CAPITAL MARKET MECHANISMS AND ECONOMIC GROWTH IN RWANDA 2016-2021

Yowel Asiimwe

Masters student, University of Kigali- Rwanda

Abstract: Today, many countries in the world, compare their economies based on the functioning and performance of their capital markets. Capital market plays an important role in economic growth and economic prosperity of a country. Therefore, this research was aimed to analyze the contribution of Rwanda capital market on economic growth of Rwanda. The specific objectives were to assess the contribution of market capitalization on economic growth of Rwanda, to analyze the contribution of volume of transactions on economic growth of Rwanda and to analyze the contribution of market turnover on economic growth of Rwanda. The following hypothesis was tested: H_o1. There is no significant relationship between market capitalization and Rwandan economic growth and H_o2. There is no significant relationship between volume of shares and Rwandan economic growth. The research used descriptive and correlational research design; the population of the research is 11 years starting from 2011 to 2021 as sample size of the research; the data was collected using documentary technique. In this regard the researcher got documents relate to the market capitalization, volume of shares and market turnover from RSE and documents related to GDP from MINICOFIN. The regression analysis revealed a positive relationship (R = 953). The R coefficient of 0.953 indicates that the predictors of the model which market capitalization, Market turnover and volume of shares, have a correlation of 95.3% with the dependent variable (gross domestic production in Rwanda) The study also revealed that market capitalization, contributed to 90.8% (R^2= 0.908) of the gross domestic production in Rwanda. Based on these findings researcher conclude that the capital market affects the gross domestic production. From the research researcher recommend the government of Rwanda to increase the number of companies registered on Rwanda capital market to boost national economy.

Key Words: *Market capitalization, volume of shares, volume of share, economic growth*

1. Introduction

The link between financial stock market and economic growth becomes the field of research more and more explored. The presence of financial intermediaries regardless of whether they are capital market institutions, commercial and savings banks, merchant banks, or finance houses enables exchange of liquid assets. Financial intermediaries facilitate investments, enable technological progress and accelerate growth. The development of the financial sector, thus, carries some interaction with economic growth (Fiordelisi, 2020).

Financial markets are today classified as bank-based or market-based systems. The UK and US are market-based as these countries have similar long-term growth rates. According to (Adjasi, 2007) stock markets provide an opportunity for growing companies to raise capital at lower costs. They emphasized that companies in countries with developed stock markets are less dependent on bank financing. Throughout the world, the type of financial model practiced by sovereign countries reflects the type of government as a regime in power. Many, Eastern European, Middle Eastern and African countries, including Libya, have practiced socialism for a long time.

In countries where capital markets are more developed they have played a major role in economic and financial growth according to Dudley (2021). This is explained by their ability to mobilize funds that are then channeled to individuals or groups of people who need that money to start or expand their businesses which result in the growth of a country's economy. Learning from these countries experience, Rwanda has created its capital market in 2011 and since then, it has adopted institutional and regulatory framework to support its development and it is in the same spirit that, since 2014 the government long-term debt issuance program was launched.

1.1 Problem statement

In 2000 Rwanda adopted Vision 2020 which aims at transforming the country into a middle-income country with a knowledge based economy. To achieve this, an annual economic growth target of 11.5 per cent is required which can only be achieved with at least 20 per cent savings of GDP and domestic investments of up to 30 per cent of GDP. The Capital Market Authority (CMA) was established under the Capital Market Act of 2011 to guide the development of capital markets. Earlier the Rwanda Capital Market Advisory Council (CMAC) was established in 2007 to develop the capital market in Rwanda, facilitate the trading of debt and equity securities and to enable securities transactions and perform regulatory functions over the Rwanda Securities Exchange which was created in 2011 (RSE, 2017).

In reality, COVID-19 pandemic has adversely affected the Rwandan economic performance through induced demand and supply shocks. Real GDP contracted by 4.1 percent in the first three quarters of 2020 compared to a growth of 9.8 percent registered in the same period of 2019. The 2020 economic downturn was broad-based across all economic sectors. The services sector, representing 49 percent of GDP, recorded a decrease of 6.0 percent during the first three quarters of 2020, from an increase of 8.5 percent in the corresponding period of 2019. Therefore, this research sought to analyze how the capital market contribute to the Rwandan economy growth by stimulating investment among Rwandans.

