



Stock Market Development: An Assessment of its Macroeconomic and Institutional Determinants in Mauritius

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ABSTRACT

Stock market development is now well known for the role that it plays in generating gains in terms of economic growth. It has therefore become very important to now scrutinize the main driving forces which actually cause the expansion of stock market development. To do so, the paper scrutinizes the both the macroeconomic and institutional determinants of stock market development in Mauritius during the period 1989-2016 through a dynamic vector error correction model. The results indicate that macroeconomic factors such as economic growth, banking sector development, stock market liquidity and gross fixed capital formation are important drivers of stock market development in the island. Additionally, political stability, rule of law, government effectiveness, voice accountability and control of corruption also play a key role in terms of enhancing stock market development.

Keywords: Macroeconomic Determinants, Institutional Determinants, Stock Market Development, Vector Error Correction Model, Cointegration

JEL Classifications: E17, G1, G2

1. INTRODUCTION

The question of whether stock market development boosts economic growth has gained substantial attention (both theoretically and empirically), and it is by now a widely accepted fact that a well-functioning financial system is crucial for the development of an economy. Indeed, stock markets positively influence economic growth through channels such as liquidity (Levine, 1998a; 1998b), risk diversification (Gurley and Shaw, 1955; Greenwood and Jovanic, 1990), mobilization of savings (Levine, 2004), improved dissemination and acquisition of information (Dow and Gorton, 1997; Demircu-Kunt and Maksimovic, 1998), and enhanced incentive for corporate control (Stiglitz and Weiss, 1983). Consequently, the next vital question that solicits our attention would be what the main drivers of stock market development are. Indeed, since most studies concede that stock market development generates economic growth (Levine and Zervos, 1996, 1998; Demircu-Kunt and Levine, 1996a; Rajan and Zingales, 1996; Arestis et al., 2001; Beck and Levine, 2004; Wong and Zhou, 2011; Demirhan et al., 2011), it would be

crucial to identify the main drivers of stock market development as these would stimulate equity growth, which would in turn help trigger a much-needed economic growth. Surprisingly, there is relatively little theoretical and empirical work that has been carried out to scrutinize the determinants of stock market development, especially in developing countries.

The determinants of stock market development can be broadly classified into two categories: Macroeconomic determinants and institutional determinants. The institutional determinants consist of three main measures: The quality of governance (which englobes factors like corruption, political rights, public sector efficiency, and regulatory burdens); the legal protection of private property and law enforcement; the accountability of, and limits on political leaders (Yartey, 2008). On the other hand, macroeconomic determinants focus on factors such as income level, savings, investments, financial development and inflation.

Empirically, only a few studies have attempted to investigate the potential determinants of stock market development. Most

studies agree that the macroeconomic determinants of stock market development are real income, saving rate, financial development and stock market liquidity (Garcia and Liu, 1999; Naceur et al., 2007; Yartey, 2008; Cherif and Gazdar, 2010; Aduda et al., 2012; Kemboi and Tarus, 2012). Other potentially significant macroeconomic drivers of stock market development include inflation (Naceur et al., 2007; El-Nader and Alraimony, 2013) and interest rates (Cherif and Gazdar, 2010). On the other hand, Sukruoglu and Nalin (2014) show that inflation has significantly negative effects on stock market development, while Kemboi and Tarus (2012) shows that macroeconomic stability does not play any significant role in generating gains in terms of economic growth. Evrim-Mandaci et al. (2013) provide evidence that foreign direct investment, worker's remittances also have a positive impact on stock market development. As for El-Wassal (2005), they also show that financial liberalization policies and foreign portfolio investments are crucial propellers of equity growth.

As for the institutional determinants, most empirical works suggest that they are political risk, law and order, and bureaucratic quality (Yartey, 2008; Aduda et al., 2012). The results of Aduda et al. (2012) also indicate that democratic accountability and corruption index are two other important institutional determinants. Interestingly, Cherif and Gazdar (2010) failed to detect any significant link between any institutional factors used and stock market development in the MENA region.

