firms from the period of 2010 to 2016, resulting in 672 firm years. They concluded that earnings management has a significant effect on expense stickiness. However, Xue and Hong (2015) found slightly similar evidence when they also conducted a study on earnings management, corporate governance, and sticky cost. They found evidence indicating the presence of sticky cost among the earnings management sub-sample but found a much more significant amount of sticky cost among the non-earnings management sub-sample.

Furthermore, they found that managers decrease general expenses to control expenses. They finally concluded that as earnings management increases, the sticky cost significantly reduces. Similar to Xue and Hong (2015), Kama and Weiss (2010) also investigated the sticky cost and found that companies that were found to have indulged in earnings management recorded a small amount of expense stickiness in their operating expenses. Also, Koo et al. (2015) investigated the effects of incentives for earnings management on the stickiness of SG&A expenses. They used US firms with financial data from the period of 1997 to 2007. They found that earnings management suspect companies mitigate cost stickiness when they encounter a reduction in sales. They claimed that it could be a result of managers aggressively manipulating expenses for earnings management. They concluded that firms that tested high for earnings management manipulations have weaker cost stickiness compared to others, but Chen et al. (2008) finds that firms with higher sticky cost also had stronger incentives for managers to manipulate. They found this when they conducted a study on the relationship between empire building and perk.

Few studies dispute the fact that firms' cost behavior alone can determine the manager's intentions towards cost management. For instance, Anderson and Lanen (2009) argue that firms' cost behavior alone is not enough evidence to distinguish between the mechanical and the managerial motivation of cost management when they conducted a literature review on the theories, the empirical works, and data employed in cost stickiness literature. They found problems relating to adjustment cost which had incomplete theories and how convincing

these theories match their empirical test. Moreover, Kama and Weiss (2012) did a study that explored the motivations underlying manager's resource adjustment. They found that when managers are faced with the temptations to avoid losses or to meet analyst's forecasts they speed up the process of downward change of slack resources for revenue reductions. This we believe could lead to earnings management and sticky behavior of cost. We, therefore, propose our third primary hypothesis as; firms that engage in real earnings management are more likely to exhibit sticky cost.

Methodology

Sample selection

The study employed a purposive sampling method. Fifteen firms listed on Ghana stock exchange were selected for the study. Data from the period of 2005 to 2014 were collected from the Ghana Stock Exchange website between April and June 2017. All the variables collected were the variables needed to calculate the sticky cost behavior of firms and also real earnings management. All financial and insurance firms were excluded from the study. The final sample contains 168 firm-year observations.

Measuring sticky cost

The researcher follows the model used by Anderson et al. (2003). This paper uses the same logarithm model to measure the degree of cost stickiness.

$$\log(SGA_{it} / SGA_{it-1}) = \beta_0 + \beta_1 \log(\text{Sales}_{it} / \text{Sales}_{it-1}) + \beta_2 \text{Dummy} \times \log(\text{Sales}_{it} / \text{Sales}_{it-1}) + \epsilon_{it} \quad (1)$$

Where SGA represents selling, general and administration expenses, sales are net sales. Dummy is a dummy variable where the value one is given if the current year sales decline and 0 if otherwise and ϵ represent the error term. The "i" and "t" indicates firm and year respectively. Firms would be found to have exhibited a sticky cost if β_2 is less than zero (0).

3.3 Measuring real earnings management

This paper follows the methods of previous studies such as Roychowdhury, (2006). He estimated the normal levels of real activities manipulation through production cost, discretionary expenses, and cash flow from operations. Studies such as Gunny (2010) and Cohen et al. (2008) provide evidence of how valid these proxies are. This paper uses the aggregate of the abnormal levels of these three metrics to measure the level of real earnings management. This paper also uses each abnormal level separately to measure the level of real earnings management. The paper, first of all, calculates the normal level of the three proxies using equations (2), (3), and (4) and then subtracts the normal level from the actual level of these proxies to get the abnormal levels.

To estimate the average level of cash flow from operations, equation (2) is used.

$$CFO_{it}/A_{it-1} = \beta_0 + \beta_1 1/A_{it-1} + \beta_2 \text{Sales}_{it}/A_{it-1} + \beta_3 \Delta \text{Sales}_{it}/A_{it-1} + \epsilon_{it} \quad (2)$$

Where CFO is cash flow from operations in the company i at time t, A is total assets in company i at time t, Sales is the company's revenue or turnover in the company i at time t and Δ Sales is a change in sales in company i at time t.

