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AN EMPIRICAL INVESTIGATION OF THE IMPACT OF BANKING SECTOR CAPITALIZATION ON STOCK MARKET DEVELOPMENTS IN ZIMBABWE

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ABSTRACT

The study examined the impact of bank capitalization on stock market development in Zimbabwe using monthly data for the period 2009 – August 2018. The study sought to establish the relationship between bank capitalization and stock markets development; examine the impact of bank capitalization on the performance of the ZSE and to determine the direction of causality between banking sector capitalization and stock market development in Zimbabwe. The study used secondary monthly data obtained from the RBZ and the ZSE for the period 2009 to August 2018. The causality and directional relationships between bank capitalization and stock market turnover were analyzed using the Autoregressive Distributed Lag (ARDL) methodology. The Granger Causality tests were used to determine the direction of causality between bank capitalization and ZSE Turnover. Lastly, the VAR, GARCH (1,1) and Generalized Impulse Response Functions (GIRFs) were used to examine the impact of bank capitalisation on ZSE Turnover. The study established that there is a long run equilibrium relationship between ZSE turnover and Bank Capitalisation in Zimbabwe. The study established that 97.03% of the short run shocks caused by an increase in Bank capitalisation on the ZSE Capitalisation will be adjusted back to the long run path in 1.03 months. Therefore, the study concluded that any shock to the banking sector directly affects the performance of the ZSE and that in Zimbabwe the finance based markets are directly linked to equity based markets. Given these findings, the study recommended that the RBZ should ensure stability in the financial sector in order to positively influence the developments on the ZSE and should implement policies that attract foreign portfolio investments on the ZSE as this will translate into improved liquidity on the ZSE as well as the financial sector. In addition, the RBZ should fully implement Basel II and III codes to enhance liquidity in the financial sector which is critical in influencing the ZSE performance.

1.0 INTRODUCTION

The debate on the relationship between the stock markets developments and the banking sector capitalization remain inconclusive in academic literature and economic research. Most studies in literature acknowledge the importance of both stock markets and the banking sector in mobilizing resources for economic growth. The argument is that since both banks and stock markets intermediate savings towards investment, they can be seen as either substitutes or as complements (Naceur et al., 2007). Studies such as

Ndikumane (2005), established that banks and stock markets are complements rather than competitive. In contrast, researchers such as Song and Thakor (2010) view the relationship between banks and stock markets as being of competitors. Thus traditionally, banks and stock markets are often viewed as competing sources of financing. According to Song and Thakor, (2010), this bank versus markets distinction implies that banks and stock markets develop at the expense of each other and hence, regulators should strike a balance between the two. Aduda *etal* (2012) investigated the determinants of stock market developments on the Nairobi Stock Exchange and found that stock market developments is determined by stock market liquidity, institutional quality, income per capita, domestic savings and bank development. It is against this background that this study sought to examine the impact of bank capitalization on stock market developments.

1.1 Relevance of the Study

Whilst the banking sector in Zimbabwe is reported to be stable as indicated by capital adequacy ratio of 27.3% and liquidity ratio of 62.62% which is well above the international threshold of 30%, there have been liquidity challenges in the economy (RBZ, 2017). Ideally, when bank capitalisation increases, liquidity should also improve. Despite the implementation of Basel I and Basle ll codes and of adjusting the bank capitalisation requirements, liquidity challenges have remained an albatross on the financial sector. There are arguments that the liquidity challenges are linked to the instability of the ZSE as investors speculate on the capital markets leaving out the money market, a situation which has starved the money market of liquidity. The debate on the relationship between bank capitalization and stock markets development has remained inconclusive in Zimbabwe. It is against this background that the study seeks to establish whether the increases in bank capitalization had any effect on the stock market developments.

1.2 Research Objectives

This research seeks to examine the impact of bank capitalisation on stock market developments using data from Zimbabwe.

Main Objective - The main objective of this study is to answer the questions concerning the impact of increasing banks' capital on stock market performance in Zimbabwe.

Specific Objectives - The following were the specific objectives of the study:

i. To establish relationship between bank capitalization and stock markets development;
ii. To examine the shocks of changing bank capitalisation on the performance of the ZSE; and
iii. To determine the direction of causality between banking sector capitalization and stock market development in Zimbabwe.

2.0 LITERATURE REVIEW

2.1 Theoretical Literature Review

Bank Leverage Cycle Theory

For banks that are listed on the stock exchange, improvements in their capitalization is deemed to conflict with shareholder value, as banks have used leverage to produce sustained shareholder value (Caruana, 2012). The intuition is that, when banks increase their equity base or reduce leverage, they work each unit of equity less. That is the risk borne by each unit of equity falls and so does the return investors require. Caruana (2012) states that bank equity was on average leveraged more than 18 times in 1995 - 2010. Equity in non – financial firms was leveraged only three times. This implies that compared with other firms, banks can succeed in delivering only average return on equity over long term but at the cost of higher volatility and losses in bad times. Nuno and Thomas (2014) outlined that the dynamic feedback properties of leverage, volatility, and asset prices form the so called bank leverage cycle. They noted that market participants tend to behave in a pro-cyclical fashion and the capacity to leverage balance sheets permits for them to engage in greater speculation on asset prices than unleveraged investors, if speculation is the principal motive behind their decision to borrow and their equity losses in the event of a gamble going badly are lower than expected payoffs.

The bank leverage cycle has been examined closely in recent years, especially in the post 2008 period by Adrian and Shin (2013), Ashcraft, Garleanu and Pedersen (2011). As documented by Adrian and Shin (2010, 2011), since the 1960s the leverage ratio which is the ratio of total assets to equity capital of banks or financial intermediaries have exhibited a markedly pro-cyclical pattern, in the sense that expansions in balance sheet size have gone hand in hand with increases in leverage. Contractions in bank balance sheets sizes have gone hand in hand with decreases in bank leverage. Leverage tends to be pro-cyclical because the expansion and contraction of bank balance sheets amplifies rather than contains the credit cycle. Fostel and Geanakoplos (2013) empirical evidence has shown that bank leverage rises during boom times and falls during downturns. The reason for this phenomenon is that banks actively manage their leverage during the cycle using collateralized borrowing and lending. When monetary policy is expansionary relative to macroeconomic fundamentals, banks expand their balance sheets and, as a consequence, the supply of liquidity increases. In contrast, when monetary policy is contractionary, banks contract their balance sheets, reducing the overall supply of liquidity. According to Nuno and Thomas (2014) this evidence points to the importance of bank leverage cycle fluctuations on real economic activity.

Caruana (2012) states that bank stock risk adjusted returns have been subpar. He argues that it is high leverage that has contributed to the volatility of bank profits and it is high leverage that makes banks perform so badly on rainy day. Caruana (2012) argues that for banks in the short investment horizon there is a conflict between value for shareholders and the public interest in safer banking but over the long horizons these tension tend to disappear because in the long term, the focus necessarily shifts to sustainable profits and returns. According to Caruana (2012) the world response to the 2007 – 2008 global financial crisis was Basel III which seeks to strengthen the resilience of the banking system. Basel III requires that shareholders give up high leverage as a source of high returns on equity. And it asks bondholders, especially those of systemically important institutions, to take more of a hit in the event of failure. In this light, it is easy enough to imagine that investors would have little reason to hail the new framework.

By contrast DeAngelo and Stulz (2013) stress the liquidity function of banks and argue for lower levels of equity capital. High leverage is optimal for banks in order for them to have a meaningful role in liquid-claim production (that is demandable deposits) Their model has a market premium for (socially valuable) safe/ liquid debt in the form of deposits, but no taxes or other traditional motives to lever up. Because only safe debt commands a liquidity premium, banks with risky assets use risk management to maximize their capacity to include such safe debt in the capital structure. The model of DeAngelo and Stulz (2013, revised 2014) thus explains why banks have higher leverage than most industrial firms, and also that leverage limits for regulated banks impede their ability to compete with unregulated shadow banks. But this model does not explain what happens when banks end up with lots of bad assets and things start going wrong.

Apart from an adverse impact on financial stability, the most significant drawback of excessive leverage is debt overhang which reduces the efficiency of bank lending. It prevents banks from lending money to finance investment, even where that investment is guaranteed to produce a return, because of the excessive borrowing and fragile capital structure built up during periods of economic growth. Banks with large debt- equity ratios will therefore pass up valuable investment opportunities, even where those opportunities produce a positive net value to the firm. Where bank capital falls due to asset re-pricing it will prove extremely difficult for a bank to escape debt overhang, and worthwhile investments will be sacrificed in favour of asset sales and deleveraging. Accordingly, replenishment of a bank's capital base is required in these circumstances of stress, or, the bank will be unable, is willing, to extend credit to worthwhile borrowers. This, by implication, reduces the overall volume of funding available to finance projects and creates inefficiencies in the allocation of funds. Thus, highly leveraged banks eventually make less efficient investment decisions, resulting in both underinvestment due to the debt overhang and misallocation of resources.

