# Inflation and stock market development in Namibia: Evidence from co-integration and error correction modelling

*Esau K. Kaakunga*
*University of Namibia*

*Albert M. Matongela*
*First National Bank of Namibia*

**Abstract**
The current study looks at the relationship between inflation and stock market development in Namibia using modern time series econometric techniques that of co-integration and error correction modelling. The main results in this paper indicate that real gross domestic product promote stock market development in Namibia. More particularly, changes in gross domestic product impacts positively on market capitalization and the value of domestic shares traded. The results also indicate that there is a relationship between inflation and market capitalization and value of domestic shares traded. However, this relationship is insignificant. The foregoing implies that Namibia should place emphasis on the policies that promote gross domestic product, because this is beneficial for the development of the stock market. Although the relationship between stock market development indicators and inflation is insignificant, there is a need for the country to continue pursuing monetary policy that ensures a low and stable inflation. This is important because low and stable inflation encourages stock market activities. In other words, it is important for monetary policy to remain firm and conducive in future for the betterment of sound and sustainable development of the stock market and general economic activities.

**Introduction**
Stock market, especially in small economies, plays a vital role in mobilizing economic resources within and from outside the economy to achieve their better economic potentials. It serves as an important conduit through which funds flow from individuals and corporate bodies across the globe to investors residing in a particular economy. Higher stock returns imply higher profitability by firms and other corporate bodies and thus overall growth/prosperity of an economy and vice versa. Volatility breads uncertainty, which impair effective performance of the financial sector as well as the entire economy at large (Aliyu, 2009).

Many studies have associated unsoundness in macroeconomic factors, in addition

**Dr. Esau Kaakunga** is a Senior Lecturer and Head of the Economics Department at the University of Namibia. E-mail address: ekaakunga@unam.na; ekaakunga@hotmail.com

**Albert Mutonga Matongela** is a Manager of National Payments at First National Bank of Namibia. E-mail address: amatongela@fnbnamibia.com.na

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to internal factors, as hindrance to the development of stock markets across the world. Some of these studies cited inflation to be one of the impediments to stock market development. Khan, Senhadji and Smith (2001), Boyd, Levine and Smith (2001) and Amihud (1996), amongst others, are of the opinion that high and further increases in inflation have a negative effect on stock market development. Sherbourne and Stork (2004) contend that the Namibia Stock Exchange is being negatively affected by economic factors beyond its control.

Currently, the studies that have focused on stock market development and which employ modern time series modeling, have examined the determinants of stock prices. The current study is worth undertaking for several reasons. First, it will contribute to the understanding of the relationship between inflation and stock market development in Namibia. Second, the results of the study will influence the policy makers in finding ways of ensuring the sustainable growth of the Namibian Stock Exchange. Thus, the main objective of the study is to assess the impact of inflation on the stock market development in Namibia.

The remainder of the paper is arranged as follows, section 2 covers the review of inflation and stock market developments in Namibia while section three surveys the theoretical and empirical literature. Section four illustrates the methodology, while section five presents the empirical results before the last section winds up the study with the summary and concluding remarks.

## Review of Inflation and Stock Market Developments in Namibia

### Inflation developments in Namibia

One of the objectives of monetary policy for Namibia is to achieve low and stable prices. This is the responsibility of Bank of Namibia on behalf of the government of the Republic of Namibia. A low and stable price is necessary in order to protect the value of currency and ensure sustainable long-run economic growth. Namibia is a member of the Common Monetary Area (CMA)[1], so, its monetary policy is in line with developments in the South African economy. Interest rates do not deviate too much from those prevailing in South Africa. In September 2000, the South African Reserve Bank (SARB) set the inflation targeting framework to achieve inflation in the 3-6 per cent band from 2002 through 2004. Although the Bank of Namibia does not have inflation targeting framework, per se, it has been following events in the South African economy and developed economies in realizing its monetary policy objective, that of low and stable prices.

