

**THE IMPACT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY
OF GLOBAL HAULAGE COMPANY, GHANA**

ABSTRACT

The study examines the impact of working capital management on profitability of firms in Ghana. The service sector accounts for about 51% of national output and this show how vital the service sector has become in terms of job creation and gross domestic product growth in the Ghanaian economy. This study therefore employed the autoregressive distributed lag (ARDL) technique to examine the relationship between working capital management and profitability of firms in Ghana using Global Haulage Company Ltd as a case study with a period range of 1995 to 2013. The regression results showed that debt ratio, firm size and current assets to total assets ratio are negatively related to firm profitability whilst current liabilities to total assets ratio is positively related to firm profitability. The study therefore recommends that, management should use less of debt in financing their activities to be able to increase profit since high debt ratio adversely impact on profitability. Also, aggressive working capital policies should be pursued if management's goal is to increase profit. In addition, policy makers should check and work on the managerial inefficiencies which are making the firm experience diseconomies of scale.

Keywords: Working capital, Profitability, Working capital management, Firm, Global Haulage Company Ltd, Ghana

24 **1. INTRODUCTION**

25 Traditionally, there are four financing decisions which every financial manager makes in the
26 day-to-day running of the firm. They include investment decisions (long-term asset mix);
27 financing decisions (capital-mix); dividend decisions (profit allocation) and the liquidity
28 decisions (short-term asset-mix). The economy of Ghana until 2006 was dominated by
29 agriculture, but is now led by service accounting for about 51% of national output (Ghana
30 Millennium Development Goals Report, 2010). This shows how very vital the service sector
31 has become in terms of job creation and gross domestic product growth in the Ghanaian
32 economy. With the enormous benefits that the economy gain from the service sector, except
33 few which are based on the financial sector, specific studies on working capital management
34 and profitability focusing on service companies in Ghana are largely unavailable. Generally,
35 although several studies have examined the nature of the relationship between working
36 capital management and profitability of firms (Deloof, 2003; Padachi, 2006; Raheman and
37 Nasr, 2007; Raheman et al., 2010; Akoto et al., 2013), there is no consensus on the nature of
38 this relationship. Some literature suggests that cash conversion cycle (a proxy for working
39 capital management) is positively related to firm profitability (Falope and Ajilore, 2009;
40 Gill et al, 2010; Akoto et al., 2014), implying that longer cash conversion cycles increase the
41 firm's profitability. On the other hand, other studies however, suggests that shorter cash
42 conversion cycles increase the firm's profitability (Deloof, 2003; Wang, 2002; Lazaridis
43 and Tryfonidis, 2006). Thus a study such as this, contributes significantly and adds value to
44 the existing literature on working capital management and firm profitability nexus.

45 Working capital starvation is generally credited as a major cause if not the major cause of
46 small and medium scale business failure in many developed and developing countries
47 (Rafuse, 1996). The success of a firm depends ultimately, on its ability to generate cash
48 receipts in excess of disbursements. The cash flow problems of many small businesses are

49 exacerbated by poor financial management and in particular the lack of planning cash
50 requirements (Jarvis et al., 1996). It has therefore become imperative that managers
51 understand how working capital management relate to the profitability of their business.
52 Most especially, the economy of Ghana recently has been going through macroeconomic
53 challenges where GDP growth rate is falling, high interest rate making it impossible for
54 companies to borrow and expand its operations. An economy with deteriorating currency
55 which makes it difficult for companies to do foreign trade. Inflation and unemployment
56 cannot be left out because of its effects on companies with this everlasting "dumsor" (load
57 shedding). In the light of the above, it is very crucial that critical attention is given to the
58 performance of working capital management on profitability of firms in Ghana. Based on this
59 background, this paper aims to examine the relationship between working capital
60 management and profitability of firms in Ghana using Global Haulage Company Ltd as a
61 case study.

62 Global Haulage Company Limited is one of the most successful private transport entities in
63 Ghana. The success of this Company has been accomplished by virtue of the principles and
64 beliefs fused into it. The Company operates throughout the length and breadth of Ghana and
65 to other destinations in the West African Sub – Region. It evacuates 17% of the total national
66 output of about 650,000 tonnes of cocoa from producing areas in the hinterland to in- land
67 Take – Over Points and the two sea ports of Tema and Takoradi. It also transports
68 commodities like lime from Takoradi to mining companies in West Africa and also steel
69 products, fertilizer, chemicals, consumables etc. from the two sea ports to destinations within
70 the country and the Sub – region.

71 **2. LITERATURE REVIEW**

72 Adu (2013) claims that the concept of working capital was first advanced by Carl Marx
73 (1867) even though Marx did not explicitly mention working capital in his work. She claims
74 that, workers gave credit to the firm by accepting periodical payment of wages which funded
75 a portion of work-in-process. Thus, the concept of working capital as it is understood today,

76 is embedded in Marx's 'variable capital' which was used to mean expenditure for payrolls
77 advanced to workers before they complete the goods they are working on.

78 Working capital refers to short-term resources available to a company for financing its day-
79 to-day activities (Korankye and Adarquah, 2013). Yeboah and Yeboah (2014) defined
80 working capital as the investment required for running daily business activities. In the same
81 vein, Addae and Nyarko-Baasi (2013) said working capital meets the short-term financial
82 requirements of a business enterprise and thus referred to working capital as a trading capital,
83 not retained in the business in a particular form for longer than a year. They further claimed
84 that the money invested changes form and substance during the normal course of business
85 operations.

86
87 Performance of firms is judged based on whether its profitability is high or low. Profitability
88 can be measured on gross profit margin, operating profit margin, net profit margin, return on
89 asset and/or return on equity (Nurazleena, Norazida and Wan Nazihah, 2015). The term
90 profitability as defined by Adagye (2015) is the ability of the business organization to
91 maintain its profit year after year. Athanasoglou, Brissimis and Delis (2005) also defined
92 profitability as the ability of the firm to generate more revenue than cost, in relation to the
93 firm's capital base. Profitability is therefore importance because it is the main purpose of
94 business (Adagye, 2015).

95 Rao and Lakew (2012) asserted that ratios instead of the real value of profits are used in
96 measuring firm profitability. This implies that ratios are not influenced by variations in the
97 general price level and are the most frequently used in measuring bank profitability in the
98 banking literature. The return on asset (ROA) and the return on equity (ROE) are ratios
99 extensively used to measure profitability of firms (Rao and Lakew, 2012).

100 The return on equity (ROE), computed as the net profit after tax divided by total equities
 101 measures the income earned on each unit of shareholders' capital. This measure has a
 102 shortfall of generating higher ratio for banks with high financial leverage which is normally
 103 associated with higher risk. This is true because with any level of profit after tax, as banks
 104 become highly leveraged or equity falls, the ROE is bound to increase due to the lower
 105 denominator (equity).

106 Return on Assets (ROA) which is computed as the firms' after tax profit over total assets
 107 (Flemini et al., 2009) indicates how effectively a firm manages its assets to generate income
 108 (Davydenko, 2010). ROA according to Flemini et al. (2009) may be biased due to off-
 109 balance-sheet activities where ROA is overstated in the evaluation of firm profitability, but
 110 believe such activities are negligible. Nonetheless, it has always been a very good and
 111 preferred measure of profitability.

