

Kazan Federal University

**SHAREHOLDER VALUE CREATION IN AN INEFFICIENT
CAPITAL MARKET**

by

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I. GENERAL OUTLINE OF THE DISSERTATION

Relevancy of the research. The difficulty of long-term financial resources mobilization substantially constrains the opportunities for modernization of Russian companies as well as for correction of structural imbalances in national economy. The economic slowdown, global financial instability, potential reduction in inflow of funds from abroad combined with decrease in investment activity in the real sector of Russian economy necessitate activation of market mechanisms of mobilization of funds held by resident investors. One of the most efficient tools for raising non-speculative capital appears to be the sustainable creation of fundamental value for suppliers of funds. At the same time, development and implementation of a financial management system oriented on shareholder value creation in the long-run requires adjustment for specifics of informationally inefficient (in terms of E. Fama), illiquid and volatile national capital market.

The relevancy of investigation of fundamental and market value creation process for Russian companies stems from the need to identify key factors contributing to mobilization of long-term funds of resident investors and to increase the efficiency of financial resources allocation as a whole. On the academic level the importance of the problem results from almost total lack of studies based on advanced econometric analysis taking into account possible endogeneity of variables, related to investigation of wide range of financial as well as nonfinancial factors affecting Russian companies' market value and the rate of total shareholder return. From application-oriented perspective, the relevancy of the problem lies in the necessity to develop practical guidelines for shaping policy in the field of organizational finance as well as for corporate policy of relations with financial stakeholders.

We also consider to be quite important the research of the role market inefficiencies play in shareholder value creation through decisions on capital mobilization (financial drivers) as well as their effect on shaping of companies' investment decisions (investment drivers) and of instruments for implementing a system of managing corporate finance in the framework of financial structure oriented on company's market value growth in the long-term and taking into account constraints of an inefficient capital market.

The identification of practical mechanisms of decreasing agency costs undermining the potential of fundamental value creation for capital suppliers due to divergences of interests between company shareholders and managers is of high relevance. Without an effective functioning of such tools the mobilization of resident investors' funds through their investments in equity does not seem to be viable.

Previous studies. Among previous theoretical and conceptual studies of the process of companies' fundamental and market value creation we should single out the works of A. Dolgoff, A. Rappaport, B. Stewart, J. Stern, D. Young, J. Grant, J. McTaggart, E. Ottosson, P. Fernandez, S. Myers, S. O'Byrne, T. Koller, T. Copeland, T. Madden, A. Black, E. Olsen. The papers by K. French, A. Kleidon, B. Hall, G. Biddle, Z. Griliches, I. Pandey, K. Chua, L. Chen, P. Malighetti, R. La Porta, S. Thomsen, T. Pedersen, W. Fruhan, X. Zhao, E. Fama are devoted to the empirical testing of factors influencing companies' market value under the conditions of developed capital markets.

Among Russian scientists, a significant contribution to the investigation of problems of implementing value-based methods of financial management was made by D. Volkov, A. Buhvalov, I. Ivashkovskaya, M. Fedotova, T. Teplova, I. Nikitushkina, Y. Eleneva.

The efficiency market hypothesis in modern financial theory is based on the original research carried out by A. Cowles, B. Mandelbrot, L. Bachelier, E. Fama, M. Jensen, M. Kendall, P. Samuelson, T. Bollerslev, H. Working. In Russian scientific literature studies of the problems of efficient capital markets are mainly represented by the analysis of the Russian market information efficiency level; among the latter we can single out the papers by A. Leonidov, A. Shiryaev, V. Nalivaitski, E. Fedorova, E. Gilenko, E. Alifanova, I. Ivanchenko, M. Limitovski, N. Petrosyan.

N. Majluf, S. Myers, O. Blanchard, R. Barro, R. Morck, R. Stulz, R. Hubbard, S. Fazzari investigated the influence of investment drivers on companies' market value. J. Graham, M. Goehart, M. Miller, M. Ross, P. Brown, R. Dobbs, S. Rajan, T. Koller, F. Modigliani contributed to the accumulation of empirical estimates regarding the impact decisions on capital mobilization have on a company's market value.

However large is the body of scientific literature addressing theoretical and conceptual problems of shareholder value creation and providing empirical tests of companies' value drivers, the studies are mainly based on samples of companies representing developed market economies, and their conclusions and recommendations are valid only if the precondition of an efficient capital market holds. At the same time, specifics of value based financial management under the conditions of imperfect capital markets are still not sufficiently investigated. Among other factors, there is a lack of studies aimed to investigate the specifics of value based financial management in a volatile, low-liquid, informationally inefficient capital market; there are no empirical estimates of the influence shareholder value factors and drivers have on Russian companies' value and the rate of shareholder return; the problem of developing and implementing compensation plans stimulating

value creation in the long run under the conditions of an imperfect capital market has not been thoroughly investigated either.

The relevancy and practical implications of the aforementioned issues determined the topic of the dissertation, defined its object, scope of research, its aim and objectives.

Aim and objectives of the research. The aim of the dissertation is to obtain empirical estimates of the main shareholder value factors and drivers for Russian companies as well as to adapt instruments and tools of value-based financial management to the conditions and constraints of an inefficient capital market.

In order to accomplish the stated aim we set and attained the following research objectives:

1. To examine theoretical foundations of value creation process, to identify companies' value factors and drivers.
2. To analyze the concept of capital market efficiency in the context of financial management aimed at sustainable shareholder value creation in the long run.
3. To explore the specifics of managing corporate finance regarding decisions on attracting sources of financing and on investment policy under the conditions of an inefficient capital market.
4. To test empirically shareholder value creation determinants in the Russian capital market.
5. To investigate the effect of investments in different types of assets on Russians companies' market value as well as to identify driving forces of domestic companies' investment activity.
6. To substantiate instruments of development and implementation of a system of value based financial management based on value creation responsibility centers.
7. To develop recommendations on constructing compensation plans stimulating shareholder value creation applicable in an inefficient capital market.

Object of the research is large non-financial companies of the Russian economy.

Scope of the research is economic relations within the process of shareholder value creation as well as tools of financial management aimed at growth of company's market value in the long-run.

Theoretical and methodological foundation of the dissertation consists of previous studies by Russian and foreign scientists of problems regarding business valuation, corporate finance, the efficient functioning of equity market, shareholder value creation.

In the research we used the following analytical tools: general scientific methods of systematic and comparative analysis, induction and deduction, positive and normative approaches. In particular, we widely used methods of econometric

modeling; among others, univariate and multivariate analysis, parametric and nonparametric tests, linear and nonlinear analysis of longitudinal data (probit- and tobit-models) including pooled, random effects and fixed effects regressions were employed. Application of the aforementioned methods substantiates the validity of obtained quantitative estimates, recommendations proposed and conclusions drawn. All calculations as well as data management were performed using software packages STATA12.0, SPSS Statistics 17.0.