Namibia was characterized by falling inflation (table 1) in 2005 compared to 1997 as seen in table 2 below. For example overall inflation went down to 2.3 per cent in 2005 from 8.9 per cent in 1997. For the period 2000-2011, inflation rate has recorded a single digit figure for most of the years, with exception of 2002 and 2008, when it has recorded 12.1 per cent and 10.3 per cent, respectively. This compares well to SADC inflation (excludes high inflation countries like Angola, Zimbabwe and Democratic Republic of Congo), which stood at 9.7 per cent in 1997 and 5.1 per cent in 2011. A number of factors such as an increase in the bank rate; slow growth in M2 (broad money); falling food prices, general improvement in food conditions in the SADC region; exchange rate appreciation and

[1] CMA is a monetary arrangement whereby currencies of Namibia, Swaziland and Lesotho are pegged to the South African Rand. One of the objectives being to harmonize economic policies.

deflationary pressures in developed economies led to falling overall inflation in 2003.

**Table 1: Inflation and its selected determinants in Namibia**

| Year | M2 Growth | N$/US$ | Bank Rate | Inflation |
|---|---|---|---|---|
| 1997 | 5.96 | 4.60 | 16.00 | 8.85 |
| 1998 | 6.74 | 5.49 | 18.85 | 6.20 |
| 1999 | 14.66 | 6.11 | 11.50 | 10.10 |
| 2000 | 11.74 | 6.83 | 11.25 | 11.23 |
| 2001 | 5.42 | 8.61 | 9.25 | 8.77 |
| 2002 | 9.69 | 9.77 | 12.75 | 12.08 |
| 2003 | 4.20 | 7.57 | 7.75 | 6.15 |
| 2004 | 16.04 | 6.44 | 7.50 | 4.20 |
| 2005 | 6.96 | 6.35 | 7.00 | 2.30 |
| 2006 | 32.05 | 9.17 | 9.00 | 5.10 |
| 2007 | 10.06 | 6.85 | 10.50 | 6.60 |
| 2008 | 17.87 | 9.90 | 10.00 | 10.30 |
| 2009 | 66.01 | 6.85 | 7.00 | 8.80 |
| 2010 | 9.58 | 6.62 | 6.00 | 4.50 |
| 2011 | 13.79 | 8.13 | 6.00 | 5.10 |
| 2012 | 6.27 | 8.75 | 5.50 | 6.50 |

Source: Bank of Namibia, Annual Reports.

***Review of Domestic Stock Market Development***

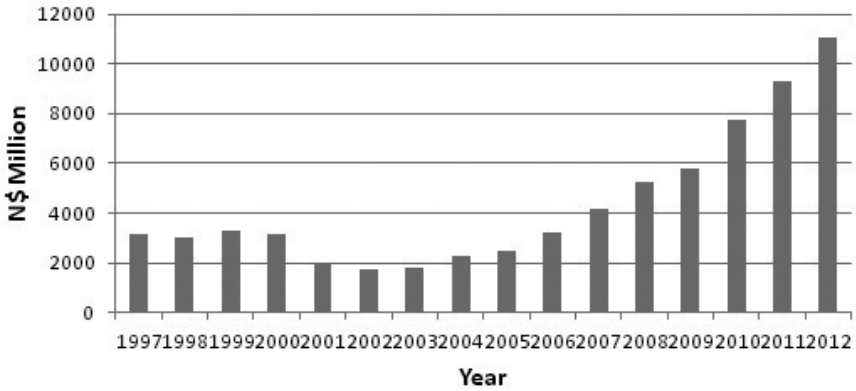
The first Namibian Stock Exchange (NSX) was founded in Luderitz in Southern Namibia at the start of the 20th century. Its establishment was influenced by the diamond rush which brought hundreds of prospectors to the area. Within few years the rush was over and the exchange was closed.

At independence in 1990, there was a need to establish a second NSX to enable the domestic economy to become independent from South Africa and to encourage investment for private sector expansion, amongst others. Government gave full moral and legislative support, while funding came from 36 leading Namibian business, who became founding members by donating N$10,000 each as start-up capital for the first three years of the exchange. On 16th October 1992, the exchange was launched after amending the Stock Exchange Act of South Africa by the NSX proponents to adapt it to the local Namibian market (Matome, 1998).

