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With the right of handwriting

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## **Impact of the International Currency Market on Georgia's Economy**

Thesis submitted for procuring the academic degree of PhD in Economics

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## Table of Contents

Significance of the research topic .....	4
Research goals and objectives .....	5
Research object and subject .....	5
Research theoretical and methodological basis .....	6
Scientific novelty of the thesis.....	7
Practical importance of the thesis outcomes .....	8
Structure of dissertation thesis.....	8
Principal content of the thesis.....	9
Research outcomes.....	15
Publications .....	17

## **Significance of the research topic**

Actuality of dissertation thesis is determined by the importance of the currency exchange rate in the international market. The examination of the currency exchange rate allows us to better understand the concepts of cost and benefit that is related to imported and exported goods and services. For each country's economic growth, it is important to assess the risks associated with the changes in the currency exchange rate. The actuality of the issue is to highlight the currency volatilities that are due to the currency fluctuations, which generate an uncertainty in forecasting the amount of money received from abroad in Georgia. The study analyzes the factors of the exchange rate in different periods of time, reviews the fundamental factors of exchange rate in short- and long-term period. In the work, based on the analyzes of Georgian economic structure there is evaluated the impact of the foreign currency exchange rate on Georgian economy.

For the case of Georgia in order to eliminate the national currency devaluation, it is necessary to determine the causes of depreciation of Georgian Lari and the ways to come out of the above-mentioned situation. Based on this, the study analyzes the factors that affect the exchange rate in different periods of time. There is discussed the fundamental factors of the exchange rate in the long run and medium run. There is also described the exchange rate fluctuations in the short run in order to determine connections between macroeconomic time series and exchange rate movement.

Above mentioned issue is one of the most important factors among many challenges facing Georgian economy today. For this reason, in the dissertation thesis based on the analyzes of the structure of the Georgian economy there is evaluated the impact of foreign currency exchange rate on the Georgian economy.

In the PhD thesis we are covering the economic overview and analysis of Georgia in the years of 2003-2017, which is important in order to identify the necessary aspects for country's economic development. As a result of global economic challenges and risks it is crucial to create, maintain and improve stable macroeconomic environment in Georgia.

## **Research goals and objectives**

The objective of the research is to estimate the impact of foreign exchange rate fluctuations on Georgia's gross domestic product (GDP), price dynamics and interest rate setup. In order to invest in Georgia, it is important to analyze different countries interest rates, which in turn is determined by the dynamics of existing exchange rate in the country. The dissertation thesis deals with the interaction of foreign exchange rate and their fluctuation on trading decisions. In order to achieve the aforementioned objectives, the following assessments are undertaken:

- Analysis of Georgian economy structure and its challenges;
- Analysis of the foreign exchange rate characteristics based on the examples of the US, Western Europe and East Asian countries;
- Determining the contagious nature of countries currency rate fluctuations;
- Investigation of the impact of various factors on the national currency of Georgia;
- Influence of global economic crises and risks, as well as their currency rate fluctuations on the national currency of Georgia;
- Analysis and generalization of developed and emerging countries experience in relation to the strengthening of exchange rate.

Taking into consideration the above-mentioned factors, the research presents the results of VAR econometric analysis, which was conducted for assessing the exchange rate impacts.

## **Research object and subject**

The object of research is to examine the problems associated with the international currency rate in terms of the combination of theoretical, methodological and practical issues. As well as analyzing the influence of exchange rate on the Georgian economy based on local and foreign experience.

The subject of the research is to determine the effect of the currency market on Georgian economy, which is estimated by statistical and econometric analysis.

## **Research theoretical and methodological basis**

The theoretical foundation of the research includes the scientific literature of Georgian (Academician Silagadze, A., Academician Papava, V., Atanelishvili, T., Ananiashvili, I., Aslamazishvili, N., Bakhtadze, L., Gelashvili, S., Gvelesiani, R., Veshapidze, Sh., Tokmazishvili, M., Kakulia, M., Kakulia, R., Mekvabishvili, E., Tukhashvili, M., Gaganidze, G., Shengelia, T., Khaduri, N., Kharaisvili, E. et al.) and foreign (Dabrowski, M., Eichengreen, B., Glick, R., Krugman, P.R., Maehle, N., Mishkin, F.S, Reinhart, C.M., Rose, A.) authors, articles and electronic resources regarding the international currency market, currency crises and its impact on Georgia's economy.