Equation (2) is used to estimate the average level of cash flow. It is used to detect real earnings manipulations through sales discounts and lenient credit terms. These two strategies will, in the long run, reduce cash flows in the current period.

To estimate the average level of discretionary expenses equation (3) is used.

$$\text{Disc.Exp}_{it}/A_{it-1} = \beta_0 + \beta_1 1/A_{it-1} + \beta_2 \text{Sales}_{it}/A_{it-1} + \epsilon_{it} \quad (3)$$

Where, Disc.Exp is the summation of administrative and selling expenses.

Equation (3) is used to detect real earnings manipulations through discretionary expenses. Firm managers who manipulate earnings through discretionary expenses reduce expenses such as SG&A, R&D, and Advertising expenses to boost current year's earnings but it also lowers future cash flow in the long run.

To estimate the average level of production, cost equation (4) is used.

$$\text{Prod}_{it}/A_{it-1} = \beta_0 + \beta_1 1/A_{it-1} + \beta_2 \text{Sales}_{it}/A_{it-1} + \beta_3 \Delta \text{Sales}_{it}/A_{it-1} + \beta_4 \Delta \text{Sales}_{t-1}/A_{it-1} + \epsilon_{it} \quad (4)$$

Where Prod is the summation of COGS and change in inventory

Equation (4) is used to detect real earnings management through the cost of production. Firms to increase earnings increase production cost, but the firm will still spend on other production expenses, which will lead to an increase in annual production cost. This increment in production cost will lower cash inflows given the sales level.

Also, the paper follows Cohen et al., (2008), to find the total effect of real earnings management, the paper combines the standardized residuals of the three real earnings management measures. This research reports the results of total REM and also the three individual measures for earnings management.

$$\text{REM} = \text{AB_CFO} + \text{AB_Disc.Exp} + \text{AB_Prod} + \epsilon \quad (5)$$

Where:

REM is the summation of three standardized proxies for real earnings management.

Ab_CFO is abnormal cash flow from operations

Ab_Disc.Exp is abnormal discretionary expenses

Ab_Prod is abnormal production cost

To test for the third primary hypothesis, two different OLS models combined with control variables are formulated.

$$\text{Sticky_Cost} = \beta_0 + \beta_1 \text{REM} + \beta_2 \text{SIZE} + \beta_3 \text{ROA} + \beta_4 \text{ROE} + \epsilon \quad (6)$$

$$\text{Sticky_Cost} = \beta_0 + \beta_1 \text{Ab_CFO} + \beta_2 \text{Ab_Disc.Exp} + \beta_3 \text{Ab_Prod} + \beta_4 \text{SIZE} + \beta_5 \text{ROA} + \beta_6 \text{ROE} + \epsilon \dots \quad (7)$$

Results and Discussion

Table 1 OLS estimator for cost stickiness

Model	Coefficients	Std. Error	T
Intercept	-12.968**	6.269	-2.069
log(Sales _{it} /Sales _{it-1})	60.517***	6.300	9.606
Dummy × log(Sales _{it} / Sales _{it-1})	-65.979***	10.744	-6.141

***, **, * represent significance level at 1%, 5% and 10% respectively.

Dependent Variable: Log (SGA_{it} / SGA_{it-1}), R Squared: 0.386 Adjusted R²: 0.376

Where Sticky_Cost is sticky cost, size is the natural log of total assets, ROA is net income divided by lagged total assets, and ROE is net income divided by equity. This paper uses ROA, Size, and ROE as control variables

for firms' specific characteristics and also because real earnings management affects earnings in the case of ROA and ROE in comparison to accrual earnings management.

