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**INVESTORS' TYPES OF BEHAVIOUR DURING CRISIS**

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**Abstract:**

*Given the present economic situation the subject regarding the propagation mechanisms of financial crisis is of present interest. In these mechanisms, investor behaviour seems to be one of the propagation's causes, and that's why we think that the study of inventors' types of behaviour during crisis might bring light on this controversial subject. Does any kind of behaviour make a financial market "contaminate" other markets? Sometimes, during crisis, the investors behaviour seems to be unforeseeable. In this article we will analyze how the investors behaviour may influence the power of the financial crisis propagation using the example of the Romanian capital market and we'll try to identify the types of investor behaviour on this market, the Romanian capital market.*

**Keywords:** investor behaviour, financial crisis, financial contagion, propagation, capital market

**JEL classification:** G01, G11, E44

**1. Introduction**

The phenomena of financial crisis propagation, namely the crisis that began on the United State financial markets, mostly its spread all over the world, drew again the public eye on the problem of the propagation of financial markets. Macroeconomic, politics and trade links between countries makes the shocks suffered by an individual country or region to affect other countries or regions, which most likely are in the same geographical region. Weak economic bases of the second country, macroeconomic similarities, and exposure to certain types of financial agents and associated transmission channels can be considered as the main factors leading to an increased risk of sudden impact of financial shocks suffered by other countries. The stage of development of the international financial system it may also play a very important role in this transmission mechanism. Although, much

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of the propagation of the financial crisis phenomenon is not caused by the irrational behaviour of investors, this type of behaviour being only an insignificant factor (or so the theoreticians think till now), it still remains a mystery what makes countries vulnerable to crisis and the precise mechanisms that makes the crisis transmit.

## 2. The propagation

A phenomenon that affects the international capital markets in general, both developed, as well as least developed seems to be the increasing markets' volatility. It is clear, however, that volatility will remain a problem as long as it delays the adoption of specific actions taken at national and international financial level, measures that may be necessary to reduce these risks and to limit their impact. First, the high volatility of international capital flows on the emerging markets and the limited capacity to cope with this volatility make the "beneficiary" country vulnerable to excessively high shocks and crises, frequently and in a disturbing manner. Secondly, the international capital markets appear to be extremely susceptible to financial shocks because of the high integration degree.

During financial crisis, the way the shocks are transmitted seems to uncover a different transmission mechanism and this difference appears to be an important one. Although we know very little about the importance of macroeconomic and institutional factors in the propagation of financial shocks, empirical studies have helped to identify the types of links between countries and other macroeconomic conditions that makes a country vulnerable to contagion during financial crisis. At the same time, empirical research has helped identify the countries that risk to be exposed to contagion and some interventionist policy that can diminish these risks, although they were identified in a way that is too general to be helpful.

When a country is hit by a financial shock, the reduced market's liquidity may compel investors to withdraw capital invested in other countries or markets that are not initially hit by the crisis. Because many financial transactions are based on investment decisions rather than on theoretical financial principles of individual investors, problems in investors' stimulation may also play a role in triggering volatility. The decision to withdraw the funds invested in multiple markets may also reflect coordination problems among investors and mechanisms insufficient developed at the international level, mechanisms that might supervise advice and possibly assist countries with problems of liquidity. In reality it is very difficult to make the difference between forms of investors behaviour. Volatility can be transmitted from one country to others through common creditors and investors that are acting in international financial centers.

*Contagion* refers to the migration of market disturbances - mostly those who have a negatively impact on the market - from one country to another. This process can be observed through the evolution of exchange rates, prices of shares, bonds, and capital. The causes of contagion can be divided conceptually into two categories. *The first category* focuses on cross-border influences arising from the normal

interdependence between open economies. This interdependence makes shocks, whether globally or locally, to be transmitted between countries, because of the real and financial links existing between them. *The second category* involves a financial crisis, which is not linked to any observed changes in macroeconomic bases or other fundamental bases, but it is only the result of the investors behaviour or other financial agent's behaviour.