This paper therefore aims at identifying potential macroeconomic and institutional determinants of stock market development in Mauritius for the period 1989-2016. As most studies investigating the stock markets' determinants have been conducted in developing countries, with only a few focusing on the African region, this paper is believed to add on to the literature by attempting to find out whether the determinants are the same for a small island developing state like Mauritius, which has its own specific characteristics and vulnerabilities. This study is believed to depart from the existing research by accounting for the dynamic nature of stock markets. Indeed, the dynamic vector error correction model (VECM) is employed to identify the potential drivers of equity growth in Mauritius. Accounting for the fact that financial intermediaries and stock markets are often regarded as alternative routes for financing investments, the study also aims to analyze the complementary or substitutability relationship between stock market development and banking development in Mauritius. Moreover, the VECM is used extensively to spot any indirect determinants that might exist among the variables of interest.

2. METHODOLOGY AND DATA

Most of the time, traditional econometric techniques (fixed and random effects, generalized methods of moments, ordinary least squares, two stage least squares method, autoregressive distributed lag method, seemingly unrelated regressions) have been used to identify the determinants of stock market development. However, these models fail to capture the dynamics inherent in stock market development. As such, this paper resorts to the use of a vector autoregressive model (VAR), which caters for the dynamic nature of the data under consideration. In a VAR model, the current

value of each variable is expressed as a linear function of the past values of all the endogenous variables and a shock. Being a natural extension of a univariate autoregressive model to a dynamic time series model, the VAR model is one of the most successful, flexible and easy to generalize models. The VAR model can be considered as a hybrid between univariate time series models and simultaneous equations models, in which all the variables are treated as endogenous. Indeed, Sim (1980) argued that if there is true simultaneity among a set of variables, then they should be treated on equal footing. In other words, there should be no prior distinction between endogenous and exogenous variables.

2.1. Data

In order to determine what the macroeconomic and institutional determinants of stock market development are in Mauritius, time series semi-annual data spanning over a period of 27 years (1989-2016) are used. Drawing from models adopted by Garcia and Liu (1999), Naceur et al. (2007), and Yartey (2008), the model used in this paper takes the following functional form:

$$\text{Stock market development} = f(\text{income level, banking development, saving, investment, stock market liquidity, macroeconomic instability, institutional quality}) \quad (1)$$

The potential macroeconomic determinants include economic growth, banking development, saving, investment, stock market liquidity, and macroeconomic stability. These time series data are extracted from the World Development Indicator database of the World Bank and the Stock Exchange of Mauritius (SEM). On the other hand, the institutional determinants include voice and accountability (VA), political stability (PS), control of corruption (CC), rule of law (RL), and government effectiveness (GE), and, these data are extracted from the World Governance Indicators of the World Bank¹. The rationale behind the inclusion of relevant variables is discussed below.

2.2. The Dependent Variable: Stock Market Development Market Capitalization Ratio (MCR)

Stock MCR, which is defined as the value of listed shares in the stock exchange divided by GDP, is chosen as the proxy for stock market development. Following Garcia and Liu (1999), this is favored as opposed to constructing a composite index as it is believed to be a good indicator of the general development of stock markets and less arbitrary than any other index. Moreover, as argued by Demirguc-Kunt and Levine (1996b), there is a high correlation between individual measures and indices of stock market development.

2.3. The Independent Macroeconomic Variables

2.3.1. Income level (GDP)

Economic growth is often recognized as being a key determinant of equity growth. Indeed, according to the demand following hypothesis, the demand for financial services such as stock markets is amplified through an expansion of the economy. La Porta et al. (1996) illustrates that higher income levels lead to enforcement in

¹ All the data are extracted as annual time series data and are subsequently converted into semi annual data by the cubic spline interpolation method.

legal rights, better education, and improved business environment, which in turn lead to enhanced stock market development. In this study, current GDP is used as a measure of income level.

2.3.2. Banking development (DCTPS)

Following Garcia and Liu (1999), Naceur et al. (2007), Yartey (2008), and Cherif and Gazdar (2010) banking development is captured through domestic credit to private sector expressed as a percentage of GDP (DCTPS). This proxy not only captures captures the channeling of savings to investors, but also isolates credit issued to the private sector from credit issued to government and public entities. It is included in the model to determine whether it is a complement or a substitute to stock market development.

