UDC 336.76(477)-044.3

D. S. Zukhba,
PhD (Economics),
A. Ye. Vysotskyi,
H. S. Popovich,
Donetsk National Technical University

THE CAPITAL ASSET PRICING MODEL: CROSS-SECTIONAL ANALYSIS

The idea of the CAPM, first independently introduced by W. Sharpe in 1964 [1] and J. Lintner in 1965 [2] based on earlier works by Harry Markowitz, proved valid in general if not overwhelmingly conclusive in specifics, prompting further research by specialists worldwide. The idea of using average portfolio returns rather than individual returns in the theory was originally proposed by Michael C. Jensen, Fischer Black and Myron S. Scholes in their 1972 work „The Capital Asset Pricing Model: Some Empirical Tests", in which they suggested rejecting the traditional form of the model based on the finding that the expected excess return of a single asset is not strictly proportional to its beta. They offered instead to use a two-factor model based on cross-sectional tests that proved to be more efficient and precise than the original CAPM conception [3]. In the following years a number of studies emerged, both supporting the model and arguing its reliability. There were suggested some theories that, although based on the CAPM, were considered separate and opposing to it.

Currently the CAPM has great popularity amongst the researchers, which results not only in positive reviews proclaiming its advantages but also in numerous publications that analyse its drawbacks. Particularly, the criticism of the CAPM present in Richard Roll's works is explained in the analysis of the fairness of the model's empirical criteria [4]. In his analysis Roll suggested two statements regarding the market portfolio:

1) Mean-variance tautology. Given a proxy for the market portfolio, testing the CAPM equation is equivalent to testing mean-variance efficiency of the portfolio. The CAPM is tautological if the market is assumed to be mean-variance efficient;

2) The market portfolio is unobservable. In practice it would necessarily include every available asset. The returns on all possible investments opportunities are unobservable.

From the first statement, validity of the CAPM is equivalent to the market being mean-variance efficient with respect to all investment opportunities. Without observing all investment opportunities, it is not possible to test whether this portfolio, or indeed any portfolio, is mean-variance efficient. Consequently, it is not possible to test the CAPM.

Rolf W. Banz suggests that the CAPM is mis-specified [5]. He notices that stocks in the quintile portfolio with the smallest market capitalization earn a risk-adjusted return that is month higher than the remaining firms. The size effect is not linear and is most pronounced for the smallest firms in the sample. Banz conjectures that many investors do not want to hold small stocks because of insufficient information, leading to higher returns on these stocks.

M. Blume stresses the problem of stability of the CAPM's key parameter: the beta coefficient. His research showed that it tends to 1 because of portfolio diversification and corporate management risks are lowering, approaching average sector or market levels. The analysis resulted in corrections to the beta coefficient [6].

Many researchers, such as S. Basu, B. Rosenberg, K. Reid and R. Lanstein question only taking into account the systematic factors in the model, despite existing empirical evidence of non-systematic variables, such as operational and financial leverage, that have an impact of the required returns [7, 8].

In the case of the Ukrainian stock market the model has never received such wide recognition as it has in the Western world. It is obvious that there always is some formula to determine investment risks; sometimes it is just not that easy to find one as every market has its specific aspects that influence those risks.

There are also a number of factors in the CAPM that result into difficulties of implementing it on Ukrainian market. First of all, we should mention that the Ukrainian stock market, being a developing one, has significant differences with the large diversified markets of Europe and the USA in terms of observation periods. Moreover, it is special because it emerged and is being developed on the border between planned economy and mixed market-oriented economy. These conditions are characterized by the revolutionary type of changes, instability of economy and society, a number of transition possibilities and presence of special economic forms that incorporate the principles of both planned and market economy.

William Sharpe's classic CAPM does not pay proper attention to the „country risk" [9] that is inherent to a developing market. Its main components are:

- Social conflicts;
- Non-payment of state debt;
- Possibility of hyperinflation;
- Chance of the national currency denomination;
- Obstacles to capital movement.

We shall consider some of the components in more detail, since they are directly related to the Ukrainian market, for instance, Ukraine's national debt has a growth tendency. Ukraine also encountered the problem of hyperinflation in 1992 – 1995, and some fear the possibility of it returning in the near future. Additionally, to counter the negative effect of limitations to capital movement on the Ukrainian market, we need to make corrections in either the risk-free rate or the market risk premium.