2.2 Empirical Literature Review

Several studies that have examined the relationship between banks and stock markets developments include Garcia (1986), Boyd and Smith (1996), Demirguc-Kunt and Levine (1996), Garcia and Liu (1999), Naceur et al. (2007) and Yartey (2008), amongst others, and suggested that banks and stock markets are complementary rather than competitive systems. Boyd and Smith (1996), for example, suggest that banks and stock markets may behave as complements rather than substitutes. The empirical work done by Demirguc-Kunt and Levine (1996) also shows that the degree of stock market development is positively related to that of bank development. While examining the macroeconomic determinants of stock market development, Garcia and Liu (1999) also found that financial intermediary development has a positive impact on stock market development in a sample of Latin American and Asian countries. In South Africa, Odhiambo (2010) found a distinct positive relationship between banks and stock markets both in the short and long term. However, noteworthy is that these studies were conducted in countries with their own currencies and relatively stable financial sectors. In contrast, this study will be conducted in a dollarized economy characterised by liquidity challenges and financial market instabilities.

Somilani and Obi (2011) assessed the relationship between bank capitalisation and stock market liquidity in Nigeria using annual data covering the period from 1986 to 2014 and found that bank capitalisation enables banks to give out more loans to the public and this increase had a positive impact on stock market liquidity growth. According to Thakor (1996), it is obvious that banks with more capital are financially able to explore profitable projects, expand operations and take on well estimated levels of risks, while those banks with limited capital refrain from investing large sums of money in lending activities, which is risky, and instead invest much of their money in less risky government securities. Therefore, capital adequacy is deemed to have a positive relationship with bank efficiency. However, the Somilani and Obi study of 2011 used 28 observation using annual data from 1986 to 2014. In contrast, this study is going use high frequency monthly time series data from 2009 to July 2018, giving 115 observations. Aduda, Masila and Onsongo (2012) investigated the determinants of stock market development in the Nairobi Stock Exchange using secondary data for the period 2005-2009. The study revealed that, macro-economic factors such as stock market liquidity, institutional quality, income per capita, domestic savings and bank development were important determinants of stock market development in the Nairobi Stock Exchange. The study also concluded that external finance was instrumental in supporting stock market developments. In contrast, the current study will look into the impact of bank capitalisation on stock market developments using bi-variate model.

Yartey, (2008b) suggests that stock market development has a nonlinear relationship with banking sector development. Yartey, (2008b) argues that stock market development is initially supported by banking sector development through trade intermediation. However, as stock markets develop they begin to compete with banks in financing investment. In Sub Saharan Africa, Yartey and Adjasi, (2007) found that financial intermediary sector development tended to increase stock market development. However, as stock markets develop, they will also provide financing to the economy, the same way the banking sector does, thus they become competitors. Andrianaivo and Yartey (2009) examined the impact of a range of macroeconomic factors on both banking sector and stock market development. Their findings show that stock market liquidity, domestic savings banking sector development and political stability are the main determinants of stock market development. While the study by Andrianaivo and Yartey (2009) examined the impact of a range of macroeconomic factors on both banking sector and stock market development, the current study is going to limited to the impact of bank capitalisation on stock market developments.

While examining the macroeconomic determinants of stock market development, Garcia and Liu (1999) noted that the developments in the banking sector have a positive impact on stock market development in a sample of Latin American and Asian countries. In contrast, Garcia (1986) argues that central banks may generate a negative correlation between bank growth and stock market development. However, according to Yartey (2008), the relationship between the two systems is non-monotonic. At the early stages of its development banking sector development serves as a complement to the stock market development in financing investment. As the two systems develop, they begin to compete with each other as vehicles for financing investment. This study is going to adopt the granger causality to test directional relationship between bank capitalisation and stock market developments and confirm is whether the argument by Garcia (1986), Garcia and Liu (1999) and Yartey (2008) holds in Zimbabwe.

From the above empirical evidence, it can be concluded that there are conflicting results on the relationship between stock market developments and the bank capitalization. Results vary from there being a complementary role to a substitution role of the two variables. In addition, there are no known studies on the relationship between bank capitalization and stock market developments in Zimbabwe. Noteworthy is that Zimbabwe has different characteristics with some countries that were covered under the empirical evidence in that it adopted the use of multi currency system in 2009 and has a fragile financial sector characterised by lack of bank confidence, which led to the collapse of 6 banking institutions during the hyperinflation period which led to the adoption of multiple currency system. Hence, these differences provide a research gap which the study seeks to explore.

3.0 METHODOLOGY

The study will use monthly time series data from January 2009 to July 2018, gathered from RBZ and ZSE. The data include bank capitalization in US$ and ZSE market turnover in US$. The period covered in the study was informed by developments both on the ZSE and banking sector in Zimbabwe. The ARDL, the VAR and GARCH (1, 1) models will be applied.

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4.0 DATA PRESENTATION AND ANALYSIS

4.1 Descriptive Statistics

Table 4.1: Descriptive Statistics

	BANKCAP	DLNBANKCAP	DLNZSETURNOVER	LNBANKCAP	LNZSETURNOVER	ZSETURNOVER
Mean	8.83E+08	20.47771	17.21483	20.49152	17.24550	37049867
Median	8.03E+08	20.50104	17.29519	20.50395	17.29838	32553130
Maximum	1.85E+09	21.25832	19.15076	21.33630	19.15076	2.08E+08
Minimum	3.88E+08	19.77591	14.73269	19.77591	14.91896	3014535.
Std. Dev.	4.04E+08	0.469301	0.652995	0.471419	0.615701	26474470
Skewness	0.526362	-0.039348	-0.734831	-0.043342	-0.402655	3.553089
Kurtosis	2.144085	1.783822	5.532906	1.806767	4.745154	21.53451
Jarque-Bera	8.667184	6.993202	40.37640	6.739124	17.39300	1855.205
Probability	0.013120	0.030300	0.000000	0.034405	0.000167	0.000000
Sum	9.98E+10	2313.981	1945.276	2315.541	1948.742	4.19E+09
Sum Sq. Dev.	1.83E+19	24.66731	47.75704	24.89043	42.45789	7.85E+16
Observations	113	113	113	113	113	113

Table 4.1 above shows the descriptive statistics for the bank capitalisation and the ZSE turnover. The number of observations for each variable is 113. The data has been converted into logarithms for ease of comparison. Taking natural logarithms only reduces the scales of the original time series but does not change the character of the variables. It also removed heteroskedasticity in the time series. The descriptive results tabulated above generally suggest that the data series is normally distributed as evidenced by the small difference between the mean and median. The observed maximum and minimum values suggests the absence of outliers. The maximum values for DLNBANKCAP is 21.25832 and that for DLNZSETURNOVER is 19.15076. The minimum values for DLNBANKCAP is 19.15076 and that for DLNZSETURNOVER is 14.73269 as indicated in Fig 4.1 which is the graphical representation of bank capitalisation and ZSE turnover for the period January 2009 to July 2018. The minimum values indicate the lowest value in the observations while the maximum indicates the highest value in the observations.

Fig 4.1: Graphical of bank capitalization and stock market turnover

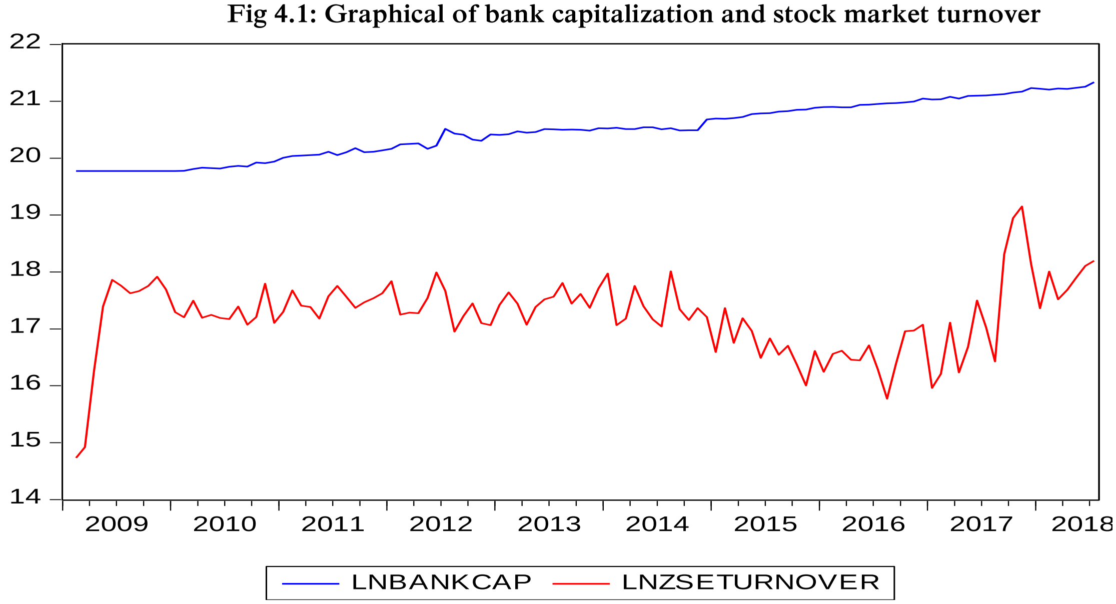
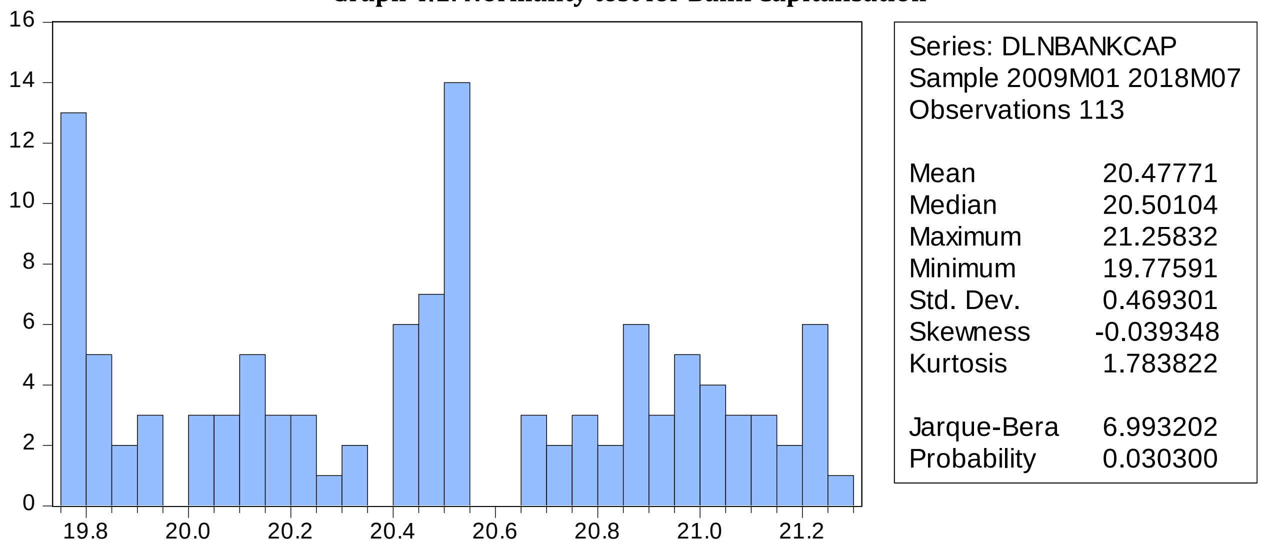


