Determinants and Methodology of Public Companies’ Just Value Management

Shokhmansur Shokhazamiy, Rustam Abduraupov
Tashkent Financial Institute, Tashkent State University of Economics, Tashkent, Uzbekistan
Corresponding author (e-mail): rustamabduraupov@gmail.com

Abstract: We have devoted the paper to verify the determinants and methodology of value management of a company. We proposed to determine the just value according to the geometric model, which uses the appropriate quantitative values with respect to the real value of a company and the objective price of its shares in the open developed financial market. Furthermore, the paper offers theoretical suggestions and practical recommendations which are useful for the investors and managers in making timely financial decisions

Key words: Just value management, Geometric model, Real value, Objective price of a share

1. Introduction

The events and lessons related to the processes of globalization, the global financial and economic crisis (GFEC) 2008-2010 and the post-crisis period of recession in most economies of the world have shown the failure of the doctrine in the financial management of the company market value growth with a simultaneous increase in the price of their shares on the stock markets. This doctrine led to the formation of “bubbles” in the real assets that cast doubt about the validity of the market value of companies, and consequently, doubt about the objectivity of the price of their shares by virtue of the interconnectedness of the various categories within the meaning of value and price. As a result, this has led to uncertainty in financial decisions of management staff.¹ One of the reasons for this, in our opinion, is the lack of a general method of making fair (just) financial management decisions on the basis of a company’s fundamental value, or market value, or market price of its

¹ In other words, a financial manager, having got a rich methodological arsenal at his or her disposal, cannot ensure the validity of the decision on the basis fundamental value or market value of a company.
shares. For instance, Ehrhardt and Brigham (2011) imply that an executive’s main goal is maximizing the fundamental (internal) value of a company’s stocks, whereas Hawawini and Viallet (2010) point out that it should be aimed on the growth of the market value of a company.

Although there are various theories of financial management, valuation methods and the formation of value and price (Brealey et al. 2013; Kudina 2010), but none of the existing methods cannot yet act as a general technique because of their methodological features and narrow specialization. Whereas in today’s practice, a just market value or market price decision is often made intuitively or according to complex mathematical and statistical methods, but such a decision never ceases to inhibit the formation of “bubbles” in real assets.

2. Theoretical and methodological basis of the concept

2.1. Theoretical basis of the concept

The concept of financial management should be targeted (based) on the growth of a just value rather than its market value, or only market price of a company’s shares, or only its fundamental value as it was in the practice of the past decades, up to the crisis period. As the words “just” and “fair” are synonyms, the expressions “fair value” and “just value” might also seem to have the similar meaning. Although the International Accounting Standards Board defines fair value in the context of International Financial Reporting Standard (IFRS) 13 as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (i.e., an exit price). This differs from International Valuation Standards, which state: "Fair value is the estimated price for the transfer of an asset or liability between identified knowledgeable and willing parties that reflects the respective interests of those parties." As it can be seen the standards describe the word “value” in the expression “fair value” as “price”. Those definitions emphasize that the term “fair value” is based on market-price indexes, which is different by in sense from the term "just value" that we have used in this paper. Therefore, “fair value” and “just value” are not synonyms (Brealey R., Mayers S.C., Allen F. 2013).

Furthermore, the direct accounting of price leads to the negative consequences. One of them is consequent accounting of “bubble” on real assets, which is formed in the speculative market. The “bubble” arises because of the desire for continuous growth of stock indexes (prices) and market capitalization is superior over the importance of productivity growth and real effectiveness of companies. In other words, the principle of absolutization the profitability in companies leads to unnecessary inflation of the price of capital in the securities market (SM), inflation of demand for derivatives, financialization of capital and migration to the financial and credit sector, and, ultimately, to a strong separation of financial capital from actual reproduction process, thus the
formation of “bubbles” in real assets.\(^3\) Although creating the real wealth is possible only in the real economy – during production and reproduction of real goods. (Mikerin G.I., Grebennikov V.G., Neyman E.I. (2003).

