

American Journal of Economics (AJE)



The Determinants of Mergers and Acquisition in Ghana

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Abstract

Background: In this context of uncertainties and the unknown based on economic, financial, and health crises, one of the ways to save companies is the operations of mergers or acquisitions. But not all mergers bring the expected results. An Avalanche of literature has indicated several factors that promote the decision of mergers and acquisitions.

Purpose: This paper aimed to investigate the determinants of mergers and acquisitions of listed firms on the Ghana Stock Exchange. Specifically, the study sought to identify and examine the relationship that exists between GDP, Inflation, FDI, Stock Returns, and interest rate on the mergers and acquisitions of listed firms, well as evaluate the failures of mergers and acquisitions in the country.

Methodology: The study used an explanatory research design. The population for the study was all mergers and acquisitions between 2010-2018 totaling twenty-five (25). The study used secondary data from Ghana Stock Exchange. Using sample data spanning between 2010 and 2018, the study adopted the GMM estimation technique in its analyses.

Findings: The findings from the study revealed that indeed GDP, FDI, and interest rate exhibit a positive and significant effect on mergers and acquisitions of listed firms, whilst stock returns was found to negatively impact merges and acquisitions. Inflation rate was found not significant in the analyses of the study. The study also showed that factors such as limited or no involvement from the owners, theoretical valuation vs. the practical proposition of future benefits, lack of clarity and execution of the integration process, cultural integration issues, actual cost of a difficult integration, and high cost of recovery and negotiations errors are the major causes of the failures of mergers and acquisitions in Ghana.

Recommendation: The study recommends that the Ministry of Finance and Ministry of trade must put stringent policies to curb systematic risk, as well as create a conducive environment to promote the inflow of foreign investment into the country.

Keywords: *Determinants, Mergers and Acquisition, Generalized Methods of Moment.*

1.0 Introduction

Mergers and acquisitions (M&A) represent a popular strategy used by companies for many years (Mucenieks, 2018). It falls under inorganic or artificial growth which has attracted attention all over the world and across all sectors (Oduro & Agyei, 2013). The objective of most mergers and acquisitions is to propel growth and ultimately maximize shareholders' growth (Maama et al., 2017; Mensah & Onumah, 2017). Several reasons have been given for corporations trying to grow using mergers and acquisitions rather than through natural growth. It is estimated that as far as 2008, the global mergers and acquisition market was worth \$3.280 billion, which was a reduction of 29% from the 2007 estimate (Amewu, 2014). Mergers and Acquisitions (M&As) have speedily amplified in recent years, mounting the globalization of business and reforming industries structure at the worldwide level. The high number of global mergers and acquisitions has also resulted in several academic literature on the subject matter in various countries and industries (Musah et al., 2020). Saboo et al. (2017) argue that one of the biggest drivers of mergers and acquisitions is the motivation to eliminate or reduce competition. It also helps to increase the size and operations of firms to enable them enjoy economies of scale, which could improve their performance in terms of profitability (Harvey, 2015).

For the most part, firms believe that engaging in M&As will aid in the reduction of expenses, help in increasing market share and power, reducing earnings, volatility, and scale and scope of economics. According to Thompson Reuter's league's tables, although it did not quite hit the heights of 2019, M&A targeting the Middle East & Africa (MEA), reached its second-highest annual value on the Merger market record, after a solid recovery in the final quarter of the year. In total, USD 96.9bn was spent in the region in 2020, representing a 32.6% decline versus the record-breaking 2019 value of USD 143.8bn – which included the USD 70bn tie-up between Saudi Aramco and SABIC.

Over the past two decades, the corporate world of Ghana has experienced unprecedented levels of M&As. Firms try to grow and expand their business through external growth strategies like Merging and Acquisitions. Recent happenings in Ghana have shown that M&As have increased significantly at record levels. However, several instances have also shown the failure of the merging and acquisition strategies. Even though a significant number of studies have examined the effect of mergers and acquisitions in Ghana (Gatsi & Agbenu, 2006; Barnor & Adu Twumwaah, 2015; Salami, 2015; Yeboah et al., 2015; Maama et al., 2017; Beena, 2006; Oduro, & Agyei, 2013) firms, stakeholders, or investors must be very conscious of the drivers that influence the merging and acquisition strategies.

This is to say, it would be so inappropriate to jump the gun to just investigate the effect of Merger and Acquisition without identifying the driving factors (determinants) of the aforementioned strategy. Houwers (2016) made it emphatic that, to make the right decisions about the M&A of a company, the owner of the shares, and the sale of shares through the future development plans, as well as through reorganization measures, it is important to make the rating within the relevant market factors, economic and industry analysis, as well as with the business principles of

qualitative factors and associated with the decision to consider the merging and acquisition strategy.

