IPO of Russian Banks: the Crisis Effect on the Market Value of the Stocks

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Abstract

The process of the IPO of banks in Russia is its infancy but the rapid growth is forecasted. This context raises the issue of the factors determining the floated banks stock value. The results of the research on 2007-2009 Russian data showed that the bank stock price is dependent on the macroeconomic indicators (such as the oil prices and the Dow Jones index volatility) and the some banking system indicators(the interbank interest rate, the bank's ROA, and ROE). However, the results adjusted to the global financial crisis effect proved to exclude the ROE factor and showed the dependence of the stocks prices of the floated banks from the historic trend of the American economy. The models developed are of the practical application and can be used by the institutional as well as the private investors.

Keywords: IPO, Russian banks, market value, bank stocks, financial crisis

I .Introduction

Today Russia runs deficit of banking capital. Although Russia outstripped some developed countries by the rate of equity, which have reached 110 billion euro by these days, the country lags behind by the percentage of banking equity to GDP (10.5% now) from the developed ones more than twice and from some CIS's states – by more than 5-7%.

According to the experts, the question of banking capital attraction from foreign markets is the key challenge for the Russian banking system development. The urgency of the issue is increasing due to the current toughening of the bank capital requirements in the context of the Basel II application in Russia. One of the most effective ways to increase equity capital of a bank is the IPO, the initial public offering, on the domestic (RTS or MICEX) or foreign stock exchange. The forecast of the Association of Russian banks made in 2007 shows that in the recent years at least ten banks are to initially float that in prospect should provide up to 80% growth of banking capital. However, the financial crisis cast doubts not only on the forecasts of the banks' IPO, but also on the phenomenon of the public emission of shares. In 2005, 15 corporations floated and received $4.5 billion. In 2006, the amount of the IPO reached 20 companies, the sum of attracted capital raised almost four times, up to $17.7 billion. But in 2007 the value indicator of the IPO amounted only to $18.8 billion (rate of increase dropped to 10% vs. 300%), over 2008 the value reached $25-28 billion. In 2009 only one IPO was carried out ($4.8 million).

Over the period of the Russian banking IPO development only five home banks floated on the stock exchanges: JSC "Sberbank", JSC "VTB", Bank "Vozrozhdenye", Bank "Saint-Petersburg", and JSC "NOMOS-BANK". All the IPOs, apart form the last one, were conducted in 2007 (NOMOS-BANK floated in April, 2011). Though several dozens of banks announced their plans to float in recent years, the plans were either cancelled or postponed. Evidently, the investor raises the issue concerning the degree of the credit crunch influence on the Russian banks' decision of the IPO conduct and the features of the Russian banking IPO market. The answer to these questions allows forecasting the perspectives of the IPO market and planning the investment portfolio. Another point under investor's consideration is the market value of the financial instrument and the possibility of its forecasting. This issue is especially urgent because of the high stock market volatility under pressure of the unstable economic situation.

Since no model capable of describing the dependence of the stock market value of the floated banks from the set of independent and predictable variables was developed, this research aims at tackling the problem. The creation of the applied model describing the system of dependence of the stock market implies not only scientific but also practical novelty, since the users of "the determiner of the bank stocks market value" are mainly the private investors. Thus, the aim of this work is the research of the Russian market of the banking IPO, the impact of the global financial crisis on the dynamics of the stock floatation of the Russian financial market as well as the research of the dependence of the stock market value of the banks-issuers on the macroeconomic and specific variables defining both the global market and the banking sector in Russia.

II. Features of banking IPO in Russia

The following particularities of the banking IPO in Russia can be singled out. State banks (the banks whose equity partially belongs to the government) were the first on the IPO market, since these are the largest Russian banks (by assets) whose credit ratings are close to the sovereign rating of the Russian Federation. These banks display long felt need for the capital increase to retain their share on the banking services market. The cost of the floatation is reasonably acceptable for them. All in all, these factors determined the time leadership of the Sberbank and VTB IPOs. Another feature is a number of restrictive factors that complicated the IPO of the private banks. These are: the requirement of the obligatory availability of a high credit rating given by the international rating agency; the undercover market requirement of the developed retail chain of a bank, including regional coverage; the strict legal regulations from the Bank of Russia whose implementation leads to the additional costs of a floatation; the high portion of non-core assets as a result of the numerous operations with the related parties that in aggregate decreases the value of a bank for investors; high amount of medium-sized banks for whom the IPO is unreasonable.

