

## THE ROMANIAN RESPONSE TO THE FINANCIAL CRISIS

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### Abstract

*The importance of financial linkages among countries in the crisis spread, is currently a highly debated topic. Small shocks caused by the collapse of the financial system of a country can easily turn into a crisis, of dimensions that can be hardly imagined. There are several channels which could play an important role in transmitting the initial shock. Focusing exclusively on rational explanations, the financial crisis in one country could provide negative information about other countries with similar characteristics.*

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**JEL classification:** D11, D81, D82, E21, E22, E42, E52, G01

### Financial linkages between countries

In a Bayesian frame, learning based on rational agents could precipitate a financial crisis, once investors have seen the crisis in a country<sup>1</sup> (Chen, 1999). An important channel that could play a role in crisis' transmission, is the channel of commercial linkages between countries (imports and exports). For example, after an initial shock in one country, countries which have strong trade ties with it will receive this negative shock too. In addition, strategic interactions between countries in the international financial system might alter the impact of that initial shock to the system. It is important to find out how the crisis is transmitted throughout the entire system, taking into consideration the equilibrium between countries' trade balances and other links. In particular, it is important to know whether the global financial system amplify or attenuate the initial shock caused by the country fragility.

Using the domino's game as example, where the first piece starts falling and hitting other parts nearby, we might consider that the pieces of dominoes are countries and the procentage of trade with other countries in total foreign trade give the closeness. In particular, we want to know what happens to the second line of Domino's, after the first fell. Thus, throuth the international financial system, the first question to ask ourselves is: "The likelihood of damaging a country depends on it's "proximity" to the country which initially had problems?" The question of interest is that, unlike a game of dominoes, in which parts are static, when we consider the international financial system, the government may take an action after the initial shock that will take the country away from the line of contagion.

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<sup>1</sup> Chen, in his work refers to bank failures spread, through those who store money, but since banks are the most important link of the financial system we can extrapolate his claims.

In other words, it's like dominoes game pieces have been able to adjust their positions. In addition, the actions of the executive power, those who take decisions on the domestic economy or financial system, are influenced by both their country investors and internal conditions, but also by investors from other countries and the external environment. Therefore, not only our domino pieces are not static, but they also have an internal characteristic (domestic investors) that can completely change the initial shock transmission. Therefore it should be studied how national systems behave on the international market, after the initial shock, taking into account the reaction of investors.

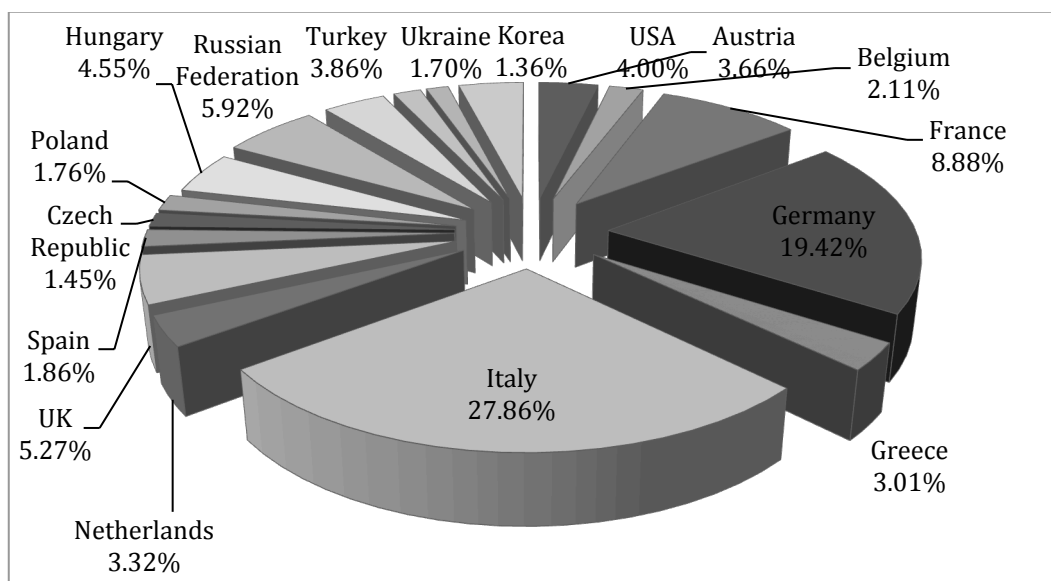
To measure trade ties between Romania and other countries we've calculated it's share of foreign trade with that country in total foreign trade of Romania.