Quantitate research method was selected for analyzing the dynamics of Georgia's national currency in the years of 2003-2017. Based on the studies of researchers (Bakradze, G., Bakhtadze, L., Gvelesiani, R., Zedgenidze, Z., Mekvabishvili, E., Papava, V., Gaganidze, G.) determinants of the exchange rate are revealed. In the thesis we are offering the detail analysis of the possibility of potential growth of the country's economic development based on the generalization of the experience of rapidly growing countries and the role of international economic relations for countries development.

The literature on inflation includes the works (Bluashvili, A., Totladze, L., Boschen, J., Carranza, L.J.) which investigates the factors causing inflation and relatively negative consequences are estimated. The characteristics of inflation targeting is revealed based on the research of Georgian national bank (Mkhatriashvili, Sh., Mdivnishvili, T., Liqokeli, A.) that has offered the conditions, which are crucial for achieving inflation targeting's efficiency.

Economics (Gelashvili, S., Tokmazishvili, M., Kakulia, R., Aghion, P., Burnside, C., Mishkin, F.S.) have examined the risks associated with the currency market, revealed the currency risks that influence financial institutions, which is quite a matter of concern for the countries. Researchers (Apanard, P., Berger, W., Dabrowski, M., Dasgupta, A., Eichengreen, B.) estimated the peculiarities of the regional currency crisis that is caused by countries relation in the open economy. As a remedy, (Aslamazishvili, N., Kakulia, M., Aslanidi, O.) introduce the determinants, the consequences, the policy implications and unofficial dollarization in Georgia.

The Vector Autoregression (VAR) model was used for evaluating the impact of exchange rate on major macroeconomic indicators for the case of Georgia based on the research papers of Arratibel, O., and Michaelis, H. Consequently, on the basis of a review of the papers (Arratibel, O.,

Dabrowski, M., Michaelis, H.) it is analyzed the impact of the nominal exchange rate on macroeconomic environment.

Data processing is carried out using Ms. Excel and Stata computer programs. National statistics office of Georgia's, ministry of finance of Georgia's, international monetary fund's and world bank's databases are used during empirical estimations.

### **Scientific novelty of the thesis**

In the framework of the dissertation, we have discovered the following findings:

1. In the thesis we are covering the economic overview and analysis of Georgia in the years of 2003-2017, the detailed research is given for the Georgia's economic growth, trends, priority directions and the positive and negative aspects of the exchange rate impact on them;
2. Thesis represents the relationship between short, medium and long run macroeconomic variables and exchange rate; as well as the dynamics of the exchange rate;
3. Based on the international experience we have provided the dimensions, measuring methods, determinants and consequences of dollarization in Georgia;
4. For the analyzes the economics of Georgia in the thesis we are covering the country's potential release based on the Kalman filter methodology;
5. In the thesis detailed analyzes of the current economic situation is held in the country, which is necessary for the successful implementation of monetary policy in the conditions of inflation targeting;
6. Using the Vector Autoregression analysis (VAR) there is estimated the impact of nominal effective exchange rate on the Georgia's gross domestic product (GDP), inflation and on real exchange rate;
7. Based on the generalization of the analysis of international exchange rate we have revealed the interaction of currency units and the reasons that cause the currency volatilities;
8. Based on the impact of different countries' currency changes on Georgian economy, recommendations have been given to regulate the problems arising from the fluctuations of Georgian national currency.

## **Practical importance of the thesis outcomes**

Mentioned research is of high importance for researchers interested in analyzing the international currency market. In the thesis we have emphasized the combination of factors affecting Georgian economy, in particular we conducted econometric analysis and received specific theoretical considerations. This PhD thesis has practical importance, as the results can be used by scientific and educational institutions, as well as by researchers interested in international currency markets. It can also be used by universities on the international disciplines of public finance and international economics.

## **Structure of dissertation thesis**

The dissertation paper consists of 180 pages printed on the computer. The structure of the thesis includes the introduction, 3 chapters, 14 subchapters, conclusion and recommendations, 191 types of references, 32 types of figures and 19 types of tables.