112 Although profitability does not necessarily mean liquidity, profitability ensures firm survival,
 113 growth and debatably, firm's liquidity levels (Agyei and Yeboah, 2011). Profitability is
 114 influenced by either internal factors or external factors. The internal factors refers to those
 115 factors that the firm can control some of which include capital structure, size, growth, age,
 116 management efficiency, reputation among others whilst the external factors are those beyond
 117 the control of the firm such as economic conditions (interest rate, Exchange rate risk,
 118 inflation, etc).

119 **Table 1: Linear Relationship between Working Capital Accounts, Working Capital**
 120 **Policies and Profitability.**

| | Profitability | Risk | Accounts Payable | Inventories | Accounts Receivable | WCM Investment/Length |
|---------------------|-----------------|--------|------------------|---------------|---------------------|--------------------------|
| | Linear Relation | | | | | |
| Conservative Policy | Lower | Lower | Shorten | Higher levels | Extended | Higher Investment/Longer |
| Aggressive | Higher | Higher | Extended | Lower | Shorten | Lower |

| | | | | | | |
|--------|--|--|--|--------|--|--------------------|
| Policy | | | | levels | | Investment/Shorter |
|--------|--|--|--|--------|--|--------------------|

121 Source: Gomes (2013)

122 The choice of working capital policy affects the profitability of firms. The conservative
123 working capital policy as described by Gomes (2013), Ajibolade and Sankay (2013) and
124 Agyei and Yeboah (2011) implies a higher investment in working capital accounts. For
125 instance, higher levels of inventories, larger quantity of current assets in relation to total
126 assets extending more trade credit to customers and reducing supplier's financing result in a
127 lower profitability and lower risk. However, empirical studies show that conservative
128 working capital policy positively affect profitability due to higher levels of inventories that
129 prevents interruptions in operating cycle process; higher sales (Petersen and Rajan, 1997
130 cited in Gomes, 2013) and a reduction of supply costs that reduce both the risk of price
131 fluctuation among business cycles and the risk of losing customers as a result of product
132 scarcity (Gomes, 2013). When more trade credit is extended to customers, conservative
133 working capital policies may increase profitability because extend trade credit ensures that
134 the contracted services have been carried out, making way for customers to check if
135 purchased products and services agreed in quality and quantity terms prior to payment,
136 leading to repeated sales (Gomes, 2013). It also reduces asymmetric information between
137 buyer and seller (Smith, 1987 in Gomes, 2013), thereby strengthening the long-term supplier-
138 customer relationships, increasing sales in periods of low demand and reduces transaction
139 costs (Gomes, 2013). The reduction on supplier's financing allows customers to capitalise on
140 prompt payment discounts due to early payments and reduction of the costs of external
141 financing (Gomes, 2013).

142 Conversely, to follow the aggressive working capital policy will imply lower investments in
143 working capital accounts through lower levels of investment in inventories, shortening trade
144 credit to customers and postponing payments to suppliers and that results in an increase in
145 profitability and risk for firms (Ajibolade and Sankay, 2013; Agyei and Yeboah, 2011;

146 Gomes, 2013). According to Ajibolade and Sankay (2013), there is a moderate working
147 capital policy where the firm's risks are moderated; however, the firms would be unable to
148 pay-off matured obligations.

149

150 The empirical literature gives conflicting results on the relationship between the components
151 of working capital management and profitability. While some studies found a positive
152 relationship between components of working capital management and firm profitability,
153 others studies showed a negative relationship. Also, some studies show no relationship and
154 then again, whilst some of the components are negatively related, others are positively
155 related.

156

157 Deloof (2003) examined the influence of working capital management on profitability of
158 firms listed on a European Stock market and reported a negative relationship and thus
159 supporting the view that shorter cash conversion cycles increase firm profitability. Other
160 studies found similar results and so supports the theoretical literature (Mohamad and Noriza,
161 2010; Raheman and Nasr, 2007; Shin and Soenen, 1998).

162

163 Addae and Nyarko-Baasi (2013) used a method of panel data estimation to show the
164 relationship between working capital management and profitability in an emerging market.
165 The results indicated that, there was a negative relationship between accounts receivables,
166 number of day's accounts payable, Days of inventory turnover and firm's profitability.

167

168 The impact of working capital management on profitability of 386 Small and Medium Sized
169 Export Companies in Tunisia observed from 2001 to 2008 was studied by Bellouma (2011)
170 using panel data regression models. A negative relationship between gross operating

171 profitability and the days of sales outstanding, the days of inventory outstanding, the days of
172 payable outstanding and the cash conversion cycle was found.

173

174 Again, Korankye and Adarquah (2013) empirically analysed working capital management
175 and its impact on profitability of listed manufacturing firms in Ghana using Panel data
176 obtained from the financial statements of listed manufacturing firms in Ghana for eight (8)
177 years from 2004 to 2011 inclusive. The findings revealed that working capital cycle is
178 statistically significant but negatively associated with firm profitability. The study also found
179 that inventory turnover period, account receivables collection period and account payables
180 payment period each negatively correlates with profitability.

181

182 However several studies reported a positive relationship between working capital
183 management components and profitability. For example in Vietnam, Dong and Su (2010)
184 found a positive and significant relationship between payables deferral period and firm
185 profitability. Such findings were also supported by Mathuva (2010) in Kenya, Falope and
186 Ajilore (2009) in Nigeria, Gill et al (2010) and Akoto et al. (2013) in Ghana. Adagye (2015)
187 undertook a study to ascertain the relationship between working capital management and the
188 profitability of DMBs in Nigeria by applying the ordinary least square regression. The results
189 indicated a positive relationship between Returns on Equity (ROE), Returns on Assets (ROA)
190 which represented profitability and the elements of working capital management.

191

192 Applying multiple regression technique, Onwumere, Ibeand Ugbam (2012) in studying the
193 impact of working capital management on profitability of Nigerian firms revealed that,
194 aggressive investment working capital policies (TCA/TA) of Nigerian firms have a positive
195 significant impact on profitability measured by return on assets (ROA) whilst aggressive

196 financing working capital policies (TCL/TA) of Nigerian firms have a positive non-
197 significant impact on profitability of Nigerian firms.

198

199 Nevertheless, some studies have found that firm profitability is independent of working
200 capital management. Zawaira and Mutenheri (2014) studied the relationship between
201 profitability and components of working capital management using a panel data regression
202 model employing a sample of 32 non-financial firms listed on the Zimbabwe Stock Exchange.
203 The regression results show that profitability is not associated with receivables collection
204 period, inventory conversion period, cash conversion cycle, quick ratio, current asset to
205 total asset ratio, current liabilities to total asset ratio, debt ratio and age of company.

206

207 However, the relationship between payables deferral period and profitability is negative and
208 significant, although it is very small. Other studies that found similar results include Sharma
209 and Kumar (2011) and Ganesan (2007), Padachi (2006) in Mauritius. Also, Ajibolade and
210 Sankay (2013) in their study, Working Capital Management and Financing Decision:
211 Synergetic Effect on Corporate Profitability did not find any significant relationship between
212 the firm's working capital composition and profitability.