Ukrainian market can be described as one with low liquidity and difficulty of its diagnose. It is predetermined towards decline due to internal reasons, one of which being low activity of the market subjects, which in its turn is caused by continued decline of mid- and long-term interest in the specific market of the developing countries. All this makes the use of beta-coefficient more difficult, as it is calculated based on prior data about a stock's revenue and its correlation with the market revenue, and those tend to be significantly less than 1. Theoretically, the required yield from investing in to stocks of companies within one sector with the same financial lever that have higher and lower liquidity should be equal. However, the investor takes the low liquidity risk which should be compensated with additional premium [10]. This shows that classic single-factor Sharpe-Lintner model requires adjustments. The model should take into account not only the beta coefficient, but also the liquidity coefficient in the risk vs. yield equation. The CAPM does not take into account liquidity implementation tools (interbank credit, currency swap, REPO-market), although they play an important role in sustaining the liquidity of the visible speculative market.

Unstable social and economic indicators also pose difficulties for implementing the CAPM in Ukraine. Worsening of the economic situation is related to the increase in consumer energy prices, the implementation of the government debt of 10.5 billion hryvnia in March 2011 and the peak of state debt payments equaling 19 billion UAH this July. Simultaneously, the IMF suspended the tranches to Ukraine in April. As a result of the abovementioned factors Ukraine ended up amongst 18 countries that are facing default.

The CAPM uses the beta coefficient that is calculated on a time period different from the one being analysed. Instability of our economy leads to volatility of this coefficient. Because of this it is unable to perform as an adequate evaluation of future risks [11].

In Sharpe's and Lintner's classic CAPM model there are a number of institutional and financial premises that also are not always true for the Ukrainian stock market. For instance, the rationality of investors' behaviour, uniformity of their expectations, which is one of the model's assumptions [12], is not fulfilled on our market if we take into account the length of its existence. As of this moment we are still lacking a basis for making investment decisions. Also, not all of them have equal opportunities to act on our stock market (financial resources, availability of information, different level of awareness and education of market subjects – all these are a premise to their irrational behaviour). In these conditions the unity of their expectations is impossible. Asymmetric information in all areas is a characteristic feature of transition economies and emerging market. In the absence of a proper legal framework, as well as misuse of information, possession of this information is crucial in market transactions.

There is a statement that on a stock market there are no transactions costs, and it is in fact a game with „zero" sum. In spite of this it should be noted that there are costs for activities in the stock market and they can be significant (brokerage services, consulting, custodial services) [13]. Only to brokers this assumption is valid because they charge a percentage commission.

The Ukrainian stock market is also characterized by the discrepancy of actual yields distributions a normal distribution (symmetrical one), as well as higher kurtosis. Investors' expectations are also offset from traditional ideas about the behaviour of profitability. For Ukrainian stocks we can observe that actual distribution differs from normal one. The distribution is also characterized by a high excess kurtosis. Investors' expectations also vary from the traditional yield conceptions.

Another assumption that there is unrestricted borrowing and lending on a risk-free rate [14] is incorrect for the Ukrainian stock market (this is a consequence of the economic crisis of 2008 – 2009, the slow growth of economic indicators, frequent changes in the political vector of the country).

Testing the CAPM

In order to test the classic Sharpe-Lintner model on the Ukrainian stock market, we test the following assumptions:

- Beta coefficient describes the dynamic of expected asset yield;
- Presence of additional variables besides the beta;
- The need to take liquidity and root-mean square deviation as indicators of investment risk levels into account;
- Asymmetry and excess kurtosis of stock yields distribution are influencing risk and returns calculations too.

These hypotheses are tested using the cross-sectional regression – an empirical method based on the ex-post analysis of historical data on various asset prices. Beta coefficient is calculated on the base period of time as [15]:

$$\beta = \frac{Cov[R_i, R_M]}{Var[R_M]} \quad (1)$$

where R_i is the return of a given asset, and R_{mM} is the market portfolio return. After that the regression of asset returns on beta is built for every point in time. The slope of the regression line (the security market line) gives an estimate of the market risk premium. Finally, by means of statistical methods time series of these estimates are analysed. Given the econometrical formula of the CAPM [15]:

$$z = \gamma_0 + \gamma_1 \beta + \varepsilon \quad (2)$$

(z being the excess return and *e* – random errors) we can test two hypotheses: $\gamma_0 = 0$ which would confirm whether beta is the only significant variable in the model; and $\gamma_1 > 0$ which would confirm that beta is actually a significant variable.