II. Review of literature

2.1. theoretical review

2.1.1. Efficient Market Hypothesis – Theory

Like so many ideas of modern economics, the EMH was first given form by Paul Samuelson (1965), whose contribution is neatly summarized by the title of his article: 'Proof that Properly Anticipated Prices Fluctuate Randomly'. In an informationally efficient market, price changes must be unforecastable if they are properly anticipated, that is, if they fully incorporate the information and expectations of all market participants. Having developed a series of linear-programming solutions to spatial pricing models with no uncertainty, Samuelson came upon the idea of efficient markets through his interest in temporal pricing models of storable commodities that are harvested and subject to decay. Samuelson's abiding interest in the mechanics and kinematics of prices, with and without uncertainty, led him and his students to several fruitful research agendas including solutions for the dynamic asset allocation and consumption-savings problem, the fallacy of time diversification and log optimal investment policies, warrant and option-pricing analysis and, ultimately, the Black and Scholes (1973) and Merton (1973) option-pricing models.

The EMH's concept of informational efficiency has a Zen-like, counter-intuitive flavor to it: the more efficient the market, the more random the sequence of price changes generated by such a market, and the most efficient market of all is one in which price changes are completely random and unpredictable. This is not an accident of nature, but is in fact the direct result of many active market participants attempting to profit from their information. Driven by profit opportunities, an army of investors pounce on even the smallest informational advantages at their disposal, and in doing so they incorporate their information into market prices and quickly eliminate the profit opportunities that first motivated their trades. If this occurs instantaneously, which it must in an idealized world of 'frictionless' markets and costless trading, then prices must always fully reflect all available information (Lavoie, 2021).

It is an investment theory that states it is impossible to '' beat the market'' because stock market efficiency causes existing share prices to always incorporate and reflect all relevant information. According to the EMH, stocks always trade at their fair value on stock exchanges, making it impossible for investor to either purchase undervalued stocks or sell stocks for inflated prices, as such, it should be impossible to outperform the overall market through expect stock selection or market timing, and that the only way an investor can possibly obtain higher returns is by purchasing riskier investments. According to the capital market is efficient if price, full reflect all available information in the market. (Eugene, 2000) Below there is two schools of thought on the theory.

The efficient market hypothesis is obviously flawed because certain investors can and do outperform the market. That is one of the main criticisms of EMH that active investment management proponents frequently level at it. Two of the most well-known investors, Warren Buffett and George Soros, have repeatedly outperformed the market by making investments in things they thought were cheap. Numerous investors have been motivated to follow Buffett's stock picks in particular. EMH proponents argue that investors who outperform the market are typically just lucky. The market generally behaves in a predictable manner most of the time. According to them, the fact that there are market crashes and corrections can also be seen as the market reestablishing a baseline.

2.1.2. Rostow theory

Rostow theory is about growth and basically it is the theory of derivation of development and modernization. In this case, Rostow uses the metamorphosis growth, growth as an organism. In terms of economics, it means the revolution from traditional to modern. Rostow theory is known as a five-stage scheme that all modern people have been passed a traditional way. Rostow has conducted some efforts to achieve the high mass consumption. One of the efforts is capital. A capital can do much to the economic terms and develop a country. The capital here refers toa tax policy, foreign investment, and exchange rate of international trade. Therefore, it can be concluded that what Rostow's need to develop the growth is a capital, for example in Indonesia there is what is called a small-medium enterprise or *Usaha Kecil Menengah* which can help the economic condition, and also need capital to make it larger and successful (Fakih, 2001).

In addition to make the GNP (growth national product) grow, almost all strategies of economic development have been criticized because they were considered fail to keep the welfare of the people. The strategies made unemployment and inequality rate get worse, and increased the absolute poverty as well. This theory cannot reach the poor people in the world, like the people struggling their life from death. Inversely, this theory causes the rich get richer and the poor get poorer.

Because some scholars did not agree about the theory, then there is a theory called 'growth and equity'. The concept is not fully developed yet. All the approach of 'growth and equity' has a common aspect, based on the traditional development belief that the growth or increasing GNP does not give benefits to the poor in developing countries, as soon as possible to them. It can be seen that the poor need helps as

soon as the world or the country can give because they are struggling to cope with life. Fakih (2001) said that a revolution does not happen in the poor country, but it is successful in some countries like Taiwan, Korea, Hong Kong, Israel, Japan, Singapore, and Sri Lanka. It can be seen that most of the countries now has been a developed country having a good economy known by the world.