Financial and credit sector is designed to provide this sector with financial resources. Thus, the market share price is formed on SM under the influence of many factors (pricing, including random, opportunistic), whereby objectivity essential characteristics of the stock price is reduced. According to Brealey, Mayers, Allen, the external (independent) assessment of a company should be carried out by the experts (assessors) considering value-creational factors. It should include methodological and subjective nature, by virtue of which the estimation of the essential characteristics of the company's value is reduced. Therefore, it is advisable to determine a just value of the company (JVC)\(^4\) as a function of the equivalent of arguments – the real (fundamental, intrinsic) value of the company (FVC), which is formed on the appraisal market (AM) and objective price of its shares (OPCS), which is formed on the development of securities market.\(^5\) This kind of formulation is related to the identification, delineation and analysis of value-creating and pricing factors in the formation of JVC in market conditions. Moreover, the JVC depends on the real FVC\(^6\) and OPCS\(^7\) on the open developed stock market, which can be identified easily on the basis of the existing methodological device, theoretical and factual basis. According to Ehrhardt and Brigham, a company's just value can be identified (determined) by a geometric model, using the appropriate quantitative estimates (data) with respect to the fundamental value and the objective price of its shares.

Thus, the implementation of the concept, aimed at growth of just value of the company includes the calculation of the real value based on the well-known methodology, which is used in the global practice of assessment and financial management; determining an objective price based on a thorough technical analysis of the dynamic behavior of prices (quotations, courses, stock indices) of

\(^3\) There are credit, currency, insurance and stock “bubbles” (Shokhazamiy, 2009, 2010b)

\(^4\) Just value is the value, which corresponds with the equivalent meanings of real (intrinsic, internal, fundamental) value of a company and objective price of its shares, which are accessible freely in the open stock market. These meanings are just because of their correlation in the acceptable area of equivalency. The correlation of the real value and the objective price of a share may be expressed by the formalized statistical and geometrical models. Note: in case of having difficulties in determining the objective prices of shares in the open market, we can take the most reliable (the most appropriate to the current conjuncture of the property market) value, which may be chosen on the basis of three generally accepted assessment approaches of a company’s value.

\(^5\) The AM and SM are linked by a regulative element and called as Market of Forming Value and Price (MFVP). Note that these markets are equivalent in terms of their correlation (0,91) (Shokhazamiy, 2012b, 2013b).

\(^6\) Kudina (2010) devoted her research to the concept of fundamental value. In general the fundamental value is created in production process and not only reflects interests of investors, but also promotes the creation of the real wealth and the prosperity of the society.

\(^7\) Objective price of a company’s shares is the price of the shares in the open stock market that does not prompt any doubts to anyone. It is formed by objective demand and supply with rather continuous and stable indices.
companies’ securities formed on the developed stock market, and finally working out the fair value of the company on the basis of three-dimensional geometric model to analyze the relationship of the fundamental value of the company, the price and the number of its shares for the purpose of making a just management decisions to achieve an effective structure of finances (financial management policy) of a company. Moreover, the effective case is when the growth of the company's fundamental value is equivalent to the growth of the price of its shares within the area of justice in the geometric model.

2.2. Methodological basis of the concept

2.2.1. The concept of a complex number

The just value of a company can be expressed as a complex number:

\[ Z_c = r + jm \]

Based on the analysis of the given model, we can get answers to the questions such as: "What is the reality degree of the real value of a company, characterized by a fundamental value, formed in the appraisal market?", "What is the objectivity degree of a price of the securities which are bought and sold in the open stock market depending on its free environment?". The first question is related to the methodology of experts’ assessment of the real value of the company (securities) and art appraiser, whereas the second one is associated with a professional art and objectivity of a broker (trader) and the development of the stock market.

2.2.2. Determinants of just value management policy

Financial management policy, which depends on many factors, may be represented as a the following function:

\[ F = f (A, E, I, S, K, D, W, P, N) \]  

where: F - just value management policy; A - a policy of the equity capital management; E - a policy of securities issuance management; I - a policy of investments management; S - a policy of interest payments (in the form of dividends, income from debt securities) management; K - a policy of receivables management (i.e. a credit policy of the company); D - a policy of payables management; W - a policy of working capital management; P - a policy of plant, property and equipment (assets) management; N - policy of intangible assets management.

