

The Financial Instability Hypothesis and the Financial Crisis in Eastern European Emerging Economies

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The Financial Instability Hypothesis and the Financial Crisis in Eastern European Emerging Economies

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ABSTRACT

The present paper applies the financial instability hypothesis in order to explain the financial crises of 2008-2010 in eleven emerging Eastern European economies. Also, it seeks to map if institutional frameworks of these countries enabled them to stand against the factors leading into the financial crisis.

The paper maps cycles of three macroeconomic indicators representing the real economy, and four indicators representing financial markets. A cycle analysis is conducted with the help of a Hodrick-Prescott filter, made to isolate cycles from trends in time series. The paper concludes that there were substantial positive financial cycles previous to the financial crisis mirrored by similar cycles in the real economy.

Similarly, the results show negative cycles in the same parameters during the years of crisis. It seems as an uncontrolled increase in money and credit caused the economy to overheat and thereafter contract in both substantial financial and real economy crises.

Also, the paper compiles twelve different indices of institutional development. These are standardized and presented in an institutional development matrix, showing that the institutional framework for the eleven economies was weak previous to and under the melt down of the economy.

The construction of an integrated institutional development index on the basis of the same twelve parameters confirm institutional shortcomings, which may have made the economies less able to guard themselves from a crisis initiated by both domestically and internationally financial instability.

Keywords: Financial Crisis, Financial Instability Hypothesis, Institutional Development, Crisis Anatomy, Financial History, Eastern European Economies, Emerging Economies

JEL codes: E32, E44, E51, E52, G15, N14, N24

1. INTRODUCTION

The international financial crises, which started with significant fall in housing markets during the second half of 2007, hit most Eastern European economies hard from 2008. Conventional wisdom among economists to a large degree seems to be that the crises was transmitted from Western Europe to Eastern Europe by international financial markets, causing liquidity crises and thereafter capital crisis, ending up in busts in the real economy (Bracke and Martin, 2012, Jungmann and Sagemann, 2011, Åslund, 2018). In addition fragile institutions in form of political and domestic financial systems seem to have been unable to set up a stronghold against the evolution of the crisis.

1.1. RESEARCH PROBLEM

This paper investigates the financial crisis in 2008-2010 by two approaches. The first takes its departure in the financial instability hypothesis as set up by Minsky (1982: 13-39) and Kindleberger (1996). The hypothesis is also in line with the argument of the two Nobel prize winners in economics Finn Kydland and Edward Prescott. On the basis of empirical research on trends and deviations from trends they argue expansion and contraction in money and credit to be decisive for business cycles (Kydland, 1990: 3-18).

The second approach is to investigate into institutional stability of economies. In other words: is there a framework present within the economies capable of both preventing and reducing the scale of financial crises?

To sum up, the research problem of the paper is to find out if a Minsky-Kindleberger approach can throw light on domestic financial instability as a major force for the development of the Eastern European branch of the international financial crisis. This is seen in light of important institutional development indicators for these economies.

The paper offers an anatomy of the financial crisis in eleven emerging Eastern European economies, i.e. Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Romania, Tajikistan and Ukraine. This is done by following the pattern of central macroeconomic indicators determining over-all production. We seek to find their trend and cycle components by using a Hodrick-Prescott filter to map significant short-term deviations from their long-term equilibriums. Significant positive cycle values might indicate financial overheating, and may have caused busts in the economy, measured by significant cycle downturns.

If one finds that booms and busts, or significant business cycles in the real economy follow the pattern of financial key indicators as money and credit volumes, one may conclude that huge swings in the economies to a large extent can be explained by a Minsky-Kindleberger approach to the understanding of the evolution of financial crises.

1.2. OUTLINE

Thus, the outline of the paper in order to solve the research problem would be as follows: It will first discuss the theoretical framework of the Minsky-Kindleberger approach with its emphasis on the financial instability hypothesis to explain the evolution of financial crises.

Secondly, it will investigate the institutional framework of the eleven mentioned Eastern Economies by looking at institutional development indicators in order to elaborate on their

modernization, integration in to the global economy, and by that their ability to tackle situations leading up to financial crises.

Thirdly, if key variables indicating macroeconomic financial instability follows the pattern of the crisis it is likely that it is a result of booms and busts in financial indicators in line with the Minsky-Kindleberger approach. Additionally, the level of institutional development might contribute to understand to what degree these economies were able to handle the situation.

1.3. DEFINITIONS

Before we present our theoretical framework it is important to clarify our understanding of financial crises. We refer to financial crises as situations where financial institutions or assets lose significant values and the financial institutions are not able to provide necessary means of payment. Goldsmith, defines financial crises as (Goldsmith 1982):

"sharp, brief, ultra-cyclical deterioration of almost all financial indicators, short-term interest rates, asset prices, commercial insolvencies and failure of financial institutions."

During the 19th century and the first part of the 20th century, financial crises were associated with bank panics and credit crunches. The modern understanding of financial crises includes stock market crashes, financial bubbles bursts, currency crises, and sovereign defaults.

Claessens and Kose (2013) highlights that financial crises are typically multidimensional, often associated with one or more of four phenomena: substantial changes in credit volumes and asset prices; severe disruptions in financial intermediation and supply of external financing; large scale balance sheet problems and large scale government support.

Drawing on established definitions, we define financial crises as significant negative development in several financial indicators, causing credit markets to work irrationally by not providing necessary credit to the economy.