213

214 Yeboah and Yeboah (2014) studying the Effect of Working Capital Management of Ghana
215 Banks on Profitability using for Ordinary Least Square and Panel estimation approach. The
216 two methods produced the same relationship between WCM and profitability. The OLS uses
217 the components of the Cash Conversion Cycle (CCC) (Creditors Payment Period (CPP) and
218 Debt Collection Period (DCP)) and the results showed a negative relationship with
219 profitability whilst the results show that Total Debt to Total Assets (TDA) which measures
220 leverage of the firm has a positive relationship with bank profitability in Ghana. Agyei and

221 Yeboah (2011) in their attempt to examine whether the relationship between working capital
222 management practices and profitability of Banks engaged all commercial banks from Ghana,
223 over a ten-year period (1999-2008). The study applied a panel data methodology within the
224 framework of the random effects model and the results showed that while cash operating
225 cycle has a significantly positive relationship with bank profitability, just like debtors'
226 collection period, creditors' payment period exhibits a significantly opposite relationship
227 with profitability.

228

229 Makori and Jagongo (2013) also found the existence of negative correlation between Return
230 on Assets and the firms average collection period and cash conversion cycle but a positive
231 correlation between Return on Inventory Holding Period, Accounts Payment Period when
232 they studied the relationship between working capital management and firm profitability of
233 manufacturing and construction firms listed on Nairobi securities exchange in Kenya.

234

235 Furthermore, Agyemang and Asiedu (2013) studied the relationship between working capital
236 management and profitability of listed manufacturing companies in the Accra Metropolis
237 using panel data regression analysis of cross-sectional and time series data. The components
238 of working capital management used in the study included accounts payable days, inventory
239 days and cash conversion cycle. The results revealed that, there is negative relationship
240 between inventory days, accounts payable day and net operating profit. Cash Conversion
241 Cycle on the other hand is positively related but no statistical significance on profitability.

242 With these mix results even though some of the studies depended on the same estimation
243 technique but of course at different firms and different sample size, it is therefore not
244 surprising that Fahim et al. (2015) took it upon themselves to provide a new model for
245 assessing working capital management using the Tehran stock exchange market. The results

246 of their research indicated a lack of an inverse U-shape relationship between CCC and
 247 NWC/TA (as the proxy for working capital) and ROA in the Iranian companies, whereas the
 248 relationship of current ratio (CR) and quick ratio (QR) with ROA has a significant inverse U-
 249 shape one. They argued base on their research findings that, the level of current and quick
 250 ratios which were earlier used to serve investors and financial institutions as a base for
 251 evaluation of WCM relative merits cannot be recommended to all managers as a reliable
 252 measure to rank their companies in terms of liquidity and short-term solvency. Thus, they
 253 refute a universal applicability of the desired ratios to all types of companies and this
 254 argument can be made for other components of WCM. This goes to support firm-specific
 255 study of components of WCM and profit relationships.

256

257 **3. METHODOLOGY**

258 **3.1 Model Specification**

259 Following Yeboah and Yeboah (2014), Agyemang and Asiedu (2013) and Addae and
 260 Nyarko-Baasi (2013), the model offered below was applied for the analysis in the study;

261 In this study, the independent variables is conceptualized as; ratio of current assets to total
 262 assets, ratio of current liabilities to total assets and since other variables affect profitability
 263 apart from the components of working capital management, debt ratio and size of Global
 264 Haulage company limited is included as control variables.

265 $ROA_t = f(CATA_t, CLTA_t, DR_t, SIZE_t) \dots \dots \dots 1$

266 To interpret the results as elasticities, the operational form of Equations 3.1 is transformed
 267 into log linear form as;

268 $\ln ROA_t = \beta_0 + \beta_1 \ln CATA_t + \beta_2 \ln CLTA_t + \beta_3 \ln DR_t + \beta_4 \ln SIZE_t + v_t \dots \dots \dots 2$

269 Where,

270 $\ln\text{CATA}_t = \log$ of current assets to total assets in time t ,

271 $\ln\text{CLTA}_t = \log$ of current liabilities to total assets in time t ,

272 $\ln\text{DR}_t = \log$ of debt ratio in time t ,

273 $\text{SIZE}_t =$ Size of Global Haulage company limited in time t ,

274 $v =$ error term

275 $\beta_i =$ parameter $I = 0, 1, 2, 3, 4$

276 The ratio of current assets to total assets is included in the model since high current assets to
277 total assets ratio implies more liquid the firm and more conservative in working capital
278 investment reducing profitability. It is therefore expected to be negative.

279 Higher current liability to total asset ratio imply lower investments in working capital
280 accounts through lower levels of investment in inventories, shortening trade credit to
281 customers and postponing payments to suppliers and that results in an increase in profitability
282 and risk for firms. This gives a positive relationship between current liability to total asset
283 ratio and profitability.

284

285 A large firm size is expected to be more profitable because of economies of scale and better
286 bargaining power. Firms that are well managed and guard themselves against diseconomies
287 of scale are expected to outperform small firms and so the relationship between size of
288 Global Haulage company limited is expected to be positive.

289 Also, when debt ratio is low, it implies the company is financially sound and is able to rely
290 on its internal funds. Such companies can therefore increase their profitability; hence the

291 coefficient of debt ratio is expected to be negative. In other words, $\beta_1 < 0$, $\beta_2 > 0$, $\beta_3 < 0$ and
292 $\beta_4 > 0$.

293 To estimate equation 2, instead of cross-sectional data or panel data, the study employs time
294 series techniques for the reason that advances in time series theories have rendered time
295 series estimates more advantageous over the use of cross section estimates (Jansen and Bruce,
296 1992). According to Bandiera and Natraj (2013), cross-country regressions cannot provide
297 causal evidence because cross-country differences in respective variables may be as a result
298 of cross-country variation in growth of an economy or development level. This is because,
299 the means of development is linked to changes in relative prices (Munshi and Rosenzweig,
300 2006) and also to technological advancement which influences firms operations and hence
301 profitability could be a consequent of the process of development. Fernandez (2010) also
302 argues that legal rights concerning wages among others could lead to biasness due to country
303 differences and development levels. Consequently, the study followed the “footsteps” of
304 Srinivasan and Bhagwati (1999) by employing more in-depth firm-specific times series
305 analysis.

306 **3.2 Data Type and Source**

307 This study employed mainly secondary sources of data for its analysis over the period 1995
308 to 2013 (19 observations). All the variables are annual data extracted from the annual reports,
309 financial statement and accounts of various years of the Global Haulage Company Limited.
310 Those items that are observed to be showing signs contrary to reasonable expectations from
311 the balance sheet and profit and loss accounts were removed.