Allied to the above, literature in Ghana has not given much attention to this aspect of the pertaining issue. Therefore, against this backdrop, this study was motivated to bridge the literature gap by assessing the determinants of Mergers and Acquisitions in Ghana. The two main objectives of the study were (i) to examine the determinant of Mergers and Acquisitions and (ii) to evaluate the failure associated with Mergers and Acquisition strategies in Ghana.

2.0 Literature Review

2.1 Theories

The rationale for takeover activity has been discussed for many years (Brealey et al., 2001; Ross et al., 2002). Unfortunately, no single hypothesis is sufficient to cover all takeovers and it is because the motives for takeovers are very complicated that it is useful to develop some framework to explain this activity. Of the numerous explanations available, the following are the most common in the literature, which has prompted the development of some hypotheses to explain takeover activities. Of these, eight broad reasons for a takeover have emerged: Efficiency Theory (Milgrom & Roberts, 1992) Agency Theory (Jensen & Meckling, 1976), Free Cash Flow Hypothesis (Jensen, 1986; Rozeff, 1982; Easterbrook, 1984), Market Power Hypothesis (Leigh & North, 1978), Diversification Hypothesis (Goudie & Meeks, 1982: value additivity principle, Lewellen's, 1971 - coinsurance hypothesis provides a theoretical basis for corporate diversification), Information Hypothesis (Jensen & Ruback, 1983; Sullivan et al, 1994), Bankruptcy Avoidance Hypothesis (Altman, 1971; Stiglitz, 1972; Shrieves & Stevens, 1979) and Accounting and Tax Effects (Copeland & Weston, 1988).

2.2 Empirical Review of Literature

Some empirical research has been undertaken by researchers to ascertain “the determinants of mergers and acquisitions”. Varying conclusions have been drawn as to the true determinants of mergers and acquisitions of firms since these works have been carried out based on different geographical locations as well as industries. This sub-section, therefore, discusses the key factors.

2.2.1 Financial determinants

An important role in explaining what country-specific characteristics matter for cross-border M&A flows in the existing literature is financial determinants. One of the foremost researchers of macroeconomic determinants of cross-border M&As was Di Giovanni (2003) who emphasizes whether deep financial markets in the acquisition countries are positively related to cross-border M&As. Searching through literature, the study made a distinction between two financial variables: domestic stock market activity and the role of the domestic financial sector.

There are multiple reasons for arguing that higher levels of domestic stock market activity in the acquirer country lead to more cross-border M&A activity. Vencatachellum (2013) and Wang (2008) explain the positive relationship with the expectations hypothesis: future positive

expectations about the economy (as indicated through a bull market) will signal to investors that good times are coming and companies expand on this by doing M&A's. Vencatachellum (2013) extends on this by arguing that buoyant domestic stocks reduce the cost of financing for investors, which stimulates M&A activity. Another reason is given by Sudarsanam (2010), who emphasized that high levels of stock market activity might lead to overvaluation in the stock market; an overvaluation that can be used to buy real assets in the form of M&A before the overvaluation is corrected by the market. The positive relationship between stock market capitalization and the number of cross-border M&As is statistically significant (Di Giovanni, 2003; Manchin, 2004; Neto & Brandao, 2009; Reed & Babool, 2003; Vencatachellum, 2013).

Existing literature on the role of the domestic financial sector on M&As only analyzes the role of the acquirer's financial sector. Di Giovanni (2003) uses private credit to GDP in the acquirer country and concludes that the domestic financial sector has a positive and significant relationship with the number of cross-border M&A's a country undertakes. This result is also found in Vencatachellum (2013), who proxy the domestic financial sector by M2 to GDP. The theoretical underpinning for this positive relationship is that a larger domestic financial sector can provide the necessary capital for cross-border M&As; an underdeveloped financial market can constrain the scale of multinational activity.

In country-specific cases, Wilson (2013) investigated local factors that make South Africa attractive to M&A. The study looks heavily into foreign direct investments, but it is relevant in terms of local determinants. A negative binomial regression model with the numbers of mergers as the dependent variable was applied. The results showed that share price, market size, rate of return, and macroeconomic stability play a key role in M&A activity. In terms of share prices, the author found that an increase in share prices, which indicates a booming stock market, encourages M&A transactions. Little empirical research has included inflation as an influencer on mergers. However, we believe that inflation might be an important economic factor with a possible effect on merger activity, especially in Ghana. Wilson (2013) found that macroeconomic stability, which was measured by the inflation rate, played an important role in merger activity. Wilson provided results showing that low rates of inflation encouraged merger activity. This was later supported by Vencatachellum and Wilson (2013).