2. THEORETICAL FRAMEWORK

Both Minsky and Kindleberger argue that financial crises commonly start with financial instability. In financial markets in particular the markets for money and credit are exposed to disturbances that might end in lost sustainable equilibriums (Minsky, 1982 and 1986). Hence, their approach is often characterized as the instability hypothesis. According to Kindleberger (1996) this might typically happen through significant exogenous macroeconomic shocks, causing the economy to run faster by drawing on an extended volume of credits. Minsky, on the other hand, pays more attention to endogenous system, i.e. shortcomings in order to deal with disturbances in the financial markets. This system error makes financial instability to evolve in times of mismatch between short term and long term sustainable equilibriums.

2.1. THEORY

Both agree that positive expectations, after lack of stability has been established, may cause demand for credit to increase. Financial stability is lost, and positive credit bubbles

arise. Next, both financial markets and the overall economy become overheated due to too high growth of money volumes. When the money surplus is too high, asset bubbles arise. Speculation in continuously growth of asset prices cause bubbles to increase further. The expectation of even higher over pricing of assets make the prices increase even more.

This will go on until markets turn, due to expectations of an obtained price maximum. The turn in financial markets is often called the “Minsky Moment”. Thereafter, expected losses make markets fall even steeper and deeper. The economy, and in particular asset markets, will then be faced credit crunches, crashes, and recessions (Kindleberger and Aliber 2015, pp. 33-76). In Figure 1 and Figure 2 we have tried to formalize the Minsky and Kindleberger models for evolvement of financial crises.

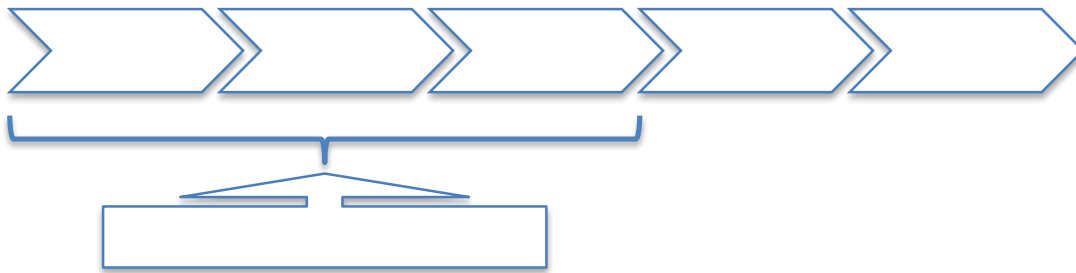


Figure 1. Minsky model for financial crises

This formalized version of Minsky’s model of common evolvement of financial crises, go through five phases. The first one, Displacement, is the period of time when markets lose their natural growth pattern due to a positive shift in demand. If one expects this to be of a permanent character, the market moves into its next phase, Overtrading, i.e. too high activity compared to sustainable equilibriums. Overtrading promotes the third phase, Monetary Expansion, due to increase in demand for credits and willingness to grant such. These three first phases come to being due to loss of financial stability. Financial markets are not longer secure due to overexpansion of money and credits.

During these phases Minsky puts emphasis on what is referred to as three-step financial taxonomy. This implies that the most common way to finance investments during periods of stable financial markets is hedge financing, basically drawing on business surpluses and normal borrowing. In times of rapid expansion and credit growth, speculative finance, drawing on future increase in asset prices, is more common. Finally, Ponzi financing becomes more common, implying that capital emissions are necessary for further growth. Financial security of borrowing money decreases in all these three taxonomy phases.

Monetary expansion brings the markets to a maximum with an over heated economy and asset bubbles. When market expectations turn, markets and asset prices will fall. Hence, one has reached the new phase, Revulsion. Negative expectations and corrections will dominate and a period of crisis will follow, denoted as Discredit.

When Minsky gives an endogenous Keynesian model, Kindleberger offers more of an exogenous neo-classical model, but still substantially inspired by the Minsky model.

Kindleberger starts with a exogenous shock, leading to monetary expansion, which the financial markets are not able to deal with. This leads to the first phase Manias, with over investments in financial markets, implying the creation of euphoristic asset bubbles. This is followed by Panic. Both these evolve due to loss of financial stability. During this phase the markets turn into the third phase Crashes, when asset prices fall dramatically and under

their fundamental values. This leads to credit crunch and Crises, which is the fourth phase in this formalized Kindleberger model. If the crisis lasts it will infect other markets and one arrives at the fifth phase Diffusion.