Figure 4.1 above indicates that the trends of LNBANKCAP and LNZSETURNOVER show some stochastic trends as the means are not constant and the variances are not constant. This means that bank capitalisation and ZSE turnover are not stationary (or have unit roots). Furthermore, the series indicates a possibility of cointegration between the two variables. Both variables are increasing from January 2009 to July 2018.

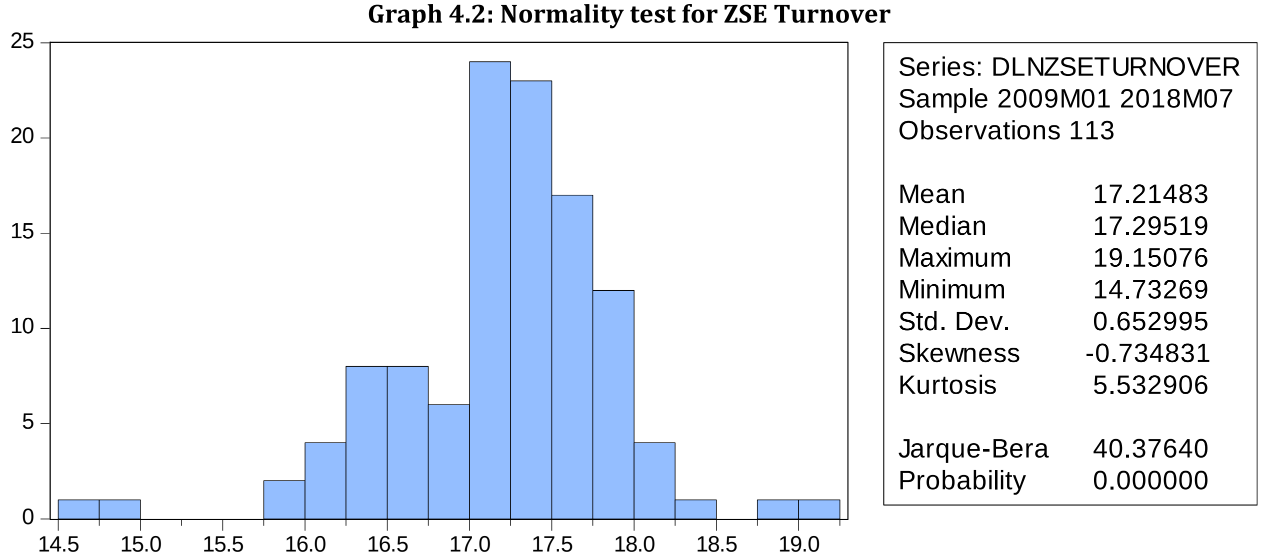
The normality tests were conducted using the Jarque-Bera test. The graph 4.1 and 4.2 below indicates the results of the tests.

Graph 4.1: Normality test for Bank Capitalisation



Graph 4.1 indicates that the average value of LNBANKCAP is 20.47 as indicated by the mean. The Jarque-Bera test measures the difference of skewness and kurtosis with those from the normal distribution. It is used to check whether the series follow a normal distribution. As indicated in graph 4.1, the Jarque-Bera value of 6.993202 and the probability value of 0.030300 is less than the critical value of 0.05 indicating that the variable is normally distributed at 5% level of significance. As indicated graph 4.1, the observations for bank capitalisation are negatively skewed as indicated by a value of -0.039348 level of skewness, showing that the observation has more lower values.

Graph 4.2: Normality test for ZSE Turnover



Graph 4.2 indicates that the average value of LNZSECAP is 17.21 as indicated by the mean. The Jarque-Bera test measures the difference of skewness and kurtosis with those from the normal distribution. It is used to check whether the series follow a normal distribution. As indicated in graph 4.1, the Jarque-Bera

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value of 40.37640 and the probability value of 0.000 is less than the critical value of 0.05 indicating that the variable is normally distributed at 10%, 5% and 1% levels of significance. As indicated graph 4.2, the observations for bank turnover are negatively skewed as indicated by a value of -0.734831 level of skewness, showing that the observation has more lower values.

4.1.2 Stationarity Tests Results

Using the Augmented Dickey Fuller test, the unit root tests were conducted using the null hypothesis that a unit root exist was tested against the alternative hypothesis that there is no unit root, of which the presence implies that the variables are non-stationary. The Augmented Dickey Fuller was chosen ahead of the Phillips Peron test because the later performs worse in finite samples than the Augmented Dickey Fuller test (Davidson and Mackinnon, 2004).

H_0: δ = 0 (there is a unit root),

Against the alternative hypothesis that.

H_1: δ<0 (that there is no unit root).

Table 4.2 Testing stationarity in Inbankcap

Null Hypothesis: LNBANKCAP has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.584214	0.0018
Test critical values:	1% level	-4.041280	
	5% level	-3.450073	
	10% level	-3.150336	

*MacKinnon (1996) one-sided p-values.

As indicated in table 4.2 above, the p value is 0.0018 in levels after including trend and intercept, therefore we fail to accept the null hypothesis that lnbankcap has a unit root and conclude that lnbankcap is stationary in levels with trend and intercept.

Table 4.3 Testing for unit roots in ZSE Turnover

Null Hypothesis: LNZSETURNOVER has a unit root
Exogenous: Constant
Lag Length: 2 (Automatic - based on SIC, maxlag=12)

		t-Statistic	**Prob.***
Augmented Dickey-Fuller test statistic		-3.702690	0.0053
Test critical values:	1% level	-3.490210	
	5% level	-2.887665	
	10% level	-2.580778	

*MacKinnon (1996) one-sided p-values.

As indicated in table 4.3 above, it can be concluded that the variable LNZSETURNOVER is stationary in levels as indicated by the p value of 0.0053. Therefore we fail to accept the null hypothesis that LNZSETURNOVER has a unit root and conclude that LNZSETURNOVER is stationary after being differenced once with an intercept.

The results as summarised in table 4.4 below show that all the variables were in levels. This means the variables are integrated of order zero I (0) at 5% level of significance.

Table 4.4: Unit Root Test

	Order of integration at 5% level of Significance
Bank Capitalization (LNBANKCAP)	I(0)
Zimbabwe Stock Exchange Turnover (LNZSETURNOVER)	I(0)

4.1.3 Correlation Tests

In order to check the dependency between the two variables, multi-collinearity tests are conducted and the results are indicated in the correlation matrix in table 4.5 below.

Table 4.5: Correlation Matrix

	LNBANKCAP	LNZSETURNOVER
LNBANKCAP	1.000000	-0.085524
LNZSETURNOVER	-0.085524	1.000000

The correlation matrix in table 4.5 above indicates the absence of multi-collinearity since there is low correlation between the two variables. The correlation between bank capitalisation and ZSE turnover is -0.085524 which is below 0.8, the benchmark of multi-collinearity.

4.2 The relationship between Bank Capitalisation and Stock Market Developments

4.2.1 Cointegration Test

To examine the relationship between bank capitalization and stock market turnover, the study employed the cointegration method on the Autoregressive Distributed Lag (ARDL) model as developed by Pesaran *et al* (2001). This is because it assist in the identification of cointegrating vectors which exist in the long run relationship between bank capitalization and stock market turnover in Zimbabwe. The cointegration procedure was carried out under the following hypothesis:

H_0: There is no significant relationship between bank capitalization and stock market turnover and;

H_1 There is significant relationship between bank capitalization and stock market turnover.