The financial crisis started at the end of 2007 worsened the situation of the Russian banking floatation. The unfavorable market conditions only prolong the boom of the banking IPO. On the other hand, the crisis phenomenon might stimulate the assets consolidations that in future might simplify the preparation procedure for the floatation. Given the fact that home and foreign as well as private and institutional investors are interested in the supply expansion in the financial sector, the demand for the bank stocks will be provided. Nevertheless, to simplify the IPO procedure the actions on the governmental level should be taken. They include the improvement of securities legislation, the creation of effective infrastructure of the Russian stock market, and the promotion of institutional investors' development.

III. Basic model

To analyze the global financial crisis impact on the quoted price of the Russian banks which carried out the IPO the example of "Sberbank Rossii" (Saving Bank of Russia) is taken. The analysis is based on the regression approach, i.e. the creation of a model showing the dependence of the variable-regressand (the market value of Sberbank stocks) from the set of variables-regressors. The choice of "Sberbank" as an object of analysis is supported, firstly, by the fact that "Sberbank" was the first bank that conducted the IPO in Russia in March, 2007. Consequently, the data base is fullest possible that increases the accuracy of the regression analysis. Secondly, Sberbank's stocks are of heightened liquidity and of greater demand compared to the stocks of other Russian banks. (The fact that the Bank of Russia holds more than 57% of Sberbank's stocks plays considerable role.) Since modeling of the market value of the bank stocks aims to be practical indeed, the regression analysis on the example of Sberbank gains currency.

The model's regressand is the increase of weekly market value of Sberbank common stocks. The source of information on stock quotations is the web-site of the RTS stock exchange where the instrument is traded. Market value is calculated according to the Russian Federal Securities Commission Enactment №03-52/pc from 24.12.2003 with a glance of requirements marked in Order of Federal Service of Financial Markets №07-102/pz-n from 09.10.2007. The model analyses weekly data from 26 March, 2007 to 31 December, 2009. The case highlights multidimensional non-stationary time series. The evaluation of the variables of a non-stationary time series model is implemented at two stages. At the first stage the initial series is converted into the stationary series; at the second stage the variables of the converted series are evaluated.

The time series contains downward linear trend. To convert it into the stationary series it needs to be differentiated. As a result of this operation the new time series is gotten:

$w(k) = x(k) - x(k-1)$

Hence, as a regressand the model considers the weekly market value increase of Sberbank stocks (d_sd). Another feature of the time series is that its further dynamics depends on its history and, therefore, reflects the tendencies carried by the variables values of a previous period. The stock market value of the current period records the quotation of the previous period a priori that delivers us from the necessity to introduce in the model the regressor of stock market value with lag (-1). The practical use of the model implies the possibility to construct anticipated values of the stock market value based on the forecasted value of the dependent variables. The difficulty in construction of anticipations with time series consists in the need to sequent forecasting of each period starting with the next after the period of the last analysis. So, to construct the value of a stock in the 5th period it is needed to forecast the 1st, 2nd, 3rd and 4th periods prior to analyzing the 5th period value.

Turn to the variables-regressors. Theoretically, the market value of stocks depends on: the company profit over the year; the dividends paid; the stocks' profitability, riskness and liquidity; the exchange speculations; the profoundness of the stock market; the current bank interest; the demand and the supply on the stock market; the real financial position of a stock company; the business activity in the industry and the country.

This analysis is based on the following variables:

1. Brent oil price per barrel, weekly average (brent): it characterizes general macroeconomic situation in Russia, the country of the raw materials export-oriented economy. The oil prices determine business activity of the economic agents, including the investors-speculators, and directly influence exchange bidding setting the trend of stock quotations of the companies from raw material and non-raw material industries.