In this case each individual factors may correspond to a specific indicator. It should be noted that

\[ Z_c = r + jm \]

where, \( Z_c \) - resulting indicator (Fig. 4); \( r \) - the real part; \( jm \) – the imaginary part; \( j \) – a symbol that defines m belonging to the speculative market category. And the + symbol in the formula does not mean the addition operation, the real part of the formula characterizes real value, but the imaginary part – the virtual value (price), which is formed in the development SM.
the difference between the concepts of "indicator" and "factor" is conditional, as virtually every indicator can be considered as a factor of another indicator of a higher order and vice versa. The relationship between factors and indicators can be described by assuming that the indicator, which expresses a certain property, which is synthesized synthetically, is an adequate with some mapping condition factor. Property is the ability of an object to have certain qualities, as well as its specific phenomena and processes, which is susceptible to change under certain conditions and factors. These indicators make it possible to qualitatively and quantitatively evaluate $F$. They are grouped depending on the nature components (arguments) of the function (1), in particular to indicators describing respectively $A$, $E$, $I$, $S$, $K$, $D$, $W$, $P$, $N$.

The indicators that characterize the $A$, $E$, $I$, $S$, $K$, $D$, $W$, $P$, $N$ can be grouped on the basis of their belonging to the composition of assets, liabilities and equity of a balance sheet from the perspective of the accounting theory. In particular, from the viewpoint of financial management the function (1) can be rewritten as:

$$F = f(FA, FLE),$$  \hspace{1cm} (2)

where: $FA$ – a policy of assets financial management; $FLE$ – a policy of liabilities and equity financial management. From this point of view, the function $F$, expressed in the form of (2), is determined by the achievement of a balanced financial management with a common goal – the growth of the just value of the company, in which we can achieve the efficiency of $FA$ and $FLE$.

If we consider the function (2) as a generalized mathematical model, the derivative of each component of this function expresses an additional increase (decrease) of the just value of the company by the $FA$ and $FLE$ respectively. In mathematical form it can be represented by the following formulas:

$$\Delta FA = \left(\frac{\Delta F}{\Delta FA}\right) \times FA = \left(\frac{\Delta F}{\Delta W}\right) \times W + \left(\frac{\Delta F}{\Delta N}\right) \times N + \left(\frac{\Delta F}{\Delta P}\right) \times P + \left(\frac{\Delta F}{\Delta I}\right) \times I + \left(\frac{\Delta F}{\Delta D}\right) \times D$$ \hspace{1cm} (3)

$$\Delta FLE = \left(\frac{\Delta F}{\Delta FLE}\right) \times FLE = \left(\frac{\Delta F}{\Delta E}\right) \times E + \left(\frac{\Delta F}{\Delta K}\right) \times K + \left(\frac{\Delta F}{\Delta A}\right) \times A + \left(\frac{\Delta F}{\Delta S}\right) \times S$$ \hspace{1cm} (4)

At the same time we note that the numerical values have a balance of the resulting growth by (3) and (4). Consequently, the following expression is true:

$$\Delta F = f(\Delta FA, \Delta FLE)$$ \hspace{1cm} (5)

Correlation and regression analysis of the relationship of one selected component (argument) of the function (2) will express the functional dependence of the selected component from the other arguments in the form of regression equations. This makes it possible to construct a general mathematical model for (2), comprising a mathematical model $FA$ and $FLE$, including their
composition A, E, I, S, K, D, W, P, N, where each of them is connected with other components of the general model. Similarly, correlation and regression analysis is possible and with respect to (5). From a methodological point of view, based on management theory, the process described by function (2) is aimed at the growth of the just value (as measured by the formula (5)). The process can be arranged from a position of economic systemology as a regulated corporate model shown schematically in Figure 2-1.

![Figure 2-1 The scheme model of value-financial management by means of a feedback loop](image)

In general, the implementation of financial management policies (F) by (2) must be subordinated to ensure the growth of a company’s just value based on the system of equations (5). It is important to determine a company's real-fundamental value and its objective price of its shares in the open stock market with equivalence and interconnection of cost and price categories.

