HABILITATION THESIS

Essays in Applied Econometric on Stock Markets, Inflation and Economic Growth

-Summary-

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The habilitation thesis summarizes my research activity following the successful PhD Thesis defense at the Alexandru Ioan Cuza University of Iaşi and confirmation by the Ministry of Education, Research and Innovation on the basis of Order no. 6697 from 21.12.2011.

First part of the thesis is allocated to the presentation of my scientific achievements and contributions, grouped in two sections: Section A. *Contributions in the analysis of stock markets* and Section B. *Contributions in the analysis of economic growth and inflation*.

Section A includes an overview of my research results on the analysis of stock market activity and it is close related with the subject of the PhD Thesis – *Statistical methods for forecasting options' volatility*.

In the first part of section A, entitled *Dynamic relations between CDS and stock markets in Eastern European countries*, I examine whether there is a price discovery type relationship between Credit Default Swap (CDS) and stock market activity in 5 Eastern European countries for the period 2005-2014. In the empirical study, daily data of the main stock exchange indices and CDS for Bulgaria, Czech Republic Hungary, Poland and Romania are used. The data analyzed are collected on a daily basis from Bloomberg and Datastream. The analysis follows the pattern of the financial time series: testing the structural breaks, the stationarity, cointegration and subsequently the development of VAR models. The study finds out that before and after the crisis, the stock market has played a crucial role in the price discovery phenomenon while during the financial crisis period and of the sovereign debts there has been an inverse relationship and the CDS has influenced the stock market.

The second part of section A, entitled *Stock market and economic growth*, the relationship between the development of the stock market and economic growth for 12 Central and Eastern European is being analyzed. ARDL cointegration methods and Toda Yamamoto causality tests are used for quarterly data, taking into consideration the period 1995-2014. The empirical observations show that the two indicators are co integrated, which means that on a long term they vary together. Only a unidirectional causality starting from the economic growth to stock market has been found for a number of 12 countries. The causality relationship is bidirectional for the most developed countries, namely Czech Republic and Poland.

Section B, entitled *Contributions in the analysis of economic growth and inflation,* reveals my current research interests, namely the existing relationships between inflation and economic growth.

The first part of the section, entitled *The nexus between economic growth and public spending in Eastern European countries*, analyses the relationship between governmental expenditure and economic growth rate for 8 Eastern-European countries. The main goal is to test the presence of a non-linear - Armey Curve type - relationship between the government size and economic growth; in this eventuality we try to find an optimal level of public spending which maximizes economic growth. The results reveal the occurrence of a significant cointegration between public spending and economic growth for all considered countries; also it is showed that the current share of public spending within the Gross Domestic Product (GDP) exceeds the optimal level calculated for the three countries for which the Armey-type phenomenon occurs. The results suggest that the optimal percentage of governmental spending varies between 37 % and 41 % and the present level is higher than the optimal level for Bulgaria, Hungary and Romania. The outstripping of the optimal level may conclude to the idea that the weight of public sector should be slightly decreased in these countries since the public sector is not able to efficiently cope with its resources. Based on the study results, the weight of public expenditure should be reduced while the efficiency of public spending programs should be increased.

In the second part, entitled *Inflation and inflation uncertainty in Romania*, the causality between inflation and inflation uncertainty in Romania is being analyzed. The monthly growth in Consumer Price Index (CPI) in the period from October 1990 to December 2012 has been used as an inflation measure. The inflation uncertainty was estimated by the conditional variances of inflation obtained by the GARCH models selected with Akaike and Schwarz information criteria. In order to ensure the robustness of the results, the Granger-causality tests are performed for four, eight and twelve lags, and they are then used to test two economic hypotheses. The results showed that the inflation significantly Granger-causes inflation uncertainty, confirming the Friedman-Ball hypothesis, but no empirical evidence was found to support the Cukierman - Meltzer hypothesis, that inflation uncertainty Granger-causes inflation.

The third part of the section, entitled *The relationship between inflation and inflation uncertainty. Empirical evidence for the newest EU countries*, aims to verify the hypotheses presented in the literature on the causal relationship between inflation and its uncertainty, for the newest EU countries that adhered in 2004, 2007 and 2013, namely Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Bulgaria, Romania and Croatia. To ensure the robustness of the results we estimated more hetersocedastic models for inflation uncertainty. The

Granger method is used to test the causality between two variables. For the chosen sample of countries, a statistically robust result was provided when it came to testing the causality between inflation and its uncertainty by the simultaneous analysis of several models that estimate inflation uncertainty and by using a data sample large and updated. We reveal that groups of countries with a similar political and economic background in 1990 and are likely to be characterized by the same causal relationship between inflation and inflation uncertainty.

The last part of this section, entitled *Inflation, output growth and their uncertainties: Empirical evidence for a causal relationship from European emerging economies*, analyzes the causality among inflation, output growth, and their uncertainties in all European countries with emerging economies. For these countries, high uncertainty regarding economic growth during the current economic and financial crisis that started in 2008 caused their governments to increase their efforts to sustain growth, and to maintain a low level of inflation. Of the twelve possible hypotheses regarding the causal relationships among inflation, output growth, and their uncertainties, we consider five relationships for which we find strong theoretical arguments and empirical evidence in the literature. The empirical evidence strongly supports the Friedman–Ball hypothesis that inflation Granger-causes inflation uncertainty.

Second part of the thesis presents my perspectives on research and teaching activities. Future research agenda on medium-term consists in the analysis of causal and nonlinear relatioship between inflation and economic growth in Central and Eastern European countries.

In the end of the thesis, the references list is presented.