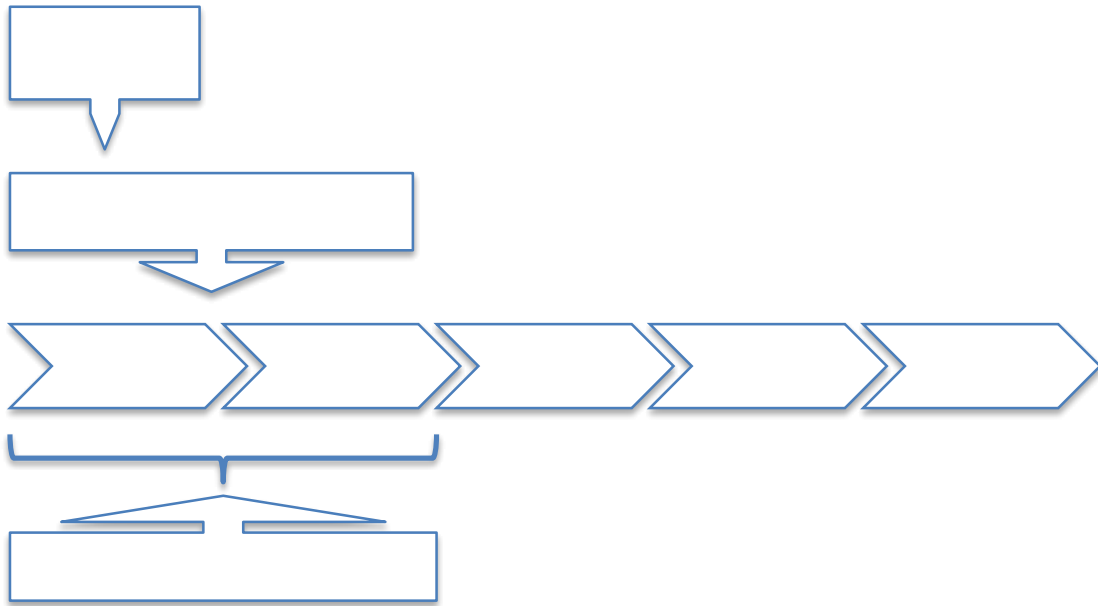


Figure 2. Kindleberger model for financial crises

Kindleberger also puts attention to the impact of hegemonial powers, i.e. actors, whom due to their size, standing and role are able to monitor and influence the market significantly. Thus, they are decisive for financial stability, as well as the development, depth and the way of handling financial crises.

In extensive empirical studies of international financial crises, Tornell and Westermann conclude that the Minsky-Kindleberger approach can be applied for the vast majority of financial crises. They also conclude that financial liberalization tends to cause more or less irregular boom-bust cycles (Tornell and Westermann 2005). Also, on the basis of empirical research Eichengreen argues that financial instability may cause what he denotes as illusive stability, which is short-term and fragile financial stability mismatching long-term sustainable financial stability (Eichengreen 1990). A similar type of argument is found with Reinhart and Roghoff (2009). In 2016 effort was in combining Minsky's model and Kindleberger's theory with international empirical research and ended up with a formal seven phases dynamic model for common patterns on the way to financial crises. (Gytten and Hunnes, 2016). This model can be described as in Figure 3.

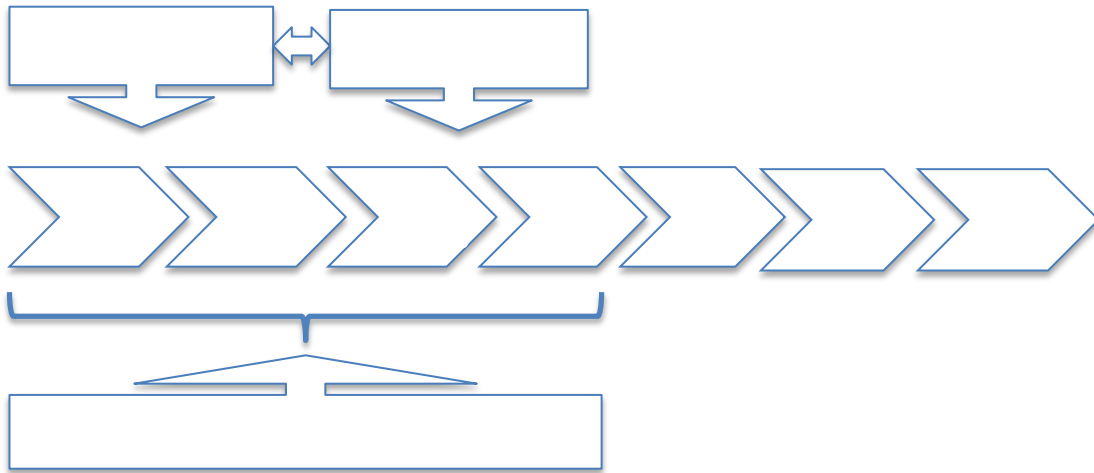


Figure 3. Seven-step dynamic model for financial crisis

2.2. METHODOLOGY

In order to map booms and busts of the economy in form of business cycles and financial cycles, the paper seeks to establish measures of these cycles within time series. This is in line with the methodology used in a previous paper by Grytten and Hunnes (Grytten and Hunnes, 2014: 25-57). To achieve this we use a Hodrick-Prescott-filter. It separates an observed time series (x_t) into a trend component (g_t) and a cycle component (c_t):

$$(1) \quad x_t = g_t + c_t$$

To identify the components, the HP-filter minimize the variance of c_t subject to a penalty for variation in the second difference of g_t :

$$(2) \quad \min_{g_t} \sum_{t=1}^T (x_t - g_t)^2 + \lambda \sum_{t=2}^{T-1} [(g_{t+1} - g_t) - (g_t - g_{t-1})]^2$$

Here $(x_t - g_t)$ denotes the cycle component and $[(g_{t+1} - g_t) - (g_t - g_{t-1})]$ is the difference in the trend growth rate from period t until $t+1$, whereas λ controls the smoothness of the growth component.

This implies that a smoothing parameter equal to zero means that all changes in the observed series should be explained by trend developments. A high smoothing parameter implies that the cycle is an important component in the observed time series.

One can calculate the cycle component by deducting the trend component from the observed time series:

$$(3) \quad c_t = x_t - g_t$$

High smoothing parameters will give trends with minor fluctuations, and thus, significant cycles, when low smoothing parameters will give trends with large fluctuations, and thus, minor cycles. Rules of thumb suggest a smoothing-parameter with $\lambda = 100$ for annual figures, $\lambda = 1,600$ for quarterly figure, and $\lambda = 14,400$ for monthly figures.