At the same time, we note that although the value is not the price, but they are, by virtue of their equivalence can be transformed into each other. Accordingly, the value and the price of the company express the worth of its securities. The ratio of stock price to its value may indicate overvaluation or undervaluation of the stock, hence the company.

The process operation of this model is as follows. The VFR affects on F through V-channel as an endogenous factor, correcting the result of F to offset the negative effect of exogenous factors coming through Z-channel. Moreover, under the same (positive or negative) influence of the exogenous factors through Z-channels on F and VFR, the result of F transmitted by Y-channel that affects simultaneously on the regulatory actions of the VFR by X-channel as an endogenous factor. Thus, this model is a complex regulatory system, adapting to the effects of exogenous and endogenous factors, which consists of interconnected F and VFR. It is very important to develop a mathematical model based on (1), (2). Considering that the first indicator of (2) and (5) is the composition of the asset elements of the balance sheet, and the other one indicates the composition of liabilities and equity element of the balance sheet, it is possible, from a position of

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9 In Figure 2-1 (improved scheme was composed by the authors): Z – exogenous factors; F – a company’s policy of financial management; VFR – a company’s value-financial regulator aimed at the growth of a just value at an effective F; Y – a result of growth (decrease) in a just value of the company, which is at the same time a cause of X-change of the VFR; V – affecting endogenous factors. Moreover, the VFR as a feedback link in the company’s management system depends on government and corporate decisions that determine the state of the market.
economic and financial management systemology, to divide the block F of the model (Figure 2-1) into two interrelated via VFR subsystems: the subsystem of value-financial management of assets (FA) and the subsystem of value-financial management of liability and equity (FLE) of the company, as it is shown in Figure 2-2.

![Diagram](image)

**Figure 2-2** The structural-functional model of interrelated regulative management of FA and FLE via VFR in a company

This model (Figure 2-2) demonstrates the properties of the open complex regulatory value-financial system. The elements of FA and FLE interact in conditions of nonlinearity and strong interrelations. This allows us to analyze systematically and predict the properties and regularities of the system at various levels of its aggregation.

While in Figure 2-2 FA and FLE are equivalent, because of the equality of the assets and liabilities plus equity in the balance sheet, then FA and FLE have a common VFR (regulatory feedback loop). Thus, there is a balanced state of connectedness between FA and FLE thanks to VFR, i.e. the state their equivalence. However, the violation of the equivalence between the FA and FLE, hence between value and price (i.e. the real-fundamental value of the company and objective price of its shares in the open stock market), may cause a crises leading to “bubbles on real assets”, which bring to a lower efficiency of F.

The above presented models (Figure 2-1 and Figure 2-2) are a complex dynamic system of self-
development with a central element of general regulation. In the latter model balancing the FA and FLE is equivalent to regulate financial management policy (F), which is aimed at providing a steady growth of just value of a company. That is exactly how the modern regulation of public companies should be organized on the basis of Figure 2-2 and (5). It ensures the effectiveness of F in the growth of the company’s just value; enhances a business activity and the company’s rating, ultimately; leads to a financial sustainability and growth of competitiveness.

3. Geometric model

The analysis and determination of JVC be accomplished using a method based on the geometric model (shown in Figure 3-1)\textsuperscript{12}, which applies the appropriate quantity of (data) with respect to the FVC and OPCS with a depth of at least 5 years.

![3-D Geometric Economic Model of Systemic Analysis](image)

**Figure 3-1** 3-D Geometric Economic Model of Systemic Analysis

As it can be seen in Figure 3-1, with the help of this model in 3D we can systematically analyse in conjunction the price, the value and number of securities traded in the securities market and assessed in AM.

Along with the model shown in Figure 3-1, it can also be used as 2-dimensional geometric model (Figure 3-2)\textsuperscript{13}.

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\textsuperscript{12} The model is first presented by Shokhazamiy (2012a, 2012b, 2012c, 2013a).

