EVALUATION OF A COMPANY SPECIFIC RISK PREMIUM

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Abstract: Following a study conducted by the authors on a sample of companies in different industries, traded on the Bucharest Stock Exchange, we noted that systematic risk (nonspecific) is below 10% of the total risk for the action, specific risk over 90% (coefficient of determination registering high value). On the other hand, in the case of market countries with a developed economy, the share of systematic risk is significant (market return has a major influence). Ignoring the specific risk on emerging markets from Eastern Europe by investors who cannot diversify their portfolios or by unlisted companies would result in a lower discount rate and an incorrect estimated share price.

Keywords: *specific risk, volatility, systematic risk, total Beta*

INTRODUCTION

The decision to invest in shares is taken in most cases by any investor according to the return of the shares and the foreseen risk as shareholder. The future course of action cannot be calculated accurately using models, indicators, etc., it can only be anticipated (predicted with some accuracy). Essentially these estimates are based on a number of internal and external factors (variables) of the company, such as the evolution of the market, psychological factors, the investor's risk tolerance, etc. The higher the volatility (the spread) of its past or anticipated return (the price oscillations from day to day are high), the higher the risk of the investment. In this case, the probability of anticipated return to be equal with the obtained return is smaller, even to the point of uncertainty. The risk of the invested money to not bring the expected income or to not be recovered is inherent in any type of investment. The awareness of the risk and its size is an essential element for the investor in assessing the expected return. Therefore, the choice of risk measurement indicators must be adapted to the requirements of the analysis and take into account the accuracy of the available data.

DEFINING THE PROBLEM UNDER INVESTIGATION

In statistical terms, the total risk of an investment is measured by the following indicators of the results:-the distribution (σ^2); -the standard deviation (σ);-the coefficient of variation (c_v);-the semi-variation.

Based on the market model regarding a title ($R_i=\alpha_i+\beta_i R_M+\varepsilon_i$), the total risk (σ^2); can be decomposed into the systematic risk or the market risk (faced by all the titles traded in the market) and the non-systematic risk :

$$\sigma^2(R_i) = 0 + \beta^2 * \sigma^2(R_M) + \sigma^2(\varepsilon_i) \text{ Thereby } \sigma^2(R_i) = \beta^2 * \sigma^2(R_M) + \sigma^2(\varepsilon)$$

Market risk Systematic risk

The total risk estimated based on the variation (σ^2) of the listed companies on Bucharest Stock Exchange from the first category (14 companies from various fields) in 2012-2014:

Table 1-Total risk, market risk, specific risk of the listed companies on BSE

Companies	ALR	ATB	BIO	BRK	ELMA	IMP	OIL	PREH	RPH	SOCP	SNP	TGN	TEL	TBM
Total risk [σ^2]	61,0	26,4	26,8	54,0	40,6	615	25,7	131,8	71,4	39,9	23,9	26,3	46,6	167,0
Market risk [$\beta^2\sigma^2(R_M)$]	6,9	0,2	2,8	0,7	1,2	53	2,6	19,3	0,3	2,0	1,1	0,5	10,9	14,4
Specific risk [$\sigma^2(\varepsilon)$]	54,1	26,2	24,0	53,2	39,4	561	23,2	112,5	71,1	37,9	22,8	25,8	35,7	152,6

Source: BSE

It can be predicted that some companies are at high risk (σ^2 = 615) while others are at a lower risk (σ^2 = 23.9). The highest risk company is IMP (σ^2 = 615) followed by TBM (σ^2 = 167) and the lowest risk is SNP (σ^2= 23.8). In the case of the specific risk, calculated as difference between the total risk and the market risk, we find that IMP company also recorded the highest value (σ^2 = 561). According to these values the weight of the market risk (β^2 σ^2) in the total risk (σ^2) is on average 7.5%, and the weight of the specific risk (σ^2) is on average 92.5% of the total risk. In countries with efficient capital market, risk market share is 20-40%. According to the average correlation coefficient (ρ), calculated on the basis of return on the shares of the 14 listed companies and average return of the market resulted in its low value of ρ =0.37. These values show the minor influence exerted by the market on the price evolution of the listed shares (BSE).