Information base of the research consists of the scientific results of previous theoretical and empirical studies carried out by Russian and foreign authors. The source of data used in the dissertation for forming our samples is the “System for Professional Analysis of Markets and Companies” (SPARK) insofar as companies’ financial statements and registration data are concerned while the share price statistics was acquired from the MICEX information portal, data disclosed by federal agencies (Russian Federal State Statistics Service, Federal Tax Service of Russia) and companies themselves were also used.

Contents of the research are in accordance with article 5.1 «Theory, methodology and conceptual principles of different objects value formation, article 3.25 «Finances of investment and innovation processes, financial instruments of investing», article 3.25 «Managing corporate finances: methodology, theory and corporate control transformation» of the Ministry of Education and Science Higher Attestation Commission Index of Subject specialism 08.00.10 – Finance, Money Circulation and Credit.

Scientific novelty of the research lies in empirical testing of factors determining Russian companies’ market value as well as in developing the instruments of financial management aimed at sustainable shareholder value creation in the long run taking into account specific nature of Russian capital market. In particular, the following contributions can be singled out:

1. The following definitions: «inefficient capital market» «shareholder value», «value driver» were revised and adjusted according to the nature of this research. The term «inefficient capital market» describes a capital market characterized by high level of volatility, weak information efficiency and low level of liquidity. The term «shareholder value» implies the analysis of a company’s market value from the position of its owners; it is characterized by gains which shareholders can make from investing in the company. The term «value driver» defines intentional efforts of managers to maximize the creation of shareholder value. Besides, we identified the main stages of market efficiency concept development from the perspective of based on various stochastic distributions different econometric approaches employed to model price data (stock prices, interest rates, currency exchange rates). Institutional, legal and cultural requirements which are necessary to

be met in order to decrease a gap between the fundamental value and market value of Russian public companies were discussed.

2. Specifics and limitations of value-based financial management under the conditions of an inefficient capital market were investigated. Regarding decisions on mobilizing funds, we suggest that terms of financing can be improved through employment of such instruments as cross-listing on more informationally efficient security markets, issuance of hybrid securities; at the same time, timing for issuing securities can become quite important while financial models for quantifying the required rate of return in corporate finance are faced by additional specific restrictions. Regarding corporate investment decisions, market inefficiencies cause the problems of moral hazard and adverse selection in capital budgeting, lead to higher agency and transaction costs, the sensitivity of investment activity to accessible internal funds should increase with growth in the spread of the costs of external financing as compared to internal financing. We also argue that financial signaling tools (share buyback, exercising of stock options by managers, dividend policy etc.) can be productively employed to decrease information asymmetry between insiders (managers, majority shareholders) and outsiders (other investors) in an inefficient capital market.

3. Econometric models for evaluation of the influence the fundamental value factors (profitability, risks, ownership structure, industry effects, other individual characteristics) have on Russian companies' market value and on the rate of total shareholder return were developed. The obtained results demonstrate that macroeconomic performance makes much stronger contribution towards shareholder value creation as compared to individual company characteristics (macroeconomic situation represents about 2/3 of the models' explanatory power). Financial drivers (return on assets, leverage, investment expenditure, risk exposure) are positively related to creation of shareholder value. State-owned companies are traded with a certain discount while those with substantial share of stock owned by nonresident investor are traded with a certain premium. Other control variables (company size, age, industry-specific effects) are statistically significantly related to shareholder value creation indicators. Individual company characteristics are quite important for comparative valuation of the company by the market, though they are of substantially lower significance in explaining of shareholder returns.

4. Quantitative estimates of the impact investments in different kinds of assets (investments in fixed assets, working capital, intangibles, long-term and short-term financial assets) have on shareholder value creation in the Russian financial market were obtained. The results show that investment in intangible assets acts as the strongest determinant of shareholder returns compared to other investment drivers. Investments in new equipment are associated with higher comparative market value

of a company. At the same time, companies most actively increasing investment in working capital are traded with a certain discount. Investments in long-term financial assets are negatively related to both comparative market value of the company and the level of shareholder return, while no statistically significant influence of investment in short-term financial assets over company value is discovered. Besides, an analysis of the incremental investments' determinants of Russian companies was performed. The obtained results demonstrate that in the Russian financial markets internal financing sources play a primary role in explaining companies' investment activity. Accessibility of external incremental financing significantly influences investments expenditures. The level of financial leverage is positively correlated with the dynamics of investments which proves the close intertwining of investment and financial decisions. Quantitative estimates of the nonlinear reduction in companies' investment activity depending on their age are presented.

5. A proprietary approach towards development and implementation of a system of managing corporate finance based on shareholder value drivers was suggested. Within the framework of this approach we propose the following components: identification of key value drivers and instruments of activating them, implementation of an integrated value-based AB-costing system for allocating opportunity cost of equity on different products, monitoring the value creation process through the integration of value indicators into the systems of budgeting and controlling of a company, implementation of a performance-based incentive plan stimulating sustainable shareholder value creation under the conditions of an inefficient capital market and taking into account created real options. We also propose to establish the shareholder value creation center as a separate responsibility center within the financial structure of a company.

Theoretical and practical relevance of the research. The theoretical importance of the thesis research in general lies in development of an integrated system of verifiable, empirically tested as well as conceptually consistent estimates of factors affecting shareholder value creation in the Russian capital market. The obtained quantitative estimates can also contribute to the accumulation of empirical results on the problems of value-based financial management in a capital market characteristic to an emerging market economy operating in an unstable external environment. The practical relevance of the research lies in potential application of suggested propositions and recommendations by the management of Russian companies in order to improve the efficiency of managing corporate finance in the domestic financial market; the obtained results can be also useful for the financial authorities for the purpose of organizations' finance regulation.

Approbation of the research results. The main conclusions and recommendations of the research were presented and discussed at several Russian

and international scientific conferences and received positive reviews. Several reports outlining the main findings of the research received scientific awards: winner's certificate of «All-Russian contest of scientific projects of the Plekhanov Russian University of Economics» (Moscow, 2012), winner's certificate of the international scientific contest «Corporate governance and investment in a global economy» (Yekaterinburg, 2014).

The main research results were used in the development of syllabuses, manuals and teaching courses at the Kazan Federal University for the following subjects: Corporate finance, Financial management of multinational companies, Modern problems of corporate finance, Empirical studies in economics.

The research propositions and conclusions are presented in 12 published papers, including 7 major papers in journals recommended by the Russian Ministry of Education and Science Higher Attestation Commission and 4 papers in Scopus indexed journals.

Structurally the thesis consists of an introduction, three chapters, including nine sections, conclusions, a references list and appendixes. The thesis volume comprises 191 pages, 22 tables, 22 figures and 20 appendixes. The list of references includes 252 sources. Schematic diagram of the thesis is presented in Figure 1.