2. The Dow Jones Industrial Average Index weekly increase, the closing price by the end of the last trading day of a week (d_dj): it characterizes the worldwide economic situation, since it reflects the stocks fluctuations of 30 largest industrial corporation of the United States. Stocks included in the index are quoted on the New York Security Exchange and make up 15-20% of the overall stock market value of NYSE on average. DJIA is the more favorable parameter than RTS Index to analyze, though the latter reflects the Russian economic situation straightly, due to the following facts: firstly, the DJIA to some extent influences the RTS index value, since Russian stock exchanges start bidding next to American ones, i.e. reproduce the western market tendencies; secondly, Sberbank is one of the corporation whose stock market value is included in the RTS index calculation (on October, 20, 2011 the weight of Sberbank common shares in the RTS index calculations amount to 13.30%, the weight of the Sberbank privileged shares is 1.16%). If included in the model, this parameter would cause the high correlation between the variables of RTS index and Sberbank stock market value and would decrease the result accuracy.

3. Actual MIACR interest rate on daily interbank loans, weekly increase (d_maicr): it characterizes the current bank interest and simultaneously uncover the tendencies on the banking sector as the analyzing industry;

4. Dollar rate, weekly increase (d_rur_usd): it characterizes macroeconomic situation in the country as a part of the outer space;

5. Bank ROE, weekly increase (d_roe): it characterizes the profitability of banking business for its owners calculated deducting the interests on loans (i.e. net profit compared to ROA or ROIC is not corrected on the loan interests); it reproduces the actual financial situation in the company;

6. Bank ROA, weekly increase (d_roa): it characterizes the managers' ability to effectively exploit bank assets to earn profit. Moreover, this coefficient contains average yield on all capital sources (equity and debt);

7. Sberbank deposits to Russian banking system deposits ratio, weekly increase (d_dep): it characterizes both the degree of population trust to the banks and the overall tendencies in the banking sector;

8. Banking system assets to GDP ratio, weekly increase (d-a_gdp): it characterizes the degree of the banking sector development.

Taking into consideration the fundamental prerequisites of the time series theory, the stock market value of the previous period is not included in the model. Historical quotation data contain information about stocks riskness and liquidity as well as about current demand for and supply of the instrument on the market. This information is recorded in the model automatically. The research is conducted under standard 5% confidence level of coefficients. To evaluate the coefficients the OLS method is used, i.e. the calculation of sums of error squares from the accurate solution.

IV. Empirical Results

After constructing the regression dependence between the variables overviewed above, sifting insignificant ones and including additional variables, the following result is obtained.

Table 1 – Regression analysis of the market value of Sberbank stocks

Dependent Variable: D_SB				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.189856	1.092807	2.918955	0.0045
BRENT(-12)	-0.041470	0.011951	-3.470031	0.0008
D_DJ(-1)	0.002165	0.000786	2.753379	0.0072
D_DJ(-2)	0.002418	0.000778	3.109801	0.0025
D_MIACR(-10)	-0.293810	0.128757	-2.281887	0.0249
D_ROA(-4)	1314.992	576.2917	2.281817	0.0249
D_ROE(-2)	81.91116	37.33912	2.193709	0.0309

The results shows that at 5% confidence level all coefficients are significant (Probability < 0.05), the regression itself is also significant (Probability=0.000001). Moreover, other coefficients represented confirm high efficiency of the given regression usage. As the main criterion of the model likelihood, the Adjusted R-square can be used though many researchers admit the argumentativeness of this viewpoint. In this case the Adj. R-square value equals 31%.

It is worth explaining the appearance of the new variables and the final results. To start, the model shows that the market value of the bank stocks definitely depends on the Brent oil prices with 12 weeks, i.e. one quarter, lag. The obtained dependence is negative. This fact as well as the quarter lag is explained by the long-term negative oil prices dynamics causing the investors money spillover from the oil and gas sector to the non-oil industries, including the banking sector, with the course of time. Capital inflow positively affects the market value of stocks: increasing demand stimulates investors' interest in the new financial instruments of their portfolio. From the model it follows that investors' reorientation owing to oil prices changes takes 12 weeks. The lag is obtained though examination of options. This approach is applied to other variable as well.

The market value of the bank stocks also positively depends on the increase value of the DJIA Index of the previous and (t-2) periods; the significance of the variable in (t-2) period is slightly higher at that. The dependence might be explained by the impact the DJIA has on the general stock market situation in Russia. Under the time zones difference, the need of the revaluation of the country economic position on the global market and other conditions, the dependence with "looking back" appears: not only the last index data is considered, but also the earlier history. Nevertheless, it is worth mentioning that the DJIA is the only variable whose changes affect the market value of bank stocks almost immediately. The variable "increase of actual MIACR interest rate on daily interbank loans" negatively affects the market value of bank stocks that is predictable and logical: the decrease of the interbank interest rate signals of stabilization or improvement of the banking sector situation (the risks of interbank operations reduction). However, the regression analysis shows the significance of the variable in (t-10) period, i.e. the market value records the data of two and a half months remoteness.