312

313 **3.3 Definition of Variables**

314 ***Profitability (Return on Assets [ROA])***

315 To analyse the impact of components of working capital on profitability of Global Haulage
 316 Company Limited, Return on Assets (ROA) is used as a proxy for profitability. Profitability
 317 can be represented by ROA, return on equity, net operating profit, gross operating profit
 318 margin among others. The ROA was chosen as the dependent variable in this study because it
 319 relates the profitability of the firm to its asset base hence it is seen as a better measure
 320 (Baveld, 2012; Makori and Jagongo, 2013)

321 It was measured as;

322
$$ROA = \frac{Net\ Profit\ after\ Tax}{Total\ Assets} \dots\dots\dots 3$$

323 ***Current Asset to Total Asset (CATA)***

324 The ratio of current asset to total assets measures a firm's degree of conservativeness in
 325 working capital investment policy such that a low figure imply that, the firm is conservative
 326 in working capital.

327 It is computed as;

328
$$CATA = \frac{Current\ Assets}{Total\ Assets} \dots\dots\dots 4$$

329 ***Current Liabilities to Total Asset (CLTA)***

330 The current liabilities to total assets ratio measures working capital financing policy of the
 331 firm. Firms are regarded as more aggressive in their management of current liabilities when
 332 they depend more on the use of current liabilities in which case the firm's liquidity is at risk.

333 It is represented as;

334
$$CLTA = \frac{Current\ Liabilities}{Total\ Assets} \dots\dots\dots 5$$

335 **Size of the Firm**

336 Size of a firm can either be calculated as the natural log of sales or the natural log of total
337 assets. Both exist in working capital literature (Sharma and Kumar, 2011; Karaduman et al.,
338 2011). However, the study utilise the natural log of total assets as the measure for size of
339 firm. It is computed as;

340 $SIZE = \ln(Total\ Assets)$6

341 **Debt Ratio (DR)**

342 The debt ratio shows the proportion of a firm's debt relative to its assets. It highlights the
343 firm's leverage and potential risks. It is measured by the ratio of total debt (sum of short and
344 long term loans) to total assets. It is measured as;

345 $DR = \frac{Total\ Debt}{Total\ Assets}$7

346 **3.4 Estimation Technique**

347 In this section, the researcher discusses the methodologies used in analyzing the dataset. The
348 following tests were employed: Dickey-Fuller Test for Unit root test for stationarity, Co-
349 integration test, Autoregressive Distributive Lag Model, etc. The study relied on Stata 12 and
350 Eviews 9 statistical computing software for the analysis and all the statistical tests were
351 carried out at 1%, 5% and 10% levels of significance.

352 **3.4.1 Exploratory Data Analysis**

353 The methodology applied in this section is descriptive statistics. This procedure enabled the
354 researcher to achieve objective one and two and also gives more understanding about the data
355 set and their distributions. The data distribution was examined using standard descriptive
356 statistics namely line graph, mean and standard deviation.

357 **3.4.2 The Test for Unit Root**

358 There exist unit root in most time series data making it a requirement to first test for the
359 existence of unit root in the dataset before estimating coefficients of the model when using
360 time series data. This test also helps determine the order of integration of each of the
361 variables used. A stochastic process is considered to have no unit root if its expected value
362 and variance are constant overtime. If one or more of these conditions are not met then the
363 process is said to have unit root or non-stationary (Enyaah, 2011).

364 In such a situation, it is imperative to perform such test in other to find the exact estimated
365 values. The Dickey-Fuller Test (DF) was used to check the stationarity following Dickey and
366 Fuller (1981). The objective of this unit root test is to check whether or not the variables of
367 interest are integrated of order one i.e. $I(1)$ or order zero $I(0)$ before proceeding to estimate
368 the coefficients of the model in order to avoid bogus regression results.

369 The DF test is performed base on the model generated below;

370
$$\Delta y = b_0 + b_1 y_{t-1} + \sum_{i=1}^n (B_i \Delta y_{t-i}) + u_t \dots\dots\dots 8$$

371 For all $t=0, 1 \dots$ and u is a white Noise. b_0 is the constant term and b_1 is the estimated
372 parameter of the first levellag. y_{t-1} is the first levellag, B_i is the vector of the estimated
373 parameters of the lagged values of the differenced value and Δy_{t-i} stands for the vector of the
374 lagged value of the differenced value of the series. Δ represents the first- differenced
375 operator.

376 In a unit root test as per the above regressions, the null hypothesis to be tested is that the
377 coefficient of y with one lag is;

378 $H_0: b_1=0$

379 $H_1: b_1 \neq 0$

380 **3.4 Co-integration**

381 When all the time series data for unit root are checked and is established to be integrated,
382 then the study will proceed to test for co-integration among the variables of interest. The
383 variables can be tested by either applying the Engle Granger (1987) estimation method or the
384 Johansen- Juselius estimation method (Johansen, 1988; Johansen and Juselius, 1990) to
385 defeat the problem of spurious correlation and misleading inferences. However, the Engle
386 Granger estimation method and the Johansen- Juselius estimation method are rendered
387 inappropriate when the variables are integrated of different orders. The Autoregressive
388 Distributed lag (ARDL) bounds test is appropriate in such a situation. The co-integration test
389 will help to determine whether a group of non-stationary series is co-integrated or not. If the
390 variables are co-integrated, the relationship may be taken to mean a long run relationship.
391 Therefore, in this study the ARDL bounds test method was used.

392 **3.5 The ARDL Co-integration Test**

393 This study employs the autoregressive distributed lag (ARDL) technique to test for the long-
394 run and short-run impact of components of working capital management on profitability in
395 Global Haulage Company Limited. The ARDL model is employed for this study because; the
396 ARDL model is a highly significant approach to find the co-integration even with small
397 sample size. Also, the ARDL approach does not need all of the variables to be integrated of
398 the same order unlike other co-integration techniques which requires that; the ARDL
399 technique can be applied whether the variables are $I(1)$ and/or $I(0)$. In effect, the ARDL
400 technique avoids the pre-testing problems connected to standard co-integration, which
401 demands that the variables be already categorised into $I(1)$ or $I(0)$ (Pesaran et al, 2001). This
402 model is even the more appropriate model for empirical work in a case where the stationarity
403 properties of the data are uncertain. Bahmani-Oskooee et al. (2004) observe that, in
404 ascertaining the order of integration of each variable in the model, the result may differ

405 depending on which test one uses hence the results could contradict. For instance, when one
 406 apply the Augmented Dickey Fuller and the Phillips-Perron tests for unit root, it is easy to
 407 wrongly conclude that there is nonstationarity when there is actually stationarity around a
 408 one-time structural break. The ARDL approach is therefore the best for this study because it
 409 avoids these problems.

410 In order to run the long run estimation, the conditional error correction (ECM) version of the
 411 ARDL Bounds test was first applied to check for long run relationship. The various lags of
 412 the variables are expected by the Akaike Information Criterion (AIC). The dynamic structure
 413 of the *ARDL* (p, q) model takes the following form;

$$414 \Delta \ln R_t = \alpha_0 + \sum_{i=1}^p a_i \Delta \ln CATA_{t-i} + \sum_{i=0}^p b_i \Delta \ln CLTA_{t-i} + \sum_{i=0}^p c_i \Delta \ln DR_{t-i} + \sum_{i=0}^p d_i \Delta \ln SIZE_{t-i} + \delta_1 \ln R_{t-1} + \delta_2 \ln CATA_{t-1} +$$

$$415 \delta_3 \ln CLTA_{t-1} + \delta_4 \ln DR_{t-1} + \delta_5 \ln SIZE_{t-1} + v_t \dots \dots \dots 9$$

416
 417 Where all the variables are as defined earlier and Δ is the first difference operator. The
 418 parameters a, b, c, d, e, f, j denote the short run dynamics of model 9 to be estimated through
 419 the error correction framework and δ_i are the long run multipliers in the ARDL model with α
 420 as constant and v as disturbance term.