Economic activities on the NSX have been mixed since late 1990s. These can be understood from key indicators like market capitalization and turnover ratio. In Namibia, the overall value or size of domestic companies as measured by market capitalization varied overtime from 1997 to 2003. The growth of market

capitalization stood at approximately 12 per cent in 1997 and around 6 per cent in 2003. In value terms, market capitalization stood at N$3151 million in 1997 before going down to N$1707 million in 2002 (see figure 1). It is worth to note that during the period 2004-2011, there has been a continuous increase in market capitalisation until it reached a high level of N$11057 million in 2012, after a significant decline recorded in 2002.

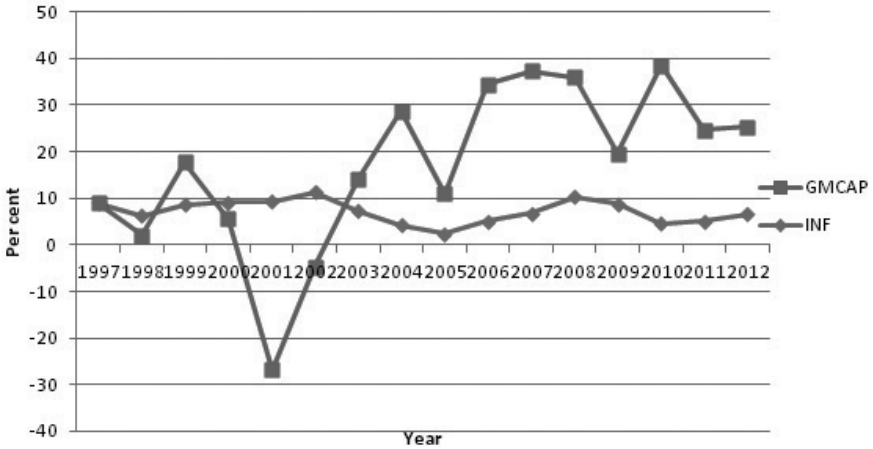
**Figure 1: Market Capitalisation**




Source: Namibia Stock Exchange, 2012.

The changes in market capitalization from 1997 through 2012 can be ascribed to a number of factors that include changes in share prices and other economic indicators. The relationship between inflation and market capitalization is ambiguous (see figure 2). On one hand, when inflation increased in 1999, market capitalization went up. On the other hand, when inflation declined in 2004, market capitalization increased.

**Figure 2: Inflation and Growth of Market Capitalisation**



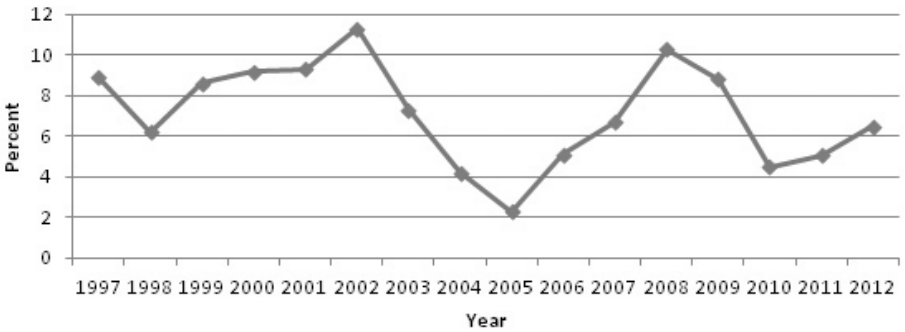

Source: Bank of Namibia, Annual Reports, and Namibia Stock Exchange, 2012.