In order to conduct the ARDL procedure, the study established the order of integration of the variables using the ADF test. The rule of thumb is that none of the variables should be I (2), as this will invalidate the methodology. The ADF procedure was conducted as follows:

4.2.1.1 Determining the maximum and minimum lag length

Table 4.6: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-90.12714	NA	0.332996	1.738248	1.788502	1.758616
1	-58.68698	61.10070	0.187504	1.163905	1.239286	1.194457
2	-58.47954	0.399214	0.190333	1.178859	1.279366	1.219595
3	-53.10175	10.24825*	0.175249*	1.096259*	1.221893*	1.147179*
4	-52.94693	0.292102	0.178075	1.112206	1.262967	1.173310
5	-51.85871	2.032711	0.177792	1.110542	1.286429	1.181830
6	-51.73395	0.230684	0.180769	1.127056	1.328070	1.208528
7	-51.62573	0.198072	0.183859	1.143882	1.370023	1.235538
8	-51.56127	0.116765	0.187162	1.161533	1.412801	1.263374

* indicates lag order selected by the criterion

According to table 4.6 above, the optimum lag is 3 as determined by the AIC.

4.2.1.2 Equation Estimation using the ARDL

After the determination of the optimum lag structure, the study tested estimated the equation in order to test for serial correlation and ensure that the errors of the model are not serially correlated as shown in table 4.7 below:

Table 4.7: LNZSETURNOVER Equation 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.493431	2.167102	3.457812	0.0008
LNZSETURNOVER(-1)	0.671399	0.063002	10.65685	0.0000
LNBANKCAP	0.192595	0.913082	0.210928	0.8333
LNBANKCAP(-1)	-0.280916	0.917955	-0.306024	0.7602
R-squared	0.522016	Mean dependent var		17.24550
Adjusted R-squared	0.508860	S.D. dependent var		0.615701
S.E. of regression	0.431492	Akaike info criterion		1.191621
Sum squared resid	20.29420	Schwarz criterion		1.288165
Log likelihood	-63.32657	Hannan-Quinn criter.		1.230797
F-statistic	39.68036	Durbin-Watson stat		1.987481
Prob(F-statistic)	0.000000			

From the equation 1 in table 4.7 above, only one variable, LNZSETURNOVER(-1) (*p value of 0.0000 and t-statistic of* 10.65685) was found to be statistically significant at 1%, 5%, and 10% level of significance while LNBANKCAP (*p value of* 0.8333 *and t-statistic of* 0.210928*)* and LNBANKCAP(-1) (*p value of* 0.7602 *and t-statistic of* -0.306024*)* were not statistically significant. Therefore, there is a positive relationship between LNZSETURNOVER(-1) and the LNZSETURNOVER. This means that ZSE turnover can be explained by the turnover of its previous (lagged) time period, which is year 1.

Equation 1 was tested for serial auto correlation using the Breusch-Godfrey Serial Correlation LM Test as indicated in table 4.8 below:

H_0: There is no serial correlation on the residuals of the regression and;
H_1 There is serial correlation of the residuals of the regression.

Decision criteria: if p value is less than the critical value greater, reject the null hypothesis

Table 4.8: Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.062548	Prob. F(3,106)	0.1096
Obs*R-squared	6.232448	Prob. Chi-Square(3)	0.1008

As indicated in Table 4.8 above, the p value is greater than 5%, hence we fail to reject the null hypothesis and conclude that there is no serial autocorrelation.

Stability Test

Stability tests were conducted in order to ensure that the model is dynamically stable. This was done using the Cusum test as indicated in the figure 4.2 below:

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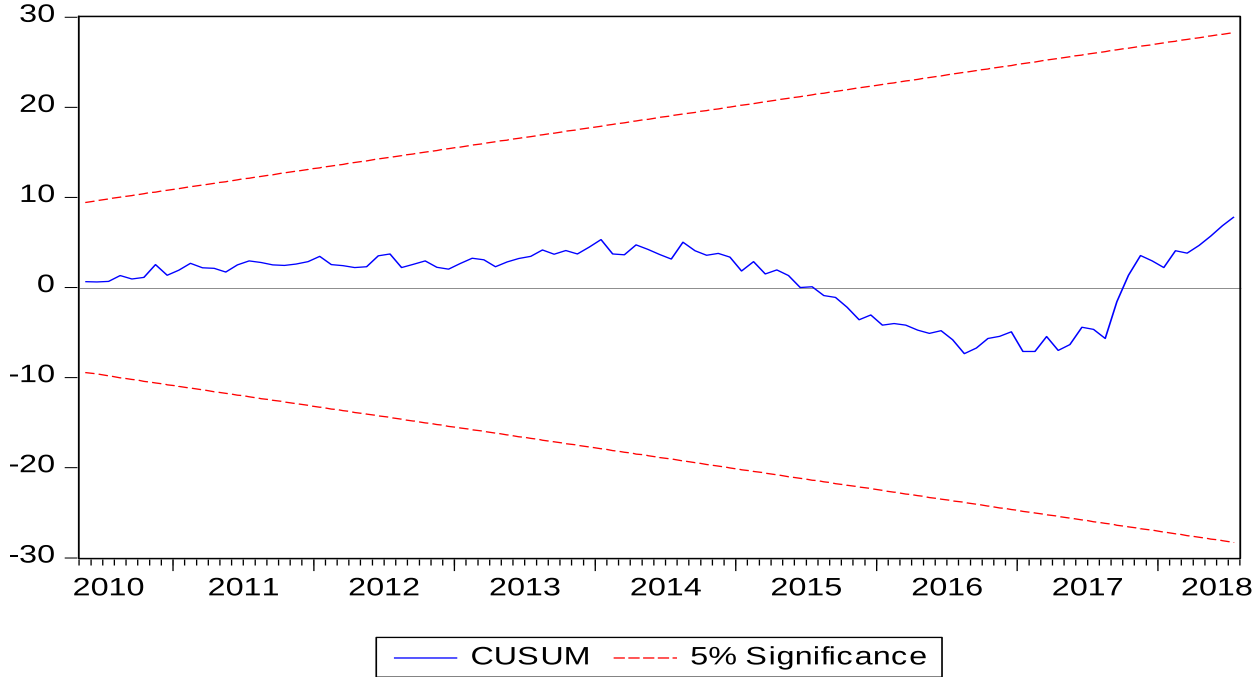
Figure 4.2: Cusum test



The test has indicated that the model is stable as the residuals are within the 5% boundaries

The study analysed the residuals of equation 1 and observed the existence of variations during the period 2009 and July 2018. The variations can be linked to political and economic developments in Zimbabwe.

Figure 4.3: Residuals of LNZSETURNOVER Equation 1

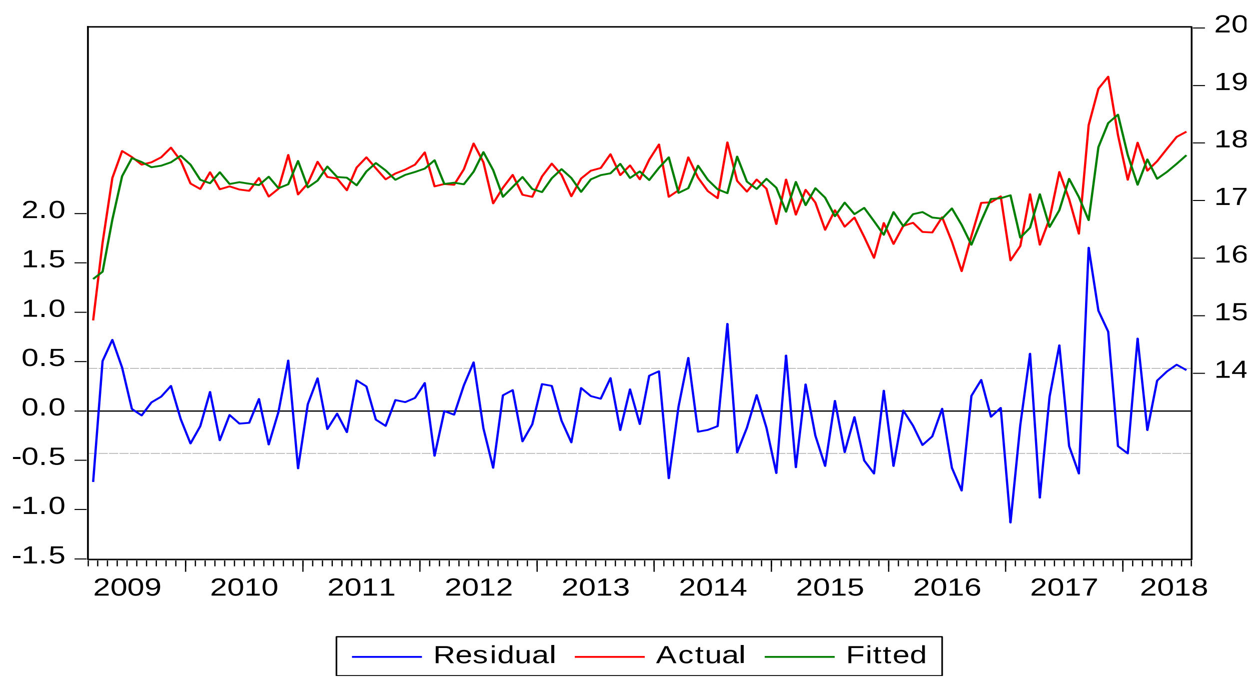


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Figure 4.3 above indicates the existence of variations on the residuals of the variables during the months: February 2009; November 2010; August 2013; October 2016; September 2017 and November 2017 and July 2018. These variations were catered for in the equation 2 below as dummy variables and the results of the study are indicated in the Table 4.9 below:

