Problems in using the Discounted Cash Flow Method in Assessing the Capital Value of Joint Stock Companies

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Abstract: The article describes the scientific and theoretical aspects of using the method of discounted cash flows in the assessment of the capital value of a joint-stock company, and focuses on the use of the relative income method in the assessment of the capital value used in developed countries. In particular, when assessing the capital value of a joint-stock company, the market value of ordinary shares in private capital, balance sheet value and dividends of joint-stock companies were analyzed, and the market value of the capital was determined. In addition, the study also describes the analysis of multiplier coefficients, which are widely used in the world in assessing the investment attractiveness of joint-stock companies. This, in turn, reveals the fundamental analysis in the assessment of the capital value of a joint-stock company. Also, existing problems in using the method of discounted cash flows in assessing the capital value of a joint-stock company were identified and scientific proposals and practical recommendations aimed at their elimination were developed.

Key words: joint stock company; capital cost; cash flow; dividend; stock; market value of the share; capitalization; fundamental analysis.

INTRODUCTION

Today, the world's largest investment companies are using discounted cash flow methods to estimate their cost of capital. Discounted cash flows provide an opportunity to determine the company's capital value and its future business value. In addition, financial managers of large companies use discounted cash flow methods to determine the market value of shares in the primary IPO (Initial Public Offering) and secondary SPO (Secondary public offering) of joint stock companies.

Asset-based valuation, discounted cash flow, and relative valuation techniques are used to evaluate companies in developed countries using fundamental analysis. In turn, the use of the discounted cash flow method provides an opportunity to determine the future cash flows and investment opportunities and business value of the enterprise.

In order to introduce market mechanisms of economy management in our country and to reduce the state intervention in it, it is provided for the realization of stock packages of joint stock companies on the basis of primary and secondary public offering [1] . The use of the discounted cash flow method to determine the market value of the company's shares in the primary and secondary public sale of stock packages of joint-stock companies and the determination of the capital value of these companies is one of the most urgent issues today. This, in turn, creates the need to use the method of optimal discounted cash flows in determining the capital value of joint stock companies in our country.

In developed countries, capital valuation is carried out using the discounted cash flow method to determine the capital value of companies. This, in turn, is a system of indicators that shows the expected future cash flows from the company's assets and the value of the business. However,

they still do not use discounted cash flow methods when assessing the capital value of joint stock companies in our country, do not use the indicators of the modern corporate financial system, when assessing capital The fact that they do not use the methods of fundamental evaluation (discounted dividend, residual profit, uneven growth of profit) shows that there are several problems in evaluating the capital value of joint-stock companies in our country.

Literature Review

In the 30s of the last century, Benjamin Graham's book "Stock Analysis" touched on asset valuation methods [2] . According to him, the determination of the investment value of the enterprise will be very close to the valuation of the capital of the company. In recent years, changes in the financial markets have necessitated the use of the market value of securities when valuing assets. Taking this into account, Benjamin Graham showed the evaluation of the market value of the company's shares through the market value of the company's tangible assets.

Another foreign economist, John Burr Williams, focused on the use of the discounted cash flow method in the valuation of the company's capital in his book "Investment value theory" and showed the theory of discounted cash flows in capital valuation [3] . According to the author's research, three models are important in the theory of discounted cash flows. In particular, the use of dividend discount models (Dividend discount models), free cash flow discount models (Free cash flow discount models) and residual income models (Residual income models). Despite the fact that the calculation of these models is different, theoretically, the determination of the value of the discounted cash flows expected from the company's capital is the same.

Later, in the scientific research of Miller and Modilian, the theory of the discounted dividend model was improved [4] . According to the authors, investors consider two types of cash flows when buying a company's stock. The first is the amount of dividend paid by the company during the period of ownership of its shares, and the second is the market value of these shares during the period when investors held the shares of the company before the dividend was declared. According to the authors' conclusion, the market value of the company's securities is determined by the expected dividend of the holders of these securities during the holding period.