On an active capital market, investors have the possibility of establishing diversified portfolios (which may acquire assets with zero risk or other risky assets). Therefore, according to the proportion of other financial assets held in the portfolio they can reduce their risk. The risk of an equity portfolio consisting of N shares [Todea, 2008, p 145] will then be

equal to: $\sigma^2{}_p = \beta_p^2 \sigma_M{}^2 + \frac{\sigma^2(\varepsilon)}{N}$ when $N \to \infty$, the variation of the portfolio tends to $\beta_p^2 \sigma_M^2$ and the specific risk to 0. According to some studies conducted on the stock market from France, the USA, etc., it was found that, based on the number of shares; the specific risk is reduced as follows:

Table 2: The ratio of the number of shares and specific risk

Number of shares in the portfolio	1	2	3	4	5	10	12	15	20	30
Risk reduction	0	34.6	51.4	61.4	73.9	85.7	91.5	96.7	98.2	98.4

The link between return (profitability) and risk for a portfolio of shares traded at the BSE (all shares included in relation to market capitalization) and an un-risky asset (bonds issued by the state) is linear, described by the following equation (CML - "Capital Market Line"): $\overline{R}_p = R_f + \frac{(\overline{R}_M - R_f)}{\sigma_M} * \sigma_p$

As most investors who trade at the stock exchange have a neutral attitude towards risk, return demanded of them is the profitability offered securities where the risk is minimal (R_f) to which a bonus of risk $\frac{(\overline{R}_M - R_f)}{\sigma_M} * \sigma_p$ is added. The risk of a portfolio is always less than or equal to the weighted average of the specific risks of the contained shares. As much as we try to combine the titles included in the portfolio, the specific risk cannot be entirely canceled. There are also investors who cannot provide a portfolio (diversified) composed of several shares. In such cases, the ignorance of the specific risk will lead to a lower profitability ratio and therefore a higher value of the shares. In the case of non-listed companies, selling of shares is performed in most cases, from one person to another (the purchase from other shareholders or members who want to hold the majority) and the calculation of the coefficient β could induce a higher degree of error (beta of the calculated sector[Damoradan, 2016] on the capital market or the calculation of β bookkeeper [Damoradan, 2012]. Outside the influence of the market return (R_M) on the return of shares (R_i), the practice has also proved the influence of other factors.

Following studies on the USA capital market and subsequently to other capital markets certain anomalies were found. If initially the identification of an abnormality was considered a proof of informational inefficiency of the studied capital markets, later these anomalies were considered evidence of the lack of certain important factors from the CAPM [Oprea, 2013, p 62]. After identifying these anomalies, some studies have proposed the development of multifactor models for assessing financial assets. A an example we present the multifactorial

models (the arbitrage model, model of Fama and French) [Dragotă,2009, 357] and empirical models ($R_i - R_f = \sum_{k=1}^{n} a_{ik} * F_K + \varepsilon_i$) where Fk - represents the level of factor k; a_{ik}- the coefficient of sensitivity of asset i to factor k. The CAPM restrictive assumptions and the testing of CAPM on the capital market from Romania and on other financial markets have demonstrated the inefficiency of this model to estimate the cost of shareholders equity.

Restrictive assumptions of CAPM and its testing of Romania's capital market and other financial markets in Eastern Europe showed the inefficiency of this model to estimate the true cost of equity.

Because of the illustrated disadvantages, adapted CAMP [Thauvron, 2013, p 88] was developed, which involves adding two additional risk premiums $R_i = R_f + \beta * (\overline{R}_M - R_f) + RPS + RSC$ where: RPS- is risk premium for dimensions; (CSR)- is risk premium due to company specific risk. Sharpe's theory [Sharpe, 1994, p.52] each unit portfolio risk (σ_P) must be matched by an additional return ($\overline{R}_p - R_f$).

In the capital market portfolio which is:

$$Ratio_{SARPHE} = \frac{\overline{R}_M - R_r}{\sigma_M}$$

Where: R_M –the average capital market portfolio, as measured based on BET; R_f- risk-free rate obtained under financial titles; σ_M – the standard deviation of capital market portfolio.

Based on the Build-up (Ibbotson Build-up Method) , the return on a financial asset is estimated as the sum of the risk-free return title and additional return due to risk. We acknowledged this additional profitability due to risk as a product of the risk premium attached to a unit of risk capital market in Romania $\left(\frac{\overline{R}_M - R_f}{\sigma_M}\right)$ and the overall risk of title (σ_i). Therefore, the return of a share that will not be contained in a diversified portfolio or of an unlisted share: $R_i = R_f + \frac{(\overline{R}_M - R_f)}{\sigma_M} * \sigma_i$ hence the

$$R_i = R_f + \left(\frac{\sigma_i}{\sigma_M}\right) * (\overline{R}_M - R_f) \Rightarrow R_i = R_f + \beta_{total} * (\overline{R}_M - R_f)$$

The relation between title volatility and market volatility is known as beta total: $\frac{\sigma_i}{\sigma_M} = \frac{\hat{\beta}}{\rho} = \beta_{total}$