In the figure below, we selected those countries with which Romania is carrying on commercial transactions (import and export), amounting more than 1% of Romania's total foreign trade. The strongest trade ties are those with Italy (22.06% of total) and Germany (15.38% of total). We can also see in the figure that the trade of Romania with the European Union countries are more than 70% of our country foreign trade. Given this and considering that Romania is an EU member since 2007 we could deduce that business and political ties and even those relating to macroeconomic bases (since the integration into the European Union requires a common market with the same operating rules and the Euro zone) between Romania and the European Union are very strong. The emergence of financial market crises it's transmitted primarily through the traditional channels, which indicates that the Romanian economy will be strongly influenced by economic developments occurred in member countries of the European Union. However the influence of these markets can not be of 100% because foreign trade does not reach 100% with them and from the macroeconomic point of view Romanian economy is not identical with that of the European Union as a whole.

Even a brief discussion on the application of mathematical models in financial practice, in general, would be incomplete without some warnings on their use. Sometimes we lose sight of the ultimate goal of these models when the math part becomes very interesting. The mathematical financial models can be applied very precisely, but models are not very precise in their application over the real world. Their accuracy as a useful approximation of the environment varies significantly with time and space. Models should be applied in practice only as simple tests, with careful assessment of the limitations of their application.<sup>1</sup>

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<sup>1</sup> R.C.Merton, the speech at the Nobel Prize 1997 "Application of Option-Pricing Theory: Twenty Five Years Later"



At its simplest level, the real crisis is different from that expected one in three ways. First, the current crisis presents itself as a global crisis, not one limited to the U.S. economy or even focused on it. More or less simultaneously, each economy has experienced the same problems: a collapse of assets value that have undermined the solvency of key financial institutions, putting lending to a sudden halt, and a sharp contraction in consumer demand. In fact, while the crisis was taking place, the U.S. vulnerability appeared to be lower than that of many other countries. For example, at the end of the second quarter of 2009, 12 countries (nine of them in transition) have attracted a total of \$ 35 billions from the IMF standby account and the interest rate margins of many countries have underlined a much higher risk of default than the U.S.'s. Secondly, weaknesses in the financial sector, in particular, seemed to characterize almost all countries. The error of deregulation, lack of dishonesty and the stimulation of reckless behavior were apparently universal, to the extent that, for many observers, the economic crisis was a financial crisis in all material respects. Thirdly, rather than lose power, the dollar has shown, at least temporarily, that is a pillar of strength: immediate response to the financial difficulties being experienced in the summer - autumn 2008 was a net inflow of capital to the U.S. and especially a rush to acquire short-term liquidity. Past controversies about U.S. external deficits seemed almost strange now, echoes of another era.

However in dealing with this topic caution is needed. Behind the story that follows is a default model that may seem strange to economists accustomed to thinking in terms of equilibrium results. Instead, structural features, particularly the funding constraints that apply to income and expenditure, are emphasized. It doesn't mean that the effect of responsibility delegations is ignored; the behavioral responses of income and prices changes is taken into account, but the base model is one where the primary forces are inertial, behavior largely governed

by convention and uncertainty prevents reaching a final equilibrium. In addition, political and economic considerations are central and provide the framework within which private actors are adapting. So, a formal model incorporating these features and sufficiently developed to capture the characteristics of this "story". This requires an easier, less falsifiable way of explanation, but in any case, a careful description of events is necessary before we could begin to test hypotheses.