3. INSTITUTIONAL FRAMEWORK

The institutional framework the different economies are working under is imperative for their development and ability to handle crises (Riaz 2009: 26-35). It decides their level of integration and modernization into a global economy. Thus, it is important to look into such frameworks for the eleven Eastern-European economies under investigation here. This is done by mapping their level of institutional development as a comparative analysis. The following study is based on the analysis of indices of these eleven Eastern European Economies, which until the 1990s had approximately the same economic systems and mechanisms, and, thereafter, began to transform their political and economic systems towards market economies (Harris 1999: 125-158).

3.1. DEVELOPMENT OF EASTERN EMERGING ECONOMIES

Reforming the economy on a market-oriented basis has stimulated the emerging economies of Eastern Europe to economic integration - a process that is increasingly global (Moghadam 2014: 8-13). However, the vectors of integration in different countries are not the same. Some countries, are already part of EU (e.g., Bulgaria, Romania), when most of the post-Soviet republics are still looking for ways of fruitful cooperation within the Commonwealth of Independent States (CIS) and some other forms of integration. However, almost all countries of this group have strategic integration goals towards the EU.

Many important decisions on strengthening the integration remain on paper only or are being implemented at different paces. There are several reasons for this (Cerqueira 2018: 329-333).

In the first place, it is a consequence of the deep decline of the economies of all CIS countries, the breakdown of economic ties between the subjects of the former USSR and the difficulties of the transition to market economy.

Secondly, this situation is also due to political ambitions of party leaders, which is not always for the best of international economic integration.

Thirdly, a shortsighted policy of governments trying to gain benefits for their state at the expense of other CIS members causes delay in the integration and modernization process. Despite multiple declarations on the need to reduce customs barriers, governments operate in the opposite direction: customs posts, quotas, and licensing of mutual trade.

The newly reformed economies have become unstable, dependent on external factors and resource-intensive. At the early stage features of the transition to sustainable development were the following:

3.2. REORGANIZATION AND PRIVATIZATION

It was assumed that the transfer of enterprises to private ownership would increase their efficiency, production of competitive goods and lead to the entering of international markets. In practice, the market mechanism was weak, the old principles of regulation were maintained, which led to inefficient use of economic potential.

The economies lost growth opportunities, which were present during the planning system, and new opportunities for the market system have not yet been properly formed. There was a sharp decline in production during the transition period in the 1990s, as GDP dropped 50-70 percent. At the initial stage of privatization, the new owners of enterprises were not ready to manage the market principles, strategic development planning and business activities. Thus, they directed their efforts to obtain "fast" profits from privatized property, which allowed to be enriched regardless of production efficiency. Economic success was largely result of a reorientation towards extractive industries, which led to excessive exploitation of natural resources and environmental pollution (Roaf, 2014: 10-28).

It became imperative to re-establish labor, capital and product markets, to build new economic relations, to form consumer markets and to saturate its goods. In addition, the new order required new processes related to the life cycle of goods - from search for new suppliers of raw materials and replacement of obsolete equipment to search for new markets, and marketing strategies for promotion of goods and services.

It took time to move to efficient management, attracting investments, introducing new production and management technologies adequate to the markets. This transition is still not completed.

3.3. LIBERALIZATION

The transition to free market prices under a regime of higher demand than supply led to rapid inflation and, thus, low investment activity and export of savings (Njemcevic 2017: 15-22). Also, problems associated with reduction of trade barriers still have to be solved. Imported goods dominate in high-tech and high-skilled product markets. Thus, the Eastern European economies have been even more dependent on traditional industries, like mining and manufacturing, when to buy modern consumption goods the countries run trade deficits, giving way to further export of capital. This has been fueled by foreign credits with high interest rates to consumers in order to buy foreign goods.

3.4. INSTITUTIONAL CHANGES

Legislative reform and institutional changes also played an important role for the failures of market economy implementation. The ill-conceived liberalization of the economy led to dominant shadow economies, with increase in crime and corruption. As result, the risks business increased. The legal system was not ready for the changes and necessary reforms have been hold back by agents benefiting from the mismatch (Turk, 2014: 199-208).

Hence, institutional shortcomings seem to be an important obstacle for economic growth and a fragile framework for integration, economic growth and financial and crisis management.

4. INSTITUTIONAL DEVELOPMENT MATRIX

It is of importance to present the current institutional framework of the eleven Eastern European economies under investigation here in an orderly manner. Thus, an institutional development matrix is presented. This is made up of six categories:

1. Fragility and instability
2. Environment
3. Freedoms and rights
4. Socio-Economics
5. Gender
6. Governance.

Each category has two parameters presented as sub-indices. The indices rest on different sources, i.e. Transparency International, The Economist Intelligence unit, the World Bank, the United Nations (Human Development Report), the World economic forum, the Cato Institute, the Yale Center for Environmental Law & Policy, The Global Economy and Brookings Global Economy and Development.¹ Most data are from 2016-2018.

The paper makes these series comparable by moderating the indices by the mentioned bodies. This is done by transforming scores into indices where the scores of each nations parameter, a_i , are placed in the interval $0 < a_i < 1$. Thus one arrives at an institutional development matrix, as shown in Figure 4.