The first primary hypothesis predicts that listed firms in Ghana exhibit sticky cost, and for this hypothesis not to be rejected, β_2 has to be less than zero (0) or negative. From table 2.0, it is clear that β_2 is negative (-65.979) and statistically significant, thereby implying that listed firms exhibit sticky cost (SG&A). Also, β_1 records a positive figure of 60.517 which is significant; this implies that a 0.01 increase in sales leads to 60.517 increases in SG&A cost. The summation of β_1 and β_2 is -5.462 which implies a 0.01 decrease in sales leads to 5.462 decreases in SG&A cost. This means firms listed on the Ghana Stock Exchange exhibit sticky SG&A and therefore the study decline to reject the first primary hypothesis. This is in line with the findings of He et al. (2010), who also find the SG&A of Japanese firms to be sticky. This finding also supports the findings of Anderson et al. (2003), who find US firms to have sticky SG&A. R squared from the table suggests that the linear combination of $\log(\text{Sales}_{it} / \text{Sales}_{it-1})$ and $\text{Dummy} \times \log(\text{Sales}_{it} / \text{Sales}_{it-1})$ explains 38.6% of the variance in $\log(\text{SGA}_{it} / \text{SGA}_{it-1})$. The R^2 at least indicates a moderate explanatory power for the model.

Table 2 Descriptive Statistics for major variables

Variable	N	Mean	Median	Std.dev.
REM	139	0.1856	0.3595	2.65355
Abn_Prod.	139	-0.0069	-0.0579	1.84733
Abn_Disc.Exp	154	0.0204	0.1454	1.81782
Abn_CFO	139	0.1469	0.2162	0.59293
Sticky_Cost	154	8.5506	1.1675	86.42443
ROE	168	0.8080	0.3928	2.86017
ROA	168	0.1499	0.0406	1.04750
Size	168	17.2582	17.2067	2.48823
Sales	168	4.0269E9	3.5118E7	4.88178E10
SG&A	168	8.8565E8	5.1366E6	1.10581E10

Table 2 displays the descriptive statistics of the main variables. The variable REM recorded a mean of 0.1856 (median, 0.3595). The data is skewed to the left from the indication of REM's mean and median. Abn_Prod recorded mean of -0.0069 (median, -0.0579), with Abn_Disc.Exp recording a mean of 0.0204 (median, 0.1454) and Abn_CFO also recording a mean of 0.1469 (median, 0.2162). Abn_CFO records the highest mean among the three real earnings management measures. From the table, sticky_Cost records the second largest mean of 8.5506 (median, 1.1675). This also implies the data is right-skewed. ROE records a mean of 0.8080 (median, 0.3928) while ROA records a mean of 0.1499 (median, 0.0406). In comparison, ROE recorded a higher mean. The variable Size recorded the most significant mean among all the variables; it had a mean of 17.2582 (median, 17.2067). The size data appeared to be symmetric due to the closeness of its mean and median. Finally, Sales and SG&A respectively records a mean and a median of 4.0269E9 (3.5118E7) and 8.8565E8 (5.1366E6).

Table 2 displays the results that validate the second primary hypothesis. The hypothesis states that listed firms in Ghana manipulate earnings through real activities. Using the mean residuals from the table, Ab_CFO is positive and different from zero, indicating the presence of cash flow management activity. In comparison, Ab_CFO holds the highest mean residual among the three real earnings management measures. This suggests that listed firms on the Ghana Stock Exchange indulge in real activity manipulation through cash flow from operations more than through the cost of production and discretionary expenses. Ab_Disc.Exp records a positive mean residual, which is not the same as zero. This indicates the presence of real earnings management in the discretionary expenses. The summary seems to suggest that discretionary expenses are the second most used route for real earnings management among listed firms in Ghana. Also from table Ab_Prod records a

negative mean residual which suggests the presence of real earnings manipulations through the cost of production. These three individual measures of real earnings management all suggest that listed firms in Ghana manipulate earnings through real activities, and therefore the findings support the second primary hypothesis and also in line with the results of Roychowdhury (2006). Also, following Cohen et al. (2008), this paper combines abnormal levels of the three real earnings management measures to determine the full level. Table 2 reports the mean residual for REM, which is the summation of all the abnormal levels. REM records a positive mean residual which is also different from zero indicating the presence of real earnings management among listed firms in Ghana. We, therefore, do not reject the second primary hypothesis.

Table 3, as shown in the appendix, gives the estimation results for the three real earnings management measures. Table 3 Panel A relates to real earnings management through cash flow activities. The variable reciprocal of assets ($1/A$) records a negative coefficient and also not significant. $Sales/A$ and $\Delta Sales/A$ are both significant at a 1% significance level and also records positive coefficients. Panel B presents the Disc.Exp model results. The reciprocal of assets ($1/A$) is negative and significant at the 10% significance level. The variable $Sales/A$ is positive and also significant at a 1% significance level. Panel C presents the estimation results for the normal level of production cost ($Prod/A$). The reciprocal of assets records a positive coefficient, but the variable is not significant. Variable $Sales/A$ is positive and also significant. $\Delta Sales/A$ has a negative impact on $Prod/A$ and also significant. The final variable in the model is $\Delta Sales_{t-1}/A$, it records a positive coefficient, but the variable is not significant.