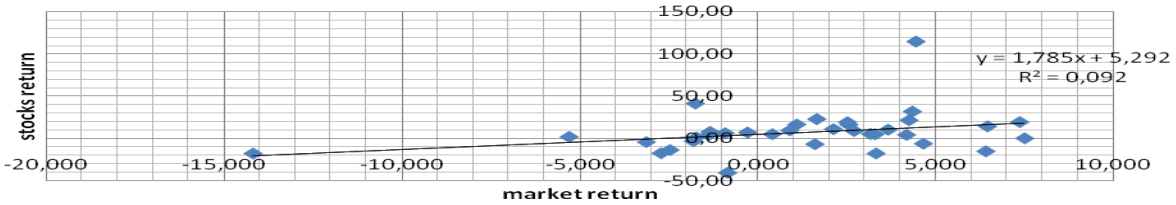
Regarding the calculation of this coefficient (β_{total}) Camp R. and Eubank JR., Damoradan A., P Butler P. and Pinkerton K. made certain observations[Butler,2008,p 6].

From this equation a measure of the specific risk (CSR) and of the dimension risk (RPS) follows: RPS + CSR = (β_{total}-β) ($\overline{R}_M$-R_f)

THE STUDY AND ITS RESULTS

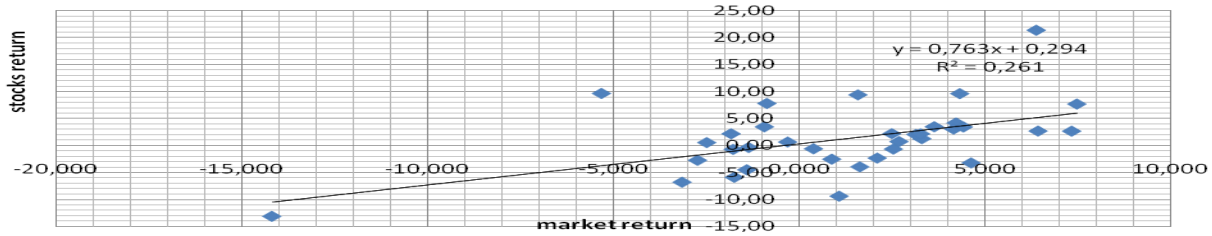
Based on the historical data of the years 2012, 2013, 2014 the link between the stocks return (R_i) and the market returns (R_M) is graphically presented.

Figure1- The link between the stocks return and the market return to the IMP company



The market risk of the IMP company is also high, reflected both in variance (σ^2 = 53%) and in the volatility coefficient (β = 1.78). The exerted influence of the market return (R_M), based on the coefficient of determination, is low (R^2= 0.092). The influence of other factors is very high (1-R^2), namely 91%. This is demonstrated by the high value of the coefficient α = 5.29.

Figure 2- The link between the stocks return and the market return to the IMP company



According to the study, SNP has a below par value of the volatility coefficient β = 0.76, which indicates that this asset is less risky than the market. The exerted influence of the market on the title return is reduced R2 = 0.26, but compared to IMP is much higher R2 = 0.26. The influence of other factors outside the market is also high (1-R2), namely 74%.

The return over the past three years, calculated based on the trading price (P) and the distributed dividends (DIV), for the two companies is:

Table 3- Return on shares in the two companies and stock indices

	IMP	SNP	BET[481]	BET -C	BET -XT	BET-NG
Return 2012	-55%	35%	18.7%	6.28%	19.9%	2.06%

[481] Calculated based on BET at the end of the year and BET at the beginning of the year

Return 2013	373%	17%	26.6%	20.4%	19.8%	5.73%
Return 2014	172%	-11%	9%		6.6%	5.27%

Based on the calculations we can infer that the actual return is much higher in the IMP company versus the SNP company or that of the market (based on return on equity indices). On the capital market, some shares record a substantial positive return (18 of 28 Category I) while others record a negative return (10 of 28 in category I).

If the expected return or the existing (R_i) one is superior to the normal return according to CAPM model [$Rf+\beta*(R_M-R_f)$] it is considered that the share is undervalued. So there is a surplus of return corresponding to an additional risk of the market risk. This risk premium is not attributable to the market taking into account its inclusion in the CAPM model. It may therefore be attributed only to the sector, the size or the specific risk. The surplus of return between the realized return and return the CAPM is the Jensen's alpha: $R_i-[R_F+\beta_i*(R_M-R_F)] =\alpha_i$ which will result

$\alpha_i=(R_i-R_F)-\beta_i*(R_M-R_F)$.