¹ <https://fragilestatesindex.org/>

https://www.brookings.edu/wp-content/uploads/2016/06/02_weak_states_index.pdf

<https://epi.envirocenter.yale.edu/2018/report/category/hlt>

<https://epi.envirocenter.yale.edu/epi-topline>

<https://www.cato.org/human-freedom-index-new>

<https://www.cato.org/human-freedom-index-new>

<http://www.doingbusiness.org/content/dam/doingBusiness/media/Annual-Reports/English/DB2018-Full-Report.pdf>

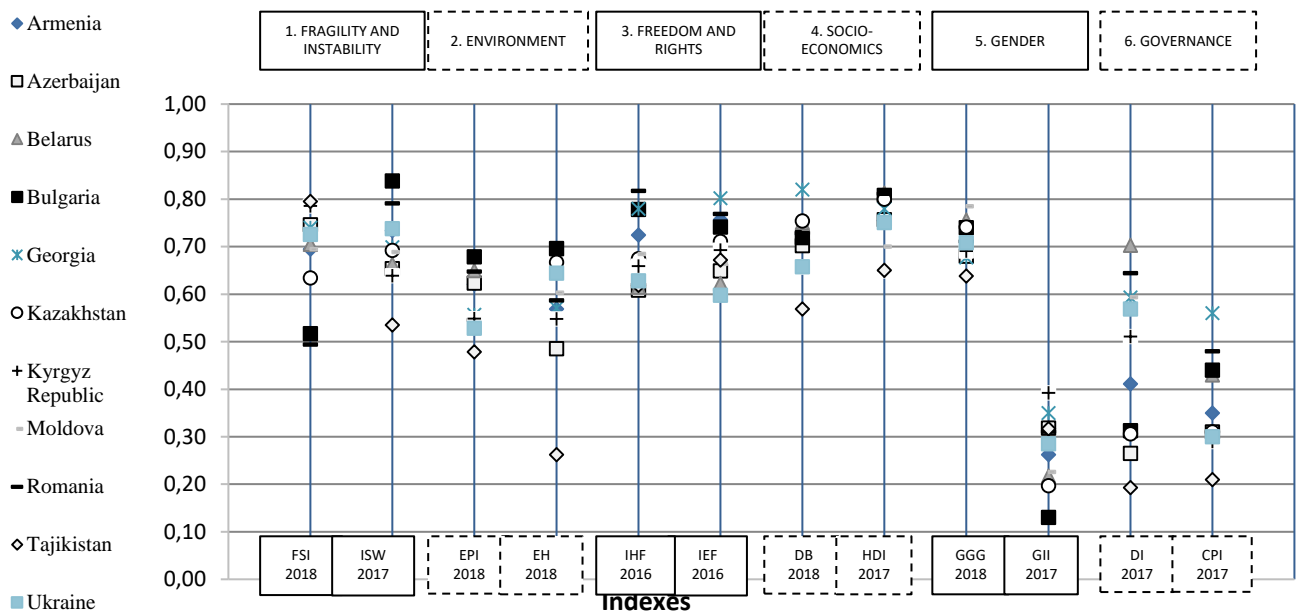
<http://hdr.undp.org/en/composite/trends>

http://www3.weforum.org/docs/WEF_GGGR_2018.pdf

<http://hdr.undp.org/en/composite/GII>

https://pages.eiu.com/rs/753-RIQ-438/images/Democracy_Index_2017.pdf

https://www.transparency.org/news/feature/corruption_perceptions_index_2017



Note: FSI - Fragile States Index; ISW - Index of State Weakness; EPI - Environmental Performance Index; EH - Environmental Health; IHF - Index of Human Freedom; IEF - Index of Economic Freedom; DB - Doing Business; HDI - Human Development Index; GGG - Global Gender Gap Index; GII - Gender Inequality Index; DI - Democracy Index; CPI - Corruption Perceptions Index.

Sources, see footnote 1

Figure 4. Institutional development matrix for Eastern European economies

It is worth mentioning that the emerging economies continue to present a mixed picture. However, the very important parameters of gender equality, democracy and corruption perception score alarmingly badly.

Figure 5 reports the eleven economies scores according to the twelve different indices applied here. It puts emphasis to the different scores of the different states and highlights shortcomings of the institutional framework for the emerging economies for being integrated into the global market economy.



Sources, see footnote 1

Figure 5. Scores in the Institutional development indices.

The countries in our sample generally have their highest scores within state weakness, i.e. the states are relatively strong, in human and economic freedom and human development. A democracy score of 0.19 puts Tajikistan as number 159 among 167 countries, when Bulgaria is the best achiever among the countries under investigation here, with a score of 0.70. The Corruption Perceptions Index gives Tajikistan a low score of 0.21, when Georgia is at the opposite side of the countries in the sample with a score of 0.56.

To conclude, the above-presented analysis proved a statement concerning a great difference in the development inside the group of emerging economies, despite of similar initial conditions at the beginning of the independence of each country. Hence, there should be highlighted that countries-members of EU show better statistics. Thus, there is a significant need to analyze the financial crisis in the eleven Eastern European countries in order to find out if significant upturns and downturns were influenced by international, and in particular integration orientation.