Based on the UX stock exchange data over the period from 04.08.2010 to 28.10.2011, calculations are done for key assets that are included into the market index using Microsoft Excel (or any other suitable software). We calculate the beta and alpha coefficients as well as the correlation coefficient r^2 which shows the effect that the index changes have on individual asset price (see Table 1 for results).

We see that (which is, in essence,), does not equal to zero for any of the assets despite coming rather close to it. This shows that the classic beta coefficient cannot be used to describe the expected yields on the Ukrainian stock market precisely enough because there are other significant risk factors. Also it should be noted that the correlation coefficient for all assets is high which indicate high dependence of asset prices on the UX index.

At the beginning of this section we made assumptions that asset liquidity, distribution asymmetry and kurtosis have some influence on the risk and returns calculations. Now that it has been determined that for the Ukrainian market some additional variables indeed need to be taken into account for those calculations, we shall examine them in greater detail to determine the scale of their impact.

To calculate liquidity we choose the method that uses the relative spread (*RS*) of average ask and bid prices (and) on each asset over the period of time for which beta has been calculated [16]:

$$RS = \frac{P_{ask} - P_{bid}}{\frac{P_{ask} + P_{bid}}{2}} \quad (3)$$

The results, presented in Table 2, clearly show that the Ukrainian stock market is characterized by low liquidity. Even for the assets that form the UX index and constitute 90% of its capitalization this value is very low. The impact of this on risk and, therefore, yields estimation has already been described in Section 2. What is more important, however, is that this means that the Ukrainian

Table 1.

Calculations of key coefficients for the Sharpe-Lintner CAPM

Ticker	β	α	r^2
UNAF	0.917214	0.004236498	0.416796827
ALMK	1.326354	-0.000515394	0.654051186
AZST	1.128370	-0.001020756	0.739726594
USCB	1.091229	-0.003079292	0.728679837
CEEN	1.173370	-0.000569984	0.773245986
MSICH	1.086889	0.001890782	0.649284724
ZAEN	0.644549	-0.001946537	0.102762754
ENMZ	1.280685	-0.005131061	0.701678608
UTLM	0.677543	-0.000469414	0.372905744
BAVL	0.888155	-0.004278997	0.672999386
KVBZ	0.746757	0.000383798	0.409037268
AVDK	1.004394	-0.002013120	0.603073724

stock market does not meet one of the core requirements of the CAPM, as one of its assumptions is that the assets are absolutely liquid.

A cross-sectional analysis based on beta and liquidity coefficients can be performed in order to determine whether they describe the changes in the expected returns.

As can be seen in Table 3, the liquidity coefficient bears more significance, since its t-statistic is higher than that of the beta coefficient, although its correlation coefficient is very low. In fact, the liquidity coefficient explains less than 1% of the sample data. However, these results lead us to another conclusion. The coefficient appears negative and very close to zero. This once again displays the inconsistency of the CAPM on the Ukrainian stock market as both hypotheses that are supposed to support it were disproved.

One last step will be applying the normal law of probability distribution by calculating the asymmetry and excess kurtosis. For a normal distribution they both would equal zero [17]. In other cases having a positive asymmetry would tell that higher yields are considered more likely than lower and vice versa. As for the kurtosis, the higher it is, the less risky the asset is considered. Using the following equations to calculate them:

$$As = \frac{n}{(n-1)(n-2)} \times \sum \left(\frac{R_i - \bar{R}}{s}\right)^3 \quad (4)$$

$$Ex = \frac{n(n+1)}{(n-1)(n-2)(n-3)} \times \sum \left(\frac{R_i - \bar{R}}{s}\right)^4 - \frac{3(n-1)^2}{(n-2)(n-3)} \quad (5)$$

with n being the number of observations and $\bar{R}$ – average asset return we receive the following results shown in Table 4.