The propagation of financial crisis depends on the degree of financial market integration. If a country is completely integrated into the global financial market, or if the financial markets in a region are very well connected, assets prices and other economic variables will evolve in parallel or in a similar manner. The higher is the integration degree, the greater would be the contagion effects of a shock from another country. Conversely, countries that are not financially integrated, mostly because of the limited access to the capital markets or the lack of access to the international financing, are, by definition, immune to contagion. In this sense, the financial markets would facilitate the transmission of shocks, but it wouldn't cause them. Actions of investors, who are ex-ante individually rational, and also collectively rational, even if they lead to volatility and may require policy changes, should be considered to be fundamental causes.

Therefore, in the context of the recent financial crisis, was supported by some experts that foreign portfolio investors (being the ones that are investing in multiple markets) may have been those which by their reaction (which had the same effect as the market trends) have led to the propagation of the crisis that began in the United States (egg, rushing to buy when the market is growing and rushing to sell when the market is declining), and by their mutual desire to copy the behaviour of other investors, ignored the information on the economic fundamentals of the countries' markets on which they were investing. We can also add that even the national investors (the ones that invest only in national assets) had a big negative influence because they tend to mimic others actions without a proper thinking.

## 2. 1.Study

Investors, like every other man, are characterized by over-exiting and exaggerated reactions, both on rising and falling markets. Most of the investors tend to buy or to expend their investments when the market is growing. Simultaneously these investors tend to sell their investments in short-term assets with a low performance. As a result most of the investors will be holding assets from the category of those who had the best performances on short-term. By making that, their assets price will be over evaluated, and when corrections will take place on the market, investors will suffer important losses.

During a correction on the market, investors tend to panic because of there believe that they will loose most of the invested money, and then the most normal reaction is to sell everything, in order to minimize their losses. These actions will make the market drop even more, much more than the needed correction.

To complicate things even more, the market doesn't react at all or it doesn't react in a predictable manner when we look at the short-term evolution. And if investors react this way when small corrections are made on the market, we can only imagine what they will do when some important financial crises will appear. It is a known fact that the biggest financial crises were also amplified by the massive sell of assets, induced by the investors' panic. It is true that the first turbulences appeared because of some problems of the financial system, but investors' reactions made the turbulences propagate to the other countries with same characteristics as the one already in it. The most important thing investors should know is that short-term bias has nothing to do with the long term investment climate. And so, we could state that the market short-term prediction is the same thing with investors' behaviour prediction, a thing very hard to accomplish.

The best period to make changes in ones portfolio is in the ascending period of the market, because investors adjust their assets portfolios only when they are in favorable position. It is practically impossible to predict the best changing period, but the changes will take place as long as the investors are situated in a favorable position. A favorable asset transaction doesn't mean selling assets with taint evolution and buying assets with a high profitableness, but it means selling profitable assets for gaining profit.

It is necessary for investors to be conscious about their tolerance to risk before making any investment in order to make the right decisions. Knowing own level of risk tolerance is one of the most important things we should know before starting to invest on long-term assets. Investing in portfolios that don't characterize owner's intolerance to risk lead investors, during market correction, to make important changes and so losses rise. It seems like its human nature to make these corrections during the declining market. To prevent these kinds of manifestations, investors should try to develop investment strategies by taking into consideration, besides financial goals and aims, risk tolerance.

So, it's clear, that emotions shouldn't have anything to do with financial market's investment, when the aim is getting a profit. As long as these will be part of the investment strategies, it will be hard to predict the market's reaction as a whole during crises periods.

To analyze the influence of investor behavior, we chose to pay attention to the reaction of Romanian financial market during the last financial crisis or as some say the current one. The current financial crisis' starting point was the fall of sub-prime market in the United States in August 2007. This fall had triggered a series of negative effects on the global financial market: first the U.S. government had to enter the financial markets by helping financial institutions in difficulty and then lowering FED's (Federal Reserve System) reference interest rate in order to relaunch the real economy. However the measures taken could not stop the propagation of financial crisis on other financial markets.