2.3.3. Savings and investment (GDS and GFCF)

Moreover, stock markets channel savings to investment projects. As such, a higher level of savings implies a higher level of capital flows through the stock markets. To account for the possibility that savings may not be highly correlated with income in our sample, we follow Gracia and Liu (1999) and Yartey (2008) and include two proxies savings and investment in our model, namely, domestic savings as a percentage of GDP (GDS), and gross fixed capital formation as a percentage of GDP (GFCF).

2.3.4. Stock market liquidity (TVTSR)

Yet another potential determinant of stock market development is liquidity. Liquid stock markets facilitate long term, risky, and potentially more lucrative investments, which in turn improve capital allocation and long term growth. As such, the higher the liquidity of the stock markets, the higher the amount invested through them and the higher the amount channeled to investment projects. In other words, a liquid stock market will boost stock market development. In this study, we capture stock market liquidity through total value traded shares ratio, TVTSR, (which is the total value of shares traded on a country's stock exchanges expressed as a percentage of GDP). The same proxy has also been used by Gracia and Liu (1999), Naceur et al. (2007), Yartey (2008) and Cherif and Gazdar (2010).

2.3.5. Macroeconomic stability (INF)

Finally, a high volatility in the economic environment is expected to act as a deterrent for savers participating in the stock markets. Moreover, fiscal, monetary and exchange rate policy changes, especially if unexpected, also negatively impact corporate profitability as pointed out by Gracia and Liu (1999) and Yartey (2008). As such, stable macroeconomic conditions are expected to promote stock market development. To evaluate their impact of macroeconomic instability on stock market development in Mauritius, this paper uses inflation, INF (as measured by the consumer price index).

2.3.6. The independent institutional variables (Institutional Quality, IQ)

IQ is believed to increase the confidence of investors, especially foreign ones, in the stock markets of emerging countries (Yartey, 2008; Cherif and Gazdar, 2010). Yartey (2008) argues that there are three broad measures of IQ, namely, the quality of governance, the legal protection of private property and law enforcement, and, accountability.

Following Yartey (2008) and Cherif and Gazdar (2010), the impact of PS, RL, bureaucratic quality, democratic accountability, and CC².

2.3.7. PS

It captures the likelihood that the government can be destabilized by unconstitutional and violent means. Higher values correspond to better governance and therefore better performing institutions. Yartey (2008) maintains that countries with good quality of institutions and therefore low political risk are expected to have well developed stock markets. However, to overcome the fact that the political risk indicator gives very little direction on the specific aspect of the institutions (Yartey, 2008; Cherif and Gazdar, 2010), four other institutional aspects of PS are also considered.

2.3.8. RL

It captures the strength in, observance of and confidence in the rules of the society. Indeed, the quality of contract enforcement, property rights, the police and the courts are englobed in this measure.

2.3.9. GE

This indicator captures the quality of both public and civil services as well as the independence of the services provided from political pressures. Moreover, the quality of policy formulation and implementation, along with the credibility of the government's commitment to such policies are also accounted for in this measure. This measure gives an idea of the quality of bureaucracy in the country.

2.3.10. VA

It captures the responsiveness of the government to its people. Indeed, this measure focuses on the extent to which the people of a country can participate in the selection of their government, as well as their freedom of expression, freedom of association and a free media. Yartey (2008) maintains that the less responsive a government is, the more likely it is to fall.

2.3.11. CC

This indicator relates to the degree to which public power is exercised in order to derive private benefits. A high control against corruption would undeniably be more appealing to all investors.

The specification used in this model is a double log linear one³.

$$MCR = \beta_0 + \beta_1 \text{GDP} + \beta_2 \text{TVTSR} + \beta_3 \text{DCTPS} + \beta_4 \text{GDS} + \beta_5 \text{GFCF} + \beta_6 \text{FDI} + \beta_7 \text{INF} + \beta_8 \text{IQ} + \varepsilon \quad (2)$$

3. EMPIRICAL RESULTS

Before proceeding with the estimation of the model to identify the potential macroeconomic and institutional determinants of

2 However, these measures are perception based indicators of different dimensions of governance and as pointed out by Yartey (2008), they are constructed using country experts instead of count data. Note that all the indicators take values ranging from -2.5 to 2.5 in standard normal unit terms and range from 0 to 100 in percentile rank terms.