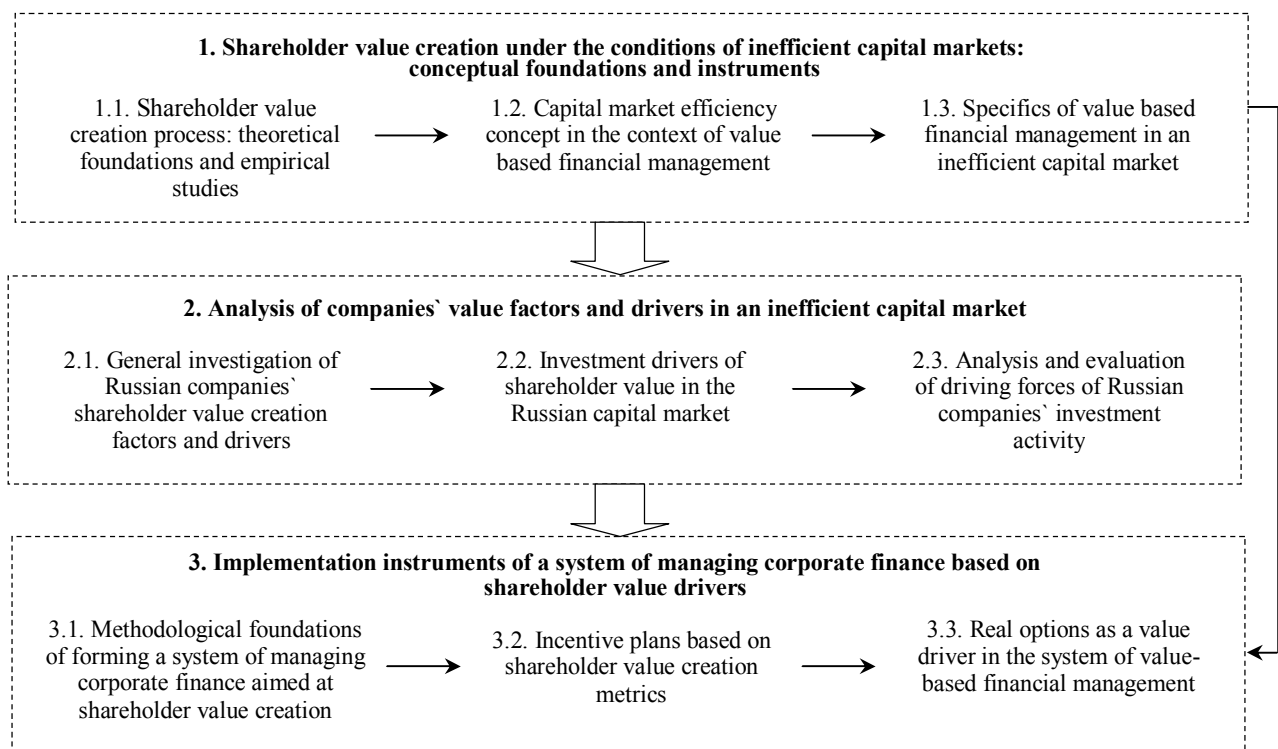


Fig. 1. Schematic diagram of the thesis

II. MAIN SCIENTIFIC RESULTS

1. The following definitions: «inefficient capital market» «shareholder value», «value driver» were revised and adjusted according to the nature of this research . Besides, we also identified the main stages of market efficiency concept development from the perspective of based on various stochastic distributions different econometric approaches employed to model price data (stock prices, interest rates, currency exchange rates). Institutional, legal and cultural requirements which are necessary to be met in order to decrease a gap between the fundamental value and market value of Russian public companies were discussed.

In the research we define the following terms: «inefficient capital market» «shareholder value», «value driver». The term «inefficient capital market» describes a capital market characterized by high level of volatility, weak information efficiency (in terms of E. Fama) and low level of liquidity. Thus, inefficient capital markets cannot be considered as an adequately functioning institution of financial resources allocation. The term «shareholder value» implies the consideration of a company's market value from the position of its owners; it is characterized by gains which shareholders can make from investing in the company and used in the context of shareholder value creation by analogy with the term of economic value added. The term «value driver» defines intentional efforts of managers to maximize shareholder value, at the same time, we also can single out shareholder value factors which influence a company's value independently from managers' actions.

The market efficiency concept is based on previous studies which dealt with modeling the probabilistic structure of price data (stock prices, interest rates, currency exchange rates). Scientists successfully employed different stochastic processes using various «random walk» statistical models for describing equity prices. The adequate approximation of actual price data by the theoretical models provides strong evidence in favor of unpredictability of future changes in financial assets' prices (Figure 2). The unpredictability, in turn, is by definition a necessary condition of capital market informational efficiency (otherwise, if future prices can be predicted, it means that not all information has been reflected in the actual prices).