Fig. 3- The link between the excess return of the shares over the risk free and the excess return of the market over the risk free return, of company (IMP)

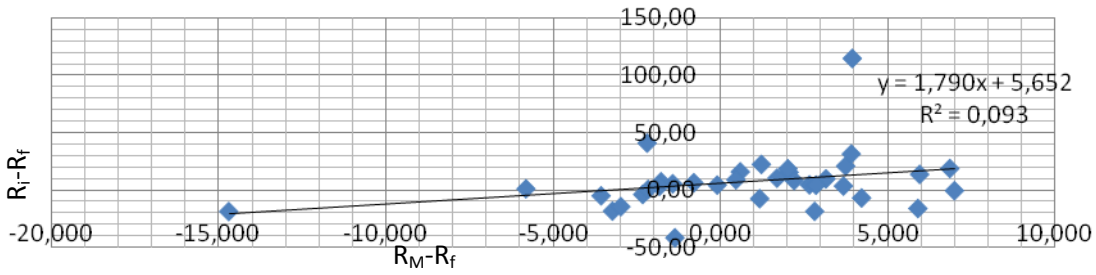
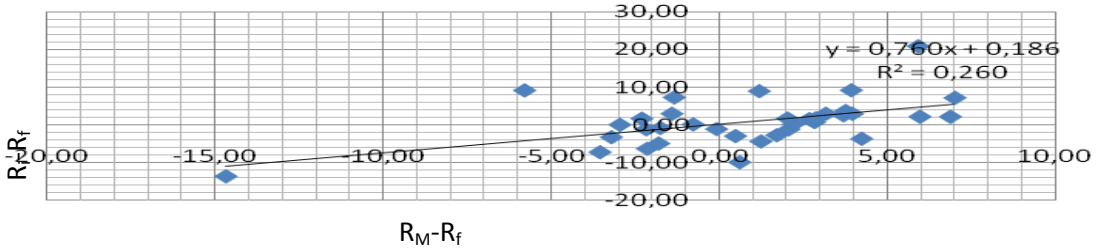


Fig. 4-The link between the excess return of the shares over the risk free and the excess return of the market over the risk free return, of company (IMP)



According to the value of this index, the additional risk due to the internal factors cannot be ignored, which will mean an additional return required by investors.

$$\beta_{totalIMP} = \frac{\sigma_{iIMP}}{\sigma_M} = \frac{24}{4,09} = 5,87 \qquad \beta_{totalSNP} = \frac{\sigma_{iSNP}}{\sigma_M} = \frac{6,19}{4,09} = 1,49$$

$RPS_{IMP}+CSR_{Imp}= (\beta_{total}-\beta)*(\overline{R}_M-R_f)_{IMP} \Rightarrow RPS_{IMP}+CSR_{Imp}= (5,87-1,78)*8,24\% =33\%$

$RPS_{SNP}+CSR_{SNP}= (\beta_{total}-\beta)*(\overline{R}_M-R_f)_{SNP} \Rightarrow RPS_{SNP}+CSR_{IMP} +CSR=(1,49-0,76)*(8,24\%) =6\%$

According to this model specific risk and size risk depends on the size of the two factors $(\beta_{total}-\beta)$ and $(\overline{R}_M-R_f)$.

Table 4- Specific risk for the companies studied

Company	ALR	ATB	BIO	BRK	ELMA	OIL	PREH	RPH	SOCP	SNP	TGN	TEL	TBM
Total risk [σ^2]	61	26,4	26,8	54	40,6	25,7	131,8	71,4	39,9	23,9	26,3	46,6	167
Specific risk %	7.8	8.1	5.3	7.1	6.8	9.4	14.1	15.2	13.3	6.0	6.9	6.7	15.7

According to calculations based on data from BSE relating to the years 2012, 2012, 2014, the risk premium due to company specific risk and the risk premium for dimension values are between 0% and 15%. Values between 3% and 15% for specific risk has reached Shannon Pratt (Pratt S, 2008) also at values between 0-16% reached and Kolouchová, P., Novák J (Kolouchová, P., Novák J,2010, p27)

CONCLUSIONS AND SUGGESTIONS

The market assessments in Romania, due to specific risk excess return is either ignored or estimated values do not have a sound financial justification. In the case of unlisted companies or investors that will not diversify their portfolio, risk assessment based on the CAPM model is flawed. As such, the study carried out investigating an appreciation of the limits of values between which the excess return may fall due to specific risk and which may be useful in the evaluation of companies listed or actions which will not be part of a diversified portfolio. Selecting values for specific risk (CSR) and size risk is based on the difference between the total beta(β_{total}) and beta for the specific risk (β).

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