3 From here onwards, the small letters denote the natural logarithm of the variables.

stock market development in Mauritius, a few preliminary tests are essential. First, it is important to determine whether the time series under investigation are stationary. To do so, we make use of Augmented Dickey Fuller unit root tests. The results indicate that the stationarity is rejected in favor of a unit root for all the variables. This implies that the variables are integrated of order one, that is, they are non stationary in levels but achieve stationarity after being differenced once. This being the case, an interesting question arises: Is there a long run equilibrium relationship among the underlying variables. In other words, although non stationary variables may deviate from each other in the short run, economic forces may act in response to the deviations from equilibrium, thus bringing back their association in the long run. This implies that even though each variable is integrated, there exists a linear combination of the variables which is stationary. In this study, we resort to a Johansen Cointegration test. The results confirm the presence of a cointegrating relationship among the variables. Thus, having established the presence of a long run relationship, the study opts for a VECM, and proceeds with its estimation.

3.1. VECM

The VECM is an econometric model which accommodates for the non stationary features of the data to offer a convenient way to parameterize and specify any cointegration present. Indeed, the VECM specification forces the long run behavior of the endogenous variables to converge to their cointegrated relationships, while simultaneously accommodating for the short run dynamics. The model caters for the dynamic nature of the data under consideration, treats all the variables as being endogenous and allows for the detection of any indirect effects, which might be present among the variables. Moreover, given the possibility of endogeneity and causality issues, the VECM proves to be also particularly helpful in scrutinizing the determinants of stock market development. The p^{th} order VECM is specified as follows:

$$\Delta y_t = \Pi y_{t-1} + \Gamma_1 \Delta y_{t-1} + \dots + \Gamma_{p-1} \Delta y_{t-p+1} + u_t \quad (3)$$

Where y_t is a vector comprising of the variables used in the model as defined above, t denotes the time dimension, and u_t is a standard white noise process.

3.2. The Long Run Results

The long run results of the dynamic VECM are presented in the Table 1 below. Five different models have been estimated, with Model 1 being the baseline model.

Model 1, which is the baseline model, consists of banking development, stock market liquidity, economic growth, investment, inflation and PS as the potential explanatory variables. It can be seen that all the variables have a significant impact on stock market development. Indeed, the coefficients of stock market liquidity, economic growth, investment and PS are all seen to be significant and positive, which implies that they all help in generating gains as far as stock market development is concerned in the island. Interestingly, banking development is seen to be detrimental to stock market development. In fact, a 1% rise in banking development causes the Mauritian equity market to fall by 3.89%. This implies that banking sector development actually substitutes equity development in the long run. Yartey (2007) pointed out that recently established stock markets act as complements instead of substitutes to the banking sector. Despite being a relatively new stock market, The SEM has progressed tremendously since 1989. As such, development in the Mauritian banking sector and the support services that they provide actually substitutes stock market development. As for stock market liquidity, it is also seen to stimulate stock market development: A 1% rise in liquidity yields a 1.41% growth in stock markets. As pointed out by Yartey (2008), we expect a more liquid stock market to lead to higher stock market development. Levine (1996) also argues that liquid equity markets guarantee that while companies have permanent

Table 1: Long run estimations

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Stock market development, mcr	1	1	1	1	1
Banking development, DCTPS	-3.894072 [-32.4370]***	-4.19118 [-15.2455]***	-3.137937 [-46.2306]***	-4.91974 [-23.5747]***	-3.275414 [-63.2001]***
Stock market liquidity, TVTSR	1.40908 [30.0526]***	1.377119 [20.7559]***	0.680887 [19.3840]***	2.94616 [48.9374]***	0.36332 [21.4118]***
Income level, GDP	4.93145 [45.4317]***	4.74756 [15.3720]***	3.19005 [53.2176]***	8.498355 [36.7523]***	4.11486 [82.2157]***
Investments, GFCF	2.58763 [26.4841]***	0.85706 [7.51300]***	0.65173 [19.8976]***	1.753292 [18.1474]***	1.64393 [33.8830]***
Macroeconomic instability, INF	-0.007412 [-0.44055]	-0.80463 [-22.7782]***	-0.11935 [-14.0998]***	-0.473429 [-15.0851]***	-0.012188 [-1.94965]**
Political stability, PS	0.46977 [7.18052]***				
Rule of law, RL		7.449769 [20.6752]***			
Government effectiveness, GE			0.78203 [10.5574]***		
Voice and accountability, VA				2.91594 [10.9693]***	
Control of corruption, CC					1.003876 [46.8533]***
Constant	97.40715	89.1889	56.19827	180.42	82.80527