Being an open market, the Romanian capital market, can be influenced by external events, meaning that by definition could be the country hit by the contagion

effect. However, to measure contagion influences in Romania during the current financial crisis we also have to take into account the links with other countries such as trade links, macroeconomic links and policy links. If the Romanian financial market reacts in the same manner in which other countries did, countries that are linked to Romania in this way, it not shows contagion but only shows the interdependence between Romania and this others countries. We can consider the evident dependency between Romania and the European Union. Past studies shown that the correlation between Romania and EU is approximately 0,5 (see „*Contagion causes – rational or irrational behavior*”, 16<sup>th</sup> International Economic Conference – IECS 2009, R.D.Vilag et al.).

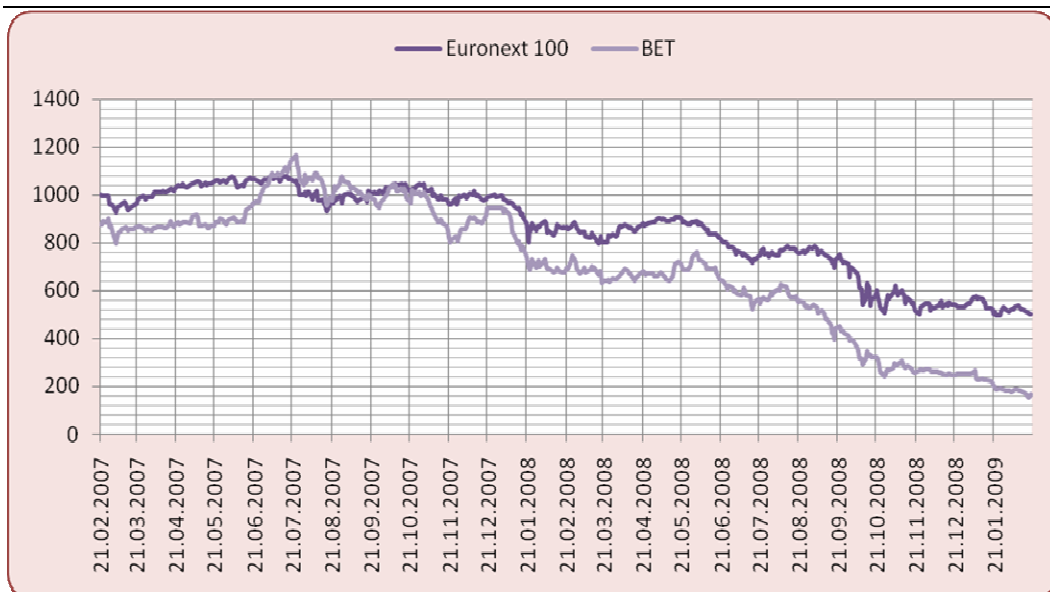
The period of data collection for Romanian and European indices is of 2 years, from 21 February 2007 on 19 February 2009, daily recordings (without weekends and holidays). We used this period in order to include both the period before the beginning of the crisis on US sub-prime market and the period extended till after the last drop in the global stock exchange, i.e. 15 October 2008.

If we analyze the behavior of the Romanian market and that of the Euronext market (we can consider this particular market representative for the European Union). We can see from the fist part of the figure no.1 (until first of August 2007) that although the general trend of the two indices is the same, namely it shows a growth, the two indices do not evolve in an identical manner. There are common points only when price falls and the last part of the BET graph recorded a higher growth than the Euronext index. We can also compute the correlation between the two indexes, and we obtain 0, 56 that shows an average correlation between the two markets. This correlation can be determinate by the classical links: trade, policy and macroeconomic bases or by simply looking at the capital market.

On the middle part of this figure (until first of June 2008) we can see that the two indexes are starting to evolve in the same manner. In fact computing the correlation between them we obtain 0, 91. This shows a very strong correlation between the two markets. Given the fact that the classical link channels did not change in this period, we can make the assumption that this is due to the influence of investors behavior. In fact if we watch trading statistics on BVB we see that both residents and non-residents investors react to the financial crisis. If in 2007 we had a total sum of purchasing stocks of almost 14.000 millions lei, in 2008 this sum dropped to almost 6.700 millions lei (half of 2007 total).