Stock market liquidity as measured by the turnover ratio fluctuated overtime since 1997. The changes in market liquidity can be broken down into three periods. Period 1 refers to a fall by 0.23 per cent in 1998. In period 2 it weakened

continuously from 1999 through 2002, and in period 3 it slightly improved in 2003 and 2004 by 0.09 per cent and 0.41 per cent, respectively. The slight improvement in market liquidity could be ascribed to an increase in absolute turnover which went up more than market capitalization. It is important to note that inflation rate went down to 7.3 per cent and 4.2 per cent in 2003 and 2004, after having recorded a high rate of 11.3 per cent in 2002.

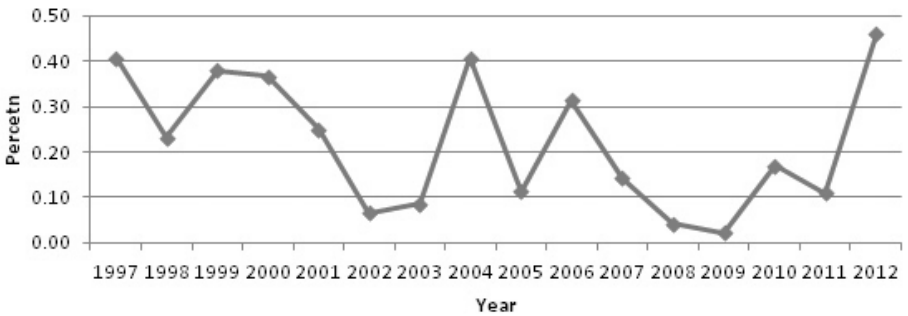
Figures 3a and 3b depict the relationship between inflation and the turnover ratio. It shows a negative relationship between inflation and the turnover ratio. When inflation went up in 2000 turnover ratio declined. This negative relationship can also be observed in 2003, when turnover ratio increased slightly due to a fall in inflation.

**Figure 3(a): Inflation Rate**




Source: Namibia Stock Exchange, 2012.

**Figure 3(b): Turnover Ratio**




Source: Namibia Stock Exchange, 2012.

It can be seen from the figures above that when inflation increased steadily from 1999 through 2002, the turnover ratio came down continuously during the same period. This implies that inflation was also responsible for weakening stock market liquidity in Namibia. As shown ahead in the literature review, various studies show a negative relationship between inflation and turnover ratio.

Although the foregoing review only looked at inflation and stock market developments in Namibia, it should be pointed out that the domestic stock market was also negatively affected by the Asian financial and currency crisis

during 1997/1998 and 2008/2009 financial crisis that has started in the United States of America, which spread to most countries in the EURO zone. The emerging economies in Asia experienced capital flight that affected the performance of their financial market negatively. Since Namibia is also an emerging economy, its stock market was also expected to be negatively affected by the shock.

**Literature Review**

In theory inflation generates a number of effects in different markets through a transmission mechanism. It has a negative effect on the stock exchange and total economic activities. Although inflation seems to increase nominal returns on portfolio investments, real returns are reduced. A reduction in real returns influences investors to view investment on the stock market as risky, a situation which dampens investment demand. This behavior by investors weakens trading on the bourse and the general economy is deprived of expansion.

Aly (1993) indicated that inflation has shown to be one of the obstacles to promoting the securities market. This is because high inflation rates are well-known to erode the value of financial assets and turn the nominal rates of return into negative real rates. Consequently it constitutes a strong disincentive to hold these assets and convinces savers to protect their wealth in the safer real assets. Clews (2002) argued that equities too can form part of the transmission mechanism, either because monetary policy is expected to affect the profitability of companies, or simply because the rate at which the market discounts future profits or dividends changes as longer interest rates change.

The effect of inflation on stock market development depends on whether inflation is above or below some threshold level. Several studies (see empirical details below) predict that at moderate rates of inflation there is a negative association between inflation and measures of stock market development. Once the average rate of inflation exceeds some critical level, there is a discrete decline in equity market activity. Moreover as inflation increases, the relationship between inflation and stock market measures flattens-out. Several studies have empirically tested the impact of inflation and stock market developments. Khan (2004) examined the relationship between inflation and stock market development in Pakistan. The study employed cointegration theory and Error Correction Modeling (ECM) to test the presence of long-run relationship between the two variables. Two indices of stock market development used are market capitalization (MCAP) and the turnover index of shares. The results show that the variables are cointegrated and bilateral causality exists between them.