***indicates significance at 1% level, **at 5% and ***at 10% respectively. The small letters denotes variables in natural logarithmic and t-statistics are in parentheses

access to capital raised, investors can still make less risky and yet more profitable investments. He illustrates how countries that had relatively liquid stock markets in 1976 grew much faster over the next 18 years than countries with illiquid markets. Over the years, various measures have been taken to improve the liquidity of the market in Mauritius. For instance, turnaround trading was introduced in April 2008. This enabled securities purchased during a trading session to be sold during the same session or before the settlement date. Moreover, there has also been a gradual increase in the number of hours that the markets open for. A significant reduction of 88% and 83% of the total brokerage fee on turnaround trades in 2013 and corporate bond trading in 2014 respectively also played a key role in boosting the liquidity of the exchange. Zooming in on income level, the long run results indicate that if it increases by 1%, stock market development will be enhanced by 4.93%. This is in line with the demand driven hypothesis which argues that the expansion of an economy generates new and additional demand for financial services. In fact, a faster growth rate of real income implies a greater demand of financial intermediation as firms will be unable to finance expansion from internal sources and will require external funds. Shifting our focus on gross fixed capital formation, it is seen that it has a positive and significant coefficient. Indeed, as expected, investment, is an important determinant of stock market development in the island as it increases the amount of capital flows through the exchange. The long run results show that a rise of 1% in *GFCF* leads to a 2.59% increase in stock market development. As for PS, it is seen to be an important determinant of stock market development as well. Indeed, a 1% increase in PS generates a 0.49% rise in the stock market development of the island. The island has experienced PS ever since its independence in 1968, despite several constantly shifting coalitions. This stability has proved to be a small, but nonetheless significant driving force that has pushed the development of the stock markets in the island. Nevertheless, the results indicate that PS; 3 year is less important as a determinant, as opposed to the other macroeconomic ones. Indeed, the coefficient of PS is much lower than that of banking development, stock market liquidity, economic growth and investment. The stimulating effect of PS on equity market growth is in line with the results obtained by Yartey (2008). However, Cherif and Gazdar (2010) found that political risk has no significant impact on stock market development in the MENA region.

On the other hand, inflation has a detrimental impact on the development of the Mauritian equity market as expected. This is contrary to the Fisherian hypothesis, which argues that equity returns should be positively related to inflation, given that the former acts as a hedge to inflation. However, high inflation, especially when it is unforeseen, can impact corporate profits through higher input costs, and as such, can actually depress the stock market. This is in line with McCarthy et al. (1990) and Yartey (2008). The results of Naceur et al. (2007) also show that inflation has a negative and significant coefficient. Although Garcia and Liu (1999) also detected a negative link between inflation and market capitalization, their coefficient was not significant.

Model 2 focuses on the impact of RL on the stock market development of the island, instead of PS. The macroeconomic determinants are the same as in Model 1. The results show that RL

is positive and statistically significant in explaining stock market development. Indeed it has a significant coefficient of 7.45, which implies that a 1% rise in RL helps boost stock market development by 7.45%. This result confirms that RL is crucial for the development of stock markets in Mauritius. In fact, it proves to be more important than any of the other macroeconomic determinants, as indicated by the bigger magnitude of its coefficient in Model 2.

On the other hand, Model 3 analyses the impact of GE on stock market development in Mauritius. The results indicate that stock market development will be enhanced by 0.78% if GE rises by 1%. As argued by Yartey (2008), good bureaucratic quality enhances the regulatory capacity of countries, thereby triggering stock market development. The result is in line with Yartey (2008) who also demonstrated that bureaucratic quality has a positive and significant impact on stock market development in South Africa. Interestingly, GE proves to be more important than stock market liquidity and investment as a promotor of stock market development in the Model, which have coefficients of 0.68 and 0.65 respectively.