\textsuperscript{13} A number of shares is also considered in the following model (Shokhazamiy, 2010a, 2012b, 2012c, 2013a).
Based on a set of known (estimated) specific values of \(r\) and \(m\), we can judge about \(Z_C\). We can check whether \(Z_C\) is undervalued or overvalued comparing with its basis; hence estimate a size of the “bubble”. Our analysis is based on the mathematical theory of complex numbers with the help of fundamental and technical analysis of trends in prices for securities. This indicator can simultaneously analyse the relationships in the fundamental value and the price of securities. According to the analysis, you can evaluate not only the quality of the security and the size of its "bubble", but also the effectiveness of policies of corporate and financial management of the company in general (Ehrhardt M.C., Brigham E.F. (2011)).

4. Interpretation of \(Z_C\) indicator

In the plain (Figure 3-2) \(Z_C\) can be illustrated by coordinates of \((r, m)\), where: \(Y\) – axis of imaginary numbers, which are the market price of shares of listed companies; \(X\) – axis of real numbers, which are the real value of the shares, calculated on the basis of fundamental analysis of the company. We assume that (in Figure 3-2) there are two resulting vectors \(Z_{C1}\) and \(Z_{C2}\) with coordinates of \((r_1, m_1)\) and \((r_2, m_2)\) respectively. The gap between the vectors and \(0A\) line is the same. \(0A\), in turn, has got a slope of 45 degrees. We can consider it as a bottom line of a "bubble". In particular the vector \(Z_{C1}\) is above the line \(0A\) (with a slope of 67.5 degrees), which means that the price with regards to \(Y\) has reached its critical limit of a "bubble", and consequently the critical value of investment risk. In comparison, the vector \(Z_{C2}\) (with a slope of 22.5 degrees) does not include a "bubble". We can take the gap between \(Z_{C1}\) and \(Z_{C2}\) as the area of a just value in the geometric model (Figure 3-2)\(^{14}\).

Moreover, the volume of the "bubble" depends on the expectation, the interests and behaviour (including psychology, reflexivity) of investors and issuers in the market, and also the efficiency rate

\(^{14}\)Similarly, in the 3D-model (Figure 3-1)
of market regulation and its equivalent relationship with the real economy. The actions (decisions) of investors and issuers occasionally do not coincide with the condition of a real basis. It brings to volatility of a security in the market. (Mikerin G.I., Grebennikov V.G., Neyman E.I., 2003)

There may be various cases on the direction of a vector, which estimates the complex indicator of a company's value. If the vector $Z_C$ is in a quartile $(X, Y)$, and its slope is more than $67.5$ degrees, it means that a security has a high rate of liquidity, and that the speculative market is “overheated”. In this case the investment risk is also very high, because the volume of a “bubble” overcomes the critical frontier. This is a warning signal for the investors, and a subject to strengthening the control and to making decisions on eliminating the risky “bubble” for the regulators.

If the vector $Z_C$ is in a quartile $(-X, Y)$, it means that a security is “overrated” unjustifiably. This is a signal of a bankruptcy of the company. Thus the investors try to eject the securities to the market, because of high investment risk or sanitations.

If the vector $Z_C$ is in a quartile $(-X, -Y)$, it means that the company (issuer) is in the state of a bankruptcy.

If the vector $Z_C$ is in a quartile $(X, -Y)$, it means that can serve as a signal for a venture capitalists (investors).

If the vector $Z_C$ is in a quartile $(X, Y)$, and its slope is less than $22.5$ degree, it means that a security has a low rate of liquidity, and even it is undervalued by the market, it has a potential to rise in price. This is a signal to act for the strategic and speculative portfolio investors.

It appears that the investors tend to take a greater risk in business, when they deal with liquid assets, regardless of the presence of a “bubble”. The higher the liquidity, the higher is the volume of the “bubble”.

Consequently in the geometric interpretation we can estimate the level of the investment risk in the plane $X,Y$ (Figure 3-2) according to the angles with respect to the line $0A$.

