Revue d'Economie et de Statistique Appliquée
Volume 18 number 2, December 2021
ISSN : 1112-234X EISSN : 2600-6642
Pages :21-35

THE IMPACT OF MERGERS AND ACQUISITIONS ON MAXIMIZING THE COMPANY'S MARKET VALUE - ECONOMETRIC STUDY FOR THE PERIOD (1985-2018)-

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***Recieved**: 12/04/2020 **Accepted:** 28/03/2021**Published online:** 28/12/2021*

ABSTRACT: This paper examines the impact of mergers and acquisitions on maximizing the company's market value. The study concluded that there was a mutual causality running in one direction; from mergers and acquisitions to the market value of the traded shares used in the study to measure the company's market value. The study also showed that there was a high correlation between the two variables of the study yielding a correlation coefficient of 65%. Furthermore, the dynamic VAR analysis revealed that the response of the market value of shares to M&A shocks had positive effects over the response period. As far as the variance decomposition results are concerned, they showed that M&A had a positive effect of more than 67% on the market value of shares, especially in the medium term.
Keywords : Merger and Acquisition, company value, , Vector Autoregression (VAR).

JEL Classification: G34 ,G15 .

1. Introduction

Acquisitions and mergers have become commonplace in the business world today. This is attributable to such factors as the trend towards globalization, the low financing cost, in addition to the need to create large competitive entities able to achieve growth and make profit. Mergers and acquisitions undertaken by companies are a crucial element of their expansion and business development strategy. They help companies grow faster than expected owing to increased efficiency and financial capacities, improved quality of production and of the services provided, and enhanced competitiveness and economic growth and expansion opportunities. Mergers and acquisitions are also a means of uniting efforts, promoting synergies, sharing experiences and concentrating capital, thereby

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creating an environment conducive to innovation, performance development and growth. Motives for mergers and acquisitions vary depending on circumstances. Mergers may be driven by a desire for cooperation between the companies involved to achieve horizontal or vertical integration just as it may be motivated by a desire for control and monopoly. Yet, the ultimate goal underlying motives is external growth, which is at the heart of the company's strategy to maximize its value and shareholder profits.

Research question :Against this backdrop, the following research question may be raised:

To what extent do mergers and acquisitions affect the company's market value and increase shareholders' wealth?

Hypotheses: In order to answer the question of the study and define the relationship between M&A and increased market value of companies, the following hypotheses are formulated:

Hypothesis I H1: There is a statistically significant relationship between corporate M&A and increased market value of companies.

Hypothesis 2 H0: There is no statistically significant relationship between corporate M&A and increased market value of companies.

Study objectives

This study aims at identifying the impact of corporate mergers and acquisitions on increasing the company's market value, being among the most important strategies that companies, in the modern business world, adopt not just to increase their size and expand their activity, but also, to capture markets and make profits and ultimately attract investors.

Methodology

In order to answer the research question and achieve the objectives set out in this paper, the researcher has adopted a combination of two approaches. The descriptive approach is used in the theoretical framework of the paper whereby the concepts underlying the research variables are presented. In the empirical section, the deductive approach is used whereby M&A data (AM) along with the market value of the traded shares, as an indicator of the company's market value, are analyzed using EViews10, and an attempt is made to infer the relationship between M&A and increased market value of companies. The relationship between the two variables is then estimated and tested.

2. Review of Literature

Several studies have looked into the phenomenon of mergers and acquisitions and its impact on the market value of companies. Some of these studies are listed below:

2.1**. (Nagendra, Kumar& Laxon) (2018):** Impact of Merger on Stock Market- a Study on selected Industries

The study aimed at examining the effect of mergers on the performance of the company's share prices in the stock market by assessing their performance before and after

mergers and acquisitions and comparing the impact of mergers among different industries. The study covered the mergers and acquisitions that took place in India during the study period 2000- 2014 in five industries: Banking industry, pharmaceutical industry, textile industry, chemical industry and plastic industry. Prices were monitored by taking daily adjusted market price data of the stock samples 15 days before and 15 days after the merger date. The study concluded that mergers and acquisitions are a strategic tool used by companies to counter competition. It also found that the abnormal return of the stock was negative for 10 days and positive for 6 days after the merger or acquisition, whereas before the merger, it was negative for 8 days and positive for 8 days before the merger. During the entire period, the abnormal return was negative for 18 days and positive for 14 days. The average return or acquisition of the post-merger period was higher than that of the pre-merger period in most industries, and as a result, investors enjoyed, in the post-merger or acquisition period, more return than expected, thus driving the stock market upwards for the same period. The study thus concluded that buying shares after the merger or acquisition was less risky than in the pre-merger period, and that; likewise, return after the merger process was higher than before the merger or acquisition.(Nagendra .S, Satish Kumar and Laxon , 2018, pp.775-786)