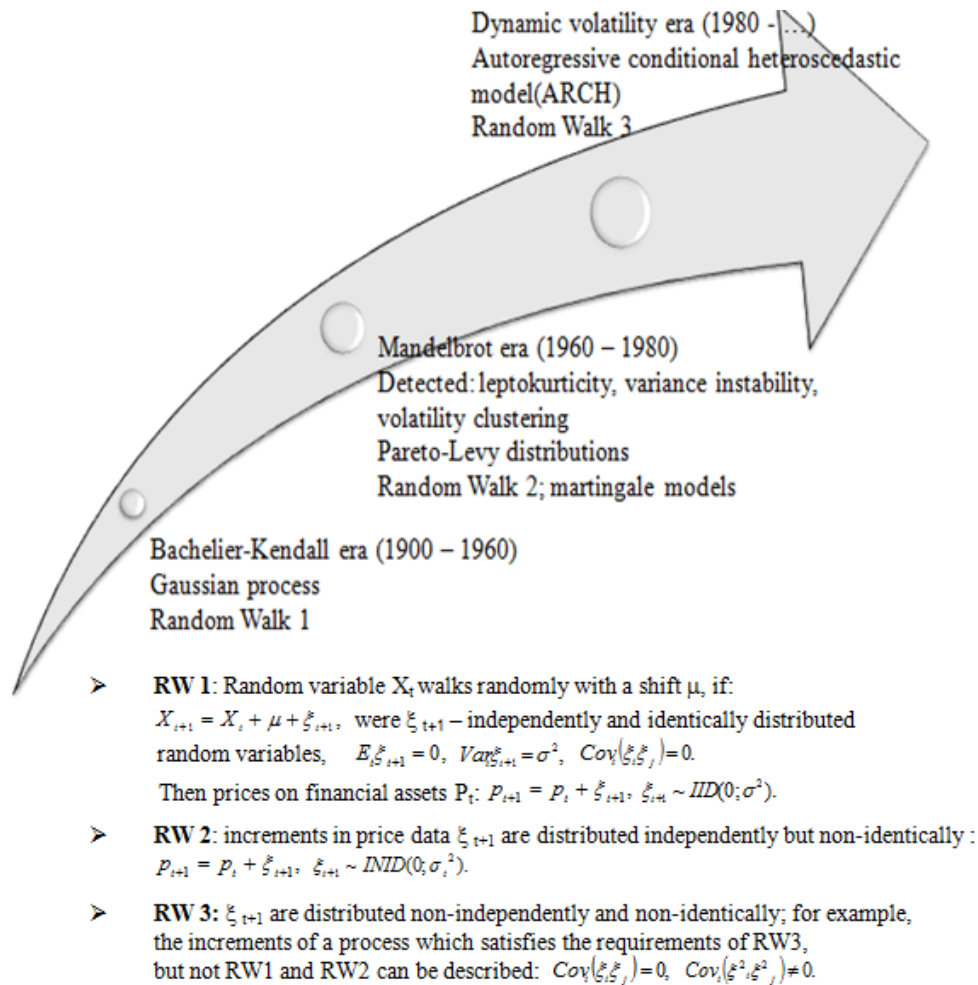


Fig. 2. Equity price data modeling and market efficiency concept

Under the conditions of an informationally efficient capital market the expected return on investment in a financial asset should be equal to the opportunity cost of investing in other assets characterized by the same level of risk; to put it differently, the market price of an asset should be equal to its fundamental value. As our literature review of previous empirical studies demonstrates, the results of tests aimed at assessing the Russian capital market efficiency level are quite ambiguous. We adhere to the position that the Russian capital market is efficient at least in the weak form (in terms of E. Fama).

The following requirements have to be met to decrease the gap between fundamental values and market values of Russian public companies:

- institutional requirements; this category includes requirements to develop institutional environment regarding information disclosure standards and procedures, instruments for proving reliability and verification of disclosed information;
- legal requirements; this category includes requirements to protect the rights of minority shareholders (rights on receiving information about companies' financial results and fundamental value, protection from losses inflicted by non-arm's length transactions initiated by insiders);

– cultural requirements; this category implies a high level of «contract trust» between economic agents as opposed to the trust based on personal relations.

2. Specifics and limitations of value-based financial management regarding decisions on mobilizing sources of financing and investment decisions under the conditions of an inefficient capital market were investigated. It was also demonstrated that financial signaling tools (share buyback, exercising of stock options by managers, dividend policy etc.) can be productively employed to decrease information asymmetry between insiders (managers, majority shareholders) and outsiders (other investors) in an inefficient capital market.

Modern instruments of managing corporate finance aimed at shareholder value creation are based on the prerequisite of an efficient capital market. At the same time, implementation of shareholder value based financial management requires adjustment for specifics of an informationally inefficient, illiquid and volatile national capital market.

Figure 3 summarizes the identified specifics of managing corporate finance with regard to capital mobilization (financial drivers) and investment decisions (investment drivers) under the condition of an inefficient capital market.

Major consequences of a capital market's inefficient functioning which influences decisions on mobilization of funds were identified:

– additional opportunities for improving terms of financing emerge through the usage of such instruments as cross-listing on more informationally efficient security markets, the issuance of hybrid securities (for instance, convertible bonds);

– timing for issuing new shares can become quite important; the position of a company will depend on the divergence between a company's market and fundamental value; if a company is overvalued in the market, then the shareholders would benefit from an immediate issuance of shares (or from using shares as a payment for an acquisition), if a company is undervalued in the market, then the shareholders would be better off postponing new issues of shares (or through repurchasing of own shares by the company in the market);

– decisions on financing and investment activities should by no means be analyzed separately, one should take into consideration that a company's market value can be viewed as a proxy-variable of external funds accessibility;

– capital market inefficiencies impose additional constraints on financial models which are actively used in managing corporate finance such as Capital Asset Pricing Model CAPM, Arbitrage Pricing Theory APT (for calculating the required rate of return on equity), Black-Scholes Option Pricing Model for evaluating real options in investment analysis.

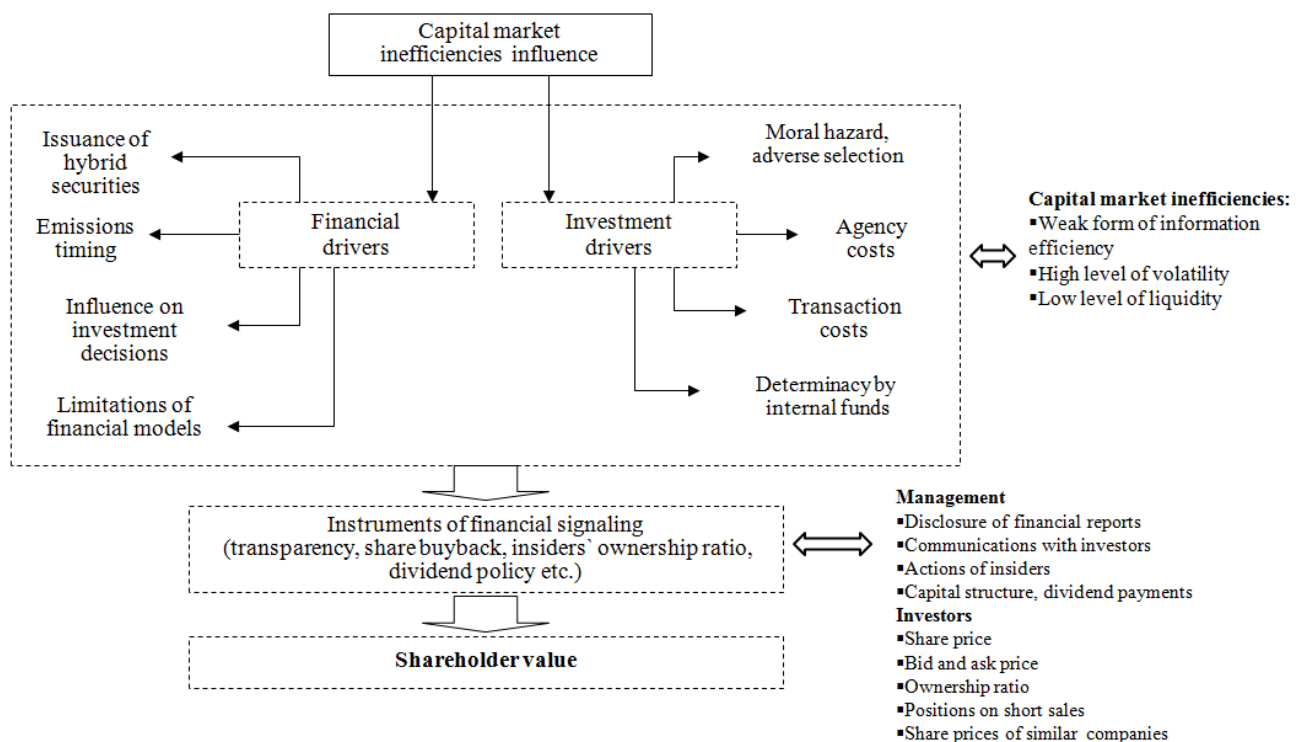


Fig. 3. Capital market inefficiencies and shareholder value based financial management