At the end of this figure we see that the indexes' evolution is almost the same. The correlation reached the value of 0,98; that is almost a perfect correlation between the two indexes and of course between the two markets.

If we add to this the fact that the residents withdraw almost half of their investments between 2007 and 2008 and the non residents almost disappear from the market we can see that this rising in correlation is given by the investors behavior.



*Figure no.1 “The evolution of the two indexes between 21 February 2007 and 19 February 2009”*

So our study over investor behavior has an important starting point and we can easily identify different emotions aroused on the Romanian market.

## 2.2. The influence of emotions

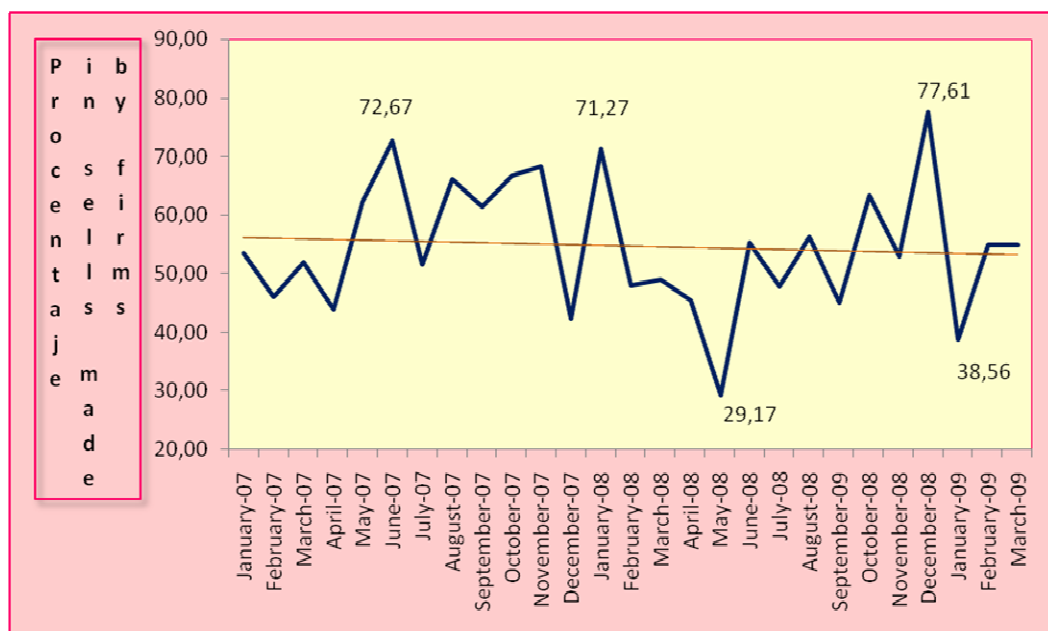
### 2.2.1. Ambiguity adverse

Ellsberg paradoxes (Ellsberg 1961) suggested that people are ambiguity adverse, and by being that they determine the apparition of irrational choices. As Camerer (2008) suggested ambiguity adverse could lead investors to demand a growing risk premium, more ever, when investors are being presented with new financial opportunities, because of the uncertainty of the economic environment and of the resulted incomes.

In financial crises' case, ambiguity adverse is shown by the fast transactions, made by those who want to sell the stocks with massive losses, without waiting for the situation to clarify. This phenomenon can be observed only when the capital market is falling.

So, in order to make our point, we can monitor the reaction of the investors who were on BVB – Romanian capital market (Bursa de Valori Bucuresti) - during the falling of the American sub prime market. Before the fall, in July 2007, the situation on the market, shows that the only ones who have trade and by doing that, “gain” loses, at the end of the month, were the residents institutional investors, with a total loss of 135.448.730,06 lei. Still the market summarized a net gain of 105.075.202,12 lei. In August 2007, when the crisis started the only one that gained

were individual residents investors with a total of 86.789.243,70 lei. In august the market summarizes losses of 86.089.428,64 lei. So the situation of trading fast, without waiting to see what will happen made the Romanian market decapitalize as a result of this investor behavior.