As for Model 4, it tries to identify whether VA also has a role to play in promoting stock market development in Mauritius. The results illustrate that VA indeed helps in boosting growth in the stock markets, which is in line with the results of Yartey (2008). In fact, a 1% rise in VA actually causes stock market development to shoot up by 2.92%. This impact is actually higher than the boost generated by investment, which only increases stock market development by 1.75% for every 1% increase. Again, banking development, stock market liquidity, economic growth, investment all positively and significantly explain stock market growth while inflation hinders its development.

Finally, Model 5 depicts the importance of CC for the development of stock market development in Mauritius. The explanatory variable has a positive and significant coefficient of 1.003. This is in line with Yartey (2008) who found that corruption is detrimental to the development of stock market development. However, the other macroeconomic determinants considered in the model prove to be more important determinants than CC, which has a smaller significant coefficient of 1.003.

4. CONCLUSION AND POLICY RECOMMENDATIONS

The empirical results demonstrate that the macroeconomic determinants of stock market development are banking development, stock market liquidity, economic growth and investment. As for inflation, it is seen to hinder stock market growth in the island. The SEM is one of the leading and most developed exchanges in Africa and has been a front-runner as far as process in the exchange space is concerned. Indeed, it has gone through strategic reorientation, diversified from an equity based domestic exchange, and even significantly reduced transaction costs. Nevertheless, it is crucial for the exchange to maintain its development strategy to ensure that the latter continues to encourage private led and sustainable growth in the island. The exchange should further broaden the range of products offered,

with special focus on internationalization. Moreover, actions have to be taken to enable the exchange to become a platform that raises capital for the African region as a whole. As for the banking sector in Mauritius, which is in fact more developed than the capital market, it has persistently remained healthy. Instead, the focus should now be directed towards further promoting the development of investment banks, which will be able to provide strong financial analysis and underwriting services, facilitate mergers and other corporate reorganizations, and even act as a broker or financial adviser to institutional investors. Such developments in the banking sector will more likely have a superior ability to complement stock market development. Finally, stock market liquidity and investment, which are also important propellers of stock market development in the island, must be intensified to ascertain that they keep on stimulating stock market development.

On the other hand, the study also reveals that institutional factors such as PS, RL, GE, voice accountability and CC are also key determinants of stock market development in Mauritius. These institutional determinants might not have as big an impact in terms of magnitude as the macroeconomic ones, but their importance cannot be ignored. The results imply that the maintenance of a stable political environment, the development of a good legal system, the enhancement of GE, improved accountability as well as a tighter control against corruption are important determinants of stock market development in Mauritius. As such policies should be directed towards the development and improvement of the institutional environment in the Island.