### **Introduction**

#### **Chapter I. Structural analyzes of the Georgian economy and evaluation of its potential growth**

- 1.1. Overview of Georgia's economic situation
- 1.2. Factors that influence the national currency of the country
- 1.3. Evaluating the potential growth of the country's economy
- 1.4. The role of international economic relations in the countries development

#### **Chapter II. Determinants of factors that influence inflation and the methods to control it**

- 2.1. Determinants of inflation and the methods to overcome it
- 2.2. Targeting inflation in emerging market countries
- 2.3. The impact of external debt on inflation rate in Georgia
- 2.4. The optimal level of inflation in Georgia

#### **Chapter III. Currency rate features in terms of countries**

- 3.1. Risks related to the currency market
- 3.2. The contagious nature of exchange rates and its features
- 3.3. Dollarization in Georgia and the ways to overcome it
- 3.4. The impact of changes in exchange rate on Georgian economy

3.5. Research methodology and data analysis

3.6. Foreign countries experience in terms of strengthening exchange rate

## **Research conclusions and recommendations**

## **References**

## **Publications**

### **Principal content of the thesis**

First chapter of the research - „**Structural analyzes of the Georgian economy and evaluation of its potential growth** “. The first chapter provides an analysis of Georgian economy structure in the years of 2003-2017; reviews the determining factors of exchange rate; clarifies how the emerging market economies differ from advanced economies based on their characteristics; evaluates the possibility of potential growth of the country’s economy based on the generalization of the rapidly growing countries experience; exemplifies the role of international economic relations in terms of countries development.

The exchange rate is one of the most important tools that affect the country’s economic situation. In the first chapter of the research paper the importance of the exchange rate and the obstacles caused by the changes are demonstrated. For the case of Georgia, based on the review and generalization of the scientific literature on the impact of the exchange rate, we are covering the impact of exchange rate on Georgia’s economy in the years of 2003-2017. During these years the problems of economic development of the country were revealed, as well as the macroeconomic parameters that cause the economic crises.

Based on the data released by the national statistics office of Georgia, in the thesis we are covering the economic overview and analysis of Georgia in the years of 2003-2017, which is important in order to identify the necessary aspects for country’s economic development. As a result of global economic challenges and risks it is crucial to create, maintain and improve stable macroeconomic environment in Georgia. Number of European countries are facing problems that are associated with macroeconomic parameters such as high debt level or high debt budget deficits. Depending on the fact that the Georgian economy is fully integrated into the world economy, the world financial crisis is directly reflected on Georgia, which implies that the world’s reduced economic growth will result in reduced demand for Georgian products. The above mentioned situation will cause investors’ caution and as a result foreign direct investments will be reduced. The

goal of the Georgian government is to reach the high level of economic growth, as it will attract more investments and create new jobs.

Short, medium and long run factors affect the exchange rate. In the short run exchange rate can be affected by investors' mood, position, expectations; in the medium run it can be capital inflow, real interest rate differentiation, monetary and fiscal policy; in the long run it can be the trend of productivity and investment balance.

The exchange rate is one of the defining factors in the consumer price index (CPI). The action can be made through direct and indirect channels. When using the direct channel, the exchange rate change directly affects the import price and is therefore reflected on the cost of consumer basket. Changing the exchange rate will be reflected on internal and external demand when using exchange rate indirect channels.

In order to assess Georgia's economic growth, the first chapter of the thesis analyzes the country's potential release, whose dynamics has enabled us to estimate the main industrial factors and economic contribution of the economy.

Structural and econometric models are used to assess potential output. In terms of Georgia we will stifle structural approaches because of the small number of data. After assessing the capital stock, we evaluated the potential output based on the Kalmani filter methodology, according to which the actual level of output from the second quarter of 2014 is below the potential level and the existing difference is characterized by the decreasing tendency. Potential growth rates have changed since the global financial crisis of 2008, when the gradual reduction of productivity contributed to a sharp decline in capital contribution.

In order to facilitate structural transformations in Georgia and thus increase productivity of workforce, it is necessary to implement effective state policy in two main directions: on the one hand to increase the scale of production of market reforms, in particular low efficiency sectors and facilitate the release of the work force. On the other hand, it is important to promote human capital development in order to be able to work in a highly efficient field.