Gordon contributed to the development of the discounted dividend model [5] . During his research, he created an author's model, and according to this model, the value of stocks is determined on the basis of constantly growing dividends. According to Gordon's theory, if the company's dividend policy is stable, if it pays dividends to regular shareholders, using Gordon's model, it is possible to calculate the amount of the company's dividend for the next year.

The scientific research of the foreign economist Stephen Penman is devoted to the discounted dividend model, where the future market value of the stock is not determined based on the dividend [6] . He noted that today there are difficulties in using this model in practice, because the large amount of securities traded and the high volatility of their market prices do not allow this model to be used.

According to Grullon and Michael's research, in the 80s of the last century, large companies began to repurchase their shares in large quantities [7] . As a result, the transformation of the funds in the companies into the funds of the investors did not make it possible to apply the dividend model. After that, most researchers began to use the undiscounted cash flow model. However, due to changes in financial markets, the relative valuation method began to be used in the assessment of the company's capital value. In turn, the capital value was determined using multiplier coefficients.

It was pointed out that it is appropriate to use three relative valuation methods in the evaluation of the capital value of the company in the scientific research of the researchers led by Stowe from foreign economists [8] . Including:

1. Method of evaluating relative earnings: P/E (Price-earnings ratio) and PEG (price/earnings to growth ratio) coefficients.

2. Relative cash flow evaluation method: P/EBIT, P/EBITDA, P/CFO, EV/EBITDA ratios.

3. Relative asset valuation method: P/B or B/M ratios.

According to Barker's research, professional investors and financial managers use the P/E multiplier ratio in practice [9] . In addition, Demirakos, Strong and Walker, one of the famous economists, concluded that 89% of companies evaluate their capital using the relative earnings method [10] .

In our opinion, when buying shares of companies that are not in constant circulation on the stock market, investors pay attention to the amount of dividend expected from the shares of these companies. However, when buying shares of companies whose securities are in constant circulation, investors buy taking into account the multiplier coefficients of the company determined by financial managers. It can be seen that the capital cost of enterprises directly depends on the method of estimating relative income.

The research of R.K. Karlibaeva, one of the economists of Uzbekistan, is devoted to the optimization of the capital structure of the joint-stock company, and it is based on the fact that the increase in the profitability of private capital in the formation of the optimal capital structure in the joint-stock capital leads to an increase in the capital value of the enterprise [11] .

Also, in the research of one of the local economists, Kh. Kurbanov, it is justified that the use of the financial capital assessment model of the discount cash flow assessment allows to determine the capital value of the enterprise in the assessment of the total capital value of the company and in determining the income required for the investment projects of the enterprise [12] . In our opinion, the use of the method of discounted cash flows in determining the capital of a joint-stock company provides an opportunity to determine the capital structure and the expected rate of return from investment projects.

Research methodology

Relative income and relative asset valuation methods were widely used in the research. An analysis of multiplier coefficients using discounted cash flows was performed to determine the capital cost of the enterprise. The following multiplier coefficients, which are considered one of the investment attracting indicators of the enterprise, were analyzed:

$$\frac{P}{E}\,ratio = \frac{P}{EPS}\,(1)$$

here,

P- market value of the share;

EPS- net profit per share;

$$EPS = \frac{Net\ income - pereferred\ dividents}{Number\ of\ shares\ outstanding};$$

$$\frac{B}{M} = \frac{Book\ value}{Market\ capitalization}\,(2)$$

"Quartz" joint-stock company was chosen as the object of research, and multiplier coefficients were determined using grouping, comparative analysis, selection, observational analysis methods based on its data. Data were used from the annual reports of " Kvarts" joint stock company 's official website (http://kvarts.uz/) and the market value of shares of this company from "Tashkent" Republican Stock Exchange.

Analysis and Results

Today, there are 604 joint-stock companies in our country, and only two of them, «Kvarts»and "Koqon Mechanics Plant" joint-stock companies, have carried out the initial public offering (IPO) and secondary public offering (SPO).

According to the decision of the Cabinet of Ministers of the Republic of Uzbekistan No. 268 of May 10, 2017 "On organizing the public offering of shares on the stock exchange", the first IPO on the country's stock market was conducted by "Quartz" JSC. Today, this enterprise is the largest enterprise in the Central Asian region for the production of glass containers, laminated glass and glass for the automotive industry, refractory materials and products.

In our research, we used the discounted cash flow method to estimate the cost of capital of a joint-stock company. In particular, P/E and B/M multiplier coefficients allow to evaluate the capital value of JSC "Quartz". Today, JSC «Kvarts»has a stable financial situation, the dynamics of income and profit are growing, and in recent years, dividends to investors have been 40-50 percent of its net income (Table 1).

Table 1: Information on the calculation and payment of dividends of Kvarts JSC[1], billion soums

Indicators	Years			
	2015	**2016**	**2017**	**2018**
Net benefit	31.1	56, 2	88.2	82.5
Funds allocated to pay total dividends	14.3	28.1	44.1	0

According to the data in Table 1, the net profit of "Quartz" joint-stock company in 2015 was 31.1 billion. amounted to 82.5 billion soums, by 2018 it increased by almost 2.7 times. In addition, almost 50 percent of the net profit of «Kvarts»joint-stock company is allocated to dividends. However, in 2018, in order to increase the capitalization of the joint-stock company, no dividend was given to the shareholders.

It should be noted that the shares of this joint-stock company are highly liquid in the stock market of our country. For example, when the shares of Quartz JSC were sold to the Tashkent Republican Stock Exchange in the form of an IPO, the nominal price was 1,715 soums, and after the shares were sold to the market, the market value of this share was 4,000 soums. During 2018-2019, the market value of the company's shares fluctuated between 5,000 and 8,500 soums.

However, according to the decision of the President of the Republic of Uzbekistan dated May 23, 2019 "On additional measures for the rapid development of the construction materials industry" No. 59.5 billion for the increase (capitalization) of the chartered fund of the company. 48,224,609 shares were placed on the stock market in order to increase the authorized fund by 72.01%, including the amount of soums. This, in turn, caused the market value of the shares of the joint-stock company to fall by 4,000 soums. As a result, the market value of the private capital of the joint-stock company also fell. The decrease in the market value of the private capital of "Quartz" JSC led to a decrease in the possibility of attracting investment. In particular, because large investors sold the shares of this joint-stock company in large quantities, it affected the decrease in the market value of their shares.

Taking into account the non-constant dividend payment of JSC «Kvarts»and the fluctuation of the market value of its shares, the capital value assessment of the joint-stock company using the income method and the multiplier coefficients that attract investments to this joint-stock company through the financial market were calculated (Table 2).

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[1]It was prepared by the author on the basis of the annual report of " Kvarts " JSC (http://kvarts.uz/) .

Table 2: Analysis of R/E multiplier coefficient of "Quartz" JSC[2]

Indicators	Years				
	2014	2015	2016	2017	2018
Market value of one share (soums)	1000	1715	1715	4500	5400
Dividend per share (soums)	534.4	597.4	1172.3	914.8	0
P/E multiplier	1.87	2.87	1.46	4.92	0.00

The data of Table 2 shows that the market value of «Kvarts»JSC shares has a tendency to increase. In particular, in 2014, the market value of one share of a joint-stock company was 1,000 soums, and by 2018, it increased by 5.4 times to 5,400 soums. The dividend per share was 534.4 soums in 2014, and increased by 1.7 times to 914.8 soums in 2017.

The analysis shows that the dividend per share of the joint-stock company was almost 50 percent. However, in 2018, it shows that the joint-stock company did not pay dividends to shareholders. "Quartz" JSC P/E multiplier is growing year by year. In 2014, this ratio was 1.87, and by 2017 it was 4.92. However, in 2018, as a result of the capitalization of the authorized fund of the joint-stock company, the dividend was not paid, so the P/E ratio was zero. The P/E ratio is an indicator of the investment attractiveness of Kvartz JSC. The results of this ratio show that the market value of the shares of «Kvarts»JSC was underestimated as a result of the decrease in profit during the reporting period.

It is known that when the P/E multiplier value is between 0 and 10, the private equity value and net profit of the joint-stock company is low and the joint-stock company will benefit from the sale of its assets. If the value of the P/E multiplier coefficient is from 10 to 17, the value of the shares of the joint-stock company is considered high, indicating that the profit of this enterprise during the reporting period is high. This, in turn, clearly shows the expected increase in the market value of the shares of this joint-stock company. If the value of the P/E multiplier coefficient is higher than 17 , the market value of the capital of the joint-stock company is high, and the shares of these companies have a speculative nature.

From the above analysis, it can be concluded that the sale of «Kvarts»JSC's assets will lead to a decrease in profit. This, in turn, indicates a decrease in the market value of the private capital of the joint-stock company. In addition, the P/B ratio analysis of "Quartz" JSC is reflected in Table 3.

Table 3: V multiplier coefficient [3]of "Quartz" JSC

Indicators	Years			
	2015	2016	2017	2018
Market value of one share (soums)	1715	1715	4500	5400
Assets per share (soums)	2632	4050	6114	6887
P/ V multiplier	0.65	0.42	0.74	0.78

Table 3 shows that the P/V of "Quartz" JSC A coefficient lower than one indicates an increase in financial debts and a decrease in the expected return on capital of the enterprise. In 2015, P/V the coefficient was 0.65, and by 2018, this coefficient was 0.78. As can be seen from the analysis, the balance sheet value of the joint-stock company is higher than the market value, which shows that the market value of private capital is cheap. For example, in 2017, the market value of the shares of Kvarts JSC was 5,500 soums, and by 2018, it increased by 36.4% to 7,500 soums. It can be seen that the market value of «Kvarts»JSC securities is undervalued. This, in turn, gives investors the opportunity to buy shares of this company. In turn, it causes the capital of the joint-stock company to be sold cheaply. As a result, "Kvarts" JSC's capital value is undervalued compared to the market value.

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[2]It was prepared by the author based on the annual report of "Kvarts" JSC (http://kvarts.uz/) .
[3]It was prepared by the author based on the annual report of "Kvarts" JSC (http://kvarts.uz/) .

CONCLUSION

It can be concluded from the analysis that joint-stock companies in our region hardly use the method of discounted cash flows in capital cost evaluation. The main reason for this is the lack of development of the stock market in our country. There are the following problems in using the discounted cash flow method in assessing the capital value of joint-stock companies:

First, the market capitalization of joint stock companies in our country is very low. Because in a number of joint-stock companies, the state share is high, and the share of private investors remains low.

Secondly, due to the high risks in our country, the expected income from the capital of joint-stock companies is high. This, in turn, significantly limits the possibilities of attracting investments through securities.

Thirdly, the investment attractiveness of shares of joint-stock companies is almost at a low level. The main reason for this is that the dividend policy is not being carried out properly. Because joint-stock companies pay 50% of the nominal value of the share in the first two years, and in the following years, the net profit of the joint-stock company is directed to the capitalization of the charter fund, so non-dividend prevails.

To eliminate the above problems, it is advisable to implement the following measures:

First of all, it is necessary to develop a program for the comprehensive development of the capital market in our country. This, in turn, serves to increase the liquidity of financial instruments in the capital market. In addition, the implementation of fundamental analysis by financial managers in joint-stock companies makes it possible to develop corporate management practices.

Secondly, it is necessary to increase the market capitalization of joint stock companies. In particular, it is necessary to develop measures to reduce the state share in joint-stock companies with a state share. In particular, when reducing the state share in large joint-stock companies, it is advisable to use the method of mass sale of their shares through the primary IPO (Initial Public Offering) and secondary SPO (Secondary public offering).

Thirdly, it is appropriate to protect the rights of minority shareholders in order to properly conduct the dividend policy in joint-stock companies. In particular, it is necessary to take into account the votes of minority shareholders when implementing the dividend policy in joint-stock companies with a high state share.

Based on the above, it can be concluded that the correct implementation of the dividend policy in joint-stock companies makes it possible to use the method of discounted cash flows in the assessment of the capital value of these joint-stock companies.

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