Another determinant that has shown up in literature strongly is Gross Domestic Product (GDP) or Gross National Product (GNP). What has been shown is that merger activity tends to be greatest in periods of economic shocks in form of general economic expansion. Economic expansion motivates companies to expand their operations to meet the rapidly growing aggregate demand in the economy. Companies have to make choices on how to meet the demand, and as a merger is a faster form of expansion than internal organic growth, we often see a high level of merger activity during economic shocks (Gaughan, 2011). In addition, it is easier to attempt deals of this sort in a large economy rather than in a small one. When a firm is considering entering the market for corporate control, it is far easier to find a suitable partner for a merger or a target for an acquisition when there are a lot of companies to choose from (Owen, 2006). Merger activity typically increases

during expansions and decreases during recessions. However, the number of mergers appears to be procyclical.

The increase in merger activity appears to reach its peak before the peak of the business cycle expansion; that is, merger activity begins to decline before GNP reaches its peak (Becketti, 1986). Overall, GNP and GDP have usually been found positively related to merger activity (Golbe & White, 1988). Gort's (1969), 'economic disturbance theory of mergers' indicates that economic growth is associated with a higher level of uncertainty in the market and therefore mergers would more likely to occur. Steiner (1975) found that GNP has a significant positive influence on mergers. Furthermore, GDP was found to have a positive and significant influence on mergers by Beckenstein (1979) and Guerard (1989). Mulherin and Boone (2000) proved that economic, regulatory, and technological changes are connected to merger activity. Chung and Weston (1982) found that mergers were positively and significantly related to the growth rate of GNP. Choi and Jeon (2011), state that GDP is one of the most relevant factors in determining aggregate merger activity.

Another important factor in determining the level of merger and acquisition activity is the interest rate. Interest rates have usually been found significant, but with mixed signs (Golbe et al., 1988). Many researchers have found interest rate to be positively connected to merger activity (Steiner, 1975; Beckenstein, 1979; Melicher et al., 1983; Guerard, 1989). Yagil (1996) investigated the relationship between macroeconomic factors and merger activity measured in terms of both the dollar value of acquisition and number of mergers. This study found that interest rate and investment level in the economy has a positive impact on merger. In addition, the significance level of interest rate was found to be higher than that of the change in investment level. Wilson (2013) also found that interest rate had a positive influence on merger activity. However, other researchers have also found interest rates to have a negative effect on merger activity (Becketti, 1986; Golbe & White, 1993).

2.2.2 Openness determinants

Openness and restrictions to openness have also been broadly studied in past literature on the determinants of cross-border M&As. The overall consensus is that more restrictions on trade and financial openness will lead to fewer cross-border M&As in both acquirer and target country. Di Giovanni (2003) analyzes the role of trade flows from the acquirer to the target country and the effect of these trade flows on FDI in general and cross-border M&As in specific. The study found that FDI and trade are positively correlated in the industrial world. This result is further supported by Monteiro (2012).

Two articles look at the relationship between financial openness and cross-border M&A flows, both based on the Chinn-ito-index. This index features the presence of multiple exchange rates, restrictions on current account transactions, restrictions on capital account transactions, and the requirement of the surrender of export proceeds (Garita & van Marrewijk, 2007). Garita and van Marrewijk (2007) find that if the target country moves up the Chinn-ito-index by one standard deviation, the expected number of M&A deals will increase by as much as 90%. If the acquirer

improves by the same deviation, the impact will be an expected increase in cross-border M&As of 10%. Brakman et al., (2008) use the same index but their results show a positive significant effect for the acquirer only. So, it appears that restrictions on (financial) openness are negatively correlated with cross-border M&As for both the acquirer and the target country; the precise magnitude and significance of this relationship are ambiguous based on past literature.

2.2.3 Institutional Quality Determinants

The impact of (the quality of) institutions consists of two hypotheses. The first is the governance hypothesis. Here, a negative relationship is expected between institutional qualities and M&As for the target country because companies target firms with poor governance practices. The poor governance practices can be improved by the acquisition, leaving large room for improving and reaping a premium (Manchin, 2004). For the acquirer country, the governance hypothesis thus assumes a positive relationship between the quality of institutions and cross-border M&As. The second hypothesis is the outcome hypothesis, where the theory is that M&A activities are more intense between firms with better investor protection. In this hypothesis for both acquirer and target country protection of property rights, the integrity of the legal system and other institutional variables are expected to be positively correlated with cross-border M&As (Manchin, 2004).