### **The present financial crisis**

The crisis that began in the summer of 2007 came as a surprise to many people. However, for others it was not a surprise. John Paulson, hedge fund manager, has correctly predicted the subprime market debacle and earned 3.7 billion U.S. dollars in 2007, as a result. Global financial system vulnerabilities have been discussed in prior reports of Bank of England and Financial Stability Report.<sup>1</sup> "The Economist" has estimated that, some time before real estate prices in the U.S. and a number of other countries, have created a speculative bubble and was therefore expected to decrease.<sup>2</sup>

Although, as predicted, lower prices of U.S. property that were the fundamental causes of the crisis, the effects it had on financial institutions and markets have not been estimated. Particularly, what was perhaps most surprising is the role played by liquidity in the current crisis.

The current crisis is one of the most dramatic and important crisis in decades. The reasons behind it and its deployment revealed a number of new concerns and issues for policy makers, practitioners, and academics interested in the financial and monetary issues.

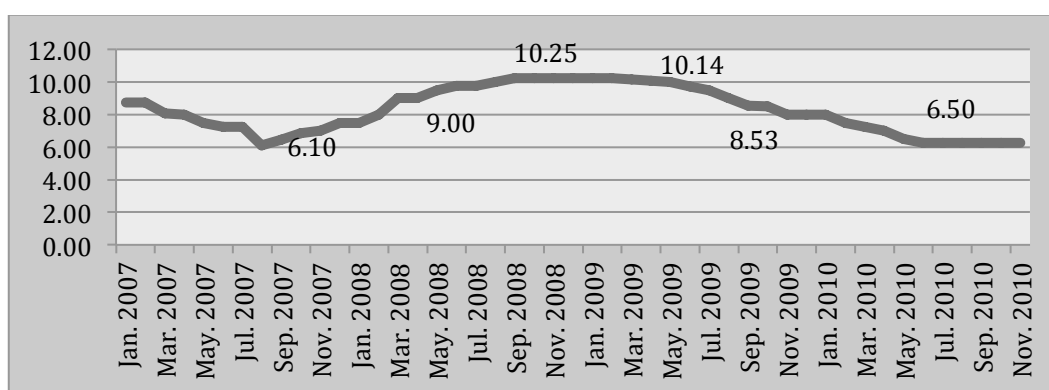
Central banks worldwide have followed the crisis development with numerous interventions. Some of these interventions aimed on reducing monetary policy rates and injecting liquidity into the system. Other interventions aimed a framework change of standard operating systems or the creation of innovative forms of special liquidity.

For example the Romanian National Bank began lower the reference interest rate since september 2008, nearly a year after the global financial crisis began. Although it seems a late intervention it's likely that these measures were taken when the financial crisis began to have an impact on the national economy. However its current level (6.5%) is lower than its initial level (before the crisis, the reference rate was 6.10%). The evolution of the reference interest rate follows the crisis developments in Romanian economy, the Romanian National Bank trying to counteract the effects of this crisis by injecting liquidity in the market, resulting lower cost of credit. It thus seeks to boost investment.

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<sup>1</sup> Bank of England (2006) and (2007).

<sup>2</sup> The Economist (2005) and (2006).



Overall, though the actual effects of the crisis, to a certain extent have been limited, the initial signs of spreading seems to have developed. Lending standards and terms for both commercial loans as well as industrial, and commercial real estate loans have become tougher and corporate bond yields rose significantly in the first half of 2008, indicating increasing pressure and risks of non-financial corporate sector. Loans remained available to the corporate sector so far, but lending to households decreased. Similar changes took place in the UK and Europe. The USD exchange rate fluctuated during the crisis, with a general trend of depreciation against most currencies. Employment began to decline substantially in February 2008, and inflation is also beginning to be a source of concern. Economic growth remained low in the first half of 2008, and the weakness of the real estate markets have persisted, along with tighter credit conditions for corporations and individuals; the economic growth also declined in the second half of 2008.