ROA increase with one month lag and ROE increase with 2 weeks lag affect the regressand positively. Interestingly, the coefficients before these variables exceed those before others significantly (1314.992*D_ROA(-4) and 81.91116* D_ROE(-2)).

Thus, after the model construction such variable as the dollar rate increase, the bank deposits to the Russian banking system deposits ratio and the banking system assets to GDP ratio turn out to be insignificant.

The final version of the model is:

D_SB=3.189856*C - 0.04147*BRENT(-12) + 0.002165*D_DJ(-1) + 0.002418*D_DJ(-2) - 0.293810*D_MIACR(-10) + 1314.992*D_ROA(-4) + 81.91116*D_ROE(-2)

The main particularity of the model is that it does not record the economic crisis phenomenon, i.e. it does not reflect the influence of economic changes on the market value of bank stocks. To analyze the impact of the financial crisis on the market value of bank stocks, the model should be modified.

V. Basic Model Adjusted to Crisis Effect

To research the fact and the form of the financial crisis effect on the market value of bank stocks it is necessary to include the additional variable reflecting the breaking point in the tend of variables-regressors in the earlier created model. To mark the crisis beginning the period next to that of Brent oil prices maximum is chosen.

Fig.1 shows that after 07 July, 2008 the declining trend is outlined. Accordingly, let us consider that the crisis effect became evident after the marked date.

Figure 1 - Brent oil prices
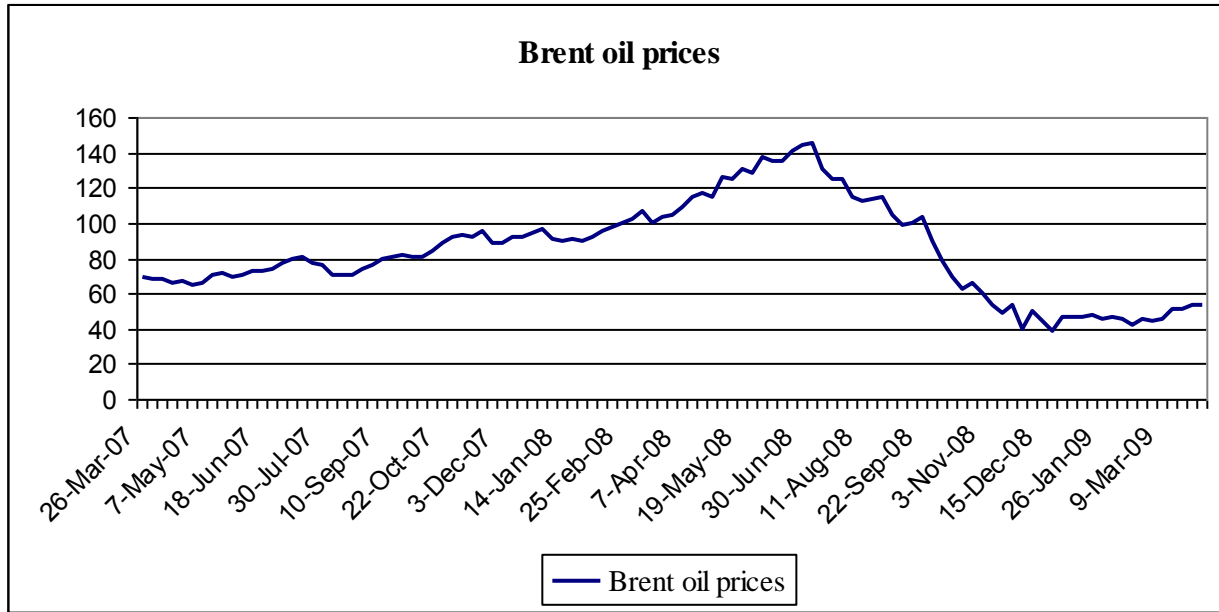
On this assumption, the new variable identifying the crucial point is introduced into the model:

$$d\,\mathrm{var} = \begin{cases} 0, x \le 65 \\ 1, x. > 65 \end{cases}$$

$$x \in [1;107] - period\_number$$

Variable "dvar' would not affect the model if it did not relate to any regression variable. In this case, the relevant variable is the DJIA increase in (t-1) period. Thereby, the variable "dvar" is significant only when multiplied by the difference of the DJIA shifted one period back (Fig. 2). This dependence reflects the crisis effect.