2.2. Empirical review

2.2.1. Market capitalization and economic growth

Kumar (2014) conducted a study on Estimation of Market Capitalization and Economic Growth in India, Capital formation is an integral part of economic growth and development and plays an important role in the economic theory of production and distribution. It is assumed that capital accumulation with a positive correlation and additions to the stock of capital can facilitate faster rate of growth. Traditionally growth rate depends upon growth of industrial, agriculture and service sector but stock market is also one of the major sectors for capital formation and has straight impact on the economy across the world.

Hence, stock market in developing economies such as India is also growing very fast and it is estimated that Indian stock market is a trillion-dollar industry. Over the years the Indian stock market is witnessing heightened activities and is increasingly gaining importance. Therefore, the present study attempts to capture the trends and patterns of market capital, domestic saving, GDP growth in Indian context using growth model. It also investigates the relationship between market capitalization, saving and GDP growth over the last three decades or so. The results indicate further growth of market capitalization and positive association between macro indicators. The researcher indicated the relationship between market capitalization and economic growth but failed to show how the market capitalization contribute to the economic growth statistically.

Jalloh (2019) conducted a research on Stock market capitalization and economic growth: empirical evidence from Africa. The study, therefore, attempt to provide further evidence on the relationship between stock market capitalization and economic growth using recent data from a sample of African countries with well-functioning stock markets. A dynamic panel approach is employed with a view to assessing the relative impact of stock market capitalization on the economic growth in Africa. The results from the study show that enhancing stock market capitalization by a marginal average of 10.0% induces growth by 5.4% in countries studied.

The positive and significant relationship between stock market capitalization and economic growth as demonstrated in this study provides encouraging signals for African countries to explore stock markets as a potential avenue for expediting economic growth. This, therefore, suggests the dire need for policymakers in Africa to direct efforts towards the implementation of policy measures that will encourage the development of stock markets to spur economic growth.

2.2.2. Volume of shares and economic growth

Enekwe (2014) did an examination on the impact of capital market volume in the financial growth in Nigeria for the period 1981-2012. GDP was picked as the intermediary for monetary growth while the capital market factors considered incorporates: Market capitalization, Number of recorded protections and all out worth of protections exchanged. The findings of study show that financial growth was significantly impacted simply by market capitalization. Exercises of the securities exchange might but rather have impacted the economy expected. It was therefore suggested that the regulatory specialists ought to acquaint ICT polices with encourage more organizations to get to their reconnaissance to check sharp practices which sabotage the market integrity and disintegrate financial backers' certainty

Torbira and Joshua (2017) examines how capital market development as a subsection of financial development has openly influenced economic growth of the Mexico, Indonesia, Nigeria and Turkey

(MINT) countries using time series data for the period of 2000— 2016. The outcomes show that number of registered financial securities is the most influencing capital market development measure on economic growth of the MINT as a group. This pointer was understood to be adverse and significantly linked to gross domestic product (GDP), but positive and significantly linked to gross fixed capital formation and gross domestic savings ratios to GDP. Statistical proof in addition indicates that Indonesia is typically impacted positively by capital market development, particularly since it both rises gross fixed capital formation and gross domestic savings ratios.

Araoye, *et al*., (2018) studied the effect of the stock market development on the nation's economic growth in Nigeria using time series data for 30 years from 1985 to 2014. The economic growth was represented by the GDP whereas the stock market represented by variables involved; market capitalization and market turnover ratio concerning size and liquidity. The empirical outcomes propose that the stock market is significant in determining economic growth in Nigeria adopting the error correlation model and it was found that the stock market has affected insignificantly on the economic growth. Therefore, the research hypothesized that:

H_o1. There is no significant relationship between market capitalization and Rwandan economic growth.

H_o2. There is no significant relationship between volume of shares and Rwandan economic growth.

III. Methodology

From the years 2011 through 2021, a panel data technique was used for the investigation. The Rwanda Stock Exchange's listed companies made up the study's population. To derive conclusions from the data, inferential statistics was applied. In the study, multiple linear regression analysis was used to assess the proposed hypotheses and is written as;

$$Y_t = \beta_{0t} + \beta_1 X_{1t} + \beta_2 X_2 t + \varepsilon$$

Where:
Y_t = Economic growth
X_1 = Market capitalization t
X_2 = Volume of shares t
β_0 = Constant
$\beta_1 - \beta_2$ = Coefficient of estimates
ε = Error tem
t = Period

3.2 Diagnostic Tests

Panel data estimation method was done using STATA software. Several diagnostic tests were done on observations for variables in order to establish panel estimation was fit. These tests were as discussed in this area;

3.2.1 Multicollinearity

Multicollinearity is existence of high correlations among explanatory factors. Regression analysis assumes absence of multicollinearity. This study used variance inflation factor in testing for multicollinearity. A data set that does not have high correlations often has VIF values of less than 10.