421 The ARDL framework is carried out in three stages (Pesaran et al., 2001). First, the presence
 422 of co-integration predicted by the theory is tested using an F-test. The F statistic tests for the
 423 joint significance of all the lagged levels variables (coefficient of the long run effect). The
 424 null hypothesis of no co-integration among the variables of interest is tested against the
 425 alternative hypothesis as stated below;

426 $H_0: \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = 0$

427 $H_1: \text{Not all the } \delta_s \text{ is zero}$

428 The two critical values bounds presents a cointegration test when the independent variables
429 are $I(h)$ (where $0 \leq h \leq 1$): a lower value assuming the regressors are $I(0)$ and an upper value
430 assuming purely $I(1)$ regressors. If the F-statistic is greater than the upper critical value, the
431 null hypothesis of no co-integration is rejected regardless of the orders of integration. The
432 null hypothesis cannot be rejected if the F-statistic is below the lower bound. If the result
433 falls between the lower and upper bounds, the result is inconclusive.

434 **3.6 Diagnostic and Stability Tests**

435 In every research work, the results should be reliable for policy implementation. Hence
436 diagnostic tests are done to examine the reliability of the results of the study. The study tested
437 for the significance of the variables and other diagnostic tests such as serial correlation,
438 functional form, normality; heteroscedasticity and structural stability of the model were
439 carried out.

440 The Breusch-Pagan-Godfrey test for heteroscedasticity, Breusch-Godfrey Serial Correlation
441 LM Test for serial correlation, the Jacque-Berra test for normality and also, the Ramsey
442 RESET Test for stability were applied in the analysis of diagnostic and stability tests of the
443 long-run coefficients together with the short-run dynamics. The Breusch-Pagan-Godfrey test
444 involves testing the null hypothesis that the error variances are all equal against the
445 alternative hypothesis that the error variances are a multiplicative function of one or more
446 variables. A large chi-square would indicate that, heteroskedasticity is present, thus it
447 indicate that the error term is a multiplicative function of the predicted values. The Breusch-
448 Godfrey Serial Correlation LM Test was employed to test whether adjacent residuals are
449 correlated which is in violation of the regression assumption that the error terms are
450 independent. The Breusch- Godfrey test can be used when (1) the independent variables are
451 stochastic or not (2) the regression equation is autoregressive or not (3) whether the
452 regression equation is first order autoregressive or higher order autoregressive. The

453 null hypothesis states that, the error terms are uncorrelated whilst the alternative hypothesis
454 states that the error terms are correlated. Therefore, when the null hypothesis is accepted, it
455 implies that the error terms are not correlated otherwise they are correlated.

456 Following Pesaran et al.(2001), the stability of the regression coefficients is evaluated by the
457 Ramsey RESET Test for stability and they can show whether or not the regression equation
458 is stable over time. This stability test is appropriate in time series data, especially when we
459 are uncertain about when structural change might have taken place.

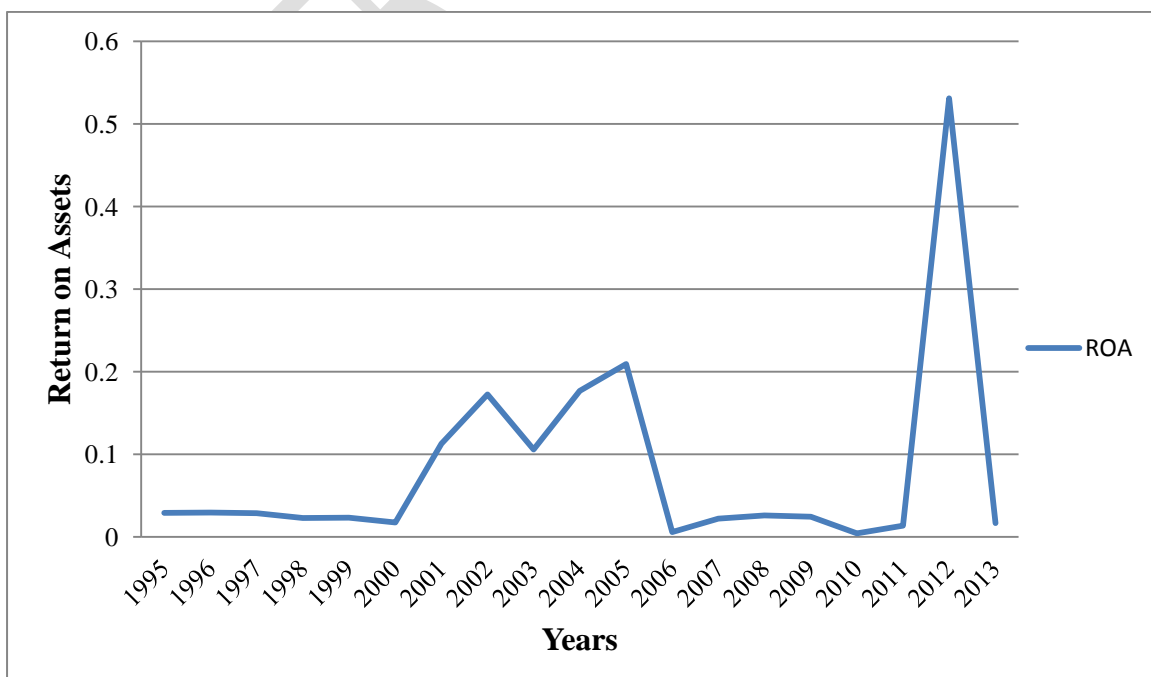
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461 4. EMPIRICAL RESULTS AND DISCUSSION

462 4.1 Trend Analysis of Profitability (ROA)

463 Fig 1 shows the linear trend for profitability (ROA) of Global Haulage Company Limited
464 between the period 1995 and 2013. The graph suggests that return on assets which is a proxy
465 for profitability did not experience a constant trend from 1995 to 2013. ROA kept fluctuating
466 from 1995 till it got to its lowest point in 2010 and rose to peak highly around the year 2012.