2.2.(Shrestha, Thapa & Phuyal) (2017): A Comparative Study of Merger Effect on Financial Performance of Banking and Financial Institutions in Nepal

This study attempted to analyze the financial performance of merged banking and financial institutions as compared to their pre-merger performance and assess stakeholders' perception towards mergers. The sample of the study was made up of six banks and financial institutions in Nepal, together with 120 respondents, to collect secondary data. The financial ratios comparison method was employed along with the t-test of changes in performance measures. The study revealed that mergers affect performance positively when large and stable banking institutions such as commercial banks are involved as opposed to mergers involving microfinance institutions (MFIs). The study further concluded that there was a significant deterioration in the loan quality after mergers in most banks constituting the sample of the stud, and that in most cases following the mergers, profitability measured in terms of return on equity (ROE) has also been adversely affected. Accordingly, the study concluded that mergers should not be regarded as the ultimate solution to cope with the challenges faced in the markets; rather, an adequate evaluation should be carried out to choose right institutions to be involved in mergers before these latter are undertaken.(Magina Shrestha, Ram Kumar Thapa and Ram Kumar Phuyal ,2017, pp.47-68)

2.3.(RAJAB BARASA) (2015) The Impact of Merger and Acquisition Announcements on Share Prices of Companies Listed at the Nairobi Securities Exchange

The objective of this study was to determine the impact of mergers and acquisition announcement on share prices of companies listed at the Nairobi Securities Exchange. The research findings demonstrated that stock prices changed immediately upon the announcement of mergers and acquisitions. In some cases, stock prices fell following the announcement, whereas in others, they went up. All in all, in some it was noted that some listed companies gained abnormal returns, whereas for others, the announcement did not, in

any way, affect share returns and accumulated returns. It was also found that the announcement of mergers and acquisitions had a significant impact on the total accumulated share returns of the various listed companies before and after the announcement. As such, mergers and acquisitions were important wealth creating projects for investors at the Nairobi Stock Exchange as they were able to positively influence stock returns even in the short term. It was also observed that, upon implementation, mergers and acquisitions led to increased shareholder wealth. Yet, the fact that some listed companies' returns were not positively affected by M&As should not be taken to mean that mergers were not long-term wealth-generating projects. The study further concluded that firms will take a grace period before they can actually benefit from consolidations. Finally, the study recommended that stock exchange regulators should require the bidding firms to make full disclosures.(rajab barasa, 2015,pp.1-44)

3. Mergers and Acquisitions

The definition of mergers and acquisitions is linked to the concept of external growth which is inherent to the company's strategy; external growth is marked by a complete or partial aggregation of many companies which may be achieved through M&A. External growth is a mode of development that enables the acquiring company to control assets that are already operational in the market, and which initially were owned by other firms. (Thierry Mel, 2017,p.26)

3.1. Definition of Merger and Acquisition

The term mergers and acquisitions are often interchangeably used although together they include more than one form of transaction of acquiring ownership in other companies. Specific meaning of these different forms of transactions is discussed below.

- **A merger happens** : when two firms, often of about the same size, agree to go forward as a single new company rather than remain separately owned and operated. Both companies' stocks are surrendered and new company stock is issued in its place .(Jim Downey , 2008,p.03)
- **An acquisition happens :** when one company takes over another and clearly establishes itself as the new owner; the purchase is called an acquisition. From a legal point of view, the target company (i.e. the acquired company) ceases to exist, the buyer 'swallows' the business and the buyer's stock continues to be traded. (Jim Downey , 2008,p.03)

3.2. Advantages of mergers and acquisitions: The economic merits of merging and acquisitions include: (Sikirat Bakare, 2016,pp.6-7)

- It assists in building an empire.
- It brings about diversifications.
- It brings about tax merit.
- It increases market power.
- Expansion in production without price reduction

Beyond this, a M&A can be beneficial to competition in market more generally through : (Malaysian Communications and Multimedia Commission, 2019,p.01)

- Preventing the exit of a failing or underperforming firm which would otherwise have left the market;
- Creating a countervailing source of power against an existing source of dominance in a market such as a competitor or supplier; and
- Enhancing a domestic market's ability to compete against international entrants, either in the domestic market or in international markets.