Rossi and Volpin (2004) also tested the governance hypothesis and find evidence for this by concluding that “acquirers have higher investor protection than targets”. The study also links the governance hypothesis to the international market for corporate control (which is meant to facilitate takeovers) and the fact that this leads to a convergence in corporate governance across countries (Rossi & Volpin, 2004). Garita & van Marrewijk (2007) and Brakman et al., (2008) find that a less uncertain business environment will increase M&A activity by 14% in the acquiring country and by 74% for the target economy. Neto and Brandao (2009) analyze investor protection and find that the higher investor protection in the target country, the more likely firms use M&A as a mode of entry compared to Greenfield and other forms of FDI. This finding is in line with the outcome hypothesis. Lastly, some studies have looked at the role of corruption in M&As.

2.2.4 Macroeconomic determinants

Several macroeconomic determinants and their effect on cross-border M&A flows have been studied in previous research. First, exchange rate fluctuations can be a determinant for cross-border M&A flows. According to Vencatachullum (2013), the reason exchange rates matter is that cross-border M&A transactions require domestic currencies to be converted to that of the target country and thus affect the value of the acquired assets. Appreciations or depreciation of host and target countries thus have implications for investors. A currency appreciation reduces the costs of foreign acquisitions for domestic firms, stimulating the acquisition of foreign firms and reflecting a positive correlation between exchange rates and cross-border M&As for the acquirer country (Wang, 2008).

Di Giovanni (2003) argues that the relationship between exchange rate volatility and undertaking cross-border M&As is an empirical question. When facing fixed costs for the cross-border M&A, a firm is likely to postpone the merger (negative relationship between cross-border M&A and

exchange rate volatility for both acquirer and target) which might lead to no M&A at all. However, depending on the correlation between the target firm's exchange rate volatility and the overall (acquiring) firm's exchange rate portfolio, high exchange rate volatility may have a negative or positive effect on whether or not to pursue the M&A (Di Giovanni, 2003). Third, GDP per capita is broadly analyzed as well. For the acquirer countries, existing literature agrees on a positive relationship between GDP per capita and cross-border. Garita & van Marrewijk (2007) state that richer countries invest more in other countries. For target countries, the relationship could be positive or negative. Veenendaal (2007) and Garita and van Marrewijk (2007) argue that larger and richer countries not only invest more in themselves but are also more attractive to invest in. Neto & Brandao (2009) explain this positive relationship through the saturation of domestic markets; they argue that high economic growth ends up stimulating firms to invest abroad, to compensate for this saturation.

Erel and Liao (2012) hypothesize a negative relationship between exchange rates and cross-border M&A's; countries whose currencies have depreciated are more likely to be a target for takeovers; Bhagat et.al. (2011) find the same results. On top of the exchange rate itself, the (future) volatility of the exchange rate is just as important. Erel and Liao (2012) theorize that a negative relationship might also be possible, because of the "high buys low" principle. Because of the lower cost of capital, wealthier countries will tend to purchase firms from poorer countries because of a wealth effect (Erel & Liao, 2012). This line of thinking is contrary to the standard gravity model, as flows between two countries are positively related to their economic size.

From the above literature, it can point to the fact that not many country-specific cases exist especially for developing countries. In Ghana, it appears there is no study for determinants of M&A. This study sought to fill this gap in the literature.

3.0 Methodology

3.1 Population

There has been a total of about twenty-five mergers and acquisitions of firms that have taken place in the Ghanaian market between 2010 and 2018 (GES Market Report, 2019).

3.2 Data Source and Sample Size

This study majorly focused on the listed firms that have undergone merging and acquisition. Firms merged or were acquired and are listed on the Ghana Stock exchange included the following: Benso Oil palm plantation, Ecobank Ghana Limited, Dannex Pharmaceutical Company, Guinness Ghana Breweries, MTN Ghana, AngloGold Ashanti, Société General, Republic Bank, Access Bank, Total Petroleum. This then gives a total of 10 listed firms sampled to be investigated in this study. The study used secondary data spanning from 2010 to 2018 for listed firms. All data measuring macroeconomic variables were gathered from the available list of firms from the recent (2018) World Development Indicators global financial market development database for the stipulated period.

3.3 Definition of Variables

Variables used in the study include percentage of mergers of total firms (PMTF) as been dependent variable. The independent variables are Gross Domestic Product (GDP), Inflation, Interest rate, stock market return, and foreign direct investment. These variables were chosen from available literature. The percentage of mergers of total firms is given by the total amount of mergers divided by the total amount of firms per year. A ratio is used in our model to obtain the real change in mergers and not to be misled by the development of total firms over time.

GDP

Merger activity typically increases during expansions and decreases during recessions. GDP has usually been found positively related to merger activity and is one of the most relevant factors in determining aggregate merger activity.