Table 4.9: LNZSETURNOVER Equation 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNZSETURNOVER(-1)	0.574630	0.054744	10.49672	0.0000
LNBANKCAP	-0.420506	0.667185	-0.630270	0.5300
LNBANKCAP(-1)	0.224098	0.672985	0.332991	0.7399
DUMM2018M7	0.627024	0.317522	1.974740	0.0512
DUMM2018M2	0.816791	0.310272	2.632498	0.0099
DUMM2017M9	1.650383	0.308958	5.341764	0.0000
DUMM2017M8	-0.582398	0.307350	-1.894900	0.0612
DUMM2017M4	-0.848379	0.308804	-2.747309	0.0072
DUMM2017M11	1.050564	0.326156	3.221045	0.0018
DUMM2017M10	1.206440	0.315948	3.818477	0.0002
DUMM2017M1	-1.098143	0.307608	-3.569940	0.0006
DUMM2016M8	-0.842564	0.308715	-2.729258	0.0076
DUMM2014M8	0.878552	0.304091	2.889115	0.0048
DUMM2014M2	-0.602676	0.307090	-1.962542	0.0527
DUMM2012M8	-0.582263	0.312471	-1.863413	0.0655
DUMM2010M12	-0.571992	0.306926	-1.863616	0.0655
DUMM2009M5	0.551252	0.313846	1.756438	0.0823
DUMM2009M3	-1.038445	0.340844	-3.046683	0.0030
C	11.37569	1.923707	5.913423	0.0000

R-squared	0.797575	Mean dependent var	17.24550
Adjusted R-squared	0.758813	S.D. dependent var	0.615701
S.E. of regression	0.302376	Akaike info criterion	0.597899
Sum squared resid	8.594536	Schwarz criterion	1.056486
Log likelihood	-14.78130	Hannan-Quinn criter.	0.783989
F-statistic	20.57609	Durbin-Watson stat	1.913062
Prob(F-statistic)	0.000000		

The results from Table 4.9 above show that the variables which include LNZSETURNOVER(-1), DUMM2009M3, DUMM2018M7, DUMM2018M2, DUMM2017M9, DUMM2017M8, DUMM2017M4, DUMM2017M11, DUMM2017M10, DUMM2017M1, DUMM2016M8, DUMM2014M8, DUMM2014M2, DUMM2012M8, DUMM2010M12, and DUMM2009M5 were statistically significant at 10% level of significant. This means that the behaviour of the ZSE turnover is determined by LNZSETURNOVER(-1), DUMM2009M3, DUMM2018M7, DUMM2018M2, DUMM2017M9, DUMM2017M8, DUMM2017M4, DUMM2017M11, DUMM2017M10, DUMM2017M1, DUMM2016M8, DUMM2014M8, DUMM2014M2, DUMM2012M8, DUMM2010M12, and DUMM2009M5 at 10% level of significance. In addition, the variable LNBANKCAP and LNBANKCAP(-1) was found not statistically significant in determining the LNZSETURNOVER. The residuals from Equation 2 were tested for serial correlation to verify if they are serially uncorrelated. The Breusch-Godfrey Serial Correlation LM Test was conducted under the following hypothesis:

- Null Hypothesis: residuals are serially uncorrelated; and
- Alternative Hypothesis: residuals are serially correlated

The results are indicated in Table 4.10 below:

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Table 4.10: Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.067588	Prob. F(3,91)	0.1226
Obs*R-squared	6.835498	Prob. Chi-Square(3)	0.1106

The results in Table 4.10, the F statistic p value of 0.1226 indicates that we fail to reject the null hypothesis that the residuals are serially uncorrelated. We therefore conclude that the residuals are serially uncorrelated. After the diagnostic tests, the ARDL Bounds test was conducted to see if there is evidence of a long run relationship between the variables under the following hypothesis:

- Null Hypothesis: there is no cointegration between ZSE Turnover and Bank Capitalisation; and
- Alterative Hypothesis: there is cointegration between ZSE Turnover and Bank Capitalisation.

The ARDL Bounds tests results are indicated in Table 4.11 below:

Table 4.11: Wald Test

Equation: Untitled

Test Statistic	Value	df	Probability
F-statistic	3.318663	(2, 94)	0.0405
Chi-square	6.637326	2	0.0362

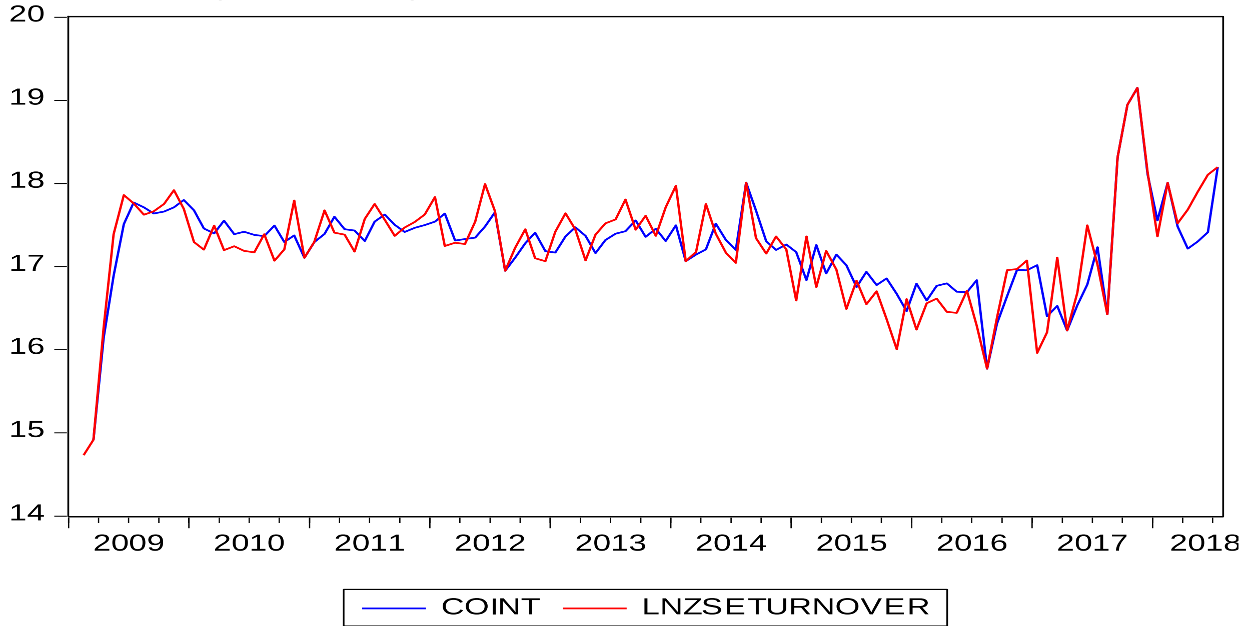
Null Hypothesis: C(17)=C(18)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(17)	-0.571992	0.306926
C(18)	0.551252	0.313846

Restrictions are linear in coefficients.

The p value of 0.0405 of the F statistic is less that the critical value of 0.05. Therefore, we reject the null hypothesis that the joint constants of the long run equilibrium relationship are not statistically significant and conclude that there is an equilibrium relationship (cointegration) between ZSE turnover and Bank Capitalisation in Zimbabwe. This confirms to suggestions by While Demirguc-Kunt and Levine (1996) that there is a positive relationship between stock market development and bank development. The results are also in line with Odhiambo (2010) who found a distinct positive relationship between banks and stock markets both in the short and long term in South Africa. However, the results were in contrast to Dey (2005) who found that there was no direct significant relationship between banking development and stock market activities in less developed economies. After the establishment of the relationship between the ZSE turnover and Bank Capitalisation in Zimbabwe, the cointegration equation was generated. This was done through extracting the error correction term from equation 2 and subtracted from the dependant variable (LNZSETURNOVER). The output is represented as Coint. The cointegraing equation (Coint) was fitted to the dependent variable (LNZSETURNOVER) as depicted in Figure 4.4 below:

Figure 4.4: Cointegration between ZSE Turnover and Bank Capitalisation



As indicated in Figure 4.4 above, the fit between Coint (cointgration equation/ equilibrating equation) and the dependent variable clearly indicates that the notion for the existence of a long run relationship between the ZSE Turnover and Bank capitalisation in Zimbabwe is valid. Therefore, given the relationship, the study examined the speed of adjustment equation through the Error Correction Model (ECM).