3.3. The Reality of Mergers and Acquisitions

M&A activities have grown significantly throughout the world over the last two decades. At the present time, the value and size of M&As activities have reached unprecedented record levels with a steady rise in the number of transactions. The following table tracks the evolution of the number and value of M&A transactions during the period (1985-2018).

Table N°(1):Mergers Acquisitions Worldwide- billion dollars-(1985 -2018)

years	Number	Value	years	Number	Value
1985	2676	347,28	**2002**	27201	1241,81
1986	4228	434,75	**2003**	29573	1410,86
1987	5279	505,80	**2004**	32953	2145,22
1988	7440	776,63	**2005**	36025	2794,17
1989	10135	757,70	**2006**	41407	4022,98
1990	10814	540,20	**2007**	47455	4920,25
1991	14722	397,36	**2008**	45173	3075,43
1992	14102	400,43	**2009**	40710	2186,97
1993	14772	515,63	**2010**	43200	2718,95
1994	16816	624,32	**2011**	42578	2638,65
1995	20278	1039,24	**2012**	40362	2517,25
1996	24310	1217,45	**2013**	38651	2522,75
1997	26227	1823,98	**2014**	42950	3953,29
1998	30218	2677,59	**2015**	47155	4765,19
1999	33132	4116,33	**2016**	49014	3640,03
2000	39783	3623,06	**2017**	52213	3716,28
2001	31047	1866,33	**2018**	50052	3895,97

Source: World Federation of Exchanges,Statistics Portal, available online: https://imaa-institute.org/mergers-and-acquisitions-statistics/,2018 .

The table shows that M&A have gone through seven stages of upswings and downswings during the study period (1985-2018) ; that can be summarized as follows:

3.3.1. Stage 1 (1985-1994): In this period, M&A activities did not exceed 624.32 as shown in the table. It is also noted that they were rather stable over the same period.

3.3.2. Stage 2 (1995-1999): Merger and acquisition activities grew steadily after 1995, with the number of mergers and acquisitions amounting to 20278 transactions worth $1039.24

billion. The trend continued upward till 1999 with the number of transactions reaching 33132 totaling $4116.33 billion, up by 559.33% from 1994.

3.3.3. Stage 3 (2000-2002): Although the number of transactions increased in 2000 and 2001, the value of M&A transactions decreased in value compared to the previous stage. In 2003, the number of M&A transactions was marked by a sharp decline with the number falling to 27201 transactions worth $1241.81 billion, a decrease of 69.83% in comparison with 1999.

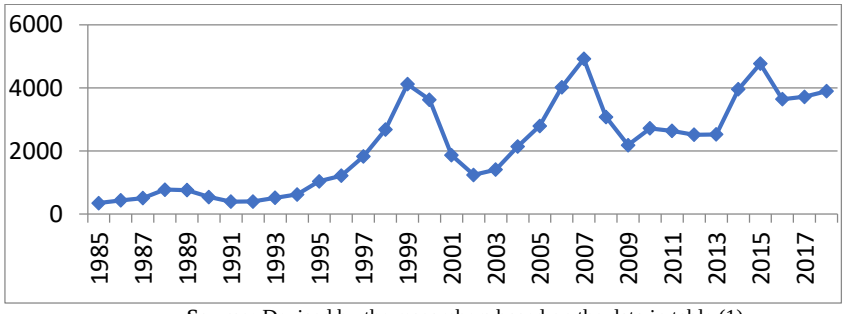
3.3.4. Stage 4 (2003- 2007): After the decline witnessed during the period (2000-2002), merger and acquisition activity experienced a steady growth, reaching its highest value throughout the period of study with 47455 merger transactions valued at $4920.25 billion, an increase of 296.21% compared to 2003.

3.3.5. Stage 5 (2008-2013): The number of transactions in this period dropped to its lowest level in the year 2013 where it came down to 38651 transactions worth $2522.75 billion, a drop of 48.72% compared to 2007.

3.3.6. Stage 6 (2014-2015): Subsequent to the decline in the preceding period, merger activity was significantly higher in the period (2014-2015), with 47155 transactions worth $4765.19 billion, up by 88.88% from 2013.

3.3.7. Stage 7 (2016-2018): This period witnessed a certain degree of stability, with M&A values ranging between $3640.03 billion and $3895.97 billion. The figure below shows the value of M&A transactions from 1985 to 2018.