We should also take into account the impact capital market inefficiencies have on capital budgeting of companies:

- information asymmetry between insiders and creditors causes higher costs on attracting borrowed funds (creditors demand a premium for the risk of not being properly informed about some crucial aspects of company's operating activities and financial position), the latter can lead to the rejection of relatively low-risk investment projects by companies in good financial state (the problem of «adverse selection»); at the same time, the aforementioned problem of information asymmetry can induce companies to accept investment projects with a higher levels of risks and to deliberately «transfer» part of the risks to creditors («moral hazard»);

- higher agency costs; managers are more likely to carry out projects not creating shareholder value but attaining some personal managerial goals (e.g. «imperial ambitions»), moreover in an inefficient and low-transparent capital market the external monitoring of executives is limited;

- under the conditions of high market transaction costs companies may prefer investing in non-core activities themselves instead of outsourcing them;

- high spread between the costs of external financing vs. internal financing costs often compels managers to rely mostly on internally generated funds in capital budgeting.

Furthermore, the insiders of a company possess more complete information about its true financial position and can use corporate communication tools in order to «correct» the company's inaccurate market value. For instance, if managers are

sure that the company is currently undervalued by the market they can employ instruments of financial signaling to alleviate the misvaluation. The main way of communicating with outsiders is corporate transparency policy. However, not information disclosure but real actions of insiders such as share buybacks, exercising of managerial stock options, dividend policy etc. will be more convincing (informative) financial signals.

3. Econometric models for evaluation of the influence the fundamental value factors (profitability, risks, ownership structure, industry effects, other individual characteristics) have on Russian companies' market value and on the rate of total shareholder return were developed.

The obtained results of econometric modeling of the influence the shareholder value drivers and factors have on Russian companies' market value and on the rate of total shareholder return allowed us to draw the following conclusions:

- macroeconomic performance makes much stronger contribution towards shareholder value creation as compared to individual company characteristics (macroeconomic situation represents about 2/3 of the models' explanatory power);

- financial drivers (return on assets, leverage, investment expenditure, risk exposure) are positively related to creation of shareholder value; for instance, according to our estimates, the 10% higher return on assets is associated, ceteris paribus, with increase in market-to-book multiple by 0.085 and with higher total shareholder return by 6%; higher by 10% level of financial leverage leads to higher values of market-to-book and price/earnings multiples approximately by 0.09 and 0.97 respectively and to higher total shareholder return by 2.3 %;

- ownership structure variables influence companies' market value; all other factors held equal, companies with participation of the state in equity capital are traded with a certain discount while those with controlling nonresident shareholder – with a certain premium to the market;

- according to the estimates obtained the degree of ownership concentration is not related to comparative valuation of company by the market; however it is negatively related to total shareholder return;

- control variables (company size, age, industry-specific effects) are statistically significantly related to shareholder value creation indicators;

- individual company characteristics are quite important for comparative valuation of the company by the market, though are of substantially lower significance in explaining of shareholder returns.

The empirical study of the impact the fundamental value factors have on Russian companies' market value and on the rate of total shareholder return was based on panel data. The sample of public companies representing nonfinancial sector of Russian economy was formed on the basis of data covering the 2004-2012

period; the sample included 107 listed on MICEX (Moscow Interbank Currency Exchange) companies. The applied relevance of analysis performed lies in its role in enabling managers to single out value drivers for companies in an incomplete financial market.

In this research the total shareholder return indicator as well as value multiples, such as market-to-book and price/earnings ratios, are used as shareholder value creation metrics. Factors and drivers of shareholder value creation according to earlier works in the field of business valuation and availability of basic data are broken down into three groups:

- financial drivers (profitability, leverage, risk, investment activity);
- ownership structure characteristics (state ownership, presence of big foreign shareholder, degree of ownership concentration);
- other control variables (company's size, age, macroeconomic situation, industry-specific effects).

Descriptive statistics as well as calculation algorithms of variables used in analysis are presented in Table 1.

Table 1

Descriptive statistics for the years 2004-2012

Variable	Description	Mean	St. dev	Min	Max
Market-to-book multiple	Market capitalization / book value of equity capital	1.21	0.65	0.28	2.63
Price-to-earnings multiple	Market capitalization / net earnings	11.60	7.83	1.76	32.69
Total shareholder return	Market capitalization growth rate + dividend yield	0.13	0.58	-0.92	1.92
Profitability	Net earnings / total assets	0.07	0.09	-0.25	0.37
Investments	Fixed assets growth rate	0.19	0.31	-0.36	1.73
Leverage	Proportion of debt in financial structure	0.46	0.25	0.00	0.92
Risk	Coefficient of variation of sales revenue for the years 2004-2012	0.52	0.24	0.13	1.27
State ownership	Dummy variable, =1 if the government holds ownership interest in the company; =0 otherwise	0.37	0.48	0.00	1.00
Foreign shareholder	Presence of big foreign shareholder (1=yes; 0=no)	0.36	0.48	0.00	1.00
Ownership concentration	Ownership interest of three largest shareholders	0.81	0.17	0.32	0.99
Size	Natural logarithm of sales revenue	23.77	1.94	13.69	28.93
Age	Number of years since company registration date	10.32	5.83	1.00	22.00

For the period as a whole market-to-book and price/earnings multiples averaged 1.21 and 11.6 respectively, total shareholder return – 13%. All dependent variables are characterized by significant volatility (which is reflected in high value of coefficient of variation, which is equal to standard deviation divided by the mean). High pre-crisis values of the variables went significantly down during the crisis with certain correction afterwards (see Figure 4).

The obtained empirical estimates are presented in Table 2.

Table 2

Factors and drivers of shareholder value creation estimation¹

Variables	Market-to-book multiple		Price/earnings Multiple		Shareholder Return	
	RE	FE	RE	FE	RE	FE
Profitability	1.682 (3.22)***	0.850 (1.65)*	-	-	1.135 (4.43)***	0.616 (1.84)*
Leverage	1.065 (7.17)***	0.860 (2.37)**	2.378 (1.13)	9.773 (1.94)*	0.234 (2.73)***	0.138 (1.65)*
Investments	0.122 (1.36)	0.086 (0.91)	2.399 (2.02)**	2.156 (1.76)*	0.022 (0.35)	0.026 (0.35)
Risk	0.426 (2.14)**	-	7.148 (2.34)**	-	0.070 (0.82)	-
State ownership	-0.163 (1.71)*	-	1.210 (0.96)	-	0.035 (1.07)	-
Foreign shareholder	0.172 (1.78)*	-	1.932 (1.64)*	-	0.014 (0.40)	-
Ownership concentration	0.079 (0.32)	-	3.733 (1.10)	-	-0.114 (1.36)	-
Size	0.095 (3.14)***	-0.150 (1.13)	0.493 (0.99)	-0.584 (0.24)	0.010 (1.69)*	0.048 (0.92)
Age	-0.022 (1.65)*	-0.027 (0.79)	0.041 (0.31)	-0.372 (0.95)	0.001 (0.37)	-0.035 (2.22)**
Industry dummies	+	-	+	-	+	-
Time dummies	+	+	+	+	+	+
Cons.	-1.614 (2.27)**	4.582 (1.51)	-7.619 (0.55)	24.972 (0.43)	-0.124 (0.55)	-0.695 (0.58)
N	401	401	416	416	446	446
R ² (within)	-	0.46	-	0.14	-	0.57
Wald / F	390.9***	23.1***	77.0***	6.14***	504.4***	39.9***
Breusch-Pagan/ Hausman	66.5***	74.7**	18.5***	131.1***	1.1	11.48