The Figure 2-2 illustrates that the lengths of the vectors $Z_{C1}$ and $Z_{C2}$ are very significant in analysing a company's value. This statement becomes convincible if we add and/or deduct vectors with respect to the shares of a company in calculating the resulting vector $Z_{C1}$ or $Z_{C2}$ for a particular period of time. Eventually, we have the following picture (consistent pattern): the more the length of the vector the better is the quality of the security, if the vector is in the lowest risk $(X, Y)$ quartile with the slope of less than $67.5$ degrees. The best quality securities are the ones that have the same $r$ and $m$ in a complex number coincidentally, or when $r \leq m$. 
5. Conclusions and discussion

The known theories of corporate financial management do not provide a clear picture of the possibility to use any of them as a common methodology, which ensures making a firm decision on the fair market value, market price or fundamental value of a company, due to their methodological features and narrow specialization in making managerial decisions.

Drawing inferences from the events that occurred as a result of WFEC, we believe that managers must work to increase the company's just value. Moreover, the concept of financial management should be aimed at the growth of just value rather than its market value, or only market price for its shares, or only the fundamental value as it has been customary in practice for the past decades, up to the crisis period. (Mikerin G.I., Grebennikov V.G., Neyman E.I. (2003)).

The concept of ensuring the growth of just value of the company involves the use of real (true) internal (fundamental) value and an objective price of its shares. Moreover, the effective case is when the growth of the company's fundamental value is equivalent to the growth of the price of its shares within the region of validity (equivalence).

The policy of financial management (F) is determined by a balanced achievement of the common goal of financial management – growth of just value of the company. This framework allows to achieve the optimal ratio of asset management policy (FA) and liability and equity management policy (FLE) of the company. Consequently, if we consider F as a function (generalized mathematical model) of FA and FLE, the derivative of each component of this function will result additional increase (decrease) in just value of the company.

The described representation of $Z_C$ (as a complex number) leads to more informative and complete results as it allows to use methods of fundamental and technical analysis in complex, analyse $Z_C$ in complex, particularly the cases based on the mathematical theory of complex numbers, allows for participants (issuers, investors, intermediaries) of SM to make more confident decisions for the effective activity, permits regulatory institutions of SM to make more informed and effective regulatory decision and allows managers to make informed decisions on policies and corporate financial management.

Analysis based on models (Figures 2-1 and 2-2) indicate that the just value of the issued securities may be selected from the alternate pair of “fundamental value of their real basis (issuer) and that an objective market price” in the fairness gap, but outside of the gap it would be appropriate to use only a fundamental value and therefore the just value of securities and the just value of the company should be represented as a function that has two interrelated and equivalent depended variables, a real value and an objective price (virtual value, quotes, etc.) of the securities. The objective market price of the securities in SM and the fundamental value of the company are formed on the basis of the principle of equivalence in the gap of justice (fairness).
The following three-step generalized algorithm was implemented in the method:

Firstly, it is necessary to calculate the fundamental value, which is determined by the AM, is based on well-known assessment and economic analysis approaches and methods for assessing the value of a property. The second step is determining objective prices, which are formed on the property markets (i.e. SM). In the final step we identify the interrelation of price and value of a property by the geometric model, and eventually, a just value. In this case the just value is inside the segment of fair vectors, which are in the (X, Y) quartile. The segment boundaries are vectors with slopes of 22.5 and 67.5 degrees. The geometric model is effective to be used in countries where pricing and value-creational markets are developed and integrated well enough.

From a methodological point of view, based on the theory of governance, the financial management process aimed at the growth of just value can be arranged from a position of the economic systemology as a regulated corporate model that demonstrates the properties of an open complex regulatory value-financial system. The elements of FA and FLE interact in conditions of nonlinearity and strong interrelations. Moreover, FA and FLE are equivalent, because of the equality of the assets and liabilities plus equity in the balance sheet, then FA and FLE have a common regulatory feedback loop. In general, all this allows us to analyze systematically and predict the properties and regularities of the system at various levels of its aggregation.

References

- International Financial Reporting Standard 13 “Fair Value Management”.
- ShokhazamiySh.Sh. (2012a) Corporate Policy. Tashkent: Fan vaTexnologiya
- ShokhazamiySh.Sh. (2012b) Theory, Value and Price of Property. Tashkent: Fan vaTexnologiya
- ShokhazamiySh.Sh. (2012c) Systematic Development of Stock Market in Regulation Interrelation with Real Economy. Tashkent: Fan vaTexnologiya