*Figure no.2: “The percentage of nonresident firms sells in total sells of firms”*

The figure above shows the evolution of non-residents firms sells on Romanian market from January 2007 through March 2009. For this period, non-residents firms had an average of 54,67% in total sells of participants firms on Romanian market. The figure also shows the tendency or the trend line and as we see these non residents firms are moving somewhere between 60 and 50 %. By computing the standard obtain a figure of 11,35; that means that most of the values will have a deviation of  $\pm 3,37$  pp from the average. On the chart are easily observed the higher and the lowest value, meaning 77,61% in December 2008 and 29,17% in May 2008, which makes our standard deviation seem to big.

So we can draw some conclusion based on this figure:

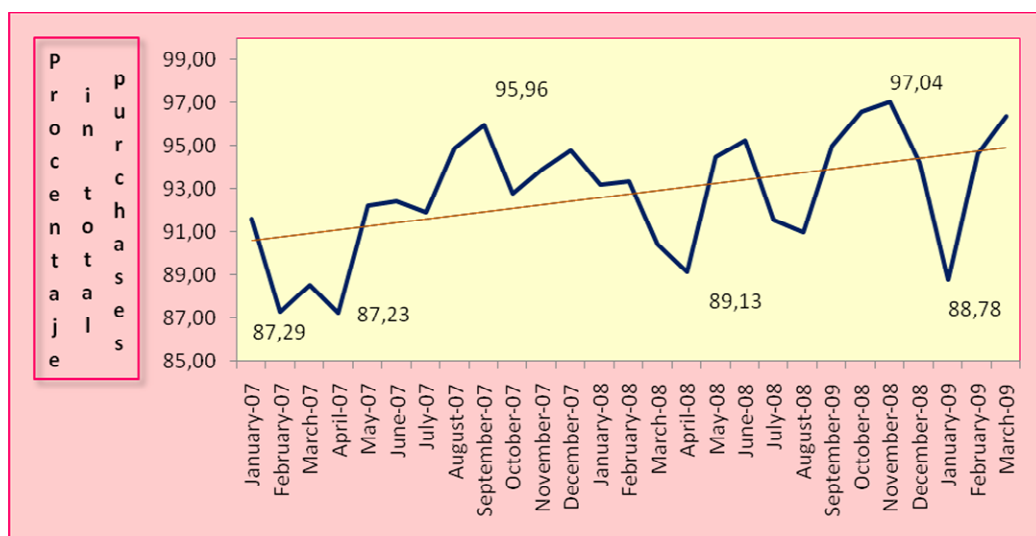
- The non-resident firms are not following a long term strategy, their are just “going with the flow” (that’s way the swings in the chart);
- the non resident firms are ambiguity adverse that way the biggest sell on November 2008 when the Romanian capital market, like others, have just been hit by the latest boom and the Romanian political and economical climate was unstable.

### 2.2.2. Moods and feelings

The aversion toward risk, suffering or losses can reflect a calculated avoidance of future unpleasant feelings. Still, the moods and the emotions felt today by people affect their perception regarding risk choices tomorrow. Generally good-tempered people are much more optimistic about their choices and their judgments, than bad-tempered people. The decisional process can also be affected by sensorial senses and cognitive experience.

Affective moods contain information that can be used to conclude on the surroundings. For example it is possible that a person in a better mood to have the patience to make better decisions when the market is dropping, knowing the fact that the change of portfolio content must be made when the market is expanding.