467 **Fig 1: Trend Analysis of Profitability (ROA)**



468
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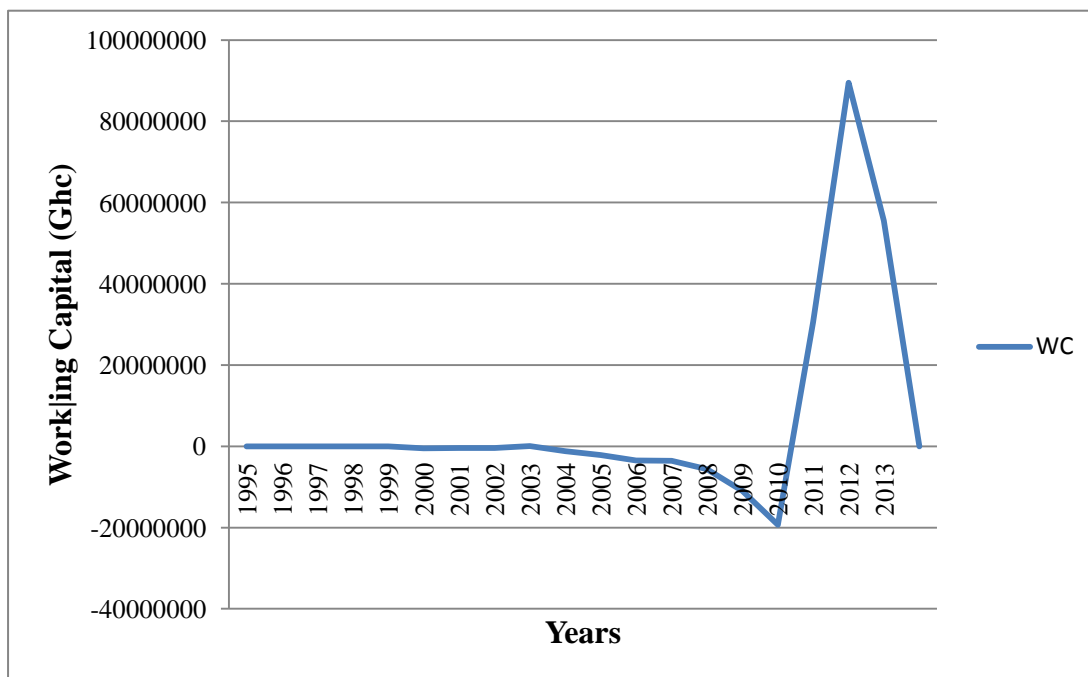
Source: Global Haulage Company Limited Annual Financial Statements

470 From Fig 1, ROA started with a negative trend from 1995 moving downwards until the year
471 2000 where it started picking up, increasing steadily to 2002 where ROA recorded a figure of
472 0.172447. From there, it drop again in 2003 and began to rise again. The negative trend or
473 low ROA could be as a result of poor management practices and also, the implementation of
474 the structural adjustment programme in 1993 where exchange rate liberalization, tightening
475 of monetary policy, foreign trade reforms, financial sector reforms and price deregulation
476 were adopted might have had a toll on companies in Ghana including Global Haulage
477 Company. ROA continued to rise from 2003 to 2005 and fell abruptly from 0.209 in 2005 to
478 0.006 in 2006. From 2006, ROA maintained a low figure but increased and had a constant
479 trend until it fell to its lowest point in 2010 at 0.004 over the study period. The high taxes to
480 make up for the over spending in 2004 due to the elections coupled with the revaluation of
481 the Ghanaian cedi in 2007 may have made things difficult for the management hence the fall
482 in ROA from 2004 to 2010. ROA began to rise a bit from 2010 and suddenly jumped to its
483 highest peak over the study period in 2012 to 0.531. ROA had a negative trend from 2012 to
484 2013. Generally, ROA had a low and stable trend for most of the years in the study.

485 **4.2 Trend Analysis of Working Capital**

486 Fig 2 shows the linear trend for working capital which is the difference between current
487 assets and current liabilities of Global Haulage Company limited from 1995 to 2013. From
488 the graph, working capital seems to maintain a constant horizontal trend for most of the years
489 under study. However, working capital experience steep rise and falls in the latter part of the
490 period under study. Working capital had its lowest point in 2010 and peaked highly around
491 the year 2012

492 **Fig 2: Trend Analysis of Working capital**



493 Source: Global Haulage Company Limited Annual Financial Statement
494

495 From fig 2, working capital of Global Haulage Company limited starting from 1995,
496 maintained a horizontal trend steadily up to 2003. From 2003, working capital began to fall
497 with little fluctuations, maintaining the negative trend until 2010 where it recorded its lowest
498 over the period to -19336467.30 in Ghana cedis. The negative figure means that current
499 liabilities were more than current assets implying that liquid assets for operational cost were
500 inadequate. Working capital sharply rose from 2010 to 89513599.60 Ghana cedis in 2012 and
501 thereafter falls again to 55565827.40 Ghana cedis in 2013.

502 **4.3 Results and Analysis of the Unit Root Test**

503 The unit root test was conducted by applying the Dickey Fuller (DF). Table 3 shows the
504 results of the DF unit root test at levels and at first difference. The DF test employed included
505 a constant only for both tests. From the table, the null hypothesis were rejected for the
506 variables; log of return on assets (LNROA), log of current liabilities (LNCLTA) (both at 5%
507 significance levels), log of debt ratio (LNDR) (at 1% significance levels), and log of current

508 assets to total assets ratio (LNCATA) (at the 10% significance levels) in their levels which
 509 imply they achieved stationarity at their levels, whilst only firm size (SIZE) was stationary at
 510 first difference at 1% significance levels. Therefore, not all the underlying series in the
 511 present study are integrated of order one [i.e. $I(1)$] and there is no $I(2)$ variable hence the
 512 reason for applying ARDL model.

513 **Table 3: Dickey Fuller Unit Root Results**

| VARIABLE | LEVEL | FIRST DIFFERENCE |
|----------|------------------|------------------|
| LNROA | -3.466 $I(0)**$ | -6.099* |
| LNCATA | -2.853 $I(0)***$ | -6.343* |
| LNCLTA | -3.030 $I(0)**$ | -5.135* |
| LNDR | -3.943 $I(0)*$ | -6.506* |
| SIZE | -1.228 | -4.300 $I(1)*$ |

*Note: $I(0)$, $I(1)$ denotes integration of order zero and order one, and *,** and *** indicates significance at the 1%, 5% and 10% level respectively. The null hypothesis for the DF is unit root is present
 LNROA=Log of Return on Assets, LNCATA=Log of Current Assets to Total Assets ratio, LNCLTA=Log of Current Liabilities to Total Assets, LNDR=Log of Debt ratio and SIZE=Firm Size*

514 **4.4 Results and Analysis of the Co-integration Test**

515 The autoregressive distributed lag (ARDL) bounds test was used to estimate for the presence
 516 of co-integration. The study selected the maximum number of lags as 4 using the Akaike
 517 Information Criterion (AIC) for the equations. Using the bounds test, when the F-statistic is
 518 greater than critical value bounds, reject the null hypothesis that there is no co-integration
 519 otherwise accept.

520 From Table 4, the F- statistic (4.734) is more than the 5% upper critical value bound.
 521 Therefore, the null hypothesis is rejected implying that there is co-integration between the
 522 components of working capital management and the company's profitability. Having
 523 established the co-integration among the variables, the ARDL method is applied in the
 524 estimation of the parameters of the equation 3.4 in chapter three.