Sherbourne and Stork (2004) investigated the main causes of the problems faced by NSX and lay out options to overcome them. The study was based on the fact that the stock exchange performed poorly towards the end of the first decade of Namibian independence. One of the conclusions that the study arrived at, is that, NSX underperforms, but this is due to wider economic factors (economic structure and performance and institutional factors) beyond its control. To put it differently, the success of NSX can be attributed largely to the success of the country's overall economic policies and economic structure rather than particular characteristics of the NSX itself. Khan, Senhadji, and Smith (2001) reviewed inflation and financial depth across many countries using

conditional least squares. Two indicators of stock market development used in the study are stock market capitalization and stock market trading volume. The results show that inflation impedes stock market trading volume. For stock market capitalization, the results show that modest increases in inflation (while remaining below the threshold of between 3 per cent – 6 per cent) promote stock market development. Moreover, for rates of inflation above the threshold level, further increases in inflation have a strong negative effect on financial development.

Boyd, Levine and Smith (2001) assessed the impact of inflation on financial sector performance across 49 countries from 1970-1995. Inflation was regressed on various measures of stock market development that include market capitalization, value traded, turnover, volatility, and equity returns. The evidence indicates that there is a significant, and economically important, negative relationship between inflation and financial development. The data suggests that for economies with annual inflation rates above 15 per cent, there is a large discrete drop in financial sector development relative to countries with inflation rates below this threshold. Amihud (1996) shows the relationship between unexpected inflation and stock returns in Israel. The study covers the period from January 1986 to October 1991. Using a market based measure of unexpected inflation; the study finds a negative and strongly significant relationship between the variables. Moreover, the study reflects the negative association between unexpected inflation and future real economic activity as well as the economic cost of inflation.

Boyd, Smith and Levine (1996) examined inflation and financial market performance in 51 countries from 1970-93. Seven measures of financial development were used in the regression. Both simple linear and non-linear regressions revealed a negative correlation between inflation and equity market development. The study shows that even in low inflation countries (with inflation less than 15 per cent) marginal increases in inflation rates are associated with substantial less active market. Moreover, high inflation economies (those with average inflation rates higher than 15 per cent) tend to have significantly smaller and less liquid equity markets than their lower inflation counterparts. Boudoukh and Richardson (1993) analysed the long horizon perspective of stock returns and inflation for both the United States and United Kingdom markets from 1980 through 1990. Their findings suggests that long horizon nominal stock returns are positively related to both ex ante and ex post long-term inflation. This is because stocks as claims against real assets should compensate for movement in inflation.

Gultekin (1983) investigated the relationship between stock market returns and inflation in twenty-six countries for the post war period from 1947 through 1979 using time series regressions. The results do not support the Fisher Hypothesis, which states that real rate of return on common stocks and expected inflation rates are independent and that nominal stock returns vary in one-to-one correspondence with expected inflation. There is consistent lack of positive relation between stock returns and inflation in most countries. In their study Falahati et al. (2012) have found a positive and significant relationship between value of shares traded, market capitalization and inflation in the Iranian economy.

The above reviewed literature is important for several reasons. Apart from understanding the relationship between inflation and stock market development, the literature review provides the basis of modeling the relationship between the two variables for the case of Namibia. It should be pointed out that studies on inflation and stock market development are at their infancy in Southern Africa Development Community (SADC)[2] and Namibia in particular. The study period is relevant because during this period, the inflation rate in Namibia was above 6 per cent suggesting that the activities at the Namibia Stock Exchange (NSX) were negatively affected.