Table 4.12: Error Correction Model (ECM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.045703	2.157492	0.484685	0.6290
D(COINT(-1))	0.070419	0.103151	0.682676	0.4965
DLNBANKCAP	-0.026418	0.067944	-0.388827	0.6983
D(LNBANKCAP(-1))	-0.084865	0.815607	-0.104051	0.9174
D(DUMM2018M7)	0.717476	0.314400	2.282049	0.0247
D(DUMM2018M2)	-0.067817	0.223975	-0.302789	0.7627
D(DUMM2017M9)	-0.106738	0.402040	-0.265491	0.7912
D(DUMM2017M8)	-0.191081	0.281152	-0.679637	0.4984
D(DUMM2017M4)	0.283650	0.221177	1.282458	0.2028
D(DUMM2017M11)	-0.095669	0.289214	-0.330790	0.7415
D(DUMM2017M10)	-0.155907	0.370613	-0.420674	0.6750
D(DUMM2016M8)	-0.301445	0.229187	-1.315279	0.1916
D(DUMM2014M8)	-0.061118	0.226067	-0.270355	0.7875
D(DUMM2014M2)	0.221774	0.220240	1.006966	0.3165
D(DUMM2012M8)	0.003977	0.273571	0.014537	0.9884
D(DUMM2010M12)	0.199281	0.218831	0.910660	0.3648
COINT(-1)	-0.970373	0.073790	-13.15041	0.0000

R-squared	0.754020	Mean dependent var	17.25787
Adjusted R-squared	0.712151	S.D. dependent var	0.573025
S.E. of regression	0.307437	Akaike info criterion	0.618977

Sum squared resid	8.884636	Schwarz criterion	1.033950
Log likelihood	-17.35320	Hannan-Quinn criter.	0.787319
F-statistic	18.00905	Durbin-Watson stat	1.843777
Prob(F-statistic)	0.000000		

As indicated in Table 4.12 above, the Error Correction term, as represented by Coint(-1), is positive with an associated coefficient estimate of 0.970373. This implies that about 97.03% of any movements into disequilibrium are corrected for within one period. Moreover, given the very large t-statistic, namely -13.15041, it can be concluded that the coefficient is highly significant. This therefore means that 97.03% of the short run shocks caused by an increase in Bank capitalisation on the ZSE turnover will be adjusted back to the long run path in 1.14 months (Number of observations after adjustments / coefficient of Error Correction term as a %).

4.3 The impact of bank capitalization on Stock Market developments in Zimbabwe

To test for the impact of bank capitalisation on stock market development, the study employed the Generalised Autoregressive conditional heteroskedasticity (GARCH) model.

H_0: There are no ARCH or GARCH errors; and
H_1: The are ARCH or GARCH Errors

Table 4.13: Generalised Autoregressive conditional heteroskedasticity (GARCH) model

Variable	Coefficient	Std. Error	z-Statistic	Prob.
LNBANKCAP	**0.856695**	**0.002472**	**346.6101**	**0.0000**
Variance Equation				
C	0.030715	0.025355	1.211396	0.2257
RESID(-1)^2	0.420186	0.254255	1.652620	0.0984
GARCH(-1)	0.488221	0.267566	1.824680	0.0680

R-squared	-0.705332	Mean dependent var	17.22346
Adjusted R-squared	-0.705332	S.D. dependent var	0.656598
S.E. of regression	0.857441	Akaike info criterion	1.901629
Sum squared resid	83.07820	Schwarz criterion	1.997636
Log likelihood	-104.3929	Hannan-Quinn criter.	1.940593
Durbin-Watson stat	0.310060		

As indicated in Table 4.13 above, the coefficient of both the lagged squared residual (RESID(-1)^2) and the lagged conditional variance terms in the conditional variance equation (GARCH(-1)) are significant at 10% level of significance given the respective p value of 0.0984 and 0.0680.

The individual conditional variance coefficients are also as one would expect. The variance intercept term 'C' is very small (0.030715), and the 'ARCH parameter' is around 0.420186 while the coefficient on the lagged conditional variance ('GARCH') is 0.488221.The sum of these coefficients is close to unity that is 0.908407 implying that shocks to the conditional variance will be highly persistent. A large sum of these coefficients will imply that a large positive or a large negative return will lead future forecasts of the variance to be high for a protracted period. Therefore, in this case, the results suggest that increasing Bank capitalisation leads to higher next period volatility in the ZSE turnover than when bank capitalisation remains constant. This is in line with Soliman and Obi (2017) who found that increasing bank capitalization had a positive impact on the stock market growth in Nigeria during the period 1986 to 2014.It is also in line with the risk absorption hypothesis by Berger and Bouwman (2009). In addition, the results are in conformity with Yartley (2008) who acknowledged that well capitalized banks increases lending which in turn increases the liquidity of stock market operators such as hedge funds, investors and brokers. The results also confirms the work of Garcia and Liu (1999) who examined the macroeconomic determinants of stock market development in a sample of Latin American and Asian countries and found that financial intermediary development has a positive impact on stock market development. After having examined the impact of

Bank capitalisation on ZSE turnover, the study conducted the Generalized Impulse Response Functions.

4.3.1 Generalized Impulse Response Functions (GIRF)

The GIRF were conducted using the vector auto regression. The vector auto regression lag was selected using the Akaike Information Criterion (AIC) as indicated in Table 4.14 below:

Table 4.14: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-154.9061	NA	0.066188	2.960492	3.010746	2.980860
1	117.8997	530.1697	0.000415	-2.111315	-1.960554*	-2.050211
2	121.3460	6.567553	0.000419	-2.100868	-1.849600	-1.999028
3	131.3734	18.73030*	0.000374*	-2.214592*	-1.862817	-2.072015*
4	134.0399	4.880271	0.000384	-2.189432	-1.737150	-2.006120
5	139.2203	9.285552	0.000376	-2.211703	-1.658914	-1.987654
6	143.3076	7.172137	0.000376	-2.213351	-1.560055	-1.948566
7	145.1257	3.121678	0.000392	-2.172183	-1.418380	-1.866663
8	147.7026	4.327124	0.000403	-2.145331	-1.291020	-1.799074

* indicates lag order selected by the criterion

As indicated in Table 4.14 above, the selected vector auto regression lag order three was selected using the Akaike Information Criterion. The AIC is asymptotically optimal for selecting the model with the least mean squared error, under the assumption that the true model is not in the candidate set. The residuals of the model were tested for serial correlation as a way of checking the sufficiency of the vector auto regression model in measuring the dynamics of bank capitalization and Zimbabwe stock market turnover. The results are as tabulated as indicated in Table 4.15 below.

Table 4.15: VAR Residual Serial Correlation LM Tests

Lags	LM-Stat	Prob
1	8.615983	0.0714
2	10.16106	0.0378
3	10.16759	0.0377

Probs from chi-square with 4 df.

The table 4.15 above shows that, when using 3 lags, one would reject the null hypothesis that there is no serial correlation at lag order 3 given that the p value is 0.0377. Therefore in order to address the serial correlation problem, the number of lags were increased to 4 and the results are indicated in table 4.16 below:

Table 4.16: VAR Residual Serial Correlation LM Tests

Lags	LM-Stat	Prob
1	8.615983	0.0714
2	10.16106	0.0378
3	10.16759	0.0377
4	2.476234	0.6489

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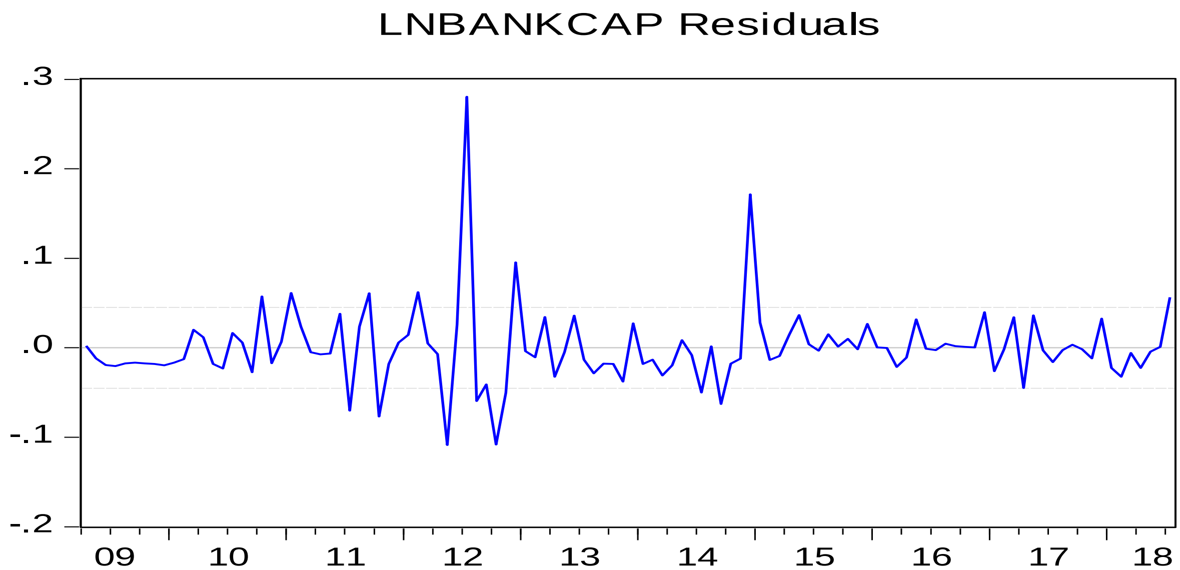
Probs from chi-square with 4 df.

