MEASURING INDUSTRY CONCENTRATION OF EQUITY INVESTMENT FUNDS IN THE REPUBLIC OF CROATIA

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Abstract

The overall objective of this work is to investigate further development of the capital markets in the Republic of Croatia with a focus on industry concentration of equity investment funds with a public offering, and the changes that they have experienced since 2004 to date. Visage the Croatian capital market has changed in this period and therefore the aim is to measure investment capital concentration in the industry of equity investment funds. It is required to determine if in industry is perfect equality present or if the investment capital is directed only to a small number of large funds. Uncertainty, distrust, and a great level of risk are characteristics of the capital markets in development, such as Croatia. The aim is to determine whether the size of net assets of investment fund puts safety at the investor, and thus encourages investors to future investment in the fund, which generally speaking, increase the concentration of capital only in funds with a high value of net assets.
Process of transition in the Republic of Croatia affected the development of capital markets and the emergence of new participants, namely an open investment fund. The foundations for long-term sustainable growth of the Croatian capital markets are currently still extremely unstable, and development of the market itself is tied to a sense of distrust and insecurity of its participants. It is necessary to investigate, in poorly developed capital market, if investors perceived greater safety of investments in large funds, which are the symptoms of a large concentration of capital in a small number of funds. We will also investigate whether the development of capital markets leads to a reduction of industrial concentration. Research and hypotheses are focused on the industry of equity investment funds with a public offering in the Republic of Croatia.

JEL classification: O16, D81

Keywords: Industry concentration, Equity funds, Open investment funds, Herfindahl-Hirschman index, Gini index

1. Introduction

In international practice, we meet a few different terms used for the purpose of defining the investment funds. Frequently division, which recognizes a regulatory framework, and is characteristic for the majority of countries in

which those institutions operate, is the distinction between *close-end* and *open-end* types of investment funds. Such a categorization has found his place in regulatory framework in the Republic of Croatia, but it is necessary to point out the existence of another type of investment funds that are regulated by special law (Zakon o obveznim i dobrovoljnim mirovinskim fondovima, 71/07), which are Public Pension Funds.
In Croatia, the development of investment funds can be associated with the end of the nineties, and with the emergence of investment privatization funds, and with the development of capital markets. Distrust, uncertainty and pessimism that was at the beginning of the development of capital markets today is replaced by optimism and confidence with the investment funds as one of the main participants. In 2007 the Republic of Croatia has 100 open investment funds (HANFA, 2007., 23) whose net assets amounted to 30.056,24 million kuna (HANFA, 2007., 24), while there is nine closed-end investment funds whose net assets amounted to 3.700 million kuna (HANFA, 2007., 26). In the last three years the largest development and growth of net assets recorded an open investment funds whose net assets grew by 517%[56]. In early 2005 there are 37 active funds, while the number in 2007 increased to 83 funds, while in 2008 we have 107 registered funds. Analysis given the data we can conclude that this sector of the last decade intensive developing, this leads to increase in value of net assets of funds and the emergence of new funds (entry of new funds in the industry). Following the above-mentioned hypothesis (H1) can be set:

H1: Development of capital markets leads to a decrease in the Industry concentration of equity funds.

The intensity and direction of development of equity investment funds is closely associated with the development of capital markets. With development of capital markets investors confidence in the institutional investors and the oversight institutions is growing, which assumes uniform distribution of capital to all market participants, including the equity investment funds. Balanced distribution of capital for results has the decline of industrial concentration of equity investment funds. Cause of the fall of Sector concentration, which is caused by the development of capital markets, can be explained by the entry of new funds in the industry.

