

THE MANAGEMENT OF A PORTFOLIO IN THE CONDITIONS OF ECONOMIC CRISIS

ILIE RĂSCOLEAN, CLAUDIA ISAC, ROBERT SZABO *

ABSTRACT: *The need for money is one of the main financial goals of any company. Such needs have led to specific segments of demand and supply that demand for money and the money supply, in particular capital. Were created following specific markets: financial markets, with specialized division of labour in money markets and capital markets. Capital market is to supply and demand for medium and long term capital, with the same role as the financial market in general, having featured the long duration of maturity. From the viewpoint of the agents involved two types of markets that is the primary market, which are negotiated in the presence of primary and secondary securities issuer, that and his participation, and market secondary market investors, financial flows are directed to a investor to another. Institution typical secondary capital market is the stock market. Coverage of financial instruments, according to EU directives in force, is broad, including both tradable capital market instruments and money market instruments. Investment is defined in national accounts as gross fixed capital formation is the value of durable goods purchased by the production units to be used at least one year in production processes. The investment flow is therefore measured over a period, often a year, noted that the yield from an investment is proportional to the risk assumed. Investing in shares of the opportunity to diversify revenue and achieving consistent earnings, earnings from sales and purchases of shares may be significantly higher earnings from a bank.*

KEY WORDS: *capital market; crisis; loss; stock exchange; shares; portfolio; portfolio management*

JEL CLASSIFICATION: *G01, G11*

1. INTRODUCTION

Any modern economy, competitive and able to adapt to current requirements of globalization can not be conceived without the existence and functioning within it

* *Assoc.Prof., Ph.D., University of Petroșani, Romania, ilierascolean@yahoo.com
Assoc.Prof., Ph.D., University of Petroșani, Romania, isacclaudia@gmail.com
Economist, University of Petroșani, Romania, robert.szabo@yahoo.com*

an efficient capital market. Capital is the lifeblood that feeds the economy and the channels through which run the sap must be properly dimensioned for sufficiency and economic progress should not be questioned. Capital market in economic development complexity brings some benefits of which we mention: the efficiency, competitiveness and creditworthiness of the financial system. Capital market in any modern economy, a viable alternative financing.

In Romania, the capital market formation, regulation and its development is a necessity in the complex process of creation and functioning of market economy mechanisms. The role of stock exchange in an economy is amplified as the diversification of products and exchange transactions, evolving from a simple "meeting place of demand and supply of capital to cover the complex mechanisms that allow the risk of loss from fluctuations of the securities, and increase return on investment and capital market.

Degree of interest which raises capital market in Romania for a growing number of potential investors, owners of available resources that want to exploit as efficiently and cost-effectiveness ratio of risk, a growing last year. This determined the capital market issues and the management of a portfolio of securities, to take up increasingly more important theoretical and practical training of future economists. Capital markets are all mechanisms through which relationships and capital available and dispersed in the economy are managed by public and private entities the applicant any funds. One of the main structuring of capital markets is that market shares in primary market, secondary market respectively. Fundamental institution of secondary market capital stock of securities. Subject to exchange is the trading of financial securities, which are documents certifying that their owner holds a right to a certain value. They are also called securities. Moreover, financial instruments traded on capital markets can be grouped into primary securities and derivatives. Primary products of the capital market are shares, bonds and specific products arising from the rights conferred by shares (preference rights, and warrants the award). Derivatives are represented by: futures, including similar contracts with final settlement funds, options with the underlying securities, equity, money market instruments.

At this time the world faces a crisis that had an outbreak, or the epicenter in the United States and then crossed the U.S. border and is now being felt around the world from Europe to Asia. She emerged from a part of the financial system dizziness, witch led to a major drop that affected and could continue to affect the entire banking system in the whole world. It took the four oldest investment banks to be bought ridiculous amounts or declaring bankruptcy as a giant insurance industry witch has been taken by the State, as two old mortgage credit institutions to enter bankrupt and the federal government to announce a rescue plan 700 billion dollars, to understand the mechanisms crisis.

Global economic crisis is amplified each day and Romania felt that economic recession, which economists from major global and unable to find an antidote. And the man will feel the crisis in the companies in Romania. On the one hand those that cover loans for development or other needs work, will awaken to the inability to repay these loans, while the possibility of undue payment of suppliers, especially for those who have made payments currency. Moreover, as global stock markets collapse and the

Bucharest Stock Exchange lost a few days over two billion, the companies can not count on them as sources of funding, another option to cover financial needs is totally blocked. The first signal was registered by the capital market, which has experienced since the middle of last year, with the withdrawal of major foreign investors from all emerging markets.