Table 4. Panel A; OLS estimator for the relationship between real earnings management and sticky cost.

Model	Coefficients	Std. Error	T
Intercept	0.060	0.562	0.107
REM	0.082***	0.028	2.868
SIZE	0.005	0.032	0.157
ROA	0.144	0.298	0.482
ROE	-0.121	0.109	-1.105

***, **, * represent significance level at 1%, 5% and 10% respectively.

Dependent Variable: Sticky_Cost R squared: 0.66 Adjusted R²: 0.038

To validate the third primary hypothesis, equation (6) and (7) are used. Table 4 panel A contains the regression results for equation (6).

From Panel A of Table 4, the variable REM reports a positive coefficient, and also, the variable is statistically significant at a 1% significance level. The coefficient of the variable implies a 0.01 increase in REM leads to a 0.082 increase in sticky cost. This result supports the findings of Hemati and Javid (2017), who also find a significant effect of REM on sticky cost but in contrast to the findings of Xue & Hong (2015), who claims that as earnings management increases sticky cost reduces. The variables Size and ROA records positive coefficients but are not statistically significant. ROE has a negative impact on sticky costs. However, it is also not statistically significant. The results seem to suggest that REM, which is the summation of the three real earnings management measures, has a positive impact on sticky cost, and therefore real earnings management exhibits cost stickiness. The 6.6% of the variability in sticky cost behavior is explained by REM, ROA, ROE, and Size but REM was the only statistically significant variable. Thus, REM plays a significant role in firms' cost behavior being sticky. This is buttressed by the regression of REM on Sticky Cost behavior in table 5 (as shown in the appendix), which showed that 5.6% of the variability in sticky cost is explained by REM alone. We, therefore, cannot ignore REM as a determinant of sticky cost. The findings, therefore, support the third primary hypothesis.

Table 4. Panel B; OLS estimator for the relationship between the three individual real earnings management proxies and sticky cost.

Model	Coefficients	Std. Error	T
Intercept	0.859	1.604	0.536
Ab_CFO	-0.704*	0.401	-1.754
Ab_Disc.Exp	0.265**	0.132	2.003
Ab_Prod	0.358***	0.124	2.897
Size	0.048	0.091	0.524
ROA	0.672	0.835	0.804
ROE	-0.128	0.306	-0.420

***, **, * represent significance level at 1%, 5% and 10% respectively.

Dependent Variable: Sticky Cost R Squared: 0.126 Adjusted R²: 0.114

Table 4, Panel B reports the regression results of equation (7) which also tries to validate the third primary hypothesis. From the table, Ab_CFO is significant at a 10% significant level. The variable has a negative impact on sticky cost, implying that a 0.01 increase in Ab_CFO reduces sticky cost by 0.704. The result seems to suggest that the more a firm indulges in real earnings management through cash flow from operations, the less sticky their SG&A cost becomes. The finding is in line with the finding of studies such as (Xue & Hong, 2015; Koo et al., 2015). This result does not support the hypothesis, so we reject it. Ab_Disc.Exp is significant at a 5% significance level. The variable is positive, indicating a positive impact on sticky cost. The coefficient implies that a 0.01 increase in Ab_Disc.Exp also increases the sticky cost by 0.265. This explains that firms that manipulate earnings through discretionary expenses are more likely to exhibit sticky SG&A. These findings support the third primary hypothesis. The finding is also in line with the finding of (Hemati & Javid, 2017). The table also portrays Ab_Prod to be positive and statistically significant at a 1% significance level. The coefficient of the variable indicates that a 0.01 increase in Ab_Prod; there is a 0.358 increase in sticky SG&A. This also explains that firms that manipulate earnings through cost of production are more likely to exhibit sticky SG&A. This result also supports H3. The finding supports the finding of Hemati & Javid., (2017).