**Methodology**

**Model Specification**

The econometric analysis focuses on the estimation of the relationship between inflation and stock market development. In this study, we have identified local market capitalization and value of shares traded as indicators of stock market development. The two indicators of stock market development are regressed against inflation and real gross domestic product. The real gross domestic product is also included to control the level of financial development (Falahati et al. (2012). The variables are expressed in logarithm. The expected sign for inflation is ambiguous, because theoretical arguments indicate that the impact inflation on stock market development could be positive or negative. Real gross domestic product is expected to have a positive impact on stock market development. The econometric investigations with quarterly time series data use a regression specification given by:

$$MCAP = \beta_0 + \beta_1 INF + \beta_2 RGDP + U_1 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

$$VT = \delta_0 + \delta_1 INF + \delta_2 RGDP + U_2 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 2$$

Where MCAP is the value of listed domestic company shares on the stock exchange. It measures the overall size of the market (overall value of company's stock) and frequently used as an indicator of stock market development. VT is total value of domestic shares traded; INF is the inflation rate. Inflation refers to the change in the general price level over a certain period of time for example a year. Inflation is used in the study because it is one of the leading economic indicators that explain stock market development. RGDP is real gross domestic product while $U_1$ and $U_2$ are error terms. The error terms are normally distributed and have constant variance.

**Estimation Technique**

The estimation of the impact of inflation on stock market development was carried using Econometric Views (E-Views) software. Assessing this impact the study uses the time series methodology that has typically been used in the literature on the two variables. The modern time series techniques are that of cointegration and error correction model (ECM). Cointegration measures the long-run relationship between variables. This long-run relationship means that the variables move together overtime or at least do not move very apart, and even if the series are de-trended, the difference between them is constant (Khan, 2004). The error correction term is from the co-integration equation. Gulbrandsen et al

[2] A community of 14 countries in Southern Africa that includes Namibia, Angola, Zambia, Botswana, Zimbabwe, South Africa, Mauritius, Seychelles, Malawi, Mozambique, Tanzania, Lesotho, Swaziland and the Democratic Republic of Congo.

(2001) show that the ECMs are models in which variables in differences are combined with linear combinations of variables in levels (cointegration relationships). The procedure was developed by Engle and Granger (1987). This procedure is as follows:

The first procedure involves the investigation of the time series characteristics (the order of integration) of variables. Testing for the order of integration of the variables in the model, the study uses the augmented Dickey-Fuller (ADF) test. The second procedure is about testing for the presence of cointegration once the variables are proved to be non-stationary. If the error terms or residuals are stationary then the variables are cointegrated and vice-versa.

**Error Correction Modeling**

After establishing that cointegration exists and there is long run equilibrium relationship between the indicators of stock market development and inflation and real gross domestic product, there is a need for testing if the long run relationship established in the model will hold given the short run disturbances. For this purpose, an error correction term l derived from the cointegration vector is incorporated into a general error correction model. This leads to the specification of a general error correction model (ECM), as indicated in equations 3 and 4.

$$\Delta MCAP = \beta 0 + \beta 1\, \Delta INF + \beta 2\, \Delta RGDP + \beta 3 ECM(t\text{-}1) + U3 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ 3$$

$$\Delta VT = \delta 0 + \delta 1\, \Delta INF + \delta 2\, \Delta RGDP + \delta 3 ECM(t\text{-}1) + U4 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ 4$$

**Empirical Results and Analysis of Findings**

**Unit Root Test**

In this study, the Augmented Dickey Fuller (ADF) test is used to test for the stationarity of the data. The ADF test results in table 2 indicate that all the variables are non-stationary. Having confirmed that data series are non-stationary in levels, further tests were conducted to establish whether the data series were stationary in first difference or not. The results in table 3 show that the variables are stationary in first difference. Thus, the variables are integrated of order one I(1).