4.1. INTEGRATED INSTITUTIONAL DEVELOPMENT INDEX

On the basis of these series it is possible to construct an integrated index of institutional development. In line with the methodology in the Human Development Index published by the United Nations, this paper offers a geometric approach. The departure can be explained by a general equation:

(4)

$$\left(\prod_{i=1}^n a_i \right)^{1/n} = \sqrt[n]{a_i \cdot a_{i+1} \cdot a_{i+2} \cdot a_{i+3} \cdot \dots \cdot a_n}$$

Here Π is the geometric average of different parameters, a , numbered from i to n . In our case these parameters are taken from the structural development matrix:

FSI = Fragile States Index

ISW = Index of State Weakness

EPI = Environmental Performance Index

EH = Environmental Health

IHF = Index of Human Freedom

IEF = Index of Economic Freedom

DB = Doing Business

HDI = Human Development Index

GGG = Global Gender Gap Index

GII = Gender Inequality Index

DI = Democracy Index

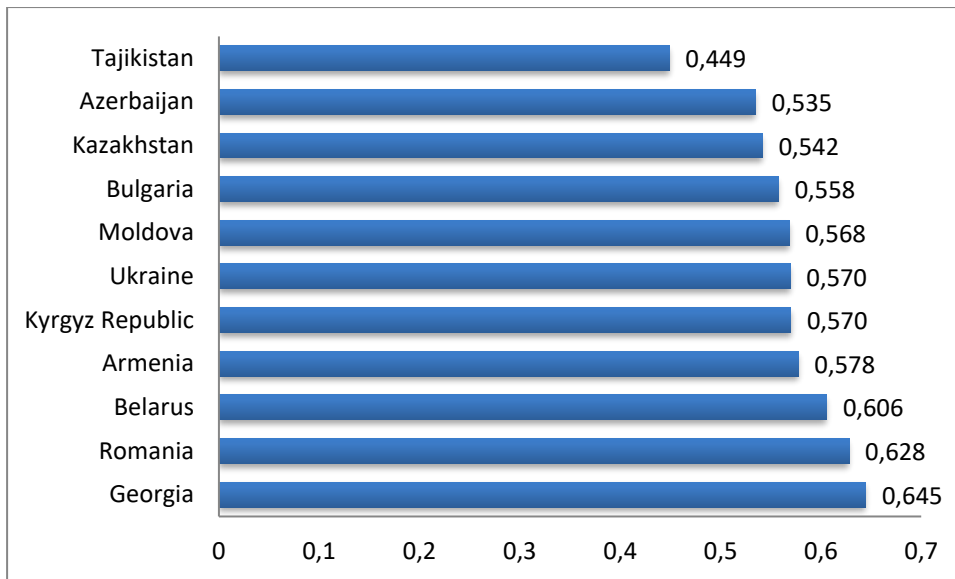
CPI = Corruption Perceptions Index.

By applying these parameters in equation (4) one arrive at a more specified equation:

(5)

$$\left(\prod_{i=1}^n a_i \right)^{1/n} = \sqrt[12]{FSI \cdot ISW \cdot EPI \cdot EH \cdot IHF \cdot IEF \cdot DB \cdot HDI \cdot GGG \cdot GII \cdot DI \cdot CPI}$$

By setting in to this equation (5) one arrives at an integrated institutional development index. This shows that Georgia, Romania and Belarus had the highest level of development in this field, when Tajikistan clearly sits in the bottom.



Sources, See footnote 1

Figure 6. Integrated Institutional Development index, emerging economies Eastern Europe (2016-2018).

In sum, the institutional development in the eleven Eastern European countries under investigation seem fragile, meaning that modernization and the possibility of integration into a global economy is limited. Thus, these economies framework is not the best for meeting a financial crisis.

5. CYCLE ANALYSIS

By using the HP-filter in order to separate trend and cycle components one might be able to find out if financial stability indicators, such as money stock and credit volumes, could have paved way for the financial crisis. In other words, rapid increase in money and credits could have caused demand driven booms and overheating in the economy. This can be seen in positive deviations from trend, i.e. positive cycles.

By using World Bank, International Monetary Fund, OECD, Eurostat and United Nation's data sorted and presented by the Federal Reserve bank of St Louis, one might be able to trace such developments (FRED, 2019).² We have been able to look at seven key macroeconomic indicators. First we look at productive measures as domestic product, manufacturing output and unemployment. How did these behave before and during the crises? Than we look at financial indicators money, credits, government debt and inflation. It would have been preferable to look at parameters such as asset prices and market interest rates. Arguably, the analysis may also have benefited from using quarterly data. One would also have preferred to include data starting at the fall of the iron curtain in 1991.

² <https://fred.stlouisfed.org/>

However, lack of more detailed valid and reliable data with sufficient coverage and without too much noise basically limits the paper to use annual data for the period 1996-2017.

By using the HP-filter as described in equation (1) – (3) one is able to map cycles from trend according to equation (6)

(6)

$$\min_{g_t} \sum_{t=1}^T (x_t - g_t)^2 = x_t - \lambda \sum_{t=2}^{T-1} [(g_{t+1} - g_t) - (g_t - g_{t-1})]^2$$

where the cycle component $\min_{g_t} \sum_{t=1}^T (x_t - g_t)^2$ is the residual. Thus, setting into the equations gives the following relationship:

(7)

$$c_t = x_t - \lambda \sum_{t=2}^{T-1} [(g_{t+1} - g_t) - (g_t - g_{t-1})]^2$$

In other words: cycles are found by deducting the smoothed parameters of gross domestic product, manufacturing output, unemployment, money stock, credit volumes, inflation and government debt from their respective observed series for every year in question. All the parameters, except unemployment and government debt, are supposed to be pro-cyclical. i.e. the cycles expand in size during booms and contract during the crises. As for unemployment and government debt, they should be counter-cyclical as they tend to contract in good times and expand in bad times.