Once again we turn back to the initial assumptions of the CAPM. As it only takes into account the mean-variance and the returns variance [14], higher order moments are irrelevant to it. This would mean that any deviation from the mean value would be perceived equally by the investors; however, calculations showed that this is not true: there is a tendency to a positive skewness and the distribution is asymmetrical. The CAPM's limitations and reserving to only observing the first and second order moments can only be reasonable in case of a normal distribution, which, as it has been shown, is not the case. The Ukrainian stock market is characterized by high volatility and bias compared to the normal distribution. Given that, characteristics of returns distribution play an important role for investors, and they are measured by higher order moments. This provides us with need for a model that takes those into account.

An Alternative Model: the D-CAPM

The Downside Capital Asset Pricing Model was introduced by Javier Estrada in 2002 as a modification to Markowitz's classic CAPM. While the latter uses yields dispersion as the asset risk measure making no difference between upside and downside deviation, the D-CAPM uses semicovariance instead. This allows discarding some of the classic CAPM's assumptions, such as the normal distribution of returns and that investors' behaviour is determined by expected returns and asset returns dispersion [18]. As it was shown in previous sections, this is not true. Standard deviation can only be used in case of symmetrical yield distribution; and it can serve as a measure of risk only when it is a normal distribution. Also, investors tend to avoid risk on the downside, whereas the possibility of bigger returns than expected earlier is rarely a turn-off for them; as a result of this logical conclusion the model only incorporates downside risk. Because investing in developing markets is very risky for a western investor, he tries to primarily avoid the risk of losing the initial value of his investments, or avoids decreasing of this value below a predefined target level. Because of this using the semidispersion and, consequently, standard semideviation is reasonable.

The semicovariance () used in the D-CAPM is the analogue of the classic model's covariance [18]:

$$\Sigma_{iM} = E\{Min[(R_i - \mu_i), 0] Min[(R_M - \mu_M), 0]\} \quad (6)$$

where and is the mean of returns of the investor's portfolio and market portfolio respectively. This indicator is used when calculating the modified beta coefficient by dividing it by semivariance of the market portfolio [18]:

$$\beta_i^D = \frac{\Sigma_{iM}}{\Sigma_M^2} = \frac{E\{Min[(R_i - \mu_i), 0] Min[(R_M - \mu_M), 0]\}}{E\{Min[(R_M - \mu_M), 0]^2\}} \quad (7)$$

In order to test the model on the Ukrainian market, additional risk indicators have been taken into account: yield standard deviation (SD), yield asymmetry (Sk), standard beta coefficient and standard semideviation () [19]:

$$\Sigma_i = \sqrt{E[(R_i - ER_i)^-]^2} \quad (8)$$

Based on data from section 3, for every risk factor a regression of mean of returns on each of them was made (table 5). After that, cross-sectional analysis was performed for each factor. Results show that only the semivariance has relatively high significance value. However, it is also clear that the modified downside beta coefficient has higher significance value than the classic beta.

Conclusions

The examination of conditions in which the Ukrainian stock market operates already showed a large array of problems that would prevent implementing the CAPM to calculate expected returns and approximate

Table 2.

Liquidity coefficients of assets included in the UX index

Ticker	Relative Spread
UNAF	0.037490
ALMK	0.037593
AZST	0.036091
USCB	0.032752
CEEN	0.030422
MSICH	0.026591
ZAEN	0.026591
ENMZ	0.035152
UTLM	0.026022
BAVL	0.029575
KVBZ	0.032378
AVDK	0.029246

Table 3.

Cross-sectional analysis of beta and liquidity coefficient significance

Coefficient	γ_0	γ_1	t-statistic	r^2
β	0.000956615	-0.003475173	-0.98293908	0.088104534
RS	-0.003235157	0.022950812	0.116381783	0.00135264

Table 4.

Additional statistical coefficients

Ticker	Root-mean square dev.	Asymmetry	Kurtosis
UNAF	0.037380485	0.119161508	6.593603
ALMK	0.043150909	1.12795817	6.268034
AZST	0.034518525	0.304179385	2.415931
USCB	0.033634422	0.018009388	2.269267
CEEN	0.035108518	0.248449695	2.180433
MSICH	0.035489854	0.133085215	2.799755
ZAEN	0.052902329	3.024165298	29.77586
ENMZ	0.040226266	0.937452096	8.364822
UTLM	0.029192653	-1.04208687	5.418051
BAVL	0.028485104	-0.34360573	2.068904
KVBZ	0.030720933	0.796441055	5.064090
AVDK	0.034029474	-0.14974052	3.275902

risks for investors. Being an emerging market, Ukraine faces a number of difficulties absent on mature and developed markets. Political and social factors also contribute to those problems introducing additional risk components that further complicate risk and yield estimation. Recent crises also added some uncertainty that makes a lot of aspects rather unpredictable. Given all this, theoretically using the CAPM is already unjustified.