After three years from 9 August 2007 the financial crisis is still ongoing. For a short period of time, it was thought that the losses could be lower. But these hopes have disappeared once the 2008 and 2009 statistics appeared. Recession is now official for many industrialized countries and developing countries. For example, in Romania, more than 575,000 unemployed workers were registered between December 2007 and March 2010.

### **Channels of crisis transmittion**

There are many examples in economic and financial history of financial crises that were followed by recessions. There is therefore a particular need to explain why financial crises lead to recessions and which channels transmit financial shocks into the actual activity.

There were many studies written about bank costs and the financial crisis. In most cases, these costs were assessed ex-post<sup>1</sup>. Since the financial crisis is still an ongoing process, it would be dangerous to give a final evaluation of financial problems effects. It is more important to show that financial shocks have always a

<sup>1</sup>See Hoogarth and Saporta (2001) for a review of the literature and Reinhart and Rogoff (2008) for a brief descriptive insight into the costs of the largest financial disasters.

significant negative impact on real activity and then look at the current situation. We exclude purely statistical methods consisting in estimating the decline or increase in pre-crisis period production<sup>1</sup>. These approaches can be useful to compare the financial crises on common basis but is very difficult to measure these characteristics. It is first necessary to define precisely the beginning and the period of crisis. Costs also vary depending on their estimation, in terms of results or output growth. Most important is the assumption about the time - three or five years - used to estimate the pre-crisis trend. It may not have any economic significance, as may be overstated if there were clear signs of overheating. Finally, this method can not estimate the causal links. So the decline in growth comes from financial difficulties or other shocks. The role of stock prices, house prices, interest rates and credit is not stated as necessary to clarify the causal links based on transmission channels of fully identified structural shocks.

The current financial crisis, characterized by a sudden collapse of stock markets, a fall of real estate prices and a paralysis of the interbank markets, induce different types of shocks that affect consumption and investment decisions and then actual production. In particular, non-financial agencies (eg, households and firms) are faced with an attack on their financing conditions or on their property, and with a shock of uncertainty (Spilimbergo et al., 2008). While their size varies from one crisis to another, these shocks have been observed periodically during the financial crisis.

Thus, Romania has the following evolution of individual consumption determined by the current crisis:



We can see that the evolution of population expenditures is in decline just until the fourth quarter of 2009, than registering a slight increase, given the positive growth of consumer credit to households.

<sup>1</sup> Claessens, Kose and Terrones (2008)

### **The interest rate channel (or cost of capital channel)**

The cost of capital channel is a key mechanism in transmission of interest rate shocks (due to changes in liquidity in the interbank market and/or changes in monetary policy) in the standard Keynesian model. Assuming the link between prices and wages, a decline in interest rate (reducing capital costs), induces an increase in investment spending, leading to an increase in aggregate demand, and then in production. A similar line of reasoning is valid for the investment decisions in real estate or durable goods purchases by households, with a decrease in interest rates accounting for a decrease in the cost of borrowing.

To operate this channel, two key elements are to be taken into account (see Mishkin, 1995, 1996). On the one hand, decisions taken by households and firms are affected by the real interest rates - rather than the nominal one - meaning that an increase in prices in the economy is necessary. On the other hand, decisions of households and firms take into account long-term interest rates - rather than the short term - meaning that changes in short-term rate (for example, due to, monetary policy actions of central bank ) should lead to corresponding changes in long-term interest rate (real)<sup>1</sup>. When a financial shock, a direct impact on short-term (eg, a shock on bond market) or on short-term rates (for example, a shock on the interbank market) rather than monetary policy actions themselves, may change the interest rate term structure. Financial turbulence, by inducing a reduction of available liquidity for commercial banks, led to a sharp rise in interbank rates. How quickly and to what extent this shock is transmitted to the interest rates paid by firms and households is usually an empirical question. However, Lucas "critic" may be particularly relevant in times of real "turbulence".<sup>2</sup>

While theory suggests that this channel can play a key role, the inability of empirical studies in finding a strong impact of interest rates' changes on investment and consumption decisions, led us to consider other channels of monetary policy transmission, especially credit channel and the effect of "wealth".