Figure N°(1): The value of M&A transactions during 1985-2018 (in bil.USD)



Source: Devised by the researchers based on the data in table (1)

In terms of industries, most of the M&A took place between 1985 and 2018 in Media & Entertainment and Energy & Power industries with a value of $5956,7 billion and $5944,7 billion respectively amounting 12.88 % 12.85%. Next is the Telecommunication and Banking industries with a value estimated at $5813,19 billion and $5249,33billion respectively making up 12.57% and 11.35%. As to Other industries such as Consumer Products and Services registered 10.58 %, Pharmaceuticals 7.64%, Retail 5.8%, Software & Internet Services 5.02%, Insurance 4.94%, Chemicals 3.86%, Automobiles 2.65%, Healthcare Equipment and Supplies 2.63%, Steel 2.38%, Machinery 2.2%, whereas IT

Consulting Services and Container & Packaging industries registered ratios of 1.82% and 0.83% respectively (World Federation of Exchanges, 2018)

4. Econometric Study of the Effects of M&A on the Market Value of companies

In order to determine the relationship between the two variables, we have analyzed the value data pertaining to the mergers and acquisitions undertaken around the world and the market value of the traded shares by processing them using EViewS10.

4.1. Study variables: This study attempts to explain the relationship between M&A and the market value of the companies measured in this study, and the market value of the traded shares**.** To this end, the researchers had access to WFE data (World Federation of Exchanges, 2018) on mergers and acquisitions, with respect to the variable "market value of traded shares", the database published by the World Bank (World Bank, 2018)was consulted. The study period spanned from 1985 to 2018.

4.2. Stability Analysis of Time Series: We will test the stability of the time series of the model variables using the Augmented Dicky Fuller test (ADF) for its accuracy in determining the stability of time series and their statistical characteristics in terms of their order of integration and the nature of their stability. After entering data into the EViews 10, the following results were drawn:

Table N° (2) : Dicky Fuller test applied on the time series AM and VST at level

variables	models	H_0: λ=0			H_0 :c=0			H_0 :b=0		
		t_{tab}	prob	t_{cal}	t_{tab}	prob	t_{cal}	prob	$t_{tab(5\%)}$	t_{cal}
AM	6	3.84	0.00	**3.18**	0.52	0.60	**3.47**	-4.66	-3.55	0.00
	5	-	-	-	2.17	0.04	**2.89**	-1.34	-2.98	0.59
	4	-	-	-	-	-	-	0.78	-1.95	0.84
VST	3	3 .51	0.01	**3.18**	-0.59	0 .55	**3.47**	- 2 .80	-3 .55	0.20
	2	-	-	-	1.54	0.13	**2.89**	-1.15	-2.95	0.68
	1	-	-	-	-	-	-	0.09	-1.95	0.70

Source: Prepared by the researchers based EViews 10 output

4.2.1. Stationarity of series (AM): Based on the data in the table, and after estimating model 6, we note that the trend coefficient is significant since t_{cal}(3 .84 >t_{tab}(3 .18). When the Dicky Fuller Approach is applied, we observe, in the same model, that the unit root is absent because the calculated t-value of the series (AM) t_{cal}(-4 .66) is lower than that of table value t_{tab} (-3 .55). This signifies that (AM) is a non-stationary series of a TS class.

4.2.2. Stationarity of series (VST): Based on the table above, we observe that there is a trend in the third model since t_{cal}(3 .51) is higher than t_{tab}(3 .18). Applying the Dicky Fuller approach, it is noted that there is a unit root as t_{cal}(-2 .8) >t_{tab}(-3 .55), it follows that (VST) is not stationary. So, we shall estimate the second model.

For the second model, it is noted that the constant model is insignificant as t_{cal}(1.54) <t_{tab}(2.83, and a unit root is present since t_{cal}(-1 .15) >t_{tab}(-2 .95). Therefore, the first model is to be estimated.

A unit root is found in the first model, for t_{cal}(0 .09) >t_{tab}(-1 .95). That being said, (VST) is a non-stationary series of a DS class. The table below illustrates the stationarity test for the first differences.

Table N° (3) : Dicky Fuller Test applied on time series AM& VST at level- first difference

variables	models	H_0:λ=0			H_0 :c=0			H_0 :b=0		
		t_{tab}	prob	t_{cal}	t_{tab}	prob	t_{cal}	prob	$t_{tab(5\%)}$	t_{cal}
AM	6	0.089	0.92	**3.18**	-0.07	0.93	**3.47**	-4.66	-3.55	0.00
	5	-	-	-	0 .00	0.99	**2.89**	-4.74	0.00	-2.95
	4	-	-	-	-	-	-	-4.82	-1.95	0.00
VST	3	-0.17	0.85	**3.18**	0.61	0 .54	**3.47**	-5 .31	-3 .55	0.00
	2	-	-	-	0.97	0.33	**2.89**	-5.41	-2.95	0.00
	1	-	-	-	-	-	-	-5.33	-1.95	0.00

Source: prepared by the researchers based on EViews 10 output

4.2.3. Stationarity of the series (DTAM): It is noted, through the table above that the series (DTAM) has no trend in model 6, no constant term either in model 5, and no unit root in model 4. Therefore, (DTAM) is a level stationary series.

