

## Analyzing the Market Concentration of the Romanian Capital Market

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**Abstract:** *The market concentration is an important issue for the competition and supervision authorities, as they are entitled to find the proper measures assuring the stability and fair competition of the markets. In this article, we analyze the market concentration of the Romanian capital market, using the market share of every intermediary, for the 2007-2014 time period. We compute the concentration ratios for the first 4 and 8 largest intermediaries, finding that the Romanian capital market is not concentrated. But the recent trends show early phases of concentration, as the number of brokerage houses decline and the trading activity become concentrated in the first 8 brokerage houses.*

**Keywords:** capital market, concentration risk, HHI index.

**J.E.L. classification:** C13, C18, G24

### 1. Introduction

Re-launched at the beginning of the 90s, when the first form of the Financial Supervision Authority was set up, the Romanian capital market began its activity in 1995 and had an uneven development, mirroring the tormented developments of the Romanian economy. The non-linear development is given by the total annual trading value, as well as by the daily average trading value, showing important turbulences in the domestic economy and in the international environment, a sign of a market highly dependent on external capital.

The set-up of the stock exchange came with the launching of numerous traders. In time, the number of intermediaries decreased, as the effects of the decisions made by the authorities to privatize the state owned companies, including through the Mass Privatization Program, which led to the listing of many companies on the RASDAQ market, were fading away. The macroeconomic environment became better once Romania joined the UE on January 1st 2007, the foreign investors being more and more interested in the Romanian capital market, which led to an increase in the foreign capital value and opened the way for foreign intermediaries on the Bucharest stock exchange market.

The evolution of the Romanian stock market during 2007-2009 was investigated by Panait and Lupu (2009), and the authors concluded that the high impact that it took from the 2007 financial crisis was a result of its low level of development/maturity.

In the present study, statistical methods to analyze the concentration on the stock exchange market are used, namely the concentration rate and the Herfindhal-Hirschman index, applied to the data reflecting the annual trading volumes intermediated by each of the companies active on the Bucharest Stock Exchange during 2007-2015. The results show that the brokerage market is not yet a concentrated but the dynamics of the last 3 years indicate an accentuated tendency of concentration, also due to the reduction of the number of intermediaries and increase of the top five trading values.

## 2. The theoretical background for market concentration analysis

The worldwide economy development generated the proper conditions, both domestically and later on internationally, for certain companies to gain a dominant position on the market, which they used to control the prices of products/services. These practices caused major price distortions resulting in big losses for the buyers, thus raising awareness of the state authorities about the need of limitation of a company's dominance over an economic sector. One of the most important early warning against unfair competition was included in the Sherman Act („competition law”), passed by the US Congress in 1890, defining anti-competitive activities. The spirit and the essence of this legal framework was later on internalized by most of the world states legislations in the late XX – early XXIst centuries, providing for a proper competitive environment in various sectors of the economy and setting the theoretical and legal grounds for the regulating and control bodies in the field of competition.

In order to evaluate potential non-competitive behavior of companies acting on the same market, some of the best tools are the concentration rate analysis and the calculation of Herfindahl-Hirschmann index (HHI), based on which a table of the concentration degree can be drawn. In a market with N players, we attach a  $S_i$  market share to each of the N companies, meaning that the sum of all the companies' market share equals 1. In practice, the most used concentration ratios are those pertaining to the first 4 and to the first 8 companies in terms of market share, identified as CR4 and CR8[1]. Depending on the result, if the result is between 0% and 50%, the market is labeled as having a low degree of concentration (ranging from perfect competitiveness when the result is 0% to oligopoly when the result is close to 50%). If the concentration ratio is between 50% and 80%, the concentration is medium, and between 80% and 100%, the market is concentrated (the extreme is at 100% defining a highly concentrated oligopoly).

For HHI, the formula is  $HHI = \sum_{i=1}^N S_i^2$ , where  $S_i$  is the market-share of the  $i$ 's company (a percentage or absolute value, associated to the related market share of each company). When the HHI value is in the range (0,100), the market is competitive, when the value is between 100 and 1500, the market is not concentrated, between 1500 and 2500 the market is moderately concentrated, and when the value exceeds 2500, the market is highly concentrated.

In order to evaluate the market concentration degree alternative measures were applied, such as the Hall and Tideman Index [2] and the Entropy Concentration Index, defined by Jacquemin [3], each of them with advantages and disadvantages in terms of practical application.