**Table 2: ADF Unit Root Tests in Level**

| Variable | ADF Test Statistic | ADF Critical Values | Level of Significance |
|---|---|---|---|
| MCAP | -1.887 | -4.244 | 1% |
| VT | -2.822 | -4.253 | 1% |
| INF | -1.890 | -4.253 | 1% |
| RGDP | -2.200 | -2.634 | 1% |

**Table 2: ADF Unit Root Tests in First Difference**

| Variable | ADF Test Statistic | ADF Critical Values | Level of Significance | I(d) |
|---|---|---|---|---|
| MCAP | -1.887 | -4.244 | 1% | I(1) |
| VT | -2.822 | -4.253 | 1% | I(1) |
| INF | -1.890 | -4.253 | 1% | I(1) |
| RGDP | -2.200 | -2.634 | 1% | I(1) |

*I(d) refers to the order of integration.

**Co-integration**

In testing for cointegration, two steps were followed, that is, to run the long run regression and to test for stationarity of the residuals from the co-integration regressions. The long run regressions that were estimated are specified as equations 1 and 2 above. From the above cointegration regressions, the residuals were tested for stationarity. The results appear in table 4.

**Table 4: Co-intergration test using ADF**

| Residuals | ADF Test Statistic | ADF Critical Values | Level of Significance | I(d) |
|---|---|---|---|---|
| *U*1 | -4.250 | -3.633 | 1% | I(0) |
| *U*2 | -7.113 | -4.244 | 1% | I(0) |

*U*1 and *U*2 are residuals from equations 1 and 2, respectively. I(d) refers to the order of co-integration.

The results in table 4 show that the residuals from the cointegration regressions are integrated of order zero I(0). Thus the above results mimic the existence of a long run equilibrium relationship between variables, hence no spurious correlation. Since it is proved that the residuals are stationary, next step is to estimate the long-run relationship and ECM that puts together both the long run and short run information in the same equation. The The ECM estimates the speed at which a dependent variable returns to equilibrium after a change in an independent variable.

**Long Run Analysis**

The regression results of the long run relationships are indicated in table 5. The independent variables are lagged ones to show effect of the previous inflation rate and real gross domestic product on the current value of stock market development. The results indicate that there is a positive relationship between inflation rate and market capitalization. However, the relationship is statistically insignificant. It is also found that real gross domestic product affect market capitalization positively and the coefficient is statistically significant at 1 per cent level.

**Table 5: Long Run Regression Results**

| Equation number | | |
|---|---|---|
| Explanatory Variable | (1)* | (2) |
| | ΔlogMCAP | ΔlogVT |
| Constant | -32.469 | -24.162 |
| | (-13.759) | (-1.728) |
| $loginf_{t-1}$ | 0.037 | 0.392 |
| | (0.865) | (1.520) |
| $logrgdp_{t-1}$ | 4.340*** | 4.296*** |
| | (17.223) | (2.876) |

| | | |
|---|---|---|
| Adjusted $R^2$ | 0.90 | 0.25 |
| F | 162.10 | 6.78 |
| DW | 1.6 | 2.4 |
| B-G LM Test+ F-statistic | 2.18[0.13]$^{+++}$ | 0.72[0.49] |
| ARCH F-statistic | 1.50[0.22] | 2.03[0.16] |
| W-H Test$^{++}$ F-statistic | 1.05[0.39] | 1.71[0.17] |
| Ramsey Reset F-statistic | 0.09 [0.39] | 0.28[0.75] |

Source: *Regression results. T-ratios are in parentheses; *** 1 per cent significance level. $^{+}$ Breusch-Godfrey Serial Correlation LM Test; $^{++}$ White's heteroskedasticity test; $^{+++}$The numbers in the square brackets are probability values.

The results show that there is a positive relationship between inflation rate, real gross domestic product and the value of domestic shares traded. The coefficient of real gross domestic product is statistically significant at 1 per cent level, whereas the coefficient of inflation is statistically insignificant. When last year's income increases by one million Namibia dollars, market capitalization and value of domestic shares traded increase by 4.340 and 4.296 percentage point. The diagnostic tests performed in table 5 show that long-run regression results do not exhibit serial correlation, heteroskedasticity and functional form complications.