4.2.4. Stationarity of the series (DVST): The series (DVST) has no trend in model 3, nor a constant term in model 2, nor a unit root in model 1. Therefore, (DVST) is a stationary series in the first difference.

4.3. **Analysis of Cointegration using Pesaran Bound Testing Approach**

The researchers will employ the ARDL method of Pesaran 1997 and Sun & Shinand 1998 because it is possibly the best method out there. This is because, according to Pesaran, bound test, in the framework of ARDL, can be applied irrespective of the characteristics of the time series, be they stationary at level I0, integrated of order one I0 or a combination of both. The only requirement for this test to be applied is that the time series should not be integrated of order two I2. Moreover, Pesaran's method offers better features in the case of short time series in comparison to the other methods usually employed in cointegration testing.

Table N° (4): Results of Co-integration Test between the Study Variables Applying Pesaran's Bound Approach

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n=1000		
F-statistic	1.593668	10%	3.02	3.51
k	1	5%	3.62	4.16
		2.5%	4.18	4.79
		1%	4.94	5.58
		Finite Sample: n=35		
Actual Sample Size	31			
		10%	3.223	3.757
		5%	3.957	4.53
		1%	5.763	6.48
		Finite Sample: n=30		
		10%	3.303	3.797
		5%	4.09	4.663
		1%	6.027	6.76

Source: prepared by the researchers based on EViews 10 output

Bound testing results lead us to accept the null hypothesis which suggests that there is no cointegration relationship whatsoever (r=0). This is because F value equals 1.59, which is less than the minimum required in the test (3.95) at a level of significance of 5% as shown in the table. That said, the two variables are not co-integrated. Hence, VAR model will be estimated.

VAR model is a structural equation whereby the dependent variable basically is a function in its previous values and the previous values of the independent variable/variables as shown below: (عربش شفيق وأخرون ، 2011، صفحة 82)

Estimating the bidirectional Vector Autoregressive Model (VAR) which describes the behavior of the variables X & Y:

$$Y_t = \alpha_0 + \sum_{i=1}^{p} \beta_i Y_{t-i} + \sum_{i=1}^{p} \varphi_i X_{t-i} + \mu_{1t} \quad (1)$$

$$X_t = \delta_0 + \sum_{i=1}^{p} \omega_i X_{t-i} + \sum_{i=1}^{p} \theta_i Y_{t-i} + \mu_{2t} \quad (2)$$

Y =DVST
X =TMA
U_{1t} ,V_{2t} represent the residues of the models (1) and (2)

4.4. Correlation Matrix: The table below shows that the coefficient of correlation between DTMA and DVST is high at 0.65. As such, the correlation matrix denotes a strong correlation relationship between the two variables during the period 1985-2018.

Table N° (5): correlation matrix between DTMA & DVST

variables	**DVST**	**DTMA**
DTMA	0.651	1
DVST	1	0.651

Source: prepared by the researchers based on EViews 10 output

4.5. Determination of the optimal lag order: In order to estimate VAR, we have to define the number of lag orders to determine the optimal lag length using VAR order selection criteria. After analyzing the data on EViews 10, the following results were obtained:

Table N° (6) : Determination of the optimal lag order

Lag	Log	LR	FPE	AIC	SC	HQ
0	-1105.190	NA	7.61e+31	79.08503	79.18019	79.11412
1	-1093.817	20.30939	4.50e+31	78.55837	78.84384	78.64564
2	-1079.323	23.81173	2.14e+31	77.80879	78.28458	77.95424
3	-1075.005	6.476644	2.12e+31	77.78609	78.45220	77.98973
4	-1071.789	4.365685	2.30e+31	77.84204	78.69845	78.10385
5	-1059.320	15.14056*	1.31e+31*	77.23713*	78.28386*	77.55713*
* indicates lag order selected by the criterion						

Source: prepared by the researchers based on EViews 10 output

It is clear that in all criteria (LR, FPE, AIC, SC, HQ), the optimal order that attributes the lowest values to Schwars & Akaike's criteria for VAR model is order one (t-5)

4.6. Causality Test: Granger causality test requires using stationary variables because absence of stationarity might result in fallacies in the estimated regression. In the test, HO proposes that: there is no causal relationship between the variables of the study, while H1 suggests that: there is a causal relationship between the variables of the study. The test yielded the following results.