Figure 2 – The DJIA Index weekly increase
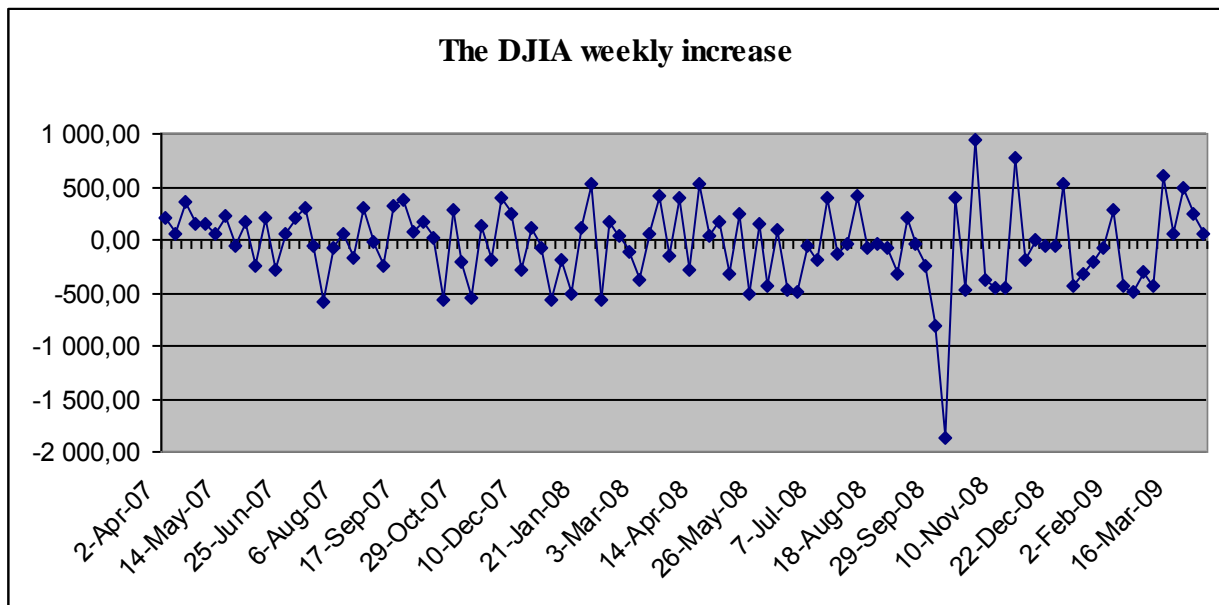
VI. Empirical Results of Adjusted Model

Table 2 gives the result of the model adjusted to the crisis effect.

Table 2 – Regression results of the market value of Sberbank stocks, crisis effect included

Dependent Variable: D_SB				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.483070	1.039989	3.349140	0.0012
BRENT(-12)	-0.044778	0.011376	-3.936169	0.0002
D_DJ(-1)	0.005740	0.001320	4.349089	0.0000
D_DJ(-2)	0.002669	0.000741	3.601431	0.0005
D_MIACR(-10)	-0.339965	0.122888	-2.766455	0.0069
D_ROA(-4)	1710.642	559.5471	3.057190	0.0030
DVAR*D_DJ(-1)	-0.005250	0.001599	-3.282573	0.0015

Compared to the previous model, here the variable "d_roe(-2)", return on equity, is excluded from the model because of its insignificance. Considering that ROA still has impact on the stock market value (and the coefficient before the variable increases), it might be concluded that under crisis conditions investors pay more attention to the company management ability to cope with critical situation in the industry to the prejudice of bank profitability. To remind, ROA shows the bank management ability of use effectively bank's assets to gain profit. This issue is particularly acute in case of the sharp credit interest increase that leads to the mass flight of bank clients-borrowers.