Interest Rate

Yagil (1996) discussed that mergers are customarily viewed as channels for external growth as opposed to internal growth in the form of increased investment in existing or new lines of products. The cost of financing the investment will, in turn, vary directly with the interest rate in the economy. Therefore, an increase in the interest rate will increase the likelihood of external growth via mergers and acquisitions. Several other researchers have found interest rate to be positively connected to merger activity.

Stock Market Return

This is measured as the natural logarithmic difference in daily prices. Concerning the data from Ghana, the study used the Ghana Stock Exchange Composite Index. The study is expecting a negative or positive coefficient, depending on the nature of the market.

Inflation

Inflation from a theoretical argument and much precisely from the Neoclassical theory posits that changes in general price level tend to affect the overall performance of an economy. Extensive literature seems to suggest that inflation is a key variable that has bearing on the changes in mergers and acquisition decisions of a firm. As such we expect a positive sign according to the literature.

Foreign direct investment

From a theoretical perspective, there have been opposing views on the relationship between foreign direct investment and M&A. On one hand, FDI positively affects M&A when it is extended from developed to less developed economies which tend to increase production through enhancing labor productivity and advancement of technology. Most studies in Africa especially have concluded that FD has a significant and positive impact on mergers and acquisitions. As such a positive sign toward M&A is expected.

3.4 Data Analysis

Generalized Method of Moment

Acknowledging the fact that there have been several studies in this discipline informed this study to unravel other existing works as a guide in choosing variables and models which are conforming to theory. The paper chooses panel data regression over cross-sectional regression to overcome cross-sectional regression shortfall which manifests in likely omitted variable bias and to further explore the behavior of our variables of interest across the sample groups (companies). The econometric form of the general dynamic model relevant for the study was specified as;

$$y_{it} = \varphi_0 + \beta y_{it-1} + \gamma X_{it} + \delta_i + \varepsilon_{it} \dots\dots\dots (1)$$

Where y_{it} is the annual percentage growth rate of M&A, y_{it-1} is the lagged value of annual Mergers percentage. X_{it} is the model explanatory variables. δ_i captures the unobserved companies' heterogeneity effects, and ε_{it} is the error term.

Following the general dynamic panel model, a modified form is specified below to include regression classifications:

$$MA = \gamma_0 + MA_{it-1} + \gamma_2 SP_{it} + \gamma_3 GDP_{it} + \gamma_4 INT_{it} + \gamma_4 INF_{it} + \gamma_1 FDI_{it} + \varepsilon_{it} \dots\dots\dots (2)$$

Where MA represents Mergers and Acquisition. Whilst SP represents a stock market return, INT and GDP represent interest rate and Gross domestic product respectively. Also, INF and FDI indicate inflation and foreign direct investment respectively.

3.5 Diagnostic test

The Sargan Test

In an econometric model, particularly in a dynamic panel model where instrumentation is required, there is likely the problem of over-identification which may arise when the order condition for identification is satisfied in inequality: the number of instruments excluded from the equation exceeds the number of included endogenous variables. To check for the validity of over-identifying restrictions, the study runs a Sargan test which is a j test statistic.

4.0 Results and Discussions

4.1 Summary Statistics

This section highlights the characteristics of the variables in the model and offers a statistical breakdown of both dependent and independent variables for the various banks listed on the Ghana Stock Exchange. The mean, standard deviation, minimum value, and maximum value of the variables across the period under consideration are discussed.

Table 1: Summary Statistics

Variable		Mean	Std. Dev.	Min	Max	Observations
MA	overall	16.12516	1.311545	13.61612	19.93591	N = 72
	between		0.529527	15.33282	16.75535	n = 8
	within		1.212991	13.89988	19.30571	T = 9
SKP	overall	0.002097	0.064197	-0.16972	0.157355	N = 72
	between		0.031647	-0.04164	0.05817	n = 8
	within		0.056856	-0.1674	0.150323	T = 9
FDI	overall	6.501409	1.24182	4.559482	8.255744	N = 72
	between		0.03412	6.501409	6.501409	n = 8
GDP	overall	6.673467	3.502559	2.178207	4.04712	N = 72
	between		0.421910	6.673467	6.673467	n = 8
	within		3.502559	2.178207	14.04712	T = 9
INTRATE	overall	12.02657	1.56309	8.908333	14.0625	N = 72
	between		0.11242	12.02657	12.02657	n = 8
	within		1.56309	8.908333	14.0625	T = 9
INF	overall	4.324998	0.120961	4.168668	9.549816	N = 72
	between		0.043821	4.324998	4.324998	n = 8
	within		0.120961	4.168668	4.549816	T = 9

Note: M&A is mergers and acquisitions, FDI represents Foreign Direct Investment, GDP is Gross Domestic Product, INTRATE is Interest Rate, INF denotes Inflation and SKP is stock returns.