Table (7): Testing the Causal Relationship between M&A and the Market Value of Traded Shares

Hypothesis	**F_{cal} F-Fisher**	**Probability**	**observation**
DTMA does not cause DVST	88.04	0.000	There is a causal link
DVST does not cause DTMA	5.73	0.3326	No causality

Source: prepared by the researchers based on EViews 10 output

From the table above, we note that Fisher's probability (F) is below 0.05; therefore, we reject the null hypothesis and accept the alternative hypothesis. In other words, the change in the value of mergers and acquisitions (DTMA) leads to a change in the market value of trades shares (DVST).

In the second test, it is noted that the change in the market value of traded shares does not lead to a change in the value of mergers and acquisitions (DTMA) because Fisher's probability (F) is more than 0.05. It follows that Granger's causality is absent and that the causality is unidirectional.

4.7. VAR Estimation: The model will be identified using VAR technique with a lag order set to (t-5). Upon analyzing the data in EViews, the following results were obtained:

$$DVST = -0.14\ DVST(-1) + 0.31\ DVST(-2) - 0.55\ DVST(-3) + 0.33\ DVST(-4) - 0.77\ DVST(-5) + 1.69\ DTMA(-1) - 2.84\ DTMA(-2) + 2.39\ DTMA(-3) - 1.31\ DTMA(-4) + 7.75\ DTMA(-5) - + 4.23 + \hat{e}_{1t}$$

$$R^2 = 0.886 \quad , \quad \hat{R}^2 = 0.819 \quad , AIC = 61.65 \quad N = 32$$

Statistical and Economic Analysis of the VAR Model: VAR estimation results indicate that there is a correlation between the market value of traded shares for the period (T) and the value of traded shares for periods (T-2) (T-4), while there is an inverse relationship between value of traded shares for period (T) and the value of traded shares for periods (T-1) (T-3) (T-5) .We also note that there is a correlation between the market value of traded shares for the period (T) and the volume of mergers and acquisitions for the periods (t-1), (T-3) and (t-5), while an inverse relation is found to exist between the market value of traded shares in the period (t) and M&A activities for the periods (t-2) and (t-4). It is further noted that the constant term is positive.

This is explained by the fact that there is a fluctuation in the total market value of all companies' shares before M&A transactions are carried out, i.e. companies take a long period of time before they can actually benefit from mergers and acquisitions.

Also, there is a positive correlation coefficient of 88.6%, which denotes a strong relationship between mergers and acquisitions and the value of traded shares.

In addition, we note that the coefficient of determination is high standing at 0.819, which denotes the high explanatory power of the model as 81.9% of the changes in the market value of traded shares are due to the change in M&A activities.

4.8. Testing the Model' Goodness

4.8.1. Testing the Model's Stability: In order to test VAR stability, inverse root will be tested using Inverse Roots test. H0 suggests that the model is stable if all roots are below 1 and lie inside the unit circle, whereas H1 suggests that the model is unstable if all roots are superior to 1 and lie outside the unit circle. Our analysis of the data in EViews 10 yielded the results shown below:

Figure N° (2): VAR stability test results

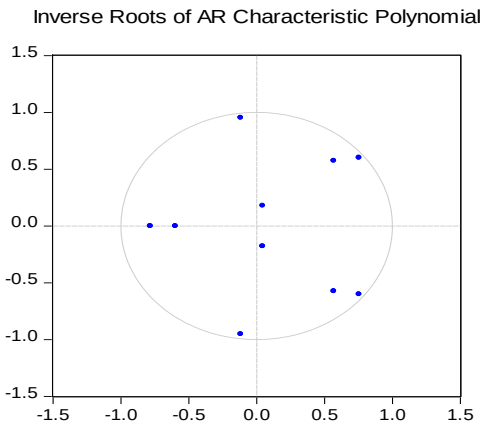


Table N° (8): VAR stability test results

Roots of Characteristic Polynomial
Endogenous variables: DVST DTMA
Exogenous variables: C
Lag specification: 1 5
Date: 01/31/20 Time: 12:18

Root	Modulus
0.755100 - 0.601778i	0.965563
0.755100 + 0.601778i	0.965563
-0.116409 - 0.952410i	0.959497
-0.116409 + 0.952410i	0.959497
0.569043 - 0.574344i	0.808505
0.569043 + 0.574344i	0.808505
-0.782708	0.782708
-0.596960	0.596960
0.044084 - 0.178921i	0.184272
0.044084 + 0.178921i	0.184272

No root lies outside the unit circle.
VAR satisfies the stability condition.