2. THE PROBLEM FORMULATION

In current conditions the following problem arises as affected Bucharest Stock Exchange and as an investor's portfolio is affected? Since reopening, has seen a continuous development. Currently, the BSE listed about 60 companies, including SNP Petrom, the Romanian Bank for Development, the five financial investment companies, Transylvania bank, BRD, etc.

October 8, 2008, "Black Wednesday". Loss of 2.5 billion dollars per minute. The financial crisis has affected U.S. and Romanian capital market. On Oct. 8, for the first time in history, trading session of the Bucharest Stock Exchange was closed. Transactions were suspended due to a fall over the critical threshold of 15%. Since its opening meeting, the BET index lost more than 14.43 percent. Transactions at the Sibiu Commodities Exchange were also suspended. Transactions were postponed until the end of the day. Then president, Farmache said that this measure was taken stock of the situation other international market. Since the beginning of the financial crisis, the BSE has lost tens of billions of Euros. In a couple minutes of trading, losses were 2.5 billion, so BSE has suffered greatly from this economic crisis.

Regarding its portfolio investors these securities whether individual investors whether corporate investors. A simple definition of the portfolio shows that it represents a number of securities held by an operator of a legal person if we talk about institutional investors or by an individual for an individual investor. According to the dictionary of economics, a portfolio consists of physical assets or money held by a financial agent in positive or negative amount, the agent who determined on one hand but the size and composition of its portfolio. An efficient management of the portfolio may not have a foundation without taking into account the issue of profitability and risk of individual assets.

Profitability is sometimes defined as earnings as a result of holding a security over a certain period of time; in this case one can speak of a return in absolute terms.

3. SOLUTIONS / CASE STUDY

To try to give a solution we developed the following question above case study, we consider a portfolio of securities consisting of shares of four companies listed on stock exchange, namely: SIF1 SIF Banat-Cri SA, SIF2, SIF Moldova SA, Transylvania Bank SA TLV, BRK SSIF Broker S.A.

Present portfolio will consist solely of shares of four companies listed above; they entered with different weights, each portfolio composition. The four companies were selected, not random but due to the positive performance they had realized on the capital market. Time management is considered: 02/15/2010 to 07/30/2010, for 6

months. The market followed has been the odd-lot order-driven type. The Odd Lot Market (odds), block trading is an action, while the maximum is 99 shares. Evolution of the four actions within the portfolio composition, the last 12 months can be seen on the graphs below: The Ox axis is represented during the months and Oy axis are the values recorded. The information is provided by the Bucharest stock exchange. To manage portfolio consisting of shares of four companies listed on BSE, following aspects should be considered: profitability and risk of these securities, dividends given by the four companies, shares in the share portfolio, the amount originally invested, the amount obtained at the end of management, portfolio profitability, ways to combat potential losses identified, proposals to diversify the portfolio to hedge risk. Below is based on the theory of portfolio and formed the above issues, a general model for managing a portfolio of securities.

To manage the portfolio of securities constituted the following steps:

- I. It shows the portfolio composition;
- II. It establishes the amount originally invested and its value at time t_0 , when the establishment and the quantity (number) of shares was incorporated;
- III. Determine the profitability of actions that make up the portfolio;
- IV. Determine risk activities;
- V. determine profitability and return on portfolio risk and risk to its component actions;
- VI. It highlights the value at the end of the survey period, t_1 . It should be noted that these steps are not mandatory, and not the standard steps, tracking them is not mandatory, and if the management of complex portfolios, or portfolios faced with inputs and outputs of sum (cash-flow positive and negative sites) management is inconclusive after the steps listed above. However the portfolio of actions that follow it is simple without further input or output amounts, and management steps have been developed and adapted for the study of this portfolio.

Step I. This step defines the portfolio and it's composition, so the portfolio has in its composition shares of companies listed on the Bucharest Stock Exchange, companies included in the basic category and the composition of the BET and BET-FI. These are: TLV, BRK, SIF1, SIF2. Share amount of the portfolio invested in each share to the total amount is: TLV - 40% (4000 million), BRK - 30% (3000 million), SIF1 - 15% SIF2 - 15% (by 1500 each).

Step II. Amount originally invested is 10,000 lei. The investor is a person but an individual. The initial value of the portfolio with the collateral was: 10 million lei. There were the following: 10 000 lei of 4000 were invested in shares TLV, which was the purchase price RON 2.00, at that price the investor has bought: $4000 / 2.00 = 2000$ shares, 3000 MDL has been used for the purchase of BRK shares, which had at the time of purchase value of 0.24 lei were purchased at this price $3000 / 0.24 = 12,500$ shares. Of the remainder 1,500 lei were used to buy shares at a price of 1.15 lei SIF1, buying shares is a number of 1304.3 ($1500 / 1.15 = 1304.3$). The remaining 1,500 lei, or bought shares in SIF2, amounting to 1.4 lei $1500 / 1.4 = 1071.7$ shares. The portfolio includes a number of 16,876 shares. Share each share in the total number of shares is 12% shares TLV ($2000/16876 = 0.1185$, and $0.1185 * 100 = 11.85 \approx 12\%$), BRK - 74% SIF1 - 8%, SIF2 - 6%.