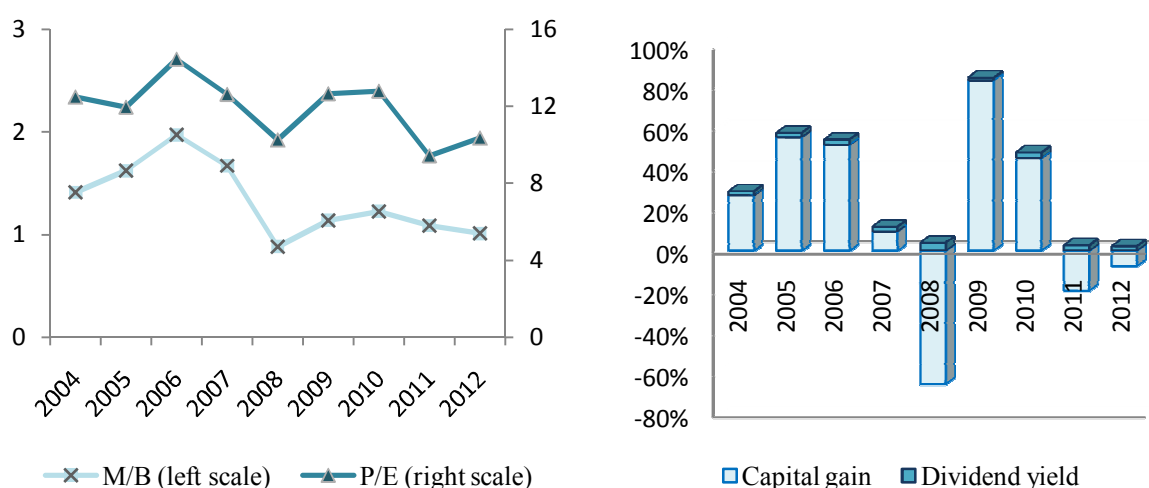


Fig. 4. Trend data of changes in average value multiples and total shareholder returns averages

¹ Note: the table contains random effects (RE) and fixed effects (FE) regression coefficients of companies' value factors and drivers. Description of variables under consideration is presented Table 1. Values of t-statistics adjusted for heteroscedasticity are given in parentheses. Industry dummies (except for FE regressions) are included into the models as well as time dummies. Wald and F statistics are used to test joint significance of RE and FE regressions' independent variables respectively. Breusch-Pagan test is performed to compare models with random effects and pooled regressions; Hausman test is performed to compare fixed effects and random effects models.

***, **, or * indicates that the coefficient estimate is significant at the 1%, 5%, or 10% level, respectively.

The research method involved two stages: first regression analysis of shareholder value determinants is performed in terms of value multiples, such as market-to-book ratio, price/earnings multiple as well as total shareholder return indicator; then using Probit-models the determinants of the likelihood that value multiples and shareholder returns exceed market averages are assessed.

Table 3 summarizes the empirical results of the formulated hypothesis testing.

Table 3

Estimation results of Russian` companies shareholder value factors and drivers

Hypotheses				Results
H1	Competitive advantages (return on assets)	→ ⁺	Shareholder value	Confirmed (p<0.01)
H2	Capital structure (financial leverage)	→ ⁺	Shareholder value	Confirmed (p<0.01)
H3	Investment activity	→ ⁺	Shareholder value	Partially confirmed (p<0.1)
H4	Risk level (sales volatility)	→ ⁺	Shareholder value	Partially confirmed (p<0.05)
H5	State ownership	→ ⁻	Shareholder value	Partially confirmed (p<0.1)
H6	Majority foreign shareholder	→ ⁺	Shareholder value	Confirmed (p<0.1)
H7	Ownership concentration	→ ⁻	Shareholder value	Not confirmed
H8	Company`s size	→ ⁺	Shareholder value	Confirmed (p<0.1)
H9	Company`s age	→ ⁻	Shareholder value	Partially confirmed (p<0.1)
H10	Industry effects, macroeconomic performance	→	Shareholder value	Significant determinants (p<0.01)

4. Quantitative estimates of the impact investments in different kinds of assets (investments in fixed assets, working capital, intangibles, long-term and short-term financial assets) have on shareholder value creation in the Russian financial market were obtained. In addition, we estimated the influence of external and internal financing accessibility constraints, financial policy, other individual and industry-specific characteristics on the incremental investments of Russian companies.

In the course of our general estimation of Russian companies` shareholder value factors and drivers, we carried out an econometric analysis of the impact investments in different kinds of assets (investments in fixed assets, working capital,

intangibles, long-term and short-term financial assets) have on shareholder value creation metrics under the conditions of the Russian financial market.

The results obtained in the course of empirical investigation of investment drivers of shareholder value creation allow for the following conclusions:

- investment in new equipment is related to higher comparative market value of a company, but not to higher total returns for its shareholders;
- no positive effect of investment in working capital on shareholder value creation is observed; moreover, companies, rapidly expanding their investments in current assets are traded on the market with certain discount;
- active investment in intangible assets has the strongest influence among investment value drivers on the rate of total shareholder return;
- investment in long-term financial assets is negatively related to both company market value and return for its shareholders, while no statistically significant effect on company values is established of investment in short-term financial assets.

The obtained modeling results of suggested hypotheses testing in regard to investment value drivers are presented in Table 4.

Table 4

Estimation results of investment value drivers

Hypotheses			Results
H1	Investment in new equipment	$+$ \longrightarrow	Shareholder value Confirmed (p<0.1)
H2	Investment in working capital	$+$ \longrightarrow	Shareholder value Not confirmed (negative correlation)
H3	Investment in intangible assets	$+$ \longrightarrow	Shareholder value Partially confirmed (p<0.05)
H4	Long-term financial investments	$-$ \longrightarrow	Shareholder value Partially confirmed (p<0.1)
H5	Short-term financial investments	$-$ \longrightarrow	Shareholder value Not confirmed

Our further analysis of investment value drivers was aimed at an empirical testing of the determinants of Russian companies' incremental investments. In this study annual growth in the value of fixed assets, annual growth in the value of noncurrent assets, annual growth in the value of total assets (all in the accounting valuation) were used as investment activity indicators.