With the observed sample for this study, the dependent variable M&A had a mean of 16.13. It also had a 1.31 standard deviation with 13.62 and 19.94 as its minimum and maximum values, respectively. Stock returns of firms had an average of 0.0021 and a standard deviation of 0.064, with the lowest and maximum values of approximately -0.17 and 0.16, respectively. FDI had a mean of 6.50 and a standard deviation of 1.24, with 4.56 and 8.26 as the minimum and maximum values, respectively. Another statistic to evaluate is GDP, which had a mean of 6.67 and a standard deviation of 3.50. The Min and Max value for the GDP variable was 2.18 and 4.04 respectively. Interest rate (INTRATE) had an average value of 12.03 and a standard deviation of 1.56, with a Min and Max value of 8.91 and 14.06, respectively. Inflation is another variable considered, with a mean of 4.32, a standard deviation of 0.12, and a Min and Max value of 4.17 and 9.55, respectively. The low standard deviations relative to the mean values depict how normally distributed the variables are with exception of stock returns. However, this is expected since the stock returns data set experiences some characteristics of volatility. Therefore, it being non-normal is a stylistic fact of the data set that needs to be embraced.

4.2 Correlation and VIF Test

The correlation matrix was used to find the highly correlated independent variables to evaluate the idea of multicollinearity. The Pearson Correlation was critical in explaining the determinants of mergers and acquisitions. The threshold for evaluating multicollinearity, according to Berry and Feldman (1985), should not exceed 0.8. This indicates that there is multicollinearity if the correlation between any two variables is greater than 0.8. Furthermore, according to Smith et al. (2009), one perfect measure for multicollinearity is the use of the variance inflation factor. Variance Inflation Factor (VIF) larger than ten (10) should be removed from the empirical model. Tables 2 and 3 below provide information on the Pearson correlation and Variance Inflation Factor, respectively.

Table 2: Pearson Correlation

	M&A	FDI	GDP	INTRATE	SKP	INF
M&A	1					
FDI	-0.1518	1				
GDP	0.2605	0.5664	1			
INTRATE	-0.0616	-0.4623	-0.0693	1		
SKP	0.2575	0.0344	0.0159	0.0538	1	
INF	0.0826	0.0306	0.0739	-0.0418	0.0559	1

Note: M&A is mergers and acquisitions, FDI represents Foreign Direct Investment, GDP is Gross Domestic Product, INTRATE is Interest Rate, INF denotes Inflation and SKP is stock returns.

Table 3: VIF test for Multicollinearity

Variable	VIF	1/VIF
INF	6.44	0.155281
GDP	6.72	0.148839
FDI	5.36	0.186625
INT.RATE	2.83	0.353691
SKP	1.04	0.963761
Mean VIF	6.46	

Note: FDI represents Foreign Direct Investment, GDP is Gross Domestic Product, INTRATE is Interest Rate, INF denotes Inflation and SKP is stock returns.

Given the fact that the VIF for this research has no value of more than 10, satisfies the first criteria proposed by Smith (2009), and so all variables must be included in the empirical model. Because all of the variance inflation factors are less than 10 and do not surpass the multicollinearity criterion of 0.8, all of the variables fulfilled the correlation requirement.

4.3 Heteroskedasticity Test

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

To check for heteroscedasticity, the Breusch-Pagan test for heteroscedasticity was used. The Breusch-Pagan / Cook-Weisberg method compares the null hypothesis that all error variances were equal against the alternative hypothesis that error variances are a multiplicative function of one or more variables.

Table 4: Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance
Variables: fitted values of MA
chi2(1) = 1.89
Prob > chi2 = 0.1686

Because the p-values were larger than all alpha levels of significance, the results in Table 4 suggested that there is no variation in the error terms for the estimates. As a result, we are unable to reject the null hypothesis, and so conclude that heteroscedasticity does not exist in the model.

4.4 Pooled OLS, Random, and Fixed EFFECT Estimation

Table 5 presents results from using the pooled OLS, random and fixed effect estimation in assessing the determinants of mergers and acquisition of listed firms in Ghana.