3.2.2 Normality

Normality refers to symmetrical skewness of data observations around the mean. Normality is often used to showcase whether there are extreme observations from the mean. In this study, skewness and kurtosis were used to establish whether the data set had normal distribution. Skewness of between 10 and -10 and kurtosis between -3 and +3 showing that the variables did not significantly deviate from normality.

3.2.3 Serial Correlation

Serial correlation is a phenomenon that exists where observations for variables are correlated with observations for that same variable due to time. Existence of serial correlation indicates that observations for a variable are not random but rather lagged version of them in respect to time. In this study autocorrelation was measured using Wooldridge test of autocorrelation. The p-value for Wooldridge test was 0.017 this p-value was less than 0.05 then the null hypothesis was rejected.

IV. Findings

The relationship between market capitalization and economic growth was determined using multiple regression analysis. The hypotheses also were tested as follow:

Regression analysis

In regression the researcher analyzed the model summary, variances and coefficients of variables. From the table 1; regression analysis revealed a positive relationship (R = 953). The R coefficient of 0.953 indicates that the predictors of the model which is the market capitalization, have a correlation of 95.3% with the dependent variable (gross domestic production in Rwanda) The study also revealed that market capitalization, contributed to 90.8% (R^2= 0.908) of the gross domestic production in Rwanda.

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.953[a]	.908	.623	.16282	.1653	123.031	3	65	.000

a. Predictors: (Constant), market capitalization, volume of shares)

Table 2. shows that variations in gross domestic production in Rwanda can be explained by the model to the extent of 0.992 out of 1.361 or 72.8 % while other variables not captured by this model can explain 27.1 % (0.369 out of 1.361) of the variations in gross domestic production in Rwanda. F value of the model produces a p-value of 0.015 which is significantly different from zero. A p-value of 0.015 is less than the set level of significance of 0.05 (0.015<0.05) for a normally distributed data. This means that the model is significant in explaining gross domestic production in Rwanda.

Table 2: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.992	3	.248	5.11	.015[a]
	Residual	.369	7	.045		
	Total	1.361	10			

a. Dependent Variable: Gross domestic production in Rwanda

b. Predictors: (Constant), market capitalization, volume of shares.

The regression output is laid on Table 3 Standardized coefficients (Beta) were used to determine the relative importance of the significant predictors of gross domestic production in Rwanda. The larger the absolute standardized coefficient, the larger the contribution of that predictor to gross domestic production in Rwanda as indicated by the T-statistics. Therefore, the market capitalization contributes by (β=0.212) to gross domestic production in Rwanda and volume of shares contributes by (β=0.452) to gross domestic production in Rwanda.

In fact, a unit change in market capitalization, would lead to increase in gross domestic production in Rwanda by a factor of 0.212 and a unit change in volume of shares would lead to increase in gross

domestic production in Rwanda by a factor of 0.452. The study also found that the p-value was less than 0.05 and t test was greater than 0.05, this indicates that the variable was statistically significant in influencing the gross domestic production in Rwanda, which reject the hypothesis of the research.

Therefore, since the t-values were greater than 0.05 the researcher rejected all hypothesis of the research as it has been revealed that market capitalization and volume of shares contribute to the gross domestic production in Rwanda.

Table 3: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
		B	Std. Error	Beta	T	Sig.	Lower Bound	Upper Bound
1	(Constant)	.562	.863		.292	.774	.262	.601
	Market capitalization	.816	.255	.212	3.849	.046	.185	.322
	Volume of shares	.572	.322	.452	1.265	0.04	.068	.210

a. Dependent Variable: Gross domestic production in Rwanda

V. Conclusion and recommendation

The research was aimed at analyzing the impact of capital market on economic growth of Rwanda. Researcher used market capitalization, volume of shares and market turnover as variables for capital market and GDP as indicator of dependent variable. The regression analysis revealed a positive relationship (R = 953). The R coefficient of 0.953 indicates that the predictors of the model which market capitalization and volume of shares, have a correlation of 95.3% with the dependent variable (gross domestic production in Rwanda) The study also revealed that market capitalization, contributed to 90.8% (R^2= 0.908) of the gross domestic production in Rwanda. Based on these findings researcher conclude that the capital market affects the gross domestic production. From the research researcher recommend the government of Rwanda to increase the number of companies registered on Rwanda capital market to boost national economy.

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