

Research on Value Assessment Methods of the NEWOTCBB Listed Company

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Abstract

With the constant improvement of our multi-level capital market, the new third board which is specifically for high-growth high-tech non-listed enterprise to transfer stock and finance directionally has gradually become an important part on the capital market. We call it NEWOTCBB. With the growing of the new third board, system constantly improving and financing constantly simplifying, it is of great significance for the small and medium-sized enterprise development. As an investor, having a correct understanding to the value of the companies in the national equities exchange and quotations can make the right investment decisions. So how to properly assess the value of the new third board companies becomes increasingly important for investors. Different valuation methods have their own characteristics. In this paper, with in-depth analysis of the characteristics of new third board companies enterprises and comparing the advantages and disadvantages of various evaluation methods, it is to identify the quotations valuation method - Real Options.

Key words: NEWOTCBB; The new third board; Real option

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INTRODUCTION

In 2006, the unlisted share companies of Zhongguancun Science and Technology Zone opened stock quoted transfer in stock transfer agent system, which is known as "NEWOTCBB" now. On 7th September, 2012, pilot expansion was officially launched, with first 8 companies listed in Beijing, which reached 679 until 24th January, 2014. Assessment of company value is a comprehensive assessment to fair market value of company as a whole, which regards company as an integrated part, is based on its conditions of all assets owned or possessed and overall profitability, and pays full attention to the factors that affect its profitability. At present, the immediate and direct implication of the NEWOTCBB listed company's value is its share prices, so research on value assessment of the NEWOTCBB listed company can help us find out its intrinsic value in the market, provide information for wise investment decisions in the capital market. It is of much realistic significance.

1. FACTORS AFFECTING THE VALUE OF THE NEWOTCBB LISTED COMPANY

1.1 Analysis on External Factors

(1) Industry Features. Industry features include industry competitive intensity, industry periodicity and government orientation on industry. Among the three, competitive intensity is directly related to profitability. Michael E. Porter (1979) proposed analysis model of Five Competitive Forces. It analyzes competition among potential entrant, supplier, purchaser, competitor and alternative producer to estimate industry competitive intensity. Meanwhile, the value of the NEWOTCBB listed company is also affected by industry life cycle. Profitability changes according to its stage in the life cycle.

(2) Location. In different regions, level of financing and profitability of a company is not the same. Generally

in China, profitability of a company in the east and the first tier city is usually higher than that in the middle and the west, in which assets are of small size, technologies are obsolete and industries are restricted to resource-based industry, so its overall level of management is lower than that in the east, as well as the value of the company.

(3) Economic Cycle. Economic cycle refers to fluctuation of the economy between periods of expansion and contraction during the run of national macroeconomic. Normally, an economic cycle has four stages: recession, bottom, expansion and peak. Factors such as GDP, interest rates, inflation rates, CPI and so on can help determine the current stage of economic cycle. Economic situation under a certain stage will affect operation conditions of the company more or less, then affects its value.

1.2 Analysis on Internal Factors

(1) Core Competency. Core competency is the knowledge and skills or a combination of the two in explicit forms of core products and services. These resources and abilities are rare, not totally imitable and irreplaceable. If a company can master and use these unique resources and abilities better than its rivals, it can obtain durable competitive edge and profitability. Core competency is of more significance to high-tech company. Therefore, the strength of core competency will have a great influence on the value of the NEWOTCBB listed company.

(2) Capital Structure. Capital structure of a company has a direct relation with average cost of capital. If average cost of capital is at its lowest, and capital structure is optimal, then the value of the company will reach its highest. Therefore, if the company's noncurrent liabilities increase, risk of the company rises accordingly along with increase of cost of capital; however, at the early stage of increase, leverage effect doesn't work and increase rate of cost of equity is faster than decline rate brought about by the increase of long-term cost of debt. Thus, in the beginning, the average cost of capital will fall a bit and when the marginal cost of equity is of the same with long-term marginal cost of debt, the average cost of capital will be at its lowest. At this time, the value of the company is at its highest and capital structure is optimal.

(3) Shareholding Structure. The amount of shareholding ratio decides degrees of influence that shareholders have on the operation of the company. At present, there are only natural original shareholders and institutional investors in the NEWOTCBB listed company, whose portion of share is relatively big. Therefore, when making decisions, the managers of the company should reach coordination among all the shareholders with various opinions, reducing divergence and running the company in a smooth way.