Average Croatian investor prefers classical form of investment, and understands funds as extended palette of banking products (which does not have to wonder, because all big investment funds belong to bank funds). From the previously

[56] At the end of March 2005 the net assets of open-end investment funds amounted to 5,8 billion kunas, while in late 2007 it reaches an amount of 30 billion kunas.

mentioned we can infer how this segment of the market, in the last few years, has promoted and contributed to the development of capital markets. Because of the dynamics of establishment of new funds and the large growth of their net assets, this work will explore the issue of distribution of investment potential, which is based on measurement of the size of the net assets of equity investment funds. The intensity of Industry concentration of equity investment funds with public offering and change the intensity of concentration was measured from March 2004 to[57] April 2008, the author will try to connect a change of concentration with the development of capital markets.

2. Equity funds

Equity fund is a mutual fund that invests principally in stocks. It can be actively or passively managed. Portfolio of equity funds mainly consists of shares of different companies. Among them we can run on the large differences that include funds whose portfolios are concentrated in fast company (characteristics of transition countries - such as Victoria Fund in the Republic of Croatia), in the smaller companies market capitalization, in the shares of companies in certain industrial branches, or in shares of companies from different geographical regions.

Equity funds are very risky for investors because they are subject to large price oscillations, but due to the increased risk they offer the possibility of greater return. Equity funds can use diversification in several ways, depending on the desired exposure to risk. The fund, which are seeking the greater stability, or lower exposure to risk in his portfolio will choose the majority of *blue chip*[58] stocks (for example in Republic of Croatia we have the *Platinum blue chip* fund), while funds which are seeking more potential and greater return, your portfolio will structure of the shares, which have long-term growth potential, and which are low-valued in the capital market.

Equity funds are meant for long-term investments, that is for most patient and the bravest investors. The reason for this lies in the behavior of markets. Every market shares has a growth phase and phase of correcting the price, after which follows the re-growth. Investors may not stagger the two digit correction value and they must resist of the unthinking decision on the sale of shares in the short term, because buying and selling shares on the majority of equity funds in the Republic of Croatia is not cheap and it is 3-4%. In the short term each market has a phase of stagnation and growth phase of the value of shares, but in long

[57] Concentration will be measured twice in four years observed, or in eight time periods
[58] Shares of large and stable companies. These stocks have low exposure to risk of capitalization (the risk of reducing the value of the shares), paid a dividend regularly, and the risk of bankruptcy is almost negligible

term market trend is upward. Market cycles (stages) are unpredictable and it is not possible to determine either the beginning or duration. For that reason, investor should hold shares in the equity fund for a very long time (at least three to five years), because we must include as many cycles as possible. When period of investment is long, it is likelihood that the final result of investment is in line with the average yield of the fund.

Market shares in the last hundred years, achieve with two-digit average annual growth, regardless of a few longer periods of stagnation. Some segments of the market shares, when the value of dividend payments is activated, recorded growth of 15% on annual level.

It is necessary to understand that higher risk, and high variability between the highest and lowest value in a period, is not necessarily a negative characteristic of equity fund (depends on the character of the investor and his aptitude for risk), because without the higher risk, or major changes of value, it is not possible to achieve higher yields. The average annual contribution of equity funds in the world is 15%, indicating that the patient investors can realize a *very decent* return.

Equity funds in the Republic of Croatia, who have invested in global capital markets made modest result. As an example we can take *ZB euroaktiv* (http://www.hrportfolio.hr) who in four years and five months of existence has achieved average annual yield of 0,29%. Contrary, the funds that have operated in the domestic market, have created a substantial and difficult to renewable offerings, who have changed in the past few months because of the global crisis on the capital market. Thus Ilirika fond (http://www.hrportfolio.hr) in the four years of existence has achieved average annual return of 20.09% (in 2004 average annual return was 43,2%).

As already was told eqiuty funds are intended for long-term investment, as a good example we can use already mentioned Ilirika fund. Front-end fee in Ilirika fund is three percent, and depends on the amount that is paid. In the world the front-end fee in equity funds is mostly in the range of three to five percent. Fee is not so high if we compare with the average annual yield of fund, which over the five years of its existence, amounted to over twenty percent.
It is necessary to mention that during 2002 and 2003 the value of shares of certain equity funds fall dramatically by twenty percent (for example Victoria fund). In these times impatient and imprudent investors could lose in just a few months, twenty percent of their investment. This is a good example of how investment in the equity fund should be oriented in the long term, because the market has a long-term trend growth, and the investor must be patient and not act rashly, and hurry.