REFERENCES

- Aduda, J., Masila, J.M., Onsongo, E.N. (2012), The determinants of stock market development: The case for the Nairobi stock exchange. *International Journal of Humanities and Social Science*, 2(9), 214-230.
- Arestis, P., Demetriades, P.O., Luintel, K.B. (2001), Financial development and economic growth: The role of stock markets. *Journal of Money, Credit and Banking*, 33(1), 16-41.
- Beck, T., Levine, R. (2004), *Legal Institutions and Financial Development*. NBER Working Papers, No. 10417. Bureau: National Bureau of Economic Research, Inc.
- Cherif, M., Gazdar, K. (2010), Macroeconomic and institutional determinants of stock market development in MENA region: New results from a panel data analysis. *International Journal of Banking and Finance*, 7(1), 138-159.
- Claessens, S., Klingebiel, D., Schmukler, L.S. (2001), FDI and Stock Market Development: Complements or Substitutes? Joint Conference of the IDB and the World Bank: The FDI Race: Who Gets the Prize? Is it Worth the Effort?
- DeFina, R. (1991), International evidence on a new Keynesian theory of the output-inflation trade-off. *Journal of Money, Credit and Banking*, 23, 410-422.
- Demirguc-Kunt, A., Levine, R. (1996a), Stock market development and financial intermediaries: Stylized facts. *The World Bank Economic Review*, 10, 291-321.
- Demirguc-Kunt, A., Levine, R. (1996b), Stock markets, corporate finance and economic growth: An overview. *The World Bank Economic Review*, 10, 223-239.
- Demirguc-Kunt, A., Maksimovic, V. (1998), Law, finance and firm growth. *Journal of Finance*, 53, 2107-2137.
- Demirhan, E., Aydemir, O., Inkaya, A. (2011), The direction of causality between financial development and economic growth: Evidence from Turkey. *International Journal of Management*, 28(1), 3-19.
- Dow, J., Gorton, G. (1997), Stock market efficiency and economic efficiency: Is there a connection? *Journal of Finance*, 52, 1087-1129.
- El-Nader, H.M., Alraimony, A.D. (2013), The macroeconomic determinants of stock market development in Jordan. *International Journal of Economics and Finance*, 5(6), 91-103.
- El-Wassal, A.K. (2005), Understanding the growth in emerging stock markets. *Journal of Emerging Market Finance*, 4(3), 227-261.
- Evrin-Mandaci, P., Aktan, B., Kurt-Gumus, G., Tvaronavičienė, M. (2013), Determinants of stock market development: Evidence from advanced and emerging markets in a long span. *Verslas Teorija ir Praktika*, 14(1), 51-56.
- Garcia, V.F., Liu, L. (1999), Macroeconomic determinants of stock market development. *Journal of Applied Economics*, 2(1), 29-59.
- Greenwood, J., Jovanovic, B. (1990), Financial development, growth, and the distribution of income. *Journal of Political Economy*, 98, 1076-1107.
- Gurley, J., Shaw, E. (1955), Financial aspects of economic development. *American Economic Review*, 45, 515-538.
- Kemboi, J.K., Tarus, D.K. (2012), Macroeconomic determinants of stock market development in emerging markets: Evidence from Kenya. *Research Journal of Finance and Accounting*, 3(5), 57-68.
- Levine, R. (2004), Finance and growth: Theory and evidence. In: Aghion, P., Durlauf, S., editor. *Handbook of Economic Growth*. 1st ed., Vol. 1. USA: Elsevier. p865-934.
- Levine, R., Zervos, S. (1996), Stock market development and long-run growth. *World Bank Economic Review*, 10, 323-339.
- Levine, R., Zervos, S. (1998a), Stock markets, banks and economic growth. *American Economic Review*, 88, 539-558.
- Levine, R., Zervos, S. (1998b), Capital liberalisation and stock market development. *World Development*, 26, 1169-1183.
- McCarthy, J., Najand, M., Seifert, B. (1990), Empirical Tests of the Proxy Hypothesis. *The Financial Review*, 35, 59-78.
- Naceur, S.B., Ghazouani, S., Omran, M. (2007), The determinants of stock market development in the Middle-Eastern and North African region. *Managerial Finance*, 33(7), 477-489.
- Porta, R.L., Lopez-De-Silanes, F., Shleifer, A., Vishny, R.W. (1996), Trust in Large Organizations. NBER Working Paper No. w5864. National Bureau of Economic Research.
- Rajan, R., Zingales, L. (1998), Financial dependence and growth. *American Economic Review*, 88(3), 559-586.
- Sims, C.A. (1980), Macroeconomics and reality. *Econometrica: Journal of the Econometric Society*, 48, 1-48.
- Stiglitz, J.E., Weiss, A. (1983), Incentive effects of terminations: Applications to the credit and labor markets. *American Economic Review*, American Economic Association, 73(5), 912-927.
- Sukruoglu, D., Nalin, H.T. (2014), The macroeconomic determinants of stock market development in selected European countries: Dynamic panel data analysis. *International Journal of Economics and Finance*, 6(3), 64.
- Wong, A., Zhou, X. (2011), Development of financial market and economic growth: Review of Hong Kong, China, Japan, The United States and The United Kingdom. *International Journal of Economics and Finance*, 3(2), 111-115.
- Yartey, C.A. (2007), Macroeconomic and institutional determinants of stock market development in Africa. In: John, O., editor. *Management and Economic Development in Sub-Saharan Africa: Theoretical and Applied Perspectives*. London: Adonis and Abbey Publishers.
- Yartey, C.A. (2008), Determinants of Stock Market Development in Emerging Economies: Is South Africa Different? IMF Working Paper No. 08/32.