The peak values of the cycles previous to the financial crisis for the seven parameters are reported in table 1 and the troughs or minimums in table 2, where the numerics are presented as natural logarithms:

(8)

$$c_t = \log(x_t) - \log(g_t)$$

This implies the table reports relative cycles. The years of peaks and troughs are reported under the relative numerical cycle values. The precise parameters can be listed as such:

Y = gross domestic product in fixed prices, national currencies

MP = Manufacturing production in fixed prices, national currencies

U = Unemployment rate

M3 = Money stock as broad definition in current prices, national currencies

C = Domestic credits

P = Inflation rates, measured by increase in consumer price indices.

GD = Government debt as percentages of gross domestic product in current prices, national currencies

Also, p denotes peak moment during a boom, when t denotes trough, as the bottom of a burst or recession.

Table 1. Relative numerical cycle values of macro parameters of peaks before financial crises of 2008-2010 as natural logarithms.

Country	Real economy indicators			Financial indicators			
	Y_p	MP_p	U_p	$M3_p$	C_p	P_p	GD_p
Armenia	0,159 (2008)	0,233 (2008)	UD UD	0,213 (2007)	0,356 (2008)	0,694 (2008)	-0,580 (2008)
Azerbaijan	0,120 (2007)	0,158 (2007)	-0,060 (2008)	0,023 (2008)	0,200 (2008)	1,010 2008	-0,577 (2008)
Bulgaria	0,086 (2008)	0,116 (2008)	-0,587 (2008)	0,175 (2008)	0,215 (2008)	0,876 2008	-0,328 (2005)
Belarus	0,058 (2008)	0,068 (2008)	-0,026 (2005)	0,138 (2008)	0,241 (2008)	0,996 2011	-0,311 (2008)
Georgia	0,073 (2007)	0,043 (2007)	-0,070 (2007)	0,097 (2008)	0,209 (2008)	0,646 2008	-0,430 (2007)
Kazakhstan	0,059 (2007)	0,063 (2007)	-0,011 (2007)	0,187 (2008)	0,103 (2008)	0,763 2008	-0,483 (2007)
Kyrgyz Republic	0,043 (2008)	0,035 (2008)	-0,082 (2007)	0,118 (2007)	0,185 (2008)	1,048 2008	-0,284 (2008)
Moldova	0,056 (2008)	0,062 (2008)	-0,435 (2008)	0,342 (2008)	0,345 (2008)	0,363 2008	-0,464 (2008)
Romania	0,121 (2008)	0,185 (2008)	-0,189 (2008)	0,118 (2008)	0,209 (2008)	0,348 2008	-0,572 (2008)
Tajikistan	0,019 (2008)	0,147 (2006)	-0,008 (2008)	0,149 (2007)	0,122 (2008)	0,681 2008	-0,250 (2008)
Ukraine	0,109 (2008)	0,150 (2007)	-0,210 (2007)	0,372 (2008)	0,348 (2008)	0,917 (2008)	-0,780 (2007)

UD = Undecisive

Table 1 reveals that all the eleven countries experience a peaking GDP in 2007 or 2008, when the picture is very similar for manufacturing output and unemployment, i.e. manufacturing peaked almost simultaneously, when unemployment was at a temporary minimum.

As for the financial indicators, we find that both money stock peaked in 2007 or 2008 for all the eleven countries, when credits peaked unanimously in 2008. The same did inflation,

apart from in Belarus. Public debt also reached a minimum in the years leading up to and including 2008.

Table 2 reports the troughs during the financial crisis. The pace and the depth of the construction was far less uniform than the upswing before the crisis. However, most real value indicators reached their bottom point during 2009 and 2010, but admittedly with some late comers. Looking at the financial indicators or parameters, both money and credit tend to reach their minimum before or simultaneously with the real economy indicators, when inflation and, even more, government debt seem to lag compared to the other variables. This can hardly come as a surprise for government debt, since it often becomes a mean of symptom relief during financial crises.

Table 2. Relative numerical cycle values of macro parameters of troughs during financial crises of 2008 as natural logarithms.

Country	Real economy indicators			Financial indicators			
	<i>Yt</i>	<i>MPt</i>	<i>Ut</i>	<i>M3t</i>	<i>Ct</i>	<i>Pt</i>	<i>GDt</i>
Armenia	-0,047 (2010)	-0,125 (2009)	0,064 (2010)	-0,054 (2010)	-0,020 (2009)	-0,300 (2009)	0,213 (2009)
Azerbaijan	0,012 (2012)	-0,012 (2011)	0,001 (2011)	-0,128 (2008)	-0,020 (2009)	-1,666 (2009)	0,304 (2016)
Bulgaria	-0,033 (2014)	-0,031 (2010)	0,323 (2013)	-0,010 (2008)	0,022 (2010)	-0,509 (2009)	0,454 (2011)
Belarus	0,011 (2009)	0,009 (2009)	0,380 (2010)	-0,077 (2009)	-0,052 (2009)	-0,003 (2013)	0,253 (2014)
Georgia	-0,043 (2009)	-0,062 (2009)	0,144 (2009)	-0,105 (2009)	-0,054 (2010)	-1,051 (2009)	0,159 (2010)
Kazakhstan	-0,028 (2009)	-0,002 (2009)	0,006 (2009)	0,037 (2009)	-0,161 (2009)	-0,086 (2009)	0,020 (2009)
Kyrgyz Republic	-0,015 (2010)	-0,182 (2012)	0,026 (2010)	-0,034 (2009)	-0,082 (2010)	-0,223 (2009)	0,047 (2010)
Moldova	-0,047 (2009)	-0,170 (2009)	0,263 (2010)	-0,411 (2010)	-0,024 (2010)	-0,063* (2009)	0,015 (2012)
Romania	-0,039 (2012)	-0,117 (2012)	0,053 (2011)	0,005 (2009)	-0,100 (2010)	-0,288† (2009)	0,179 (2012)
Tajikistan	-0,017 (2010)	-0,159 (2010)	0,055 (2010)	-0,081 (2010)	-0,340 (2009)	-0,384 (2009)	0,086 (2011)
Ukraine	-0,064 (2009)	-0,118 (2009)	0,137 (2009)	-0,145 (2009)	-0,135 (2008)	-0,239* (2013)	0,149 (2010)