The study revealed that in establishing a relationship between REM and sticky cost behavior, regressing individual measure of REM on sticky cost gives a much-desired result than computing them as one variable, as shown in Table 4, Panel A and Table 4, Panel B respectively. Thus, 12.6% variability in sticky cost is explained by measures Ab_CFO, Ab_Disc.Exp, Ab_Prod, Size, ROA, and ROE of REM as compared to the 6.6% when all measures are computed as one REM variable.

Conclusion

The study examines the relationship between real earnings management and the sticky behavior of SG&A cost of listed firms in Ghana. Both real earnings management and sticky behavior of cost arising due to the deliberate managerial intentions. Based on prior studies, we assume that real earnings management drives cost to behave asymmetrically.

The findings of this study, first of all, validate the hypothesis that listed firms in Ghana exhibit sticky SG&A costs. Secondly, the findings answer the research question that listed firms in Ghana manipulate earnings through real activities. Thirdly, the findings answer the research question that firms that engaged in real earnings management exhibited sticky SG&A costs.

The findings support the hypothesis that listed firms in Ghana exhibit sticky SG&A costs. The results show that for every 0.01 increase in sales, there are 60.517 increases in SG&A; however, when sales decrease by 0.01, SG&A decreases by 5.462 indicating sticky SG&A. In line with prior studies, this paper also found cost to be sticky. Also, the findings support the hypothesis that listed firms in Ghana manipulate earnings through real

activities. Finally, the findings support the hypothesis that firms that engaged in real earnings management exhibited sticky SG&A costs. The results show that real earnings management had a positive effect on sticky SG&A costs. However, when the three individual real earnings management measures (Abnormal cash flow, abnormal production cost, and abnormal discretionary expenses) were regressed on sticky SG&A cost, abnormal cash flow recorded a negative effect on sticky SG&A cost. Indicating that real earnings management through cash flow does not exhibit sticky SG&A cost. Nonetheless, real earnings management through production cost and discretionary expenses recorded positive effects on sticky SG&A costs.

This study contributes to the literature by examining real earnings management and sticky cost from a developing economy. The study also contributes to other studies by examining the relationship between each of the three real earnings management measures and sticky cost and also examines the total effect of the three real earnings management measures on sticky cost. Since real earnings management affects earnings, the study proposes that investors should adopt empirical methods in investigating firms' cost behavior and the presence or the absence of real earnings management before making final decisions. For future studies, the researcher suggests a bigger sample test of these theories to get a much clearer picture. Also, in the Ghanaian context, total cost should be tested for stickiness.

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Appendix

Table 3.

Panel A; Estimation of normal level of cash flow from operations

Model	Coefficients	Std. Error	T
Intercept	-0.223	0.145	-1.542
$1/A_{it-1}$	-0.002	0.004	-0.441
$Sales_{it}/A_{it-1}$	0.095***	0.011	8.265
$\Delta Sales_{it}/A_{it-1}$	0.239***	0.011	20.838

***, **, * represent significance level at 1%, 5% and 10% respectively.

Dependent Variable: CFO_{it}/A_{it-1}

Panel B; Estimation of normal level of Discretionary expenses

Model	Coefficients	Std. Error	T
Intercept	-0.133	0.173	-0.768
$1/A_{it-1}$	-0.008*	0.004	-1.818
$Sales_{it}/A_{it-1}$	0.226***	0.000	553.715

***, **, * represent significance level at 1%, 5% and 10% respectively.

Dependent Variable: $Disc.Exp_{it}/A_{it-1}$

Panel C; Estimation of normal level of production cost

Model	Coefficients	Std. Error	T
Intercept	-0.053	0.194	-0.272
$1/A_{it-1}$	0.001	0.006	0.103
$Sales_{it}/A_{it-1}$	0.848***	0.026	32.086
$\Delta Sales_{it}/A_{it-1}$	-0.234**	0.108	-2.171
$\Delta Sales_{t-1}/A_{it-1}$	0.065	0.093	0.696

***, **, * represent significance level at 1%, 5% and 10% respectively.

Dependent Variable: $Prod_{it}/A_{it-1}$

Table 5; OLS estimator for the relationship between real earnings management and sticky cost.

Model	Coefficients	Std. Error	T
Intercept	0.086	0.074	1.152
REM	0.080***	0.028	2.857

***, **, * represent significance level at 1%, 5% and 10% respectively.

Dependent Variable: Sticky Cost R^2 : 0.056 Adjusted R^2 : 0.049