Empirical tests further proved this suspicion. They showed that the factors that the model does not take into

Table 5.

Results of regression of mean of returns on risk factors for each given asset

Ticker	β	β^D	SD	Sk	Σ_i
UNAF	0.917213969	1.233870005	0.037380485	0.119161508	0.961386
ALMK	1.326353686	1.291727444	0.043150909	1.127958170	0.377127
AZST	1.128369588	1.059634960	0.034518525	0.304179385	0.318187
USCB	1.091228924	1.091676864	0.033634422	0.018009388	0.327640
CEEN	1.173369683	1.125540978	0.035108518	0.248449695	0.329422
MSICH	1.086889364	1.133527942	0.035489854	0.133085215	0.331009
ZAEN	0.644549372	0.900615250	0.052902329	3.024165298	0.423866
ENMZ	1.280685146	1.192183010	0.040226266	0.937452096	0.361262
UTLM	0.677542629	0.759514605	0.029192653	-1.042086870	0.302380
BAVL	0.888154794	0.937062298	0.028485104	-0.343605736	0.288223
KVBZ	0.746757125	0.743441742	0.030720933	0.796441055	0.277808
AVDK	1.004393685	1.095173579	0.034029474	-0.149740520	0.333998

Table 6.

Results of cross-sectional analysis

Risk factor	γ_0	γ_1	t-statistic	r^2
β	0.00096	-0.003475173	-0.98294	0.088104534
β^D	-0.00259	0.0000806340	0.01701	0.000028922
SD	-0.00211	-0.011099158	-0.08944	0.000799303
Sk	-0.00240	-0.000253389	-0.30592	0.009271976
Σ_i	-0.00582	0.00857439	2.37933	0.361480563

account bear significance, in particular, the stock liquidity. Furthermore, the beta coefficient does not have as much significance. Therefore, the model is not adequate, as its key element – the beta coefficient that it is basically built around – has less significant influence on expected returns than additional elements. In general, though, the correlation between liquidity and returns is very low and at times might see random at all. This is largely a result of aforementioned problems of the Ukrainian stock market, the "country risk" for which the CAPM does not account. Testing also failed to support the assumptions of the CAPM that the returns distribution is a normal and symmetrical one which are required for it to work properly.

In theory the D-CAPM seemed a reasonable alternative for the situation. Its downside beta coefficient accounted for all the factors the CAPM missed, particularly the asymmetry of returns distribution. Performed tests showed that it is indeed more suitable for Ukrainian market conditions, albeit barely. The semideviation coefficient that is used in the D-CAPM had the highest significance which shows us that the model is usable at least to some level of reliability. The downside beta coefficient, though very close to zero, still is positive and bears higher significance than the classic CAPM's beta coefficient, which also proves the supremacy of the D-CAPM over the Sharpe-Lintner CAPM in Ukraine.

It is clear, however, that neither of the models is anywhere close to perfect. There are too many variables in the market which are impossibly hard to calculate and compose into a single model that estimates risks with high precision. Nevertheless, this paper has taken some steps in the direction of dealing with this problem, although the current situation gives reasons to believe that market conditions might dramatically change at any moment which will likely further complicate any such attempts to develop a model to estimate risks and predict asset returns on the Ukrainian stock market.