Source: prepared by the researchers based on EViews 10 output

We notice that all roots are below 1, and that they all lie within the unit circle. Accordingly, we accept the null hypothesis and reject the alternative hypothesis, which means that the estimated VAR is stable

4.8.2. Testing Error Serial Correlation: We will use Lagrange Multiplier test (LM) to test error serial correlation. H0 :proposes that: errors in the estimated model (VAR) are not serially correlated, whereas H1 : proposes that: errors in the estimated model (VAR) are serially correlated. The following table displays the test results for different orders of model error correlation.

Table N° (9): Error serial correlation test

Null hypothesis: No serial correlation at lag h						
Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	5.049608	4	0.2822	1.331425	(4, 28.0)	0.2828
2	8.842749	4	0.0652	2.495638	(4, 28.0)	0.0655

Source: prepared by the researchers based on EViews 10 output

From the table above, we notice that (VAR) residues exhibit no first or second-order serial correlation since probability values in (LM) test are all above 0.05. Henceforth, we accept the null hypothesis and reject the alternative hypothesis and conclude that the errors in the estimated model are not serially correlated.

4.9. Dynamic VAR Analysis: The dynamic analysis of the model makes it possible for us to identify the fluctuations of the dynamic system under study through measuring the effects of structural shocks on the current and future values of the variables of the system, and which will be shown in the random error terms.

4.9.1. Analysis of Structural Shocks: Structural shocks refer to the fluctuations of the dynamic system studied, which are identified through the random error terms (residuals) from Standard VAR. After analyzing the data in EViews, the following results were obtained:

Table N° (10): Effects of DTMA structural shocks on DVST

Period	DVST	DTMA
1	312.3614	508.3779
	(113.786)	(75.4460)
2	300.6405	646.0471
	(190.417)	(171.008)
3	10.57982	125.2231
	(238.177)	(218.912)
4	-87.28198	-153.2007
	(293.909)	(304.517)
5	-27.55205	-344.5408
	(316.553)	(343.258)
6	-46.56084	-173.5610
	(286.988)	(353.064)
7	-161.3983	-229.9365
	(335.668)	(388.356)
8	-43.58477	28.03787
	(367.691)	(429.341)
9	85.82009	205.2127
	(395.953)	(510.463)
10	45.32982	266.6359
	(439.479)	(585.463)

Cholesky Ordering: DVST DTMA
Standard Errors: Monte Carlo (100 repetitions)

Table N° (11): Effects of DVST structural shocks on DTMA

Period	DVST	DTMA
1	5.11E+12	0.000000
	(6.7E+11)	(0.00000)
2	4.54E+12	8.61E+12
	(2.0E+12)	(1.9E+12)
3	-2.84E+12	-4.75E+12
	(2.8E+12)	(3.3E+12)
4	-1.90E+12	-6.63E+11
	(2.7E+12)	(3.4E+12)
5	-9.67E+10	-3.55E+12
	(3.0E+12)	(3.9E+12)
6	-6.78E+11	2.84E+12
	(3.3E+12)	(4.2E+12)
7	-3.25E+12	-2.89E+12
	(2.9E+12)	(4.8E+12)
8	1.02E+12	2.51E+12
	(3.2E+12)	(5.0E+12)
9	3.06E+12	2.63E+12
	(3.8E+12)	(6.0E+12)
10	7.59E+11	2.51E+12
	(3.9E+12)	(6.7E+12)

Cholesky Ordering: DVST DTMA
Standard Errors: Monte Carlo (100 repetitions)

Source: prepared by the researchers based on EViews 10 output

4.9.1.1. M&A Shock Effects (DTMA): From the tests performed in EViewS10, the functions showed that the response of the market value of traded shares to M&A shocks had positive and negative effects in the short, medium and even in the long term. When a positive shock of 508.3 was caused to (DTMA) in the period (t=1), a positive effect was produced on (DVST) at 312.3. When another positive shock at 646.04 was caused to

DTMA in the period (T=2), it also generated a positive effect on (DVST) by 300.64. The same holds true for the other periods, for it has been observed that as random positive shocks were caused to the independent variable, they have induced positive effects throughout the response period; similarly, negative effects were caused to the independent variable throughout the response period after triggering random negative shocks.