In the second chapter of the research - „**Determinants of factors that influence inflation and the methods to control it** “– analyzes important implications that need to be factored in when designing macroeconomic policies. It covers the major elements that inflation targeting comprises and the conditions that are crucial for achieving the efficiency of targeting inflation; outlines some key preconditions for inflation targeting that need to be taken into account. Second chapter also analysis the impact of external debt on inflation rate in Georgia for the years 2003-2017; examines the relationship between the levels of external debt and its impact on GDP development and

inflation; uses an empirical investigation in order to see how the effect of external debt on inflation varies with financial market development.

The second chapter of the thesis deals with several types of inflation, namely: inflation caused by the demand (monetary inflation), when the demand exceeds the existing supply; inflation caused by expenses, when the prices of goods and services increases as a result of the expenses incurred on them; pricing inflation, when the firms make decisions to raise prices in order to get increased profits; sector inflation, when the increase in prices in one sector leads to an increase in prices in other sectors; imported inflation is one of the most common factors and leads to the significant increase in inflation.

Emerging market economies are very different from advanced economies and therefore, in the thesis we have emphasized important implications that need to be factored in when designing macroeconomic policies. According to the aspect that targeting inflation in emerging markets may lead to poor macroeconomic outcomes, we are covering major elements that inflation targeting comprises and the conditions that are crucial for achieving inflation targeting's efficiency. In emerging market countries international monetary fund's role is quite critical in promoting the success of inflation. As a precondition of inflation targeting is considered existence of financial dollarization, according to which floating exchange rate may be dangerous and cause financial instability. According to the importance of price stability for the country's economic growth it is important to use monetary policy, which is responsible for maintaining price stability. The exchange rate related studies have shown that one of the main features of the inflation targeting regime is a floating exchange rate.

First of all, we have outlined some key preconditions for inflation targeting that need to be taken into account, these are: medium term numerical targets for inflation, commitment to price stability as the primary goal of monetary fund and the independence of the central bank. The inflation performance is found to be the best for the countries with the most independent central banks; under the independence we mean that the central bank needs to be prohibited from funding government deficits, the monetary policy board has to be insulated from the political processes and the monetary policy instruments has to be set up without interference from the government.

In Georgia, under the monetary policy regime the inflation target level is announced in advance, which will be maintained in the medium term. The national bank of Georgia determines the level of targeted inflation and the main goal is to define the optimal level of inflation. One of the advantages of inflation targeting is transparency and the simplicity of communication with the public, to which the central bank also gives the great importance. When defining the optimal level of

inflation, there are several factors that need to be taken into account by the monetary policy committee. First of all, the prices of the various products that are included in the consumer basket do not change proportionally. As we need to use consumer price index (CPI) for estimating inflation, we have to note that the CPI is characterized by several biases, such as: substitution bias, quality bias and the new product bias. The first bias means that the CPI measures changes in price levels indirectly; it does not take into account consumer preferences when price changes take place. The second bias is connected with the quality of goods and services, which gets improved over time and therefore, it leads to the price increases; in this case as well, the CPI does not reflect inflation attributed to quality changes. The third, new product bias means that the new products permanently enter the market and substitute the old ones.

Between inflation and economic prosperity there is nonlinear dynamics, which means that inflation is a contributing factor to the functioning of the economy at a certain level and afterwards it hinders economic development. To ensure the country's long run and stable economic growth, the main function of the national bank of Georgia is to determine and maintain optimal level of inflation.

In the second chapter we also analyze the impact of external debt on inflation rate in Georgia. As external debt plays significant role in country's development it is important to examine the relationship between the levels of external debt and its impact on GDP development and inflation. For analyzing the correlation between the external debt, economic growth and inflation we use the data that goes back to 15 years. We use an empirical investigation in order to see how the effect of external debt on inflation varies with financial market development.

External debt plays significant role when the country is in a relatively low level of development and when it does not have a developed local financial market. External debt offers countries additional funding for lower cost, but it is also related to the various risks. It is obvious that if the local currency depreciates against external debt currency, then debt burden will increase. Therefore, if the external debt level in total is higher, this burden becomes even bigger. Countries with high level of external debt seem riskier to rollover and manage their liabilities. Because of this fact international rating agencies may downgrade those countries sovereign rating.

Georgia has a high level of government external debt and this makes government debt portfolio highly vulnerable to the exchange rate shocks. For such kinds of situations local market development is very important in order to substitute external debt by domestic one. Moreover, when countries are developing, and concessional loans come to be restrictive, external debt becomes more expensive and borrowing domestically is preferable to get rid of currency risks. High level of

external debt may cause crisis not only domestically, but also in the region. Therefore, governments should be careful while having relations with other countries that have high levels of external debt.

In the third chapter of the thesis - „**Currency rate features in terms of countries** “. The third chapter identifies the risks associated with the currency market; determines the effects of currency risk on financial institutions; provides the dimensions, measuring methods, determinants, consequences and the ways to overcome dollarization. Analyzes the contagious currency crisis, which is characterized by regional nature; defines the instruments by which this transmission takes place. Using the VAR analysis there is estimated the impact of nominal effective exchange rate on the Georgia's GDP, inflation and on real exchange rate. Finally, the third chapter provides an analysis of literature on the role of international experience in terms of currency crises.

The contagious currency crisis is characterized by regional nature. As the changing of the economic circumstances in one country does effect on the other country's economy, it is important to analyze some direct and indirect effects. The currency crises have a tendency to spread around the country, but the most important thing is to define the instruments by which this transmission takes place. As trade connection between countries is strong, probability of crisis will be transmitted from one to another, increases sufficiently faster when these countries are close to each other. This means that trade connection is more sensitive toward crisis than geographical location. The same is true for macroeconomic control variables.

As Georgia belongs to the family of Eastern European post-soviet states, dollarization has been a sensitive issue for the country since its transition to market economy in early 1990s. Due to the previous hyperinflation experience, underdeveloped financial markets and consistently high reliance on income remittances from abroad, foreign currencies and specifically the US dollar have actively adopted the store of value as well as medium of exchange functions in the Georgian economy.

Financial and payments dollarization remain as significant issues for the Georgian economy and it can be claimed that they pose serious threats to the effectiveness of macroeconomic policies and financial stability. The size of the Georgian shadow economy remains significant limiting the effectiveness of fiscal policy and transactions dollarization is one of its drivers. Additionally, financial dollarization coupled with underdeveloped financial markets led to unhedged dollar liabilities among borrowers in Georgia.

It is of vital importance to design the policy agenda adopted to the specific characteristic of the country which will alleviate the negative impacts of de-facto dollarization and enable the Georgian economy to perform at its full capacity. Based on the general policy implications, it can

be claimed that since Georgia has managed to start regaining macroeconomic stability and institutional credibility, the country should implement de-dollarization policies rather than adopt a bi-currency regime or learn to live with dollarization.

Georgia suffers from payments as well as financial dollarization and the latter exhibits hysteresis. This deteriorates the monetary policy transmission and exposes the financial system to exchange rate and liquidity risks. After starting to reestablish macroeconomic stability and develop sound banking system in Georgia, it is recommended to follow consistent macroeconomic policies to fully regain credibility. In addition, local financial markets should be actively developed and prudential regulation at the borrower level should be implemented in order to reverse dollarization impeding the sustainable development of the country.

The purpose of the thesis is to evaluate the impact of the exchange rate on the macroeconomic variables of the Georgian economy. In order to analyze the influence of the exchange rate in the dissertation thesis Vector Autoregression (VAR) econometric analysis is used. Based on the model there is estimated the impact of exchange rate on the major macroeconomic variables in Georgia, such as gross domestic product annual growth rate (GDP), the annual inflation rate, the real interest rate and the real effective exchange rate.

As a result, it got revealed that the annual growth rate of GDP is positively related to its lag values. It should be noted that the lag values of the rest of the variables are not significantly related to the current values of the GDP.

The lag value of the exchange rate depreciation is not in a significant correlation with the real interest rate. The lag value of GDP and real interest rates are accordingly in a negative and positive correlation with the current value of the real interest rate.

According to the impulse response function, the exchange rate depreciation initially increases the inflation rate, and over time the effect is reduced. In a long run it is close to the zero level. It should be noted that the depreciation of the exchange rate does not have significant impact on interest rates even in a short run. Moreover, in the short run the changes in the real exchange rate is influenced by its lag values and in the long run impacts of this influence expires and the exchange rate returns to its long run equilibrium point.

## **Research conclusions and recommendations**

Principal outcomes of the thesis are presented in the following way:

1. The growing dynamics of GDP in Georgia in the years of 2003-2017 indicates that the post-revolutionary reforms are positively reflected on macroeconomic variables;
2. In a short run it is not possible to achieve a stable connection between macroeconomic variables and exchange rate, because short run fluctuations of the exchange rate are often chaotic, and it becomes vague to determine any kind of connection;
3. In a medium run exchange rate dynamic is mainly determined by the monetary and fiscal policy. The removal of barriers from the side of countries and financial integration have contributed to the movement of foreign capital, which resulted in an increase importance of interest rates for determining the exchange rate;
4. In a long run the main determinant factors of the exchange rate dynamics are long term equilibrium value and its related trends, thus enabling the expected dynamics of the exchange rate;
5. During the last decade, majority of the developing countries have chosen a flexible exchange rate regime. Each regime has its advantages and disadvantages, which makes it difficult to select the regime that will be optimal for all countries;
6. It is of vital importance to design the policy agenda adopted to the specific characteristic of the country which will alleviate the negative impacts of de-facto dollarization and enable the Georgian economy to perform at its full capacity. Based on the general policy implications, it can be claimed that since Georgia has managed to start regaining macroeconomic stability and institutional credibility, the country should implement de-dollarization policies rather than adopt a bi-currency regime or learn to live with dollarization;
7. To evaluate Georgia's economic growth, in the thesis we use the Kalmani filter methodology, according to which the actual level of output from the second quarter of 2014 is below the potential level and the existing difference is characterized by the decreasing tendency;
8. In order to facilitate structural transformations in Georgia and thus increase productivity of workforce, it is necessary to implement effective state policy in two main directions: on the one hand to increase the scale of production of market reforms, in particular low efficiency sectors and facilitate the release of the work force. On the other hand, it is important to promote human capital development in order to be able to work in a highly efficient field;

9. In Georgia positive correlation got revealed between goods and international oil prices, as well as between world prices of goods and domestic goods' inflation. Inflation on durable goods in the country is higher, more volatile and long lasting than inflation on nondurable goods;
10. In the condition of inflation targeting, in order to successfully implement monetary policy, it is important to analyze the current economic situation of the country;
11. Between inflation and economic prosperity there is nonlinear dynamics, which means that inflation is a contributing factor to the functioning of the economy at a certain level and afterwards it hinders economic development. To ensure the country's long run and stable economic growth, the main function of the national bank of Georgia is to determine and maintain optimal level of inflation;
12. Financial and payments dollarization remain as significant issues for the Georgian economy and it can be claimed that they pose serious threats to the effectiveness of macroeconomic policies and financial stability. The size of the Georgian shadow economy remains significant limiting the effectiveness of fiscal policy and transactions dollarization is one of its drivers. Additionally, financial dollarization coupled with underdeveloped financial markets led to unhedged dollar liabilities among borrowers in Georgia;
13. In order to analyze the influence of the exchange rate in the dissertation thesis Vector Autoregression (VAR) econometric analysis is used. Based on the model there is estimated the impact of exchange rate on the major macroeconomic variables in Georgia. As a result, it got revealed that the annual growth rate of GDP is positively related to its lag values. It should be noted that the lag values of the rest of the variables are not significantly related to the current values of the GDP;
14. The lag value of the exchange rate depreciation is not in a significant correlation with the real interest rate. The lag value of GDP and real interest rates are accordingly in a negative and positive correlation with the current value of the real interest rate;
15. Except for the change in trade balance in Georgia, exchange rate depreciation negatively affects the GDP, which is the result of high dollarization and the high volume of imported goods.

## Publications

1. Tskhadadze, K. 2019. *Targeting inflation in emerging market countries*. International Scientific-Analytical Journal Ekonomisti, N1, pp.140-146. (In Georgian).
2. Tskhadadze, K. 2019. *Georgian economy in 2003-2017*. International Scientific and Practical Journal Economics and Business, N2, pp. 107-119. (In Georgian).
3. Bakhtadze, L., and Tskhadadze, K. 2019. *Problems of state debt management in Georgia*. 11<sup>th</sup> Economics & Finance Conference, Rome.
4. Tskhadadze, K. 2019. *The impact of external debt on inflation rate in Georgia*. Referred International Journal Ecoforum, vol. 8, issue 2(19).
5. Tskhadadze, K. 2019. *The contagious currency crises*. Referred International Journal Ecoforum, vol. 8, issue 3(19).