3. Branch concentration

Coefficient of concentration is generally measured for four largest enterprises within the branch, although it can be calculated for four, six, eight and more largest enterprises. The calculation procedure of the coefficient of concentration is based on the sum of individual market shares of four largest enterprises within the branch. In the case of perfect competition, the coefficient is lower as the number of enterprises is higher, respectively as the lower the coefficient is, the concentration is weaker.

Herfindahl index (Herfindahl-Hirschman-Index-HHI) measures concentration rate on the market by adding squares of market shares of all enterprises present on the market. Its advantage among other concentration indicators is in the fact that it takes into consideration market shares of all enterprises within the branch and it is highly sensitive regarding differences in their individual market shares, i.e. it gives larger ponder to shares of larger enterprises and quadrates their market shares (either in the form of percentage or coefficients). As larger differences in size among enterprises are, the higher is the Index value. Maximal value of the index is 1 (1^2) or 10.000 (100^2) if we take percentage as a measure for market share. It is assumed that the market with Herfindahl-Index value lower than 0.1 (1.000) is unconcentrated, market with the Index value between 0.1 (1.000) – 0.18 (1.800) is moderately concentrated, while the market with the Index value higher than 0.18 (1.800) is highly concentrated (Call &Holahan,1983, 314-315)

The coefficient of variation is a relative measure of dispersion; it divides standard deviation by the arithmetic mean, and afterwards multiplies its quotient by 100. Actually, coefficient of variation represents a percentage of standard deviation share in arithmetic mean, and it is independent on measure units. It equals zero when all members of the numeric array are equal, because in that case standard deviation equals zero.

Gini coefficient is a relative measure of concentration, calculated on the basis of Lorenz curve. It is based on numeric value of the share of area in between Lorenz curve and straight line of uniform distribution in total area under the straight line of uniform distribution Its value can vary between 0 and 1, whereat 0 represents total absence of concentration (condition of perfect competition), 1 represents complete concentration (absence of competition). As smaller area under Lorenz curve is, the higher is the concentration, and vice versa. When Gini coefficient equals zero, concentration on the market doesn't exist, and Lorenz curve is identical to straight line of uniform distribution. In the case when Gini coefficient equals one, market is in condition of complete concentration (complete control on this market has only one enterprise - monopoly), and Lorenz curve will be the most distant from the straight line of uniform distribution.

3.1 Branch concentration of equity funds

Among all observed investment funds, equity funds have been developed the most. On 30/09/2004 branch of investment funds comprises eight equity funds controlling assets in value of 186,9 millions of Croatian kunas, respectively equity funds control minimal assets in that period, in comparison to other categories of funds. In the last observed period, on 31/03/2008, branch comprised thirty-five equity funds managing the assets in the value of 8.178,9 millions of Croatian kunas, what represents the increase of 4.376,08% in the period of three and a half years. Presence of correction at Croatian capital market, which started in October 2007, caused asset decrease in balanced and equity funds. Value of the equity funds assets have reached its maximum in the seventh observed period, before correction, on 30/09/2007, and it amounted 13.649,9 millions of Croatian kunas, what represents the increase of 7.303,31% in respect to initial period. Correction leaves its mark on the equity funds market, leading to the decrease of assets. At transition between seventh and eighth observed period, equity funds lost 40,08% its assets partly because of the correction, partly because of mistrust of investors who pulled their assets out of funds and invested them in less risky and solvent products (one of them are cash funds).