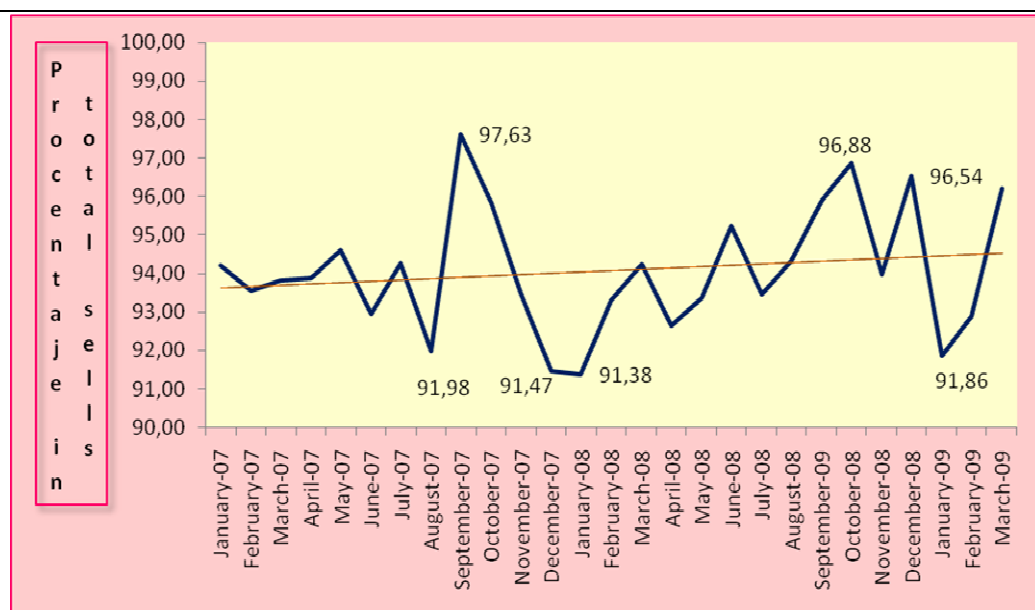
Again, we can exemplify on the Romanian market to. If we look to the monthly net purchase/sell we see that in that year (2008) the individual investors, whether residents or non-residents, will have 11 of 12 month ended with losses since the crises began.



**Figure no.3: "The percentage of residents non-firms in total purchases of non-firms"**

If we take a quick look at the figures no.3 and no.4 we can draw the conclusion that non-firms are trading based on moods and feeling. Why? Because the range of values of purchases is between 87,29% and 97,04% in total non-firms, but the range of values of sells is between 91,38% and 97,63% in total non firms. We can see that massive purchases in one month are followed by massive sells in another as the example of september-octomber 2007 shows as; Romanian investors had 95,96% of purchases of nonfirms in September and in October when the crisis started to propagate had the biggest share is sells of nonfirm for the entire period of analysis.





*Figure no.4: “The percentage of residents non-firms in total sells of non-firms”*

### 2.2.3. Self control

Assets investment for future gains (postponed consumption) implies self-control by being related to moods and feelings. Experimental studies suggest that people are inconsequent over time even when it comes to there choices. As the neuroeconomists (Glimcher et al. 2008) stated that may be the process of learning or simply a mood change. This causes choices’ changes even when there isn’t new information, either good or bad, about the investment. This type of reaction doesn’t need any exemplification on the capital market, because is a well know subject.

### 2.2.4. Herding

Still, the most important influences have the mimic strategies by an investor from the others, making him to take the same actions.

Herding, on financial markets, refers to a situation when an investor or a group of investors assume others investors trading strategy. The reason for an individual to fallow this path is the fact that he believes that the others are getting new information, information that will help them to make better decisions. In the same category it is included the believe that others investor have better knowledge in this field.

Taking the case of a stable market, this behavior, might influence market’s evolution in short term, but not in a substantially manner on long term. When faced with a financial crises, the herding can cause the collapse of some sectors or firms too week for handling this swings, and by doing that making the crises bigger.

From the biological point of view Prechter (2001) brings a new light on this behavior. He makes the connection between the herding behaviors in financial with an innate humane characteristic - surviving. He explains that when individuals are faced with a high emotional situation, impulse creates an unmeasured desire to seek signals from the others, regarding knowledge and behavior, and to line up their beliefs and convictions to the ones owned by the group. When a sufficient number of investors act in the same way, they will create a state of consensus. This will bring a security sentiment among the outsiders, creating a feeling large enough to collapse an entire market.

To make our point we can again use figure no.1. We can see that the BET index is following the EURONEXT index and this development is not given by the macro economical or political links. As we already stated the market correlation rises from almost 0,5 to 0,9 and this is only the investor behavior fault given the fact that the Romanian economy reacted some month later to the beginning of the crisis.