**Table 6: Error Correction Modeling: Regression Results**
**Equation number**

| Explanatory Variable | (3)* ΔlogMCAP | (4)* ΔlogVT |
|---|---|---|
| Constant | 0.040 | -0.076 |
| | (4.921) | (-0.484) |
| $\Delta loginf_{t-1}$ | 0.053** | 0.354 |
| | (2.405) | (0.825) |
| $\Delta logrgdp_{t-1}$ | 0.504*** | 5.462 |
| | (2.514) | (1.574) |
| ECM(-1) | -0.276*** | -1.156*** |
| | (-3.972) | (-6.741) |
| Adjusted $R^2$ | 0.35 | 0.64 |
| F | 6.83 | 20.96 |
| DW | 2.37 | 2.18 |
| B-G LM Test+ F-statistic | 1.36[0.27]$^{+++}$ | 1.62[0.22] |
| ARCH F-statistic | 0.30[0.86] | 2.44[0.13] |
| W-H Test$^{++}$ F-statistic | 1.02[0.443] | 2.41[0.05] |
| Ramsey Reset F-statistic | 0.02 [0.43] | 1.55[0.23] |

Source: *Regression results. T-ratios are in parentheses; ** 1 per cent significance level; *** 5 per cent significant level. + Breusch-Godfrey Serial Correlation LM Test; ++ White's heteroskedasticity test; +++The numbers in the square brackets are probability values.

The results table 6 indicates that the error correction term co-efficients statistically significant, has a correct sign in equations 3 and 4, and suggest a moderate speed of adjustment convergence to equilibrium. This implies that there is long run causal relationship between stock market development and inflation. The results of equation 3 in table 6 show that inflation has positive and significant effect on the current value of the market capitalization. The co-efficient is significant at 5 per cent level. The study has also found positive and insignificant relationship between inflation and the value of domestic shares traded on the Namibian stock exchange. The positive effect of inflation on the indicators of stock market development can be justified that inflationary conditions might lead to increased sales in the future years, even without production increase. The increase of company's future profits can be equal or different from inflation. In the case of companies that are able to increase price of their products more than inflation rate and the increase rate of operational cost, the profit growth rate will be more than inflation, the current values of stock market and trading value will be increased (Falahati et al. 2012). Furthermore, Boyd et al. (2001) indicated that countries with low level of inflation, the inflation rate is expected to have a positive impact on stock market development. The data on inflation in Namibia is line with the above explanations. For few years during the period under review inflation rate had double digit levels whereas Namibia had enjoyed a low inflation rate of a single digit for many years.

The logarithm of real gross domestic has a positive effect on both capital market indices. However, the effect is significant on market capitalization and insignificant on the value of domestic shares traded. Several diagnostic tests performed are listed in Table 6. The diagnostic tests include Durbin-Watson (DW) test, Langrange-Multiplier test (LM) for serial correlation, LM test for autoregressive conditional heteroskedasticity (ARCH), White's heteroskedasticity test and Ramsey's reset test for functional form. According to the results of the diagnostic tests, they are insignificant for the error correction model, and the short-run model appears to be well behaved with a white noise error term. Thus, the short-run regression analysis does not suffer from serial correlation, heteroskedasticity and misspecification problems.

**Conclusions and Recommendations**

The objective of this study was to examine the relationship between inflation and stock market development in Namibia using modern time series econometric techniques those of co integration and error correction modeling. The main important results in this paper, indicate that real gross domestic product promote stock market development in Namibia. More particularly, changes in gross domestic product impacts positively on market capitalization and the value of domestic shares traded. The results also indicate that there is a relationship between inflation and market capitalization and value of domestic shares traded. However, this relationship is insignificant. This is consistent with other studies such as Falahati et al. (2012) that have established a positive relationship

between inflation and stock market development.

The foregoing implies that Namibia should place emphasis on the policies that promote gross domestic product, because this is beneficial for the development of the stock market. Although the relationship between stock market development indicators and inflation is insignificant, there is a need for the country to continue pursuing monetary policy that ensures a low and stable inflation. In other words, it is important for monetary policy to remain firm and conducive in future for the betterment of sound and sustainable development of the stock market and general economic activities.

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