Shifts of Gini coefficient and Herfindahl-Index are not equal neither it this example. The reason for these differences is also the fact that the most of new participants, funds, entered this branch within the period of three and a half years. Author thinks that Herfindahl-Index shows the most relevant picture of the concentration in the economic branch. Herfindahl-Index is insensitive on entering of new enterprises into the branch, and shows more attention to enterprises with large shares because it squares them (as the larger amount of specific share in the branch is, the larger is its square). This can be noticed if we compare shifts of Herfindahl-Index and coefficient of concentration of 6 biggest enterprises in the branch (as shown in the table 4). They are both shifting in the same direction, what explains the attention of Herfindahl-Index given to large enterprises, funds.

Table 1: Concentration of equity funds[59]

Date	Gini coefficient	HHI	Coefficient of variation	Coefficient of concentration of 4 largest funds	Coefficient of concentration of 6 largest funds	Coefficient of concentration of 8 largest funds
30/09/2004	0,41552969	1.989,74	76,93%	85,98%	93,85%	100,00%
31/03/2005	0,46768292	2.241,96	89,08%	84,52%	94,99%	100,00%
31/10/2005	0,59549331	2.151,13	125,75%	80,49%	89,32%	95,38%
31/03/2006	0,40932727	1.209,16	75,62%	62,71%	76,38%	87,34%
30/09/2006	0,49891303	1.271,49	95,25%	60,37%	79,50%	88,78%
31/03/2007	0,60641627	1.428,05	125,32%	70,84%	80,45%	88,92%
30/09/2007	0,69600481	1.352,63	158,65%	68,90%	77,60%	84,33%
31/03/ 2008	0,73699537	1.245,40	183,27%	63,76%	73,66%	81,10%

It can be concluded that the branch of equity funds belongs to moderately concentrated branches, since the value of Herfindahl-Index is between 1.000 and 1.800, with the exception of first three periods when the branch was highly concentrated. Therefore, the development of capital market leads to the decrease of concentration, so the **hypothesis is accepted.**

Conclusion

Gini coefficient and coefficient of variation for all categories of open investment funds correlate positively with Herfindahl-Hirschman-Index, with the exception of those periods where significant number of new funds entered the branch. Since Herfindahl-Hirschman-Index is insensitive to accession of new funds into the branch, it is considered as the most reliable measure of branch concentration. Branch dynamics caused the emergence of new funds and their accession into the branch, what additionally complicates the analysis of branch concentration. Therefore the other measures of branch concentration, in analyses set in the thesis, only facilitate interpretation of general conditions and can’t be applied to analysis of branch concentration without Herfindahl-Hirschman-Index.

Within the branch of equity funds, which strongly depends on capital market development, the gradual decrease of branch is also registered. Herfindahl-

[59] Calculated by the author on the basis of net assets value of equity funds available in: Galinec, J., ed.: Publikacija o investicijskim fondovima, *Investicijski fondovi*, MZB, Zagreb, November 2004 – April 2008

Index, as well as the coefficient of concentration related o four largest funds, gradually decline. In the first observed period branch was highly concentrated, but in time concentration declines and the branch becomes moderately concentrated.

In countries with developed capital market, such as European Union and USA, branch concentration, measured by the coefficient of concentration of five largest investment funds in the branch, has the value around 18% (Otten; 2002, 30), what is significantly lower than the value in the Republic of Croatia. Control of investment fund branch by small number of large funds “can be the cause of negative consequences on whole branch efficiency“ (Otten; 2002, 30). These funds would be able to control market what would make accession of new investment funds into the branch, and the possibility of market manipulation will be opened.

Furthermore, according previously mentioned facts regarding results on branch concentration research, as well as regarding concentration level at highly developed capital markets (EU and USA), it can be concluded that lowly developed capital market results in emergence of low number of equity funds with high concentration of net assets. Therefore, when the capital market is developing, the branch concentration is slowly decreasing. The **hypothesis is accepted**. Accordingly, in the future it can be expected that, as capital market will be developing, new equity funds will enter the branch and sustained distribution of investment capital among them will be achieved. It can be assumed that branch of equity funds will gradually be transferred from concentrated into competitive branch.

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