These measures are extensively applied by the competition oversight authorities worldwide to assess the behavior of the companies acting on a specific market, in order to spot non-competitive threats. Once identified these behaviors, the authorities can enforce legal measures in order to consolidate the market and reduce the degree of concentration, either by limiting the development of the main market players or by reducing the entrance barriers thus allowing new competition to easily access the market. Based on the concentration value of the market, one can assess the possible impact of one of the dominant companies exit from the market, an essential indicator for the regulator whose job is to reduce the systemic risk [4].

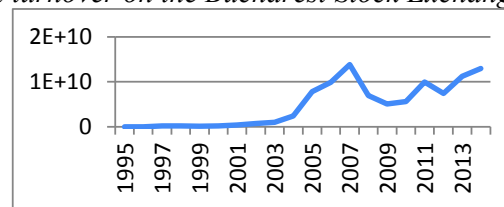
One relevant use of the above mentioned indicators is for the financial market, either applied to a group of countries (the evaluation performed by the Bank of International Settlements on the credit risk) or to an individual country (an evaluation on Germany [6]). In the case of Romania, the Competition Council applies these methods to identify and assess economic concentration, resulting from mergers and acquisitions in various fields (oil and gas, telecom, financial sector). The assessments of the concentration degree take into

consideration indicators such as the number of active players, the degree of concentration, innovations or transparency of the sector [7].

### 3. Romanian capital market concentration analysis

Re-established in the early 1990s, after a 50 year break, the institutions pertaining to the Romanian capital market draw the attention of wide categories of investors, both Romanian and foreign, with different backgrounds and knowledge of the market mechanisms. The reforms in the domestic economy, marked by the beginning of the privatization of state-owned companies through various methods, such as the Mass Privatization Program, which led to the set-up of the RASDAQ market (supported by the US government). The listing of these companies on the stock exchange increased the interest of the Romanian and foreign investors for the Bucharest Stock Exchange (BVB) leading to a significant increase in the annual turnover and of the daily average turnover at the beginning of 2000.

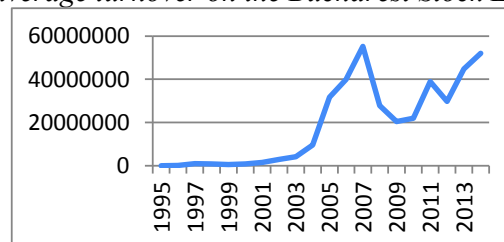
Figure 1 Annual turnover on the Bucharest Stock Exchange (lei, 1995-2014)



Source: www.bvb.ro

The evolution of the annual trading value shows a slow development during 1995-2000, but, with the starting of Romanian accession negotiations to the European Union and the progress achieved in this area (*that led to the accession to the European Union, beginning January 1<sup>st</sup> 2007*), the interest of the foreign investors for BVB became more pregnant, resulting in a significant increase in the total annual turnover. The turbulences on the international financial markets had a direct impact on the BVB's turnover, by a major plunge during 2008 and 2009. After 2010, we can see an increase in the total annual turnover, without attaining the maximum values registered in 2007, before the recent financial crisis. A similar pattern had also the daily average turnover, starting from a minimum of 50 lei (in 1995), to a maximum of 55,21 million lei in 2007, the highest level so far, even though - during 2011 -2014 – big companies were listed on the BVB (among which Fondul Proprietatea, the biggest closed end investment fund in Romania, with 4 billion euro under management, or the Electrica, as a result of an IPO through which shares in total of more than 400 million euro were sold).

Figure 2 Daily average turnover on the Bucharest Stock Exchange (lei, 1995-2014)

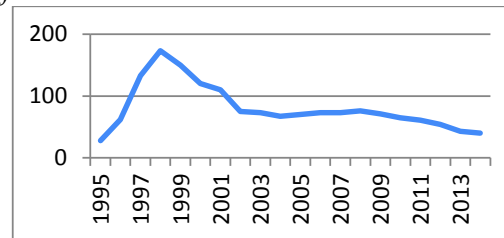


Source: www.bvb.ro

The positive sentiment generated by the re-launching of the BVB can be seen also in the number of intermediaries that were set up or entered the Romanian capital market in order

to become a player on this market. In the first year of the BVB existence the number of the intermediaries was only 28, but in the following 3 years, their number surged, to a maximum of 173 brokerage houses, while during the economic crisis occurred in Romania in 1998-2000, the number of these companies went below 100. In 2002-2008 time frame, the number of intermediaries remain relatively stable, even though this period was marked by very good trading activity (for instance, in 2007, at the highest market activity so far, the number of intermediaries was 73). Following the financial crisis that started in 2008, as the trading activity and daily turnover were shrinking (that lead, implicitly, to a decrease of the intermediaries' fees), the number of the brokerage houses decreased constantly, up to 40 companies (at the end of 2014), as shown by the following table:

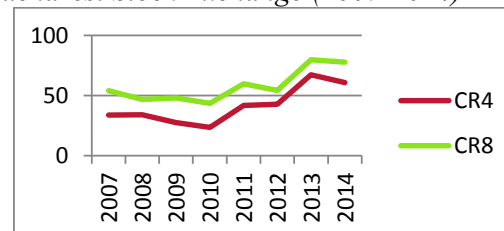
Figure 3 Number of intermediaries on the Bucharest Stock Exchange (1995-2014)



Source: [www.bvb.ro](http://www.bvb.ro)

The decrease in the number of intermediaries operating on BVB resulted in a concentration of the brokerage market, fact that will be assessed using the data reflecting the activity of each intermediary, in 2007-2014. In order to analyze the concentration, we use data for the annual trading activity of each intermediary on BVB, collected from the BVB site ([www.bvb.ro](http://www.bvb.ro)). Afterwards, we compute the concentration ratio and the Herfindahl-Hirschman index (HHI), using the market share of every intermediary in the 2007-2014 time frame. We start by calculating the concentration ratio, for the most widely used time periods, namely CR4 and CR8, representing the cumulative market share of the first 4 and respectively 8 largest intermediaries, as measured by the annual trading activity. The two calculated values are represented in the following figure:

Figure 4 Concentration ratio for the 4- and 8- most active intermediaries on the Bucharest Stock Exchange (2007-2014)



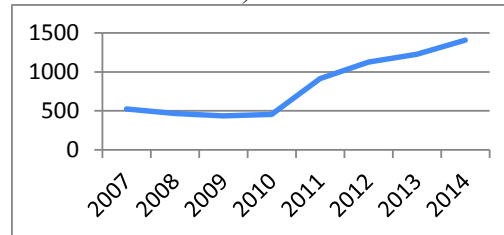
Source: [www.bvb.ro](http://www.bvb.ro), own calculation

Analyzing these 2 measures, we can observe that, during the economic crisis in 2008-2010, concentration ratio decreased, which means that the competition environment in the brokerage market improved (as the market became less concentrated). This evolution occurred during an era of shrinking trading activity on the BVB marked by a moderate decrease in the number of intermediaries (with only 10.95%, from 73 at the end of 2008, to 65 at the end of 2010). But starting 2010, a concentration process started, as can be seen by the fact that the two measures CR4 and CR8 surpassed the 50% threshold and, to the final of the

analyzed period (*in 2013*), they got close to the 80% threshold, a level at which the market is considered to be concentrated.

Similarly, using the collected data, we compute HHI index and we find that its values range from a minimum of 434.9401 (*in 2009, at the peak of the economic crisis*) and a maximum of 1407.402 (*in 2014*), as shown by the following figure:

Figure 5 HHI index for the intermediaries on the Bucharest Stock Exchange (2007-2014)



Source: [www.bvb.ro](http://www.bvb.ro), own calculation

Analyzing this figure, we can see that the brokerage market in Romania is still un-concentrated. As we can observe, the analyzed period can be divided in two sub-periods, in terms of the market concentration trends. So, during 2007-2010, the concentration in the market was weakening, mainly due to the economic crisis occurrence in the last part of the interval. During 2011-2014, as the number of intermediaries decreased up to 40 (*at the end of 2014, form a number of 65, at the end of 2010*), the market became more concentrated and entered on a path of accentuated concentration, as the maximum value of the HHI index was attained in 2014 (a value of 1407.402, *close to the conventional threshold used to delineate the moderate concentration status of a market*).

#### 4. Conclusions

Using the data for the period 1995-2014, we studied the total annual turnover on the Bucharest Stock Exchange on the shares and investment units segments of the regulated markets (*the most important financial instruments traded on BVB*), the annual daily average and the number of intermediaries. Using the data for a shorter interval, 2007-2014, related to the trading activity of each intermediary as a percent of the total annual trading activity (*or market share for every brokerage house*), we computed the concentration ratio for the first 4 and 8 largest companies and the HHI index. Analyzing these indicators, we can conclude that the brokerage market is not yet concentrated, but, after 2010, a concentration trend occurred, with an accelerated pace. This trend is generated, among others, by the reduction in the number of active intermediaries at the Bucharest Stock Exchange and the lack of positive developments in the consolidation of the Romanian capital market (*characterized by a small number of attractive issuers*). These results can be useful to a wide category of users, ranging from competition and supervision authorities (*tasked to monitor the possible concentration events*) to individual investors, that want to have an insight on the Romanian capital market.

#### 5. Acknowledgement

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