Table 5: Pooled OLS, Random, and Fixed EFFECT Estimation

	(POOLED OLS) M&A	(FIXED EFFECT) M&A	(RANDOM EFFECT) M&A
FDI	-0.621* (0.258)	-0.621* (0.245)	-0.621* (0.245)
GDP	0.218* (0.103)	0.218* (0.0975)	0.218* (0.0975)
INTRATE	0.300* (0.148)	0.300* (0.141)	0.300* (0.141)
INF	3.543 (4.595)	3.543 (4.365)	3.543 (4.365)
_cons	-0.221 (18.65)	-0.221 (17.72)	-0.221 (17.72)
N	72	72	72

Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: FDI represents Foreign Direct Investment, GDP is Gross Domestic Product, INTRATE is Interest Rate, INF denotes Inflation and SKP is stock returns.

Extensive literature has indicated that there is always a tendency for previous Mergers and Acquisition activity to impact on the current mergers and acquisition activity (Gort, 1969). Therefore, it is of high relevance to adopt the use of GMM estimation in addressing this issue.

4.5 Results and Discussions

To meet objective one results from Table 6 showed that lagged value of mergers and acquisitions, thus past year's merger and acquisition activity has a significant effect on the current year's merger and acquisition activity. This piece of information also enhances the reason for considering the GMM estimation technique in this study.

Table 6: Determinants of Mergers and Acquisitions

Dependent variable	(GMM) M&A
L.M&A	0.256** (0.173)
SKP	-0.909* (4.368)
FDI	-0.575** (0.262)
INF	4.736 (3.908)
GDP	0.104* (0.125)
INTRATE	0.406** (0.111)
<i>N</i>	56

Standard errors in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Note: L.M&A is Lag of mergers and acquisitions, FDI represents Foreign Direct Investment, GDP is Gross Domestic Product, INTRATE is Interest Rate, INF denotes Inflation and SKP is stock returns.

The study found support that GDP had a positive effect on mergers and acquisitions. The coefficient is 0.104 (table 6) and statistically significant at 10 percent level. This finding indicated that a percentage increase in economic growth led to a 0.104 percentage rise in mergers and acquisitions activity. Furthermore, the result was also consistent with our descriptive findings (correlation matrix), which showed that mergers tend to move in the same direction as GDP. According to Hyytinen and Pajarinen (2002) an index of high economic growth showed that in a developed economy, there are more companies and more mergers. Companies are more willing to

engage in FDI deals when the economy is booming and are less willing to engage in these, deals when the economy is depressed. Kummer (2006) studied M&A transactions and found that "*the number of M&A transactions is correlated with the development and size of an economy measured in terms of GDP*". Given previous research, GDP has usually been found positively related to merger activity and this study confirmed the works of Vencatachellum and Wilson (2013).

Interest rate was also found to have a positive effect on mergers. The coefficient was 0.406 and statistically significant at 5 percent level. The findings suggested that a percentage change in interest rate will lead to a 0.406 percent increase in degree of merger and acquisition activity. The relationship between interest rate and mergers is a widely researched subject. Marsh (1982) found an important and negative effect of interest rate and the evolution of mergers and acquisitions: firms borrow less when the interest rate is high and then prefer to reorganize. In addition, Taggart (1977) also found a significant effect of the interest rate on mergers. The bottom line is that firms are more likely to issue equity when their share prices are high and to resort to borrowing (which makes a heavily financed investment) when interest rates are low. However, unlike Marsh (1982) and Taggart (1977), this study agrees with Yagil's (1996) research. Therefore, an increase in the interest rate will increase the likelihood of external growth through mergers.

The study found a negative relationship between stock returns and mergers and acquisitions. The results indicated that a percent increase in stock return is associated with a 0.909 percentage fall in M&A. This finding was in line with the managerial hubris theory (Roll, 1986), agency theory problem (Fama, 1980; Jensen and Meckling, 1976; Jensen, 1986) and recent finding of Datta et al. (2001) and Ismail (2011). A negative correlation of the stock returns indicated that when the CEO of the acquirer is personally interested in the future of the company, he/she tends to avoid overpayments, which might negatively influence the future performance of the company and, hence, his/her wealth.

Results from the table again showed that there exists a positive and significant relationship between FDI and mergers and acquisitions activity in Ghana. The results show that a percent increase in FDI led to a 0.575 percent rise in mergers and acquisitions, and this is significant at a 5 percent alpha level. The rate of opening of the economy is an indicator that reflects the degree of competitiveness of a country as well as its foreign direct investment. The main weaknesses of the domestic economy that determine a low degree of competitiveness are the precarious state of the public health system, government instability, crime problems faced by the internal labor market (poor ethics, inadequate education, rigidity) inflation, corruption, fiscal instability government bureaucracy and lack of infrastructure.