Table 5 contains Tobit-regression coefficients of the determinants of Russian companies' incremental investments.

Table 5

Tobit regression results for the determinants of Russian
companies' investment activity ²

	Growth in the value of fixed assets		Growth in the value of noncurrent assets		Growth in the value of total assets	
	Coef.	t – stat.	Coef.	t – stat.	Coef.	t – stat.
Profitability	0.635	(7.49)***	0.705	(8.67)***	1.175	(16.74)***
Equity ratio	-0.178	(5.65)***	-0.227	(7.55)***	-0.363	(13.85)***
Sales growth (lagged)	0.095	(5.97)***	0.101	(6.61)***	0.069	(5.10)***
Size	0.011	(1.87)*	0.017	(3.00)***	-0.006	(1.34)
State ownership	-0.003	(0.18)	-0.024	(1.59)	-0.011	(0.92)
Credit risk level	-0.0016	(3.55)***	0.0004	(1.05)	-0.0007	(2.11)**
Age	-0.018	(2.22)**	-0.019	(2.55)**	-0.013	(2.06)**
Age squared	0.0007	(1.94)*	0.0008	(2.40)**	0.0005	(1.59)
Time dummies						
d2002	0.017	(0.58)	0.008	(0.30)	0.011	(0.44)
d2003	0.022	(0.73)	0.016	(0.55)	0.045	(1.80)*
d2004	-0.019	(0.64)	-0.032	(1.13)	0.045	(1.78)*
d2005	-0.017	(0.58)	-0.008	(0.29)	0.055	(2.17)**
d2006	0.020	(0.66)	0.006	(0.19)	0.086	(3.39)***
d2007	0.091	(2.93)***	0.057	(1.91)*	0.138	(5.33)***
d2008	0.036	(1.12)	0.028	(0.92)	0.071	(2.66)***
d2009	-0.066	(1.96)**	-0.093	(2.88)***	-0.061	(2.20)**
d2010	-0.113	(3.12)***	-0.089	(2.61)***	0.013	(0.45)
d2011	0.072	(1.94)*	-0.040	(1.13)	0.011	(0.37)
Industry dummies						
Extraction industry	0.079	(2.56)**	0.062	(2.14)**	0.004	(0.17)
Construction	0.109	(3.53)**	0.086	(2.97)***	0.042	(1.81)*
Electric energy industry	0.074	(2.38)**	0.097	(3.30)***	0.048	(2.09)**
Trade and services	0.051	(2.32)**	0.038	(1.83)*	0.034	(2.14)**
Transport	0.056	(1.80)*	0.039	(1.32)	0.029	(1.27)
Food industry	0.066	(3.08)***	0.071	(3.55)***	0.076	(4.89)***
Cons.	0.069	(0.72)	0.028	(0.31)	0.410	(5.60)***
N	4154		4184		4266	
Wald test	$\chi^2(24)=311.30$ ***		$\chi^2(24)=306.91$ ***		$\chi^2(24)=622.31$ ***	
LR test	38.82***		30.77***		3.29**	

Research method was chosen to allow the analysis of incremental investments through the transformation of dependent variables and use of Tobit regression models for censored samples. This method makes it possible to outline the dynamics of exactly incremental investments, since the reduction in asset value due to other reasons is not taken into account. As the investigation of investment activity was based on data in the accounting valuation we were to some extent free to expand our sample (data panel). The sample was formed on the basis of data on 500 nonfinancial open joint-stock companies for the 2001–2011 years.

² Note: the table contains Tobit random effects regression coefficients. Values of t-statistics are given in parentheses. Wald χ^2 statistics is used to test joint significance of regressions' independent variables. Likelihood ratio test (LR) is performed to compare Tobit models with random effects and pooled Tobit regressions.

***, **, or * indicates that the coefficient estimate is significant at the 1%, 5%, or 10% level, respectively.

Based on the result of empirical testing of the determinants of Russian companies' incremental investments, the following conclusions were drawn (Table 6 summarizes the results of proposed hypotheses testing):

- in the Russian capital market internal financing sources play primary role in explaining companies' investment activity;
- the level of financial leverage is positively correlated with the dynamics of investments which proves the close intertwining of company's investment and financial decisions;
- a company's age is related to its investment activity nonlinearly; accessibility of external funds significantly constrains companies' incremental investments;
- a sharp decrease in incremental investment expenditures in the crisis 2009 and 2010 years with some recovery of the investment level in 2011 were quantitatively identified;
- industry-specific characteristics act as an important and statistically significant determinants of the companies' investment expenditures; under other conditions staying equal, incremental investments were the lowest in the processing industry, companies in the construction and electric energy sectors were characterized by the highest investment growth rates.

Table 6

Estimation results of the determinants of companies' investment activity

Hypotheses			Results
H1	Accessibility of internal financing	→ ⁺	Investment activity Confirmed (p<0.01)
H2	Financial leverage	→ ⁺	Investment activity Confirmed (p<0.01)
H3	Lagged growth rate of sales (accelerator theory)	→ ⁺	Investment activity Confirmed (p<0.01)
H4	Company's size	→ ⁻	Investment activity Not confirmed
H5	State ownership	→ ⁺	Investment activity Not confirmed
H6	Constrains of external financing	→ ⁻	Investment activity Confirmed (p<0.05)
H7	Company's age	→ [∩]	Investment activity Not confirmed
H8	Industry effects, macroeconomic performance	→	Investment activity Significant determinants (p<0.01)

5. A proprietary approach towards development and implementation of a system of managing corporate finance based on shareholder value drivers was suggested. Within the framework of this approach we propose the following components: identification of key value drivers and instruments of activating

them, implementation of an integrated value-based AB-costing system for allocating opportunity cost of equity on different products, monitoring the value creation process through the integration of value indicators into the systems of budgeting and controlling of a company, implementation of a performance-based incentive plan stimulating sustainable shareholder value creation under the conditions of an inefficient capital market and taking into account created real options.

Within the framework of this approach to corporate financial management aimed at shareholder value growth we argue that on the strategic level of management the systems of business planning and resource allocation should function according to the principle of «internal capital market» while on the operating level the following elements are to be singled out: identification of key value drivers and a level of control over them by executives, modification of conventional cost accounting systems (we propose to implement an integrated system of value based AB-costing, the latter allows to assign implicit opportunity costs of using equity capital towards different products). Monitoring of the value creation process should be carried out through the integration of shareholder value indicators into the systems of budgeting and controlling of a company. We also propose to establish the shareholder value creation center as a separate responsibility center within the financial structure of a company. Such responsibility centers can be created on the basis of one or several investment centers and should put under control the value creation process.

The necessity was also established for the system of corporate finance to take into account strategic benefits of investing (real options) which are usually not quantified by conventional methods of investment analysis as a shareholder value driver. The latter should also be considered in formulation of performance-based incentive plans for managers. The methodology of real options valuation can be also employed in such areas of financial management as optimization of real investment portfolio, risk-management, financing policy.