525 **Table 4: Bounds Test Results for the Existence of Co-integration**

| Test Statistic | Value | k |
|----------------|---------|---|
| F-statistic | 4.734** | 4 |

| Critical Value Bounds | | |
|-----------------------|----------|----------|
| Significance | I0 Bound | I1 Bound |
| 10% | 2.45 | 3.52 |
| 5% | 2.86 | 4.01 |
| 1% | 3.74 | 5.06 |

Note: ** indicates significance at the 5% level

526

527 **4.5 Results and Analysis of the Long Run Relationship**

528 The equation 9 was estimated for Global Haulage Company Limited using annual data from
529 1995-2013 using the ARDL estimation technique. The results are based on the Akaike
530 Information Criterion (AIC) using a maximum lag of one for equation 9. The results of the
531 long-run estimates are presented in Table .

532 From Table 5, only one variable is statistically significant in the long run and only one
533 variable did not meet its expected theoretical signs. Whilst log of current liabilities to total
534 assets ratio (LNCLTA), log of current assets to total assets (LNCATA), log of debt ratio
535 (LNDR) meet their theoretical signs, firm size (SIZE) did not meet its theoretical sign. Also,
536 whilst LNCATA, SIZE, LNDR is not statistically significant, LNCLTA is statistically
537 significant.

538 **Table 5: ARDL Long Run Results**

| Dependent Variable: LNROA | | | |
|-------------------------------------|-------------|------------|---------|
| Selected Model: ARDL(1, 1, 1, 0, 1) | | | |
| Sample: 1995 – 2013 | | | |
| Variable | Coefficient | Std. Error | Prob. |
| Constant | -0.611 | 2.017 | 0.769 |
| LNDR | -3.054 | 1.85 | 0.134 |
| LNCLTA | 3.483 | 1.219 | 0.019** |
| LNCATA | -0.153 | 0.435 | 0.733 |

| | | | |
|------|--------|-------|-------|
| SIZE | -0.155 | 0.135 | 0.280 |
|------|--------|-------|-------|

Note: *, ** and *** indicates significance at the 1%, 5% and 10% level respectively.
 LNROA=Log of Return on Assets, LNCATA=Log of Current Assets to Total Assets ratio,
 LNCLTA=Log of Current Liabilities to Total Assets, LNDR=Log of Debt ratio and
 SIZE=Firm Size

539

540 The coefficient of LNDR is -3.054 are interpreted as, a 1% increase in debt ratio will lead to
 541 3.054% decrease in return on assets which represents profitability. This means that ROA is
 542 elastic with respect to debt ratio. However, this coefficient is statistically not significant.
 543 Return on assets is elastic with respect to current liabilities to total assets ratio with a
 544 coefficient of 3.483. This means that, when current liabilities to total assets ratio increases by
 545 a percentage unit, return on assets respond by increasing more by 3.48%. This result meet
 546 what theory says in terms of the sign and it is statistically significant at 5% significant level.
 547 Higher current liability to total asset ratio imply lower investments in working capital
 548 accounts through lower levels of investment in inventories, shortening trade credit to
 549 customers and postponing payments to suppliers and that results in an increase in
 550 profitability.
 551 Though current assets to total assets ratio meet the theoretical sign, it is not significant. The
 552 coefficient -0.155 means that, a one unit increase in CATA will cause ROA to decrease by
 553 0.155.

554 **4.6 Results and Analysis of the Short Run Dynamic Model**

555 The next step is to investigate the short run dynamics within the ARDL framework having
 556 estimated the long run co-integration model. Thus all the values of the variables at
 557 level lagged is retained in the ARDL model. Estimation results based on the Akaike
 558 Information Criterion are presented in the table below.

559 Basically, the Error Correction Model (ECM) reconciles the short-run behaviour of the
 560 variables with their long-run behaviour. The coefficient of ECM indicates the speed of

561 convergence to reestablish equilibrium in the dynamic model. The ECM coefficient presents
 562 how quick variables can return to stability and it is expected to be significant with a negative
 563 sign. Table 6 shows the expected negative sign of ECM is highly significant. This confirms
 564 the existence of the co-integration relationship among the variables in the model yet again.
 565 The coefficient of ECM_{t-1} of -0.557 implies that the deviation from the long-term return on
 566 assets equilibrium is corrected by 55.70% by the coming year.

567 **Table 6: Estimated Short Run Error Correction Model using the ARDL Estimation**
 568 **Technique**

Dependent Variable: LNROA
 Selected Model: ARDL(1, 1, 1, 0, 1)
 Sample: 1995 – 2013

| Variable | Coefficient | Std. Error | Prob. |
|-------------|-------------|------------|----------|
| D(LNDR) | -2.320 | 0.551 | 0.002*** |
| D(LNCLTA) | 3.053 | 0.502 | 0.000*** |
| D(LNCATA) | -0.085 | 0.252 | 0.742 |
| D(SIZE) | -0.822 | 0.189 | 0.002*** |
| ECM_{t-1} | -0.557 | 0.208 | 0.025** |

Cointeq= LNROA - (-3.0538*LNDR + 3.4834*LNCLTA -0.1531*LNCATA -0.1550*SIZE - 0.6107)

*Note: *** and ** indicates significance at the 1% and 5% level respectively. LNROA=Log of Return on Assets, LNCATA=Log of Current Assets to Total Assets ratio, LNCLTA=Log of Current Liabilities to Total Assets, LNDR=Log of Debt ratio and SIZE=Firm Size*

569
 570 The short run results maintained the results in the long run in terms of the sign and the
 571 elasticity status of the variables. In the short run, except log of current assets to total assets
 572 ratio (LNCATA), all the variables such as log of debt ratio (LNDR), log of current liabilities
 573 to total assets ratio (LNCLTA) and firm size (SIZE) are statistically significant in the model.
 574 Whilst LNDR and LNCLTA are elastic, LNCATA and SIZE are inelastic as shown in Table
 575 6.

576 Debt ratio is statistically significant at 1% significance level and its coefficient -2.32 implies
577 that, a percentage unit increase in debt ratio will lead to a 2.32% decrease in return on assets.
578 This result conforms to the findings of Bagchi and Khamrui (2012), Gomes (2013) and
579 Makori and Jagongo (2013).

580 LNCLTA has a coefficient of 3.053 which means that, a 1% increase in LNCLTA will lead to
581 a 3.05% increase in LNROA in the short run similar to the result in the long run. LNCLTA is
582 also statistically significant at 1% significance level. Omesa, Maniagi, Musiega and Makori
583 (2013) also had similar findings in their work.

584 Current assets to total assets ratio remain to be negatively related to return on assets and
585 statistically not significant in the short run. The coefficient -0.085 is interpreted as, a unit
586 increase in LNCATA will result in a 0.085 decrease in LNROA. Finally, firm size
587 surprisingly is negatively related to the firm's profitability, contrary to a priori expectation
588 and was statistically significant at 1% significance level. The coefficient -0.822 implies that,
589 when firm size increase by a unit, LNROA falls by 0.822. This might be as a result of
590 diseconomies of scale due to managerial inefficiency arising from expansion of the firms
591 operations and branches. Also, it could be that managers expand firm size to achieve their
592 own parochial interest such as benefits associated with a larger firm since they will receive
593 higher remuneration when the firm increases in size. The findings is consistent with Goddard
594 et al. (2005) and Yeboah and Yeboah (2014) but contradicts the findings of Zawaira and
595 Mutenheri (2014).