Table 4.16 above shows that the vector auto regression of order four sufficiently measures the dynamics in bank capitalization and Zimbabwe stock exchange turnover as the residuals are not serial auto correlated. The residual are also stationary as at lag four as graphically presented in Figure 4.5 below:

Figure 4.5: LNBANKCAP and LNZSETURNOVER Residuals



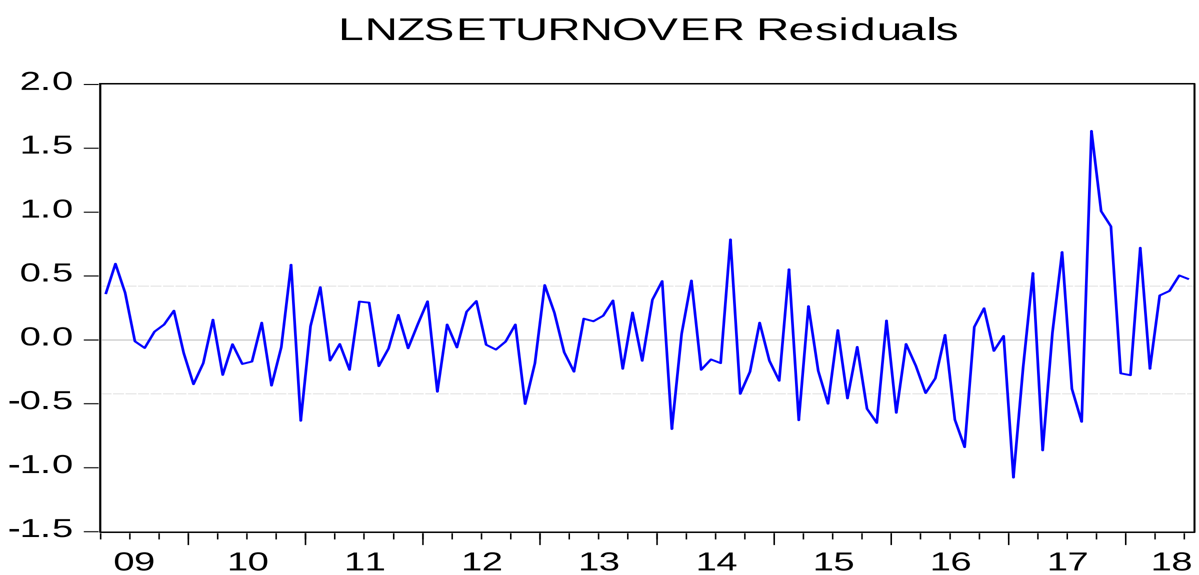


Figure 4.5 above show that the residuals are now stationary providing a better estimation of the vector auto regression lag four coefficients. The vector auto regression lag four (VAR(4)) is estimated in Table 4.17 below:

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Table 4.17: Vector Autoregression Estimates

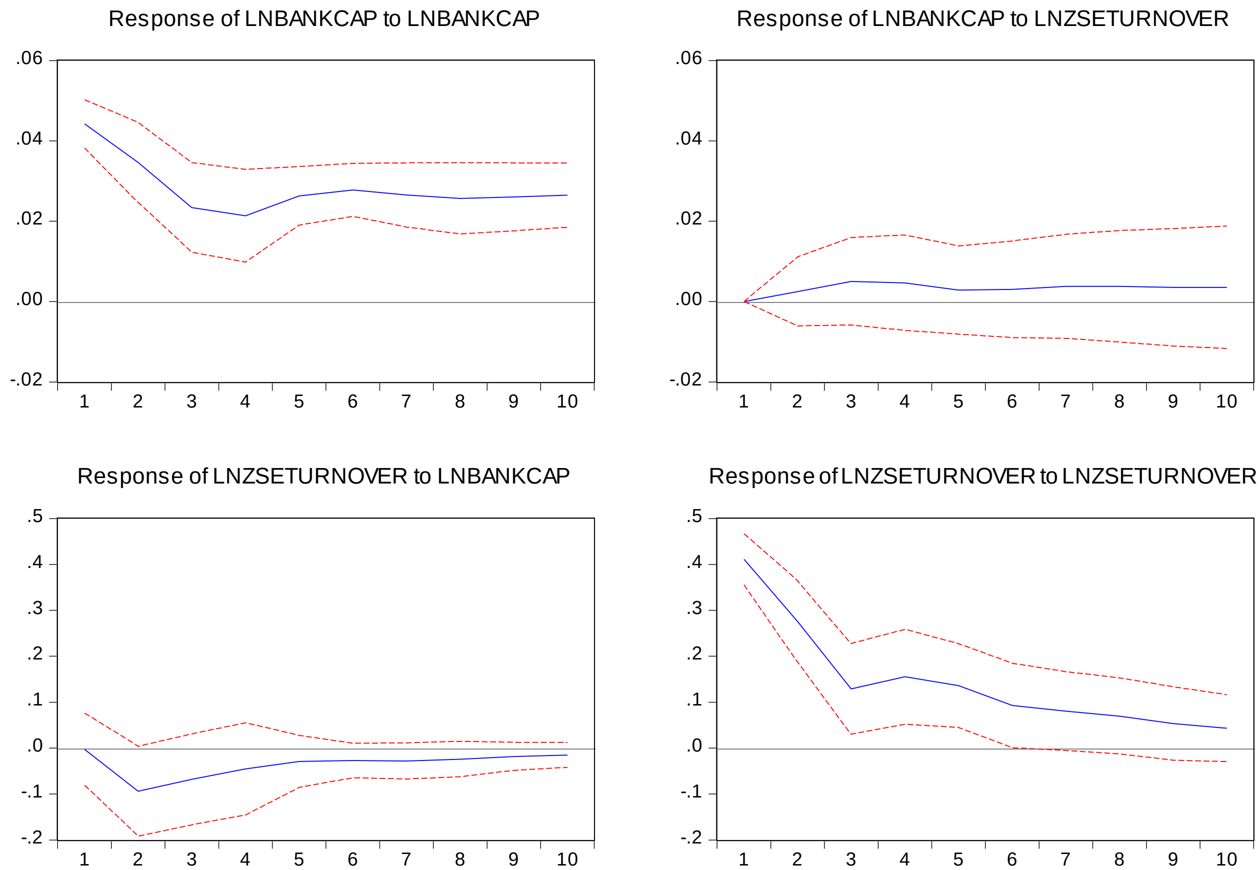
	LNBANKCAP	LNZSETURNOVER
LNBANKCAP(-1)	0.782841	-2.088464
	(0.09915)	(0.92160)
	[7.89549]	[-2.26612]
LNBANKCAP(-2)	-0.070443	1.513455
	(0.12690)	(1.17956)
	[-0.55510]	[1.28307]
LNBANKCAP(-3)	0.139984	-0.322044
	(0.12765)	(1.18652)
	[1.09661]	[-0.27142]
LNBANKCAP(-4)	0.151408	0.860810
	(0.10088)	(0.93766)
	[1.50090]	[0.91804]
LNZSETURNOVER(-1)	0.006071	0.670800
	(0.01047)	(0.09728)
	[0.58013]	[6.89574]
LNZSETURNOVER(-2)	0.003380	-0.123678
	(0.01245)	(0.11569)
	[0.27157]	[-1.06904]
LNZSETURNOVER(-3)	-0.001975	0.266147
	(0.01210)	(0.11248)
	[-0.16320]	[2.36614]
LNZSETURNOVER(-4)	-0.003897	-0.055233
	(0.00946)	(0.08789)
	[-0.41213]	[-0.62845]
C	-0.116763	4.979970
	(0.28220)	(2.62304)
	[-0.41376]	[1.89855]
R-squared	0.991519	0.525226
Adj. R-squared	0.990847	0.487621
Sum sq. resids	0.197713	17.08185
S.E. equation	0.044244	0.411251
F-statistic	1475.983	13.96662
Log likelihood	191.5948	-53.64772
Akaike AIC	-3.319906	1.139049
Schwarz SC	-3.098957	1.359998
Mean dependent	20.51103	17.27421
S.D. dependent	0.462465	0.574528
Determinant resid covariance (dof adj.)		0.000331
Determinant resid covariance		0.000279

Log likelihood	137.9491
Akaike information criterion	-2.180893
Schwarz criterion	-1.738996

As indicated in Table 4.17 above, the vector auto regression of lag four above shows that the only coefficients of bank capitalization lag one, and Zimbabwe Stock Exchange turnover lag one, two, three and four are significant in determining the current value of bank capitalization. Only coefficients of Zimbabwe stock market turnover lag one and four are significant in determining the value of Zimbabwe stock market turnover. The cholesky decomposition in Figure 4.6 below denotes the response of the each of the two variables to the changes in the other, clearly outlining the bidirectional relationship which exists between the two variables.

Figure 4.6: Cholesky Decomposition

Response to Cholesky One S.D. Innovations ± 2 S.E.



As indicated in Figure 4.6 above, the Cholesky decomposition shows that bank capitalization (LNBANKCAP) responds positively to shocks in bank capitalization. This means that any positive change in bank capitalisation, will lead to a positive change in the bank capitalisation. Bank capitalization responds positively to shocks in Zimbabwe stock exchange turnover (LNZSETURNOVER). This therefore, means that positive change on the ZSE will lead to a positive impact on the bank capitalisation. Zimbabwe stock market turnover responds negatively to bank capitalization. This means that increasing bank capitalisation will lead to a reduction in Zimbabwe stock market turnover in the first month before stabilizing in the second month. Table 4.18 below denotes the responses numerically.