However in response to the financial crisis that began in the United States the Romanian National Bank, dropped its interest rates for the first time and thus facilitate lending investments, and economic development, but after the first quarter of 2008 the interest rate returned to initial the value (before the crisis).

### **The importance of the financial effects**

Current turbulences gives a central role in the transmission of the financial crisis to real economy. As shown by Bernanke and Blinder (1988) and by

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<sup>1</sup>If, as is implied by the term structure of interest rates, long-term rate is an average of expected future short-term rates, a decrease of (real) short-term rate results in a decrease of (real) long term rate, one that stimulates investment firms and public expenditure

<sup>2</sup>For France, late transmission of interbank rates for those of borrowers were estimated at two or three months (depending on the type of credit) in the last decade (Coffinet, 2005). However, due to a deterioration in the balance sheet, banks may have little incentive to move quickly to a lower interest rate set by the central bank regarding debtor rates. For the United States, see Mishkin (2009) on the transmission of the Federal Reserve reduced rates, rates on households and firms in the current crisis.

Bernanke and Gertler (1995, 1996), financial imperfections (due to informational asymmetries) contributed to the transmission – due to leverage – of the monetary, real and financial shocks.

Several mechanisms explain the phenomenon of financial gain<sup>1</sup>. Borrowers must pay an external premium, which is specific for each debtor, according to his financial situation<sup>2</sup>. (the greater the information asymmetry, more costly the external financing, the greater the net assets, less costly the external financing<sup>3</sup>.) Thus, a monetary, real or financial shock, which either change nonfinancial agents revenue or reduce the value of the collateral, will result in a larger external financing premium. Investment and consumption projects<sup>4</sup> of limited agents will then be modified, in turn enhancing their initial shock. In addition, since the external financing premium depends on net worth of agents, banks can adjust the balance sheet in favor of large companies at the expense of small ones.

The current financial crisis by inducing tighter financial conditions, decrease in household financial assets and, together with the growth deteriorated prospects, it has a negative impact on the enterprises and households financial situation. The financial accelerator is, thus, an important channel through which financial shocks reach the real economy, as a result of investment and lower consumption, far beyond the effect of "wealth" and higher costs of capital.

Other empirical works (eg, Peek and Rosengren, 1995) found that shocks on banks' capital induce banks to reduce their credit supply, which enhances the credit channel power.<sup>5</sup> Following a shock that lowers the quality of their assets, in order to meet their prudential ratios, banks are reducing exposure to risk (by offering smaller loans) or increased bank's capital. However, in a context of asymmetric information, raising capital is costly, especially in "troubled" financial and economic times. Even if governments have contributed to the recapitalization of banks, the risk of banks' portfolio adjustment still remains. In this case, lower cost of non-financial agents would come from a reduction in credit supply - rather than from a reduction in credit demand.

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<sup>1</sup> For the effect of wealth estimation see Houizot et al. (2000), ECB (2009).