References

1. **Sharpe, W. F.** (1964), „Capital Asset Prices –

A Theory of Market Equilibrium Under Conditions of Risk". Journal of Finance XIX (3): 425 – 442. 2. **Lintner, J.** (1965), „The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets", Review of Economic and Statistics, 47, 13 – 37. 3. **Jensen, Michael C.** / Black, F. / Scholes, M. S. (1972), The Capital Asset Pricing Model: Some Empirical Tests. Michael C. Jensen, STUDIES IN THE THEORY OF CAPITAL MARKETS, Praeger Publishers Inc. Available at SSRN: http://ssrn.com/abstract=908569 4. **Roll, R.** (March 1977), „A critique of the asset pricing theory's tests Part I: On past and potential testability of the theory", Journal of Financial Economics 4 (2): pp. 129 – 176. 5. **Banz, R. W.** (1981), „The relationship between return and market value of common stocks," Journal of Financial Economics, Elsevier, vol. 9 (1), pages 3 – 18, March. 6. **Blume, M.** / Friend, I. (1973), „A New Look at the Capital Asset Pricing Model", Journal of Finance. 28:1, pp. 19 – 33. 7. **Basu, S.** (1977), „Investment performance of common stocks in relation to their Price-Earnings ratio: A test of the efficient market hypothesis", Journal of Finance, XXXII, 3, pp. 663 – 682. 8. **Rosenberg, B.** / Kenneth R. / Lanstein R. (1985), „Persuasive Evidence of Market Inefficiency", The Journal of Portfolio Management, Vol. 11, No. 3: pp. 9 – 16. 9. **Teplova, T.** (2007), Investment Levers of Maximizing Company's Value, Vershina: Moscow, available at http://www.cfin.ru/management/strategy/classic/investment_risks.shtml, 03.04.2007. 10. **Shen, P.** (2006), „Liquidity Risk Premia and Breakeven Inflation Rates", Economic Review: Federal Reserve Bank of Kansas City, Q2: pp. 29 – 54. 11. **Jagannathan, R.** / Wang, Z. (1996), „The Conditional CAPM and the Cross-Section of Expected Returns", Journal of Finance, vol.51, Issue1, pp 3 – 53, March. 12. **Magni, C. A.** (2005), „Norms of rationality and investment decisions: CAPM, arbitrage and description invariance", University of Modena and Reggio Emilia 13. **Stoll, H. R.** / Whaley, R. E. (1983), „Transaction Costs and the Small Firm Effect", Journal of Financial Economics, 12, p. 57 – 79. 14. **Fama, E. F.** / French, K. R. (2004), „The Capital Asset Pricing Model: Theory and Evidence", Journal of Economic Perspectives, Vol. 18, Number 3: pp. 25 – 46. 15. **Sharpe, W. F.** / Alexander G. J / Bailey J. W. (1998), Investments. 6th ed., Prentice Hall: Old Tappan, New Jersey. 16. **Amihud, Y.** / Mendelson, H., (1986), „Asset pricing and the bid-ask spread", Journal of Financial Economics 17, p. 223 – 249 17. **Tsarev, V.** (2004), Estimation of Investment Economic Effectiveness, Piter: St. Petersburg. 18. **Estrada, J.** (2002), „Systematic Risk in Emerging Markets: the D-CAPM", Emerging Markets Review, Vol. 3, pp. 365 – 379. 19. **Estrada, J.** (2003), „Mean-Semivariance Behavior: A Note", Finance Letters, Vol. 1, pp. 9 – 14.

Зухба Д. С., Висоцький А. Є., Попович Г. С. Модель оцінювання капітальних активів: перехресний аналіз

У статті розглянуто застосування моделі оцінювання капітальних активів на українському ринку цінних паперів, загальні недоліки її використання, а також ті, що виникають у вітчизняних умовах. Виявлено ступінь ефективності використання моделі на українському фінансовому ринку і запропоновано альтернативні моделі оцінювання фінансових активів.

Ключові слова: модель оцінювання капітальних активів, перехресний аналіз, ліквідність, в- коефіцієнт, ексцес, асиметрія.

Зухба Д. С., Высоцкий А. Е., Попович А. С. Модель оценки капитальных активов: перекрестный анализ

В статье рассмотрено применение модели оценки капитальных активов на украинском рынке ценных бумаг, а так же общие недостатки ее использования и те, что возникают в отечественных условиях. Определен уровень эффективности использования модели на украинском финансовом рынке и предложены альтернативные модели оценки финансовых активов.

Ключевые слова: модель оценки капитальных активов, перекрестный анализ, ликвидность, в-коэффициент, эксцесс, асимметрия.

Zukhba D. S., Vysotskyi A. Ye., Popovich H. S. The Capital Asset Pricing Model: Cross-Sectional Analysis

This article deals with application of the Capital Asset Pricing Model and its drawbacks on the Ukrainian equity market. In this paper efficiency of the CAPM in the domestic conditions is identified; alternative models are proposed.

Key words: the Capital Asset Pricing Model, cross-sectional analysis, liquidity, в-coefficient, excess, asymmetry.

Received by the editors: 24.06.2012
and final form 20.11.2012