The process of developing and implementing incentives plans which are aimed at stimulating shareholder value creation in the long-run was examined in the context of agency theory through the prism of two main approaches («optimal contract» and «managers` power»). Table 7 summarizes advantages and limitations of main performance metrics based on market indicators and estimated performance indicators upon which incentive plans can be built.

Table 7

Advantages and limitations of incentive plans based on market
and estimated performance indicators

Compensation plans	Advantages	Limitations
<i>1. Based on market indicators:</i>		
phantom shares	<ul style="list-style-type: none"> ▪ the interests of managers and shareholders are aligned; ▪ simplicity and flexibility; ▪ control retaining 	<ul style="list-style-type: none"> ▪ «overinvesting» problem; ▪ destimulation of dividend payments
employee stock option programs	<ul style="list-style-type: none"> ▪ incentives for shareholder value maximization; ▪ effective as a long-term incentive instrument 	<ul style="list-style-type: none"> ▪ encouragement of risky behavior (due to the option nature – losses are limited, potential gains – not limited); ▪ complexity of determining the «fair» option strike price; ▪ complexity of organizational procedures
equity ownership	<ul style="list-style-type: none"> ▪ gains (dividends and capital gains) of managers and shareholders are formed identically; ▪ payments to managers are linearly related to the company's market capitalization 	<ul style="list-style-type: none"> ▪ effectiveness depends on the share of the incentive in manager's personal income, not on the share of equity ownership
<i>2. Based on estimated indicators:</i>		
based on financial accounting data	<ul style="list-style-type: none"> ▪ simplicity and clarity; ▪ can be employed on different management levels 	<ul style="list-style-type: none"> ▪ encouragement of maximization of accounting earnings not shareholder value; ▪ risks are not taken into consideration; ▪ short-term orientation
based on calculated value creation indicators	<ul style="list-style-type: none"> ▪ orientation towards fundamental value maximization; ▪ can be calculated for different management levels; ▪ created intangible assets can be taken into account 	<ul style="list-style-type: none"> ▪ ambiguous empirical evidence regarding the quality of explaining the actual market value dynamics by value creation metrics; ▪ future (beyond the estimation period) cash flows are not taken into account; ▪ can be manipulated

Under the conditions of an inefficient capital market the implementation of based on market indicators incentive plans faces additional constraints. If the capital market is highly volatile and is characterized by low information efficiency (i.e. the market is not able to evaluate a company fairly according to the changes in its fundamental value), incentives for managers will be weakened; the scenario when the innocent is penalized and the uninvolved is rewarded in the terms of market evaluation can take place. We proposed a system of formulation of incentive plans stimulating shareholder value creation in the long-run while applicable under the conditions of an inefficient capital market. This system is based on calculated value metrics with the possibility of integrating market value indicators.

Within the framework of this system target bonus is determined according to the approach developed by S. Myers and modified by D. Young and S. O'Byrne

(based on the indicator of economic value added, EVA) involving company value decomposition on the value of invested capital, the present value of current EVA as a perpetuity annuity, the present value of future EVA improvements (growth option):

$$MV = [IC + (EVA_0/WACC)] + PV_{\Delta EVAs}, \quad (1)$$

where MV – company's market value; IC – invested capital; EVA_0 – current EVA; WACC – weighted average cost of capital; $PV_{\Delta EVAs}$ – present value of annual EVA improvements.

Incentives for managers are calculated as the target bonus plus a fixed share ($y\%$) of EVA improvement (the actual value of the indicator minus its market-expected value EVA_{exp}).

$$Bonus = target\ bonus + y\%(EVA - EVA_{exp}). \quad (2)$$

If this system is implemented, managers receive the target bonus only in the case when they achieve the market-expected (through investors' expectations) level of efficiency. If managers surpass market expectations, they get an incentive higher than the target bonus; otherwise, their bonuses are cut depending on the performance in value creation relatively to market-expectations. The steadiness of value creation in the long-run can be achieved through the creation of a bonus bank for postponing incentives. Another way is to develop long term incentive plans based on results in value creation over a period of several years.

III. MAJOR PUBLICATIONS

Papers in journals recommended by the Russian Ministry of Education and Science Higher Attestation Commission³

1. Lebedev O. V. An analysis of companies' undervaluation factors in emerging financial markets / O. V. Lebedev // *Economic Herald of the Tatarstan Republic*. – 2010. – № 4. – pp. 61-66. *(in Russian)*

2. Lebedev O. V. Market efficiency concept: theoretical and empirical foundation and role in value creation / O. V. Lebedev // *Corporate Finance*. – 2011. – № 2 (18). – pp. 82-91. *(in Russian)*

3. **Lebedev O. V. Research into the motives and factors of investment activities of enterprises / M.R. Safiullin, A.B. Ankudinov, O.V. Lebedev // *Studies on Russian Economic Development*. – 2013. – №4. – pp. 126-138.**

4. **Lebedev O. V. Microeconomic analysis of oil production and investment spending growth rates in the oil sector of Russian economy // Sh. M. Valitov, A. B. Ankudinov, O. V. Lebedev / *Oil Industry*. – 2013. – № 10. – pp. 86–89. *(in Russian)***

³ Publications in Scopus indexed journals are highlighted in bold.

5. Lebedev O. V. Institutional environment and value of companies / A. B. Ankudinov, O. V. Lebedev // World Applied Sciences Journal. – 2013. – № 23 (11) – pp. 1560-1569.

6. Lebedev O. V. Shareholder value creation determinants of Russian companies / A. B. Ankudinov, O. V. Lebedev // Corporate Finance. – 2014. – № 1 (28). – pp. 33-49. *(in Russian)*

7. Lebedev O. V. Investment drivers of shareholder value creation in large publicly traded Russian companies / A. B. Ankudinov, O. V. Lebedev // Investment Management and Financial Innovations. – 2014. – № 11 (2). – pp. 77-85.

Papers presented at scientific conferences

8. Lebedev O. V. An empirical investigation of macro-level value factors / O. V. Lebedev // Socioeconomic problems of market economy formation and development. – Kazan, 2011. *(in Russian)*

9. Lebedev O. V. Value based management under the conditions of volatile capital markets / O. V. Lebedev // Modern problems of world economy globalization and sociocultural development. – Kazan: 2012. *(in Russian)*

10. Lebedev O. V. An empirical analysis of the determinants of companies' investment activity / A. B. Ankudinov, O. V. Lebedev // Advances and prospects of econometric research in Russia. – Kazan: 2014. *(in Russian)*

11. Lebedev O. V. Shareholder value drivers under the conditions of inefficient capital markets / O. V. Lebedev // Proceedings of IEF KFU postgraduate students. – Kazan: 2014. *(in Russian)*

12. Lebedev O. V. Real options and companies' market value / O. V. Lebedev // Modern problems of world economy globalization and sociocultural development. – Kazan: 2015. *(in Russian)*