* = Actual deflation rate

† = Fall in inflation rate

The calculations made here reveal considerable expansion in money and credits for all emerging eleven Eastern European economies under investigation previous to the financial crisis of 2008. For ten of these economies, all but Azerbaijan (23 percent), the positive cycle

value reached between 9.7 (Georgia) and 37.2 (Ukraine) percent. As for the credit cycle, it peaked between 12.2 (Armenia) and 35.6 (Azerbaijan). This shows that the domestic monetary expansion was substantial prior to the crisis, and it happened after a period of attempts of cautious monetary policy in most of these countries. Money and credit expansion made the inflation cycle step up to between 34.8 (Romania) and 104.8 (Kyrgyz Republic) over the smoothed trend line, which is exceptional. In other words, the countries lost their financial stability.

In consequence of this overheating, the financial crisis hit hard. In Ukraine's and Armenia's annual GDP fell by 14.4 and 13.4 percent respectively, and 7.2 and 5.9 percent in Romania and Moldova. Manufacturing production contracted even more and unemployment increased.

6. APPLICATION

So what happened? After the transition crisis from communist to a market economies in the 1990s, most Western European economies gained momentum as they saw substantial economic growth prior to the crisis. This went on for almost a decade and lasted more or less until the Autumn of 2008. During this period of growth these emerging economies benefited from an underutilized real and human capital. Additionally, they took part in the international boom from the early 2000s.

Nevertheless, the growth was not sustainable. The countries ran huge current account deficits, and by that they developed increasingly high foreign debt along with dubious exchange rates for their currencies.

Belarus, Bulgaria and Ukraine had fixed rates of their currencies, which attracted massive inflows of short-term lending, giving fuel to monetary expansion, domestic loans and high inflation.

Foreign credit institutions were able to lend to Ukrainian consumers to interest rates of amazing 50 percent (Stroe 47-52). Thus, foreign exchange inflows accelerated imports and the balance of payments deficits rocketed. Due to very high inflation and balance of payments deficits it became impossible to maintain fixed exchange rates for currencies. Thus, they had to give up the policy and exchange rates fell drastically, paving way for imports of even more inflation and lack of trust of these economies (Åslund, 2010).

During spring and summer 2008, it must have been evident that the economies of the region were overheated. These countries lack valid and reliable real estate price indices. However, real estate prices were out of control due to high demand caused by monetary expansion and low supply. Wages had increased dramatically for skilled workers and the booming stock markets had begun to fall down.

The bank crises had been revealed in the US the early Autumn of 2008, banks didn't dare to renew their credits to other banks. Hence, domestic and international financial liquidity became extremely scarce. During a few weeks Eastern Europe saw rapid decline in international finance and a liquidity crisis evolved rapidly, soon revealing a solvency crisis in the private sector due to the high gearing with foreign and domestic capital. Along with the lack of liquidity and solvency, financial panic made capital flee the Eastern European economies quite rapidly, and their currencies were sold for gold, dollars, euros, pounds

and Swiss francs (Mihalijek 2010). Making the currencies to dive further, making these countries even more dubious means of foreign investment.

A fundamental problem for the crisis in Eastern Europe was excessive inflows of short-term bank credits, enticed by fixed exchange rates. Hence, foreign private debt rocketed. Public finances, however, seemed to be under control, with an exception for Romania (and Hungary). However, public debt arised during the crisis due to reduced tax income and need for government support to reduce the impact of the financial downturn. (Dudas, 2013: 184-193).

To sum up, the present analysis confirms that the financial instability hypothesis contributes significantly to understand the financial crisis of the eleven emerging eastern European economies. Hence, the financial crisis of emerging Eastern European economies doesn't seem very different from traditional financial crises

7. CONCLUSIONS

The present paper seeks if it is relevant to explain the financial crisis of 2008-2010 in eleven emerging Eastern European economies with departure in the financial instability hypothesis as formulated by Minsky and Kindleberger. To do so it follows three key time series for the real economy and four for financial markets in these countries.

By using the Hodrick-Prescott filter as a structural time series analysis it has been possible to map cycles from trends in the series. The analysis reveal substantial overheating in the economy mirrored in huge expansion in financial and real economy indicators prior to the crisis, when the same variables contracted correspondingly during the crisis. Thus, it is reasonable to conclude that loss of financial stability was an important element in the foreplay of the crisis.

By constructing an institutional development matrix and an integrated institutional development index, one finds that the economies under investigation did not have the necessary institutional strength to withstand the crisis.

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