Step III. Return actions fall within the portfolio composition can be determined, in this case, simply using the formula:

$$R = (D1 + P1 - P0) / P0 \tag{1}$$

Note that in this case we need to know the value of dividends. This value is shown below. For this portfolio notional amount of the dividend is 0 companies have not paid dividends for the period considered. Return calculated for action TLV: $D1 = 0$, $P0 = 2.00$ and $P1 = 1.45$, so that return results for BRD is $RBRD = (0 + 1.45 - 2.00) / 2.00 = -0.275 * 100 = -27.5\%$. $RTL = -27.5\%$. Value is not too negative in return for these actions. (The purchase price was higher than the selling price, so the investor has lost the original amount invested). Return calculated for action BRK: $RBRK = 25\%$. Return calculated SIF1 action: $RSIF1 = -2.6\%$. Value is not too negative in return for these actions. (Purchase price was higher than the selling price, so the investor has lost the amount originally invested). Return calculated SIF2 action: $RSIF2 = -27.8\%$. Value is negative can not speak for these actions even. (Purchase price was higher than the selling price, so the investor has lost the amount originally invested). So the first steps of the study is apparent that three of the companies listed on the BSE and included in the portfolio are unprofitable, they have the purchase price, higher than sales, and thus brought losses. Step IV. To study exactly how the risk should consider actions to enter into the composition of the portfolio. With the assumption of normality to meet the financial Title profitability analysis, the most commonly used measuring instruments are risk dispersion $\sigma^2 (R)$ and standard deviation $\sigma (R)$.

$$\sigma^2 (R) = \frac{1}{N} \sum_{i=1}^N \left(R_i - \bar{R} \right)^2 \tag{2}$$

$$\sigma (R) = \sqrt{\frac{\sum_{i=1}^N \left(R_i - \bar{R} \right)^2}{N}} \tag{3}$$

The risk determined arithmetically (as determined in a simple way) for the portfolio shares is determined as follows:

- * Dispersion $\sigma^2 (R)$ and standard deviation $\sigma (R)$ have the following values:
- $\sigma^2 (R) = [(-0, 275 - 0,329)^2 + (0, 25 - 0, 329)^2 + (-0,026 - 0, 329)^2 + (- 0,278 - 0,329)^2] / 4$
- $\sigma^2 (R) = 0, 8654$;
- $\sigma(R) = \sqrt{0, 8654} = 0,9302$;
- $\sigma(R)\% = 0, 9302 * 100 = 93,02\%$;

The calculations above has been obtained by the arithmetic mean of the four measures yields calculated above, N represents the number of shares, $N = 4$ and $R = -0.329$. So after we define risk calculations about 93.02%.

Step IV. This step is to identify risk and return portfolio securities. Profitability and portfolio risk while maintaining their structure, assumes normal

distribution corresponding rates of return on future scenarios. It is known that the normal distribution depends only on average and dispersion of the distribution. It is also known that a linear combination of normally distributed random variables is a random variable normally distributed, so the portfolio will have an expected return rate evolving as a normal distribution law of average $E(R_p)$ and mean square deviation, respectively: $R_p \sim N(E(R_p), \sigma_p^2)$. Analytical formulas for calculating the distribution of two parameters, which are called the equations of the portfolio are:

$$\begin{cases} E(R_p) = \sum_{i=1}^n x_i E(R_i) \\ \sigma_p^2 = \sum_{i=1}^n \sum_{j=1}^n x_i x_j \sigma_{ij} \\ \sum_{i=1}^n x_i = 1 \end{cases} \quad (4)$$

where:

x_i = the share of Title I, the portfolio;

$E(R_i)$ = expected average return of Title I,

$E(R_p)$ = average expected return of portfolio p

P = portfolio risk, expressed as variance (scatter) of return;

σ_{ij} = Covariance between securities i and j yields;

n = number of securities in the portfolio.