4.9.1.2. DVST Shock Effects: The functions in EViewS10 show that the response of M&A (DTMA) to the shocks of the market value of traded shares (DVST) has positive and negative effects over the response period.

4.9.2. Error Variance Analysis Test: Having studied the response functions, we shall now conduct an error variance and forecast test by translating the total variance at horizon h (10>h>1) into ratios representing the contribution of the variance of each variable in the model to the total variance. After entering the data into EViews 10, the following results were obtained:

Table N° (12): Error variance test analysis

Variance Decomposition of DVST:			
Period	S.E.	DVST	DTMA
1	5.11E+12	100.0000	0.000000
2	1.10E+13	38.67774	61.32226
3	1.23E+13	36.17304	63.82696
4	1.25E+13	37.55258	62.44742
5	1.30E+13	34.74560	65.25440
6	1.33E+13	33.32493	66.67507
7	1.40E+13	35.49384	64.50616
8	1.42E+13	34.72832	65.27168
9	1.48E+13	36.42528	63.57472
10	1.50E+13	35.57288	64.42712

Source: prepared by the researchers based on EViews 10 output

Upon reading the table on the contribution of the variable M&A (DTMA) to the interpretation of the variance decomposition of the variable (DVST), it is found that in the short term: the dependent variable has no contributions in the first year, and that 100% of the interpretation is due to its own shocks. In the second year, 61.32% of the forecast error variance of the market value of the traded shares is due to the Merger and Acquisition variable (DTMA). This percentage increases to 62.44% in the short term (Fourth year).

It is also noted that the percentage of forecast error variance of the market value of traded shares over the response period rose to 66.67% in the medium term (sixth year), which is the highest percentage recorded over the response period. This means that the contribution of (DTMA) to the interpretation of the variance decomposition of (DVST) is 66.67%, which then started to decrease to eventually level off in the range of 63% - 64% in the long term. The remaining 33.32% was due to its own shocks.

Based on the results of the variance decomposition, it can be said that the impact of M&A on the market value of traded shares start to be felt in the short and medium terms, and tend to plateau afterwards in the long term.

5 .Conclusion

The study concludes that the null hypothesis is to be rejected in favor of the alternative hypothesis which was proven, since the econometric study revealed a positive

effect produced by mergers and acquisitions on the market value of shares, especially in the medium and long term as demonstrated through Granger Causality test, the analysis of the variance analysis ratios and response functions. Accordingly, the findings of the study along with a set of recommendations are presented below:

Findings: Through the text of the study, the following conclusions can be drawn:

–Mergers and acquisitions are among the modern corporate expansion and growth strategies in the contemporary business world.

– The number of M&A transactions increased steadily from 1985 to 2018 reaching its peak in 2007. Most of these mergers and acquisition activities were undertaken in the Media & Entertainment and Energy and Banking industries.

– As far as the relationship between M&A and the market value goes, the econometric study showed that there is a positive relationship as evidenced by the positive effect of impulse response functions and the 65% correlation coefficient.

– The estimation results of (VAR) with five lags indicate that there is a correlation between the market value of traded shares in the period (t) and the value of mergers and acquisitions for the periods (T-1), (T-3), (T-5), and an inverse relationship in the periods (T-2) and (T-4);

– Granger Causality test has established that there is a one-way causality that runs from mergers and acquisitions towards the market value of shares;

– The analysis of error variance decomposition results indicate that mergers and acquisitions have a significant role and impact on the market value of shares, especially in the medium term, as the highest ratio was 66.67%.

Recommendations: In light of our findings, a number of recommendations are proposed hereunder:

– promising industries and sectors requiring cheap transactions should be spotted before engaging in mergers and acquisitions so that the M&A have positive effects on maximizing the value of the company;

– A serious consideration ought to be given to the merger decision, and a thorough, careful and in-depth study of the merger process should be carried out so that the merging companies make the best use of the potentials and capabilities of the merged companies;

– Before mergers, the target companies should be examined in terms of viability, market share growth, cost rate, sector concentration degree and how proportionate it is to the increased size.

– Market bodies should require the merged companies to provide transparency and make disclosures to the interested parties, including shareholders, to enable them to analyze the effects of M&A and assess its pros and cons, and ultimately succeed in maximizing the value of the company;

– Market bodies should design a system to monitor mergers and acquisitions to maintain a fair competition environment and combat monopoly, and thus prevent markets from being adversely affected by acquisitions and mergers.

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