Table 4.18: Numerical Responses.

Response of LNBANKCAP: Period	**LNBANKCAP**	**LNZSETURNOVER**
1	0.044244	0.000000
	(0.00298)	(0.00000)
2	0.034621	0.002497
	(0.00497)	(0.00431)
3	0.023407	0.005020
	(0.00558)	(0.00545)
4	0.021351	0.004657
	(0.00576)	(0.00593)
5	0.026300	0.002872
	(0.00363)	(0.00549)
6	0.027774	0.003021
	(0.00331)	(0.00601)
7	0.026514	0.003787
	(0.00400)	(0.00648)
8	0.025687	0.003787
	(0.00444)	(0.00693)
9	0.026038	0.003539
	(0.00422)	(0.00731)
10	0.026461	0.003531
	(0.00400)	(0.00763)

Response of LNZSETURNOVER: Period	LNBANKCAP	LNZSETURNOVER
1	-0.002490	0.411243
	(0.03921)	(0.02773)
2	-0.094073	0.275862
	(0.04893)	(0.04412)
3	-0.068139	0.128972
	(0.04956)	(0.04945)
4	-0.045471	0.155143
	(0.05012)	(0.05158)
5	-0.029205	0.135891
	(0.02826)	(0.04567)
6	-0.027255	0.092639
	(0.01875)	(0.04596)
7	-0.027936	0.080362
	(0.01972)	(0.04282)
8	-0.024059	0.069793
	(0.01922)	(0.04146)
9	-0.018148	0.053350
	(0.01531)	(0.03989)
10	-0.015262	0.043149
	(0.01348)	(0.03653)

Cholesky Ordering: LNBANKCAP LNZSETURNOVER
Standard Errors: Analytic

4.4 Direction of the relationship between bank capitalization and stock market turnover in Zimbabwe

The Granger causality test was conducted to examine the causality between bank capitalisation and stock market turnover in Zimbabwe. The tests were conducted as follows:

4.4.1 Granger Causality Test

H_0: ZSE stock market turnover does not Granger cause bank capitalization in Zimbabwe or vice versa; and

H_1: ZSE stock market turnover Granger causes bank capitalization in Zimbabwe or vice versa.

Decision Rule: Reject H_0 if p value is greater than 0.05, implying that ZSE turnover Granger causes Bank Capitalisation in Zimbabwe.

4.4.1.1 Optimal lag length

The optimal lag lengths were determined using the Akaike Information Criterion (AIC) as indicated in Table 4.19 below:

Table 4.19: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-154.9061	NA	0.066188	2.960492	3.010746	2.980860
1	117.8997	530.1697	0.000415	-2.111315	-1.960554*	-2.050211
2	121.3460	6.567553	0.000419	-2.100868	-1.849600	-1.999028
3	131.3734	18.73030*	0.000374*	-2.214592*	-1.862817	-2.072015*
4	134.0399	4.880271	0.000384	-2.189432	-1.737150	-2.006120
5	139.2203	9.285552	0.000376	-2.211703	-1.658914	-1.987654
6	143.3076	7.172137	0.000376	-2.213351	-1.560055	-1.948566
7	145.1257	3.121678	0.000392	-2.172183	-1.418380	-1.866663
8	147.7026	4.327124	0.000403	-2.145331	-1.291020	-1.799074

* indicates lag order selected by the criterion

The optimal lag length is three (3) since the AIC is at its minimum at -2.214592 as indicated in table 4.19 above. After obtaining the lag length, the Granger Causality Test were conducted.

4.4.1.2 The Granger causality test results

The Granger causality test was conducted under the hypotheses that:

H_0: ZSE stock market turnover does not Granger cause bank capitalization in Zimbabwe or vice versa; and

H_1: ZSE stock market turnover Granger causes bank capitalization in Zimbabwe or vice versa.

The Granger causality test results are indicated in table 4.20 below:

Table 4.20: Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
LNZSETURNOVER does not Granger Cause LNBANKCAP	111	0.48735	0.6918
LNBANKCAP does not Granger Cause LNZSETURNOVER		1.67486	0.1770

As indicated in the Table 4.20 above, for the null hypothesis that LNZSETURNOVER does not Granger Cause LNBANKCAP, the F statistic is 0.48735 while the p value is 0.6918. In this case, the p value is greater than 0.05. Therefore we fail to accept the null hypothesis and conclude that ZSE turnover granger causes Bank Capitalisation in Zimbabwe.

For the null hypothesis that LNBANKCAP does not Granger Cause LNZSECAP, the F statistic is 1.67486 while the p value is 0.1770. In this case, the p value is greater than 0.05. Therefore we fail to accept the null hypothesis and conclude that Bank capitalisation granger causes ZSE turnover in Zimbabwe.

From the results above, it can be concluded that there is a bi-directional relationship between bank capitalisation and the ZSE turnover. The relationship can be illustrated as follows:

Bank Capitalisation ⟷ ZSE Turnover

Although using stock market turnover, the results are in line with Soliman and Obi (2017), who concluded that there is a bi-directional relationship between bank capitalisation and the stock market capitalisation in Nigeria. Soliman and Obi (2017) were of the view that strong banking institutions are necessary for the growth of the stock markets and well-functioning stock markets are essential for the banks to be sufficiently capitalized to perform their intermediation roles with minimum risk. This view suggests the existence of a bidirectional relationship between bank capitalization and stock market development. The insinuated bidirectional relationship is such that bank capitalization will improve stock market turnover which will in turn also increase bank capitalization.

5.0 CONCLUSION AND POLICY RECOMMENDATIONS

5.1 Conclusions

The specific objectives of the study included: to establish relationship between bank capitalization and stock markets development; to determine the direction of causality between banking sector capitalization and stock market development in Zimbabwe; and to examine the impact of bank capitalisation on the performance of the ZSE.

5.1.1 Relationship between bank capitalization and stock markets development

The first objective of the study was to establish whether there exists a relationship between bank capitalization and stock markets development. The study established that there is a long run equilibrium relationship between ZSE turnover and Bank Capitalisation in Zimbabwe. The study established that 97.03% of the short run shocks caused by an increase in Bank capitalisation on the ZSE Capitalisation will be adjusted back to the long run path in 1.03 months. Given the existing relationship, it can be concluded that any shock to the banking sector directly affects the performance of the ZSE. In addition, it can also be concluded that in Zimbabwe the finance based markets are directly linked to equity based markets.

5.1.2 Impact of bank capitalisation on the performance of the ZSE

The second objective of the study was to examine the impact of bank capitalisation on the performance of the ZSE. The study established that bank capitalisation has a positive impact on the ZSE performance. The results of the study suggested that increasing Bank capitalisation leads to higher next period volatility in the ZSE Turnover capitalisation than when bank capitalisation remains constant. The study also established bank capitalization responds positively to shocks in bank capitalization implying that any positive change in bank capitalisation, will lead to a positive change in the bank capitalisation. Bank capitalization responds positively to shocks in Zimbabwe stock exchange turnover, implying that positive change on the ZSE will lead to a positive impact on the bank capitalisation. Zimbabwe stock market turnover responds negatively to bank capitalization, implying that increasing bank capitalisation will lead to a reduction in Zimbabwe stock market turnover in the first month before stabilizing in the second month. It can therefore be concluded that improving or enhancing liquidity on the financial sector will positively impact on the performance of the equities market.

5.1.2 Direction of causality between banking sector capitalization and stock market development in Zimbabwe

The third objective of the study was to determine the direction of causality between banking sector capitalisation and stock market development in Zimbabwe. The study established a bi-directional relationship between bank capitalisation and the ZSE capitalisation. The insinuated bidirectional relationship is such that bank capitalization will improve stock market turnover which will in turn also increase bank capitalization. Given the existence of a bidirectional relationship between bank capitalisation and ZSE turnover, it can be concluded that any shocks on either the bank capitalisation will affect developments on the ZSE and any shocks on the ZSE will affect bank capitalisation.

5.2 Recommendations

5.2.1 Recommendation to the Reserve Bank of Zimbabwe

i. The RBZ should ensure stability in the financial sector in order to positively influence the developments on the ZSE;
ii. RBZ should implement policies that attract foreign portfolio investments on the ZSE as this will translate into improved liquidity on the ZSE as well as the financial sector;
iii. Fully implement Basel II and III codes to enhance liquidity in the financial sector which is critical in influencing the ZSE performance; and
iv. The RBZ should consider the effects of any monetary policy announcements or implementation on the performance of the ZSE to ensure stability on both the equities market and the financial markets. For example, the failure by the RBZ to facilitate repatriation of dividends proceeds by foreign investors on the ZSE negatively impacts the performance of the ZSE as well as the financial sector given the existence of a bi-directional relationship between the bank capitalisation and ZSE turnover.

5.2.1 Recommendation to the Securities Commission of Zimbabwe (SECZ)

i. The SECZ should ensure stability of the ZSE through strengthening of institutional frameworks relating to the participation and trading on the ZSE. This is because any negative action on the ZSE will have a negative effect on the financial sector given the bi-directional relationship;

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