Level Indicator "covariance" is between $-\sigma_i \sigma_j$ and $+\sigma_i \sigma_j$ with $i, j \in (1, 2, 3, \dots, n)$. to better capture how correlated are two securities i and j, calculate the correlation coefficient:

$$\rho_{ij} = \frac{\sigma_{ij}}{\sigma_i \sigma_j} \quad (5)$$

$$\begin{cases} E(R_p) = \sum_{i=1}^n x_i E(R_i) \\ \sigma_p^2 = \sum_{i=1}^n \sum_{j=1}^n \sum_{k=1}^n \sum_{l=1}^n x_i x_j x_k x_l \sigma_{ij} \sigma_{ik} \sigma_{il} \sigma_{jk} \sigma_{jl} \sigma_{kl} \\ \sum_{i=1}^n x_i = 1 \end{cases} \quad (6)$$

After calculations we obtain:

Return portfolio is:

$$E(R_p) = 0,12 * (0,275) + 0,74 * 0,25 + 0,08 * (0,026) + 0,06 * (-0,278) = 0,134$$

$$E(R_p) \% = 0,134 * 100 = 13.4\%$$

$$P \text{ portfolio risk, expressed as variance (scatter) of return is: } = 0.12 * 0.74 * 0.43 + 0.12 * 0.08 * 0.494 + 0.12 * 0.605 * 0.06 + 0.74 * 0.08 * 0.25 + 0.74 * 0.06 * 0.432 + 0.08 * 0.06 * 0.496 = 0.635, \text{ expressed as percentage: } 0.635 * 100 = 63.5\%$$

while: $X_i + X_j + X_k + X_l =$ a true relationship is checked: $12\% + 74\% + 8\% + 6\% = 100\%$.

Step V. In case this last step involves the portfolio value at end performance management and evidence.

4000 lei invested in shares of TLV, and a total of 2000 shares at time of purchase, when their sale action baseline decreased from 2.00 to 1.45 - so the value of the shares become $2000 * 1.45 = 2900$ Lei, giving a loss of $2900 - 4000 = -1100$ lei.

At the 3000 BRK lei invested in shares at the initial price of 0,24 with a total of 12,500, of shares, the investor sells shares at a price of 0.30 RON / share, its share value at this price is $12\ 500 * 0\ 30 = 3750$ lei, achieving a gain of $3750 - 3000 = 750$ RON 1,500 lei to invest in shares SIF1, purchased at a price of 1.15 – the investor did not win anything because selling price of 1.12, so a number of $1304.3 * 1.12 = 1460.8$, a loss of 1460.8 to 1500 = -39.18 lei. If the investor buys shares SIF2 Moldova 1071.7 shares at a price of 1, 40 and sell the same number of shares at a price of 1, 01 recorded as a loss: $1.01 * 1071.7 = 1082.8$ so loss from 1082.8 to 1500 lei originally invested = 417.2 In the final portfolio value is: $2900\ 3750\ Ron + 1082.8\ 1460.8\ RON = 9193.6$. This is the final value of the portfolio which means that the facade of the original value of 10,000 lei a loss of 10 000 to 9193.6 = 806.4 lei (RON).

4. CONCLUSIONS

The following case studies on portfolio consisting of shares of four companies listed on the Bucharest Stock Exchange, presented above (TLV, BRK, SIF1, and SIF2), several conclusions can be drawn, and the most important are presented below. Amount originally invested was 10,000 lei and the management obtained at the end of September was 193,600 lei. There was a loss of 806.4 monetary units.

During those six months of management actions have not been spectacular increase but rather decrease gradually from peaks of portfolio formation and management at the end of the share price is below the purchase price. A single action showed slight increase from month to month, so at the end of its price was higher than the purchase, sales price is higher than the acquisition price, leading to a gain, but the general trend as it could see a downward throughout the period of administration. The ideas presented above are supported by results obtained in calculating the profitability and risk measures and portfolio. To return portfolio achieved a value of 13, 4%, a value which tends to be correct if we refer to earnings management at the end, it is very small. At the risk of the portfolio of approximately 63% is normal to record a loss, this portfolio can actually be classified as unprofitable, and that was only maintained for a period of six months to stop the losses at the end is not higher. This portfolio, this investment does not comply with the rule: the lower return with both the risk decreases as the increase portfolio returns. Also the investor does not take measures against such risk through diversification, by including more than four shares in its composition.

If investment in shares listed on stock exchanges, the yield is proportional to the risk taken: "want to win more quickly and then automatically from investments for this purpose, increase the risk of losing money invested." This investment has acted as the Bucharest Stock Exchange (BSE), which in the period under review has not been

significant gains, its evolution is more than the "red", but that trend seems to ends we can hope to better situation in 2011.

REFERENCES:

- [1]. **Anghelache, G.** (2004) *Piața de capital: Caracteristici. Evoluții. Tranzacții*, Editura Economică, București
- [2]. **Piperea, G.** (2005) *Societăți comerciale, Piață de capital, Acquis comunitar*, Editura All Beck, București
- [3]. **Stoica, V.; Gruia, A.I.** (2006) *Piețe de capital și produse bursiere*, Editura Universitară, București
- [4]. Bursei de Valori București, www.bvb.ro
- [5]. Comisiei Naționale a Valorilor Mobiliare, www.cnvmr.ro
- [6]. Prime Transaction, www.primet.ro
- [7]. Kapital Market, www.kmarket.ro