The research findings suggested that countries with higher levels of openness tend to attract more foreign investment due to reduced trading costs. A high degree of foreign direct investment encourages mergers and acquisitions, according to Culem (1988), Janicki and Wunnava (2004). Some studies, namely those conducted by Aminian and Campart (2005) and Kamaly (2007), also refer to the importance of this variable in explaining international M&A activity. Kyrkilis and Pantelis (2003) refer to the fact that the liberalization of international economic trade in a country is expected to positively influence the outflows of all kinds of investments. First, the absence of

capital controls allows for unrestricted financing of investments abroad and thus allows firms to acquire relevant information about foreign markets (knowledge, skills in organizing foreign operations, and marketing their products internationally).

Lastly, the results showed an insignificant relationship between inflation and mergers and acquisitions. This result was however in line with the works of Boateng, Hua, Uddin, and Du (2014) who found a negative relationship between the inflation rate and the number of M&A for UK firms. The size of the coefficient shows that M&A will decrease by 1.47% if Inflation rate increases by one unit. However, their result is not statistically significant. Therefore, we fail to reject the null hypothesis, that inflation has no significant effect on mergers and acquisitions in Ghana.

4.6 Post Diagnostic Test

An important post diagnostic test employed in GMM estimation is the nature of autocorrelation involved in the model as well as the level of identification of the variables used

Table 7: Post Diagnostic test

L(1/8).L.M&A collapsed		
Arellano-Bond test for AR(1) in first differences:	$z = -1.73$	$Pr > z = 0.085$
Arellano-Bond test for AR(2) in first differences:	$z = -1.46$	$Pr > z = 0.146$
Sargan test of overid. restrictions:	$chi2(6) = Prob$ 5.18	$> chi2 = 0.52$
(Not robust, but not weakened by many instruments.)		

Results from table 7 suggest that at the first difference the Arellano-Bond test indicated a rejection of the null hypothesis. This means there is the presence of autocorrelation. However, this is expected because of the lagged value of the dependent variable included in our modeling. Moreover, information from the second difference indicated an insignificant p-value and as such fail to reject the null hypothesis and conclude that there exists no autocorrelation in the model. The Sargan test of over-identification restriction also showed that the p-value is insignificant and therefore fails to reject the null hypothesis that over-identifying restrictions are valid.

Moving forward, as a second objective, the study again evaluated the failures of M&A activities in Ghana. According to different researches, which are made concerning the factors which cause the failures of M&A in Ghana, there are two main reasons for the failures of M&A. The first is connected to the huge amount of money spent on M&A. For instance, the high level of payments could be related to the poor negotiations done or to realize the process of acquisition at “all costs”. And the second point is linked to the inevitable and significant problems which appear during the phase of the integration between the different companies Child et al. (2001) and Hitt et al. (2001).

By contrast, other authors such as Gadiesh et al. (2001) argue that there are three reasons which may lead to the failures of the M&A: the low level of the strategic understanding process and the vague motivations which lead to the process of the acquisition, lack of the leadership and planned engagement and the very large difference on the culture between companies. In addition, according to Finkelstein and Haleblan (2002), the success or failure of M&A is strongly related to the companies' managerial view on the chances which lead to M&A success, for instance, the managers should be more dubious and unconvinced when they are analyzing the chances of a successful M&A although they may have good indications which may create a higher level of synergy between the companies. On the other hand, Schweiger et al., (1993) point out that the chances which may lead to M&A success are reduced whenever the initial motivations which influence the realization of the M&A are linked to the opportunism or the desire to carry out a transaction whilst there do not exist clear strategic reasons.

Furthermore, below are some reasons which also lead to the failure of the M&A deals: Limited or no involvement from the owners (Amegah, 2012), Theoretical valuation vs. the practical proposition of future benefits, Lack of clarity and execution of the integration process, Cultural integration issues and Negotiations errors

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study set to find out the determinants of M&A since M&A activities seem to have increased in the recent past. A total of six determinants namely Lag of mergers and acquisitions, Foreign Direct Investment, Gross Domestic Product, Interest Rate, Inflation, and stock returns were used in the study. Using GMM technique the study found a positive relationship between M&A and Gross Domestic Product, Interest rate, and Inflation. The study on the other hand found a negative relationship between foreign direct investment and stock market returns.

5.2 Recommendations

Per the findings obtained from the study, the government through all appropriate departments especially the Ministry of Finance should do well to provide the required strategy that can protect from all systematic economic shocks such as changes in GDP, Taxation, Interest rate, etc. This would intend to give investors the confidence to embark on major protection such as the acquisition of infants on struggling firms and emergence. In addition, the Ministry of Trade must make it a core objective to strengthen financial liberalization policies to provide a conducive environment for FDI to be possible. So that inflow of foreign capital can be massive to help expansive of local firms through merging and protection of weaker firms from collapsing.

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