The new variable "dvar*d_dj(-1)" is significant (as well as the model on the whole). The variable represents the negative impact of crisis on the market value of stocks. Notably, one of the key factors of the model likelihood estimation – Adjusted R-square – increases in comparison with the first model and equals to 37.7% (against 31%) that proves more likelihood of the second model. The model also does not contain standard errors, namely autocorrelation (correlation between values of one and the same stochastic process x(t) at the moment t1 and t2) and heteroscedasticity (the situation of the equation error variance changing from observation to observation). The autocorrelation absence verification is conducted through Durbin-Watson statistics: the value is 2.2. Since it is close to 2, the high autocorrelation is not observed. Let us construct the remainders regression on their values of the previous time period.

Table 3 – Remainders regression their values of the previous period, ls res c res(-1)

Dependent Variable: RES				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.008783	0.273102	-0.032159	0.9744
RES(-1)	-0.114760	0.104557	-1.097585	**0.2753**

From the table, the lagged value of the remainder influences its current value statistically insignificantly (at 5% confidence level the value of probability is 0.2753). Thus, there is no first-order autocorrelation. The construction of similar regressions for lags more than 1 will show the absence of the autocorrelation problem.

As for heteroscedasticity, according to the White test, there is no basis to reject the null hypothesis, i.e. the hypothesis implying homoscedasticity of the data set. In other words, the problem of heteroscedasticity is not revealed.

Table 4 – White Heteroscedasticity Test

F-statistic	1.204688	Probability	0.260378
Obs*R-squared	47.87039	Probability	**0.281670**

Hence, the research result presents the following model:

D_SB=3.483070*C - 0.044748*BRENT(-12) + 0.005740*D_DJ(-1) + 0.002669*D_DJ(-2) - 0.339965*D_MIACR(-10) + 1710.642*D_ROA(-4) - 0.005250*DVAR*D_DJ(-1)

VII. Conclusion

The main differences of the new modified model considering crisis effect from the first regression are:
1. Introduction of new statistically significant variable "dvar" related to the variable "d_dj(-1)" which reflects negative impact of the global financial crisis on the market value of bank stocks.\

2. Increase of the values before coefficients related to oil prices and increases of the DJIA Index as well as before interbank interest rates and return on assets; it means that the significance of macroeconomic data and the variable characterizing the current financial bank activity grows.

3. After introduction of the new variable, the variable "return of equity" lost its significance that means the shift of investors' orientations from detailed analysis of the bank profitability to more general factors of the global economy development and the home banking sector on the whole.

The final version of the model constructed allows forecasting the market value not only of Sberbank stocks, but also of other Russian banks whose stocks are quoted on the stock exchanges. As the companies which carried out the IPO are to publish detailed accounting of their financial activities, the data needed to conduct the analogous research concerning other banks is free to access. Both the macroeconomic indicators and the indicators of the banking sector activities are available on the Internet.

To acknowledge the practical justifiability of the model considering economic crisis, the regression was tested on the data of the market value of common stocks of "Bank VTB" as well. The result obtained confirms the justifiability of the model:

$$D\_VTB = 2.994765*C - 0.045874*BRENT(-12) + 0.005183*D\_DJ(-1) + 0.002982*D\_DJ(-2) - 0.4782746*D\_MIACR(-10) + 2259.730*D\_ROA(-4) - 0.009002*DVAR*D\_DJ(-1)$$

It is evident that the coefficients significance of the model tested on the Bank VTB data differs from that obtained for Sberbank. But the set of indicators is the same that proves the justifiability of the regression. The changes of coefficients are insignificant for the variable of the oil prices, the DJIA Index and the constant variable. The sharp increase of the significance of such a variable as ROA (1.3 times more) is explained by the fact that Bank VTB is the smaller financial institution compared with Sberbank. Despite the share of government capital in the equity of the bank, it is stressed by the model that while evaluating the market value of VTB stocks investors pay more attention to specific banking indicators reflecting the current performance of the institution but not macroeconomic variables. The raise of interbank interest rate significance (industrial factor) is also obvious.

Thus, the model explaining the formation of the market value of bank stocks can be called universal that is proved by the tests on several banks data; the model can be recommended for private and institutional investors. Nevertheless, according to the econometric variable of the model confidence (if adhere to point that Adjusted R-square criterion fully reflects the representation of research results), the model can be improved through the introduction of the additional variables. This conclusion leaves the room for the further research activity.

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