From behavioural finance point of view feeling like fear and greed are the ones which attract herding.

### 3. Conclusions

The contagion phenomena make a very important object of study in our days. The investors are using international portfolio diversification in order to reduce their risk. Because of the recent development of the financial market (the increased degree of integration) this diversification it can not be easily obtained.

Taking into consideration the above mentioned we can draw a very important conclusion about the international financial market, that is: the investor behavior has an important influence over the outgoing of this market and more, in time of crisis, when extreme behavior is accentuated.

This can mean only one thing: we need to take a closer look at the investor behavior; we need to count their behavior besides other elements that influence the global financial market. If we identify every type of investor behavior and the way that it influences the evolution of the market we can say that we have half of the solution of the present problem. The next step that we should take is the one regarding the way that we can limit this type of behavior or a way to predict them.

### Bibliography

- Baur G. Dirk, Fry A. Renee (2007) – “*Multivariate Contagion and Interdependence*”  
 Camerer, C. (1995) - “*Individual Decision Making, in: Kagel*”, J.H., Roth, A.E. (eds), pp.587 – 703  
 Chui Michael, Hall Simon, Taylor Ashley (2004) – “*Crisis spillovers in emerging market economies: interlinkages, vulnerabilities and investor behavior*”  
 Darnbush Rudiger, Yung Chul, Stijn Claessens (2000) – “*Contagion. How it spreads and How it can be stopped*”

Darnbush Rudiger, Yung Chul, Stijn Claessens (2000) –“ *Contagion: Understanding How It Spreads*”, The World Bank Research Observer, vol. 15, no. 2

[Ellsberg, Daniel](#) (1961) - "Risk, Ambiguity, and the Savage Axioms", [Quarterly Journal of Economics](#) 75 (4): 643–669

Forbes K., Rigobon R. (2002) – “*No Contagion Only Interdependence: Measuring Stock Market Co-movements*”

Gallo M.Giampiero, Otranto Edoardo (2005) – “ *Volatility Transmission in Financial Markets: A New Approach*”

John M. Griffin, Jeffrey H. Harris, Selim Topaloglu (2000)–“ *Investor Behavior over the Rise and Fall of Nasdaq*”

De Paul W. Glimcher, Colin Camerer, Russell Alan Poldrack (2008), *Neuroeconomics. Decision making and the brain*”

Mark Grinblat, Matti Keloharju (2000) –“ The investment behavior and performance of various investor types: a study of Finland's unique data set”, *Journal of Financial Economics* 55

G.H.Ionescu, S.A.Trică, R.D.Vilag, E.Radu (2008) -“*Contagion versus Interdependence on Financial Markets*”, Special issue of review of Management and Economical Engineering, vol 7., nr.7

Kaminsky G.L., Reinhart C.M. (2000) – “*On Crisis Contagion and Confusion*”

Mody A., Taylor M. (2003) – “*Common Vulnerabilities*”

Prechter, Robert R., Jr. (2001) - "Unconscious Herding Behavior as the Psychological Basis of Financial Market Trends and Patterns," *Journal of Psychology and Financial Markets* (now *Journal of Behavioral Finance*), vol. 2 no. 3, pp. 120-125.

Zur Shapira, Itzhak Venezia,(2000) – “Patterns of behavior of professionally managed and independent investors”, USC Marshall School of Business

Shiller, Robert J., (2000), “*Irrational exuberance*”, Princeton University Press, Princeton, New Jersey.

R.D.Vilag, G.H.Ionescu, M.D.Ungureanu, I.Vasile - „***Contagion causes – rational or irrational behavior***”, 16<sup>th</sup> International Economic Conference – IECS 2009 „Industrial revolution, from globalization and post-globalization perspective”, Universitatea Lucian Blaga – Sibiu 7-8 Mai 2009, ISBN 978-973-739-775-1

Walti Sebastien (2003) – “*Contagion and interdependence among Central European economies: the impact of common external shocks*”

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