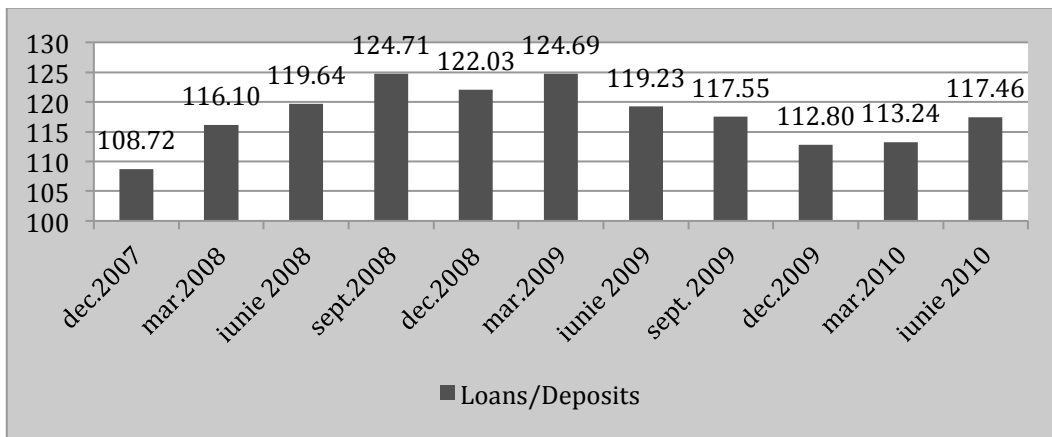
<sup>2</sup> The premium is due to additional costs incurred by creditors in order to investigate and monitor the results (declared) by the debtor.

<sup>3</sup> Specifically, the net asset reflects the ability of borrower - the person or company - to provide certain guarantees on its financial assets and/or real estate, net of its debt.

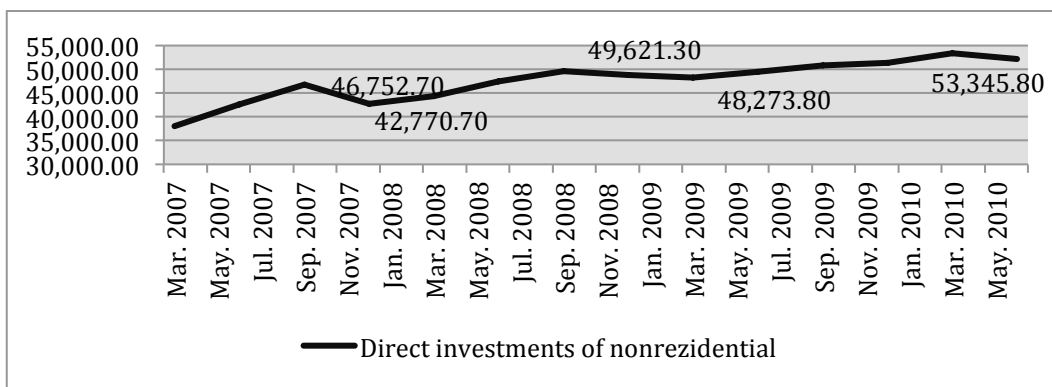
<sup>4</sup> Pioneer models consider only the effects on investment firms. But the model can be easily extended to household consumption by assuming that real estate assets (buildings) are used as collateral (see Goodhart and Hofmann, 2007 and Mishkin, 2007).

<sup>5</sup> The channel we take into account here is "bank capital" (see Van den Heuvel, 2002).





We can see in the figure above that following the beginning of the crisis in Romania it started the increase of the volume of loans relative to deposits. Also in December 2009 this ratio reaches its lowest, after the outbreak of the crisis (112.8%) recently we can see that the report began to rise again, leading to the idea that the financial crisis on the Romanian economy had not yet reached its full potential.



However, one can see that direct investment of nonresidents on the Romanian market are constantly increasing, which partly offset lower consumption.

### Conclusion

The current crisis, with purely financial matters, induces greater uncertainty for economic agents. Economic growth and employment prospects are not just bad-oriented, but are also uncertain. Firms and households must decide how much to invest and consume in a risky environment, which can lead to behavior such as "expected to see." In a context of greater uncertainty, households tend to save more just to be cautious. For example, empirical studies show that fluctuations in the unemployment rate - used as a proxy of uncertainty - have a (huge) negative impact on consumption. For businesses, the continuation of this reasoning is based on irreversible investment decisions, as some installation costs are not recoverable. Since the decision is irreversible, the company may delay its

investment projects, waiting for better times. Thus, the investment is made only if the gains are greater than costs of installation. Uncertainty surrounding the global macroeconomic situation could cause actual firms to postpone (some) investment decisions, slowing demand and future production.

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