596 **4.7 Model Diagnostics and Goodness of Fit**

597 The coefficient of determination (Adjusted R-Squared) shows that, about 76.37% of the
598 variations in return on assets are explained by the predictors which include current liabilities
599 to total assets ratio, current assets to total assets ratio, firm size and debt ratio. The F-statistic

600 is also statistically significant at 1% significance level which means that all the predictors
 601 jointly determines the level of return on assets in Global Haulage Company Limited.
 602 The model passed all the diagnostic tests including the serial correlation test, the
 603 heteroscedasticity test, normality test and correct functional form test as presented on the
 604 table below. The diagnostic tests in the regression model are presented in Table 7. Based on
 605 these probability statistics from the regression, the model is good for analysis and policy
 606 interpretation.

607 **Table 7: Model Diagnostics and Goodness of Fit**

| <i>Model Criteria/Goodness of Fit</i> | |
|---------------------------------------|----------------------|
| R-Squared | 0.875 |
| R-Bar-Squared | 0.763737 |
| S.E. of Residuals | 1.013 |
| F-stat. | 7.869[P-value 0.003] |
| Mean of Dependent Variable | -2.767 |
| S.D. of Dependent Variable | 2.084 |
| Residual Sum of Squares | 9.237 |
| Equation Log-likelihood | -19.537 |
| DW-statistic | 2.436 |

| <i>Diagnostics</i> | <i>Test Statistic</i> |
|-----------------------|-----------------------|
| $\chi^2_{Auto} (3)$ | 5.334 [0.149] |
| $F_{RESET}(3,6)$ | 2.743 [0.135] |
| $\chi^2_{Norm} (1)$ | 1.522 [0.467] |
| $\chi^2_{HETERO} (8)$ | 6.442 [0.598] |

χ^2_{Auto} , F_{Reset} , χ^2_{Norm} and χ^2_{HETERO} are Breusch-Godfrey Lagrange multiplier statistics for test of serial correlation, Ramsey Reset test for functional form misspecification, Jacque- Bera test for non-normal errors and Breusch-Pagan-Godfrey test for heteroskedasticity, respectively. These statistics are distributed as F- statistic and Chi-square values with degree of freedom in brackets (). Values in parentheses [] are probability values.

608 **5.Discussion of findings**

609 The study indicated that debt ratio is negatively related to profitability, showing that firms
 610 with more debt ratio are less profitable. Since high debt ratio adversely impact on
 611 profitability, management should use less of debt in financing their activities to be able to
 612 increase profit. This result conforms to the findings of Bagchi and Khamrui (2012), Gomes
 613 (2013) and Makori and Jagongo (2013). Makori and Jagongo (2013) alsofound the existence
 614 of negative correlation between Return on Assets and the firms average collection period and

615 cash conversion cycle but a positive correlation between Return on Inventory Holding
616 Period, Accounts Payment Period when they studied the relationship between working capital
617 management and firm profitability of manufacturing and construction firms listed on Nairobi
618 securities exchange in Kenya

619 Also, the study revealed that there is a significant relationship between current liability to
620 total assets ratio on profitability. This accounted through lower levels of investment in
621 inventories, shortening trade credit to customers and postponed payments to suppliers and
622 that results in an increase in profitability. By implication, aggressive working capital policy
623 which lowers investments in working capital thereby increasing current liability to total asset
624 ratio is appropriate if management's goal is to increase profit. Hence aggressive working
625 capital policies should be pursued cautiously since it also poses risk to the company. The
626 conservative working capital policy as described by Ajibolade and Sankay (2013) and Agyei
627 and Yeboah (2011) showed that higher levels of inventories, larger quantity of current assets
628 in relation to total assets extends more trade credit to customers and reduce supplier's
629 financing which results in a lower profitability and lower risk. Petersen and Rajan (1997) as
630 cited in Gomes (2013) opined that a reduction of supply costs reduces both the risk of price
631 fluctuation among business cycles and the risk of losing customers as a result of product
632 scarcity. When more trade credit is extended to customers, conservative working capital
633 policies may increase profitability because extend trade credit ensure that the contracted
634 services have been carried out, making way for customers to check if purchased products and
635 services are as agreed in quality and quantity terms prior to payment, leading to repeated
636 sales (Gomes, 2013). It also reduces asymmetric information between buyer and seller
637 (Smith, 1987 in Gomes, 2013), thereby strengthening the long-term supplier-customer
638 relationships, increasing sales in periods of low demand and reduces transaction costs
639 (Gomes, 2013). The reduction on supplier's financing allows customers to capitalise on

640 prompt payment discounts due to early payments and reduction of the costs of external
641 financing (Gomes, 2013). The findings of this study is in agreement with Dong and Su
642 (2010). Dong and Su (2010) indicated a positive and significant relationship between
643 payables deferral period and firm profitability. Such findings were also supported by
644 Mathuva (2010) in Kenya, Falope and Ajilore (2009) in Nigeria, Gill et al (2010) and Akoto
645 et al. (2013) in Ghana.

646 The significant negative relationship between firm size and firm profitability suggest that the
647 firm is experiencing diseconomies of scale due to managerial inefficiency arising from
648 expansion of the firms operations and branches or managers expand the firm size to achieve
649 their own parochial interest such as benefits associated with a larger firm and therefore will
650 do whatever it takes regardless of some warning signs. The findings is consistent with
651 Goddard et al. (2005) and Yeboah and Yeboah (2014) but contradicts the findings of Zawaira
652 and Mutenheri (2014). Therefore, policy makers should therefore put in place measures to
653 check these managerial inefficiencies and self-interest of managers to improve the
654 profitability of the firm.

655 **5.2 Conclusion**

656 This article empirically studied the impact of working capital management on firm
657 profitability in Ghana using Global Haulage Company limited as a case by applying time
658 series data extracted from financial statements and annual reports of the company from 1995
659 to 2013. From the results, except current liability to total assets ratio which is significant in
660 the long run, all the variables are only significant in the short run. Current assets to total
661 assets ratio is not significant both in the short run and the long run. In essence, this study has
662 shown that effective working capital management is a necessity for improving firm
663 profitability. Therefore, managers of Global Haulage Company Ltd. must employ efficient

664 and effective working capital management policies and practices for better performance of
665 their company.

666 **5.3 Limitation and Areas for Further Research**

667 This study is only limited to one haulage company (Global Haulage Company Limited) in
668 Ghana even though there are several haulage companies in the country. One of the main
669 drawbacks usually encountered in studies of this nature in developing countries like Ghana is
670 the unavailability of reliable data. As a result, the selection of a relatively small sample size
671 for the analysis became inevitable. Caution should therefore be exercised in generalizing its
672 findings to all manufacturing companies or to companies in other industries.

673 Although the objectives of the study were achieved, the study applied few proxy variables for
674 components of working capital management which may be bias estimators of the unobserved
675 variables. For instance, components such as ratio of current assets to total assets, current
676 liability to total assets ratio were used in contrast to studies that used several proxy variables
677 including current ratio, average collection period, inventory turnover.

678 It is therefore suggested that in-depth studies including these other factors are necessary. The
679 scope of the study may also be extended to cover a larger sample of manufacturing
680 companies over a longer period of time to yield more insights into the study of the variables
681 of interest in this study.

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