(4) Management Structure of the Company. Board of directors has a complete control over the managers and minority shareholders have little say on the decisions of the company, which makes it easier for the managers to

focus on the long-term development of the company. In the NEWOTCBB listed company, the volume of share transaction is small and shareholders are no more than 200. Owing to this, its shareholding structure is relatively centralized, and the managers pay more attention to its long-term development and increase of value.

(5) Investment and Financing Strategy. Investment strategy is the overall planning of certain investment, based on the requirements of overall business strategy, and designed to sustain and expand scales of production. It is meant to obtain best results of investment by virtue of limited capital. Proper investment strategy will strengthen its operating ability and expand its scale, and once decided, a great deal of money is needed, when proper financing strategy must be carried out to provide money. Thus, the scale and way of financing will all attract attention from investors, which will take effect in company evaluation.

(6) Dividend Policy. Dividend policy is the basic attitude and policy on distributing net margin, which is based on balancing the interests of owner, operator and creditor. Actually, it is a double-edged sword to the value of the company. If not distribute dividend, the outflow of net margin will reduce and the value of the company is raised. If give out dividend, the out world and investors will receive a signal that the company is in a good state.

2. ANALYSIS ON VALUE ASSESSMENT METHODS OF THE NEWOTCBB LISTED COMPANY

2.1 Traditional Value Assessment Methods

It mainly consists of cost method, capitalized earnings method and relative value method. Features of the company and its external conditions should be taken into consideration when choosing a method. Because of its own unique features and surroundings, traditional value assessment methods have certain limitations.

(1) Cost Method. Cost Method works through the following processes. First, assess the historical cost of company's various assets, deducting impairment factors of asset in the assessment, then do a sum summary of all the assets, in which way the total value of the company is estimated.

In the appraisal of the value of the NEWOTCBB listed company, the limitations are exposed. Firstly, cost method is the simple addition of each asset value, which neglects the intangible value derived from the combination of assets, and pays no attention to the value bestowed by the operating ability of the company. Two companies with the same assets will differ in value because of their managers. The scientific achievements and potential development of the NEWOTCBB listed company also weigh much on its value. Secondly, one salient feature of the NEWOTCBB

listed company is that its intangible assets are of a big proportion and the company is high-tech based, so cost method can not assess its intangible assets, which will weaken its value to a large extent.

(2) **Capitalized Earnings Method.** It is a method of determining the value of a company by calculating the present value of expected future profits of the remaining years (or months) on the hypothesis of constant operating. The limitations of capitalized earnings method are as follows.

It cannot deal with company's profits from a dynamic angle, and only thinks that the future cash flows are fixed. The NEWOTCBB listed company itself and its surroundings are of high uncertainty, so the cash flows in the future nearly cannot be estimated.

It works under the premise of certain operating policy, which doesn't pay attention to the operating strategy's influence on company's value. To the NEWOTCBB listed company, the market environment is usually at immature stage and in a state of fluctuation.

It only calculates the cash flows under present scale and operating ability, but doesn't take into consideration the potential profits. The NEWOTCBB listed companies are all high-tech companies, bearing incessant innovation ability, and a part of them even retains untapped intangible assets. Those potential profits will be ignored by adopting capitalized earnings method and the company will be undervalued.

(3) **Relative Value Method.** By comparing transaction prices in the near future of the same or similar assets in the market or doing analogical analysis, the assets' value of the company is estimated. The method is called relative value method. It mainly contains the price earnings ratio method and price-to-book ratio method. It calculates the value of the target company in reference to market prices of similar companies. The precondition of this method is an active and open market and there exist companies of high comparability. However, we cannot ignore objective limitations. Though the NEWOTCBB companies are all high-tech ones, each one is distinct, which renders no companies of similar industry, scale and development conditions at present. Therefore, it is unrealistic to adopt this method in the value assessment of the NEWOTCBB listed company.

2.2 Real Options Method

It is the development of financial options theory. Different from traditional value assessment methods, real options method points to the uncertainty of the project. It not only does a simply estimation of cash flows, but also assesses rang of variation of cash flows from the angle of probability, which means paying close attention to probability distribution of future cash flows. Therefore, investing in way of real options will offer a great deal of flexibility and controllability.

(1) The NEWOTCBB listed company is high-input, high-risk, high-benefit and high-tech company; usually it is established by its scientific achievements and proprietary technology, which is an innovation of

technology and mode. However, it is under immature stage and the competitive landscape is not stable, so there is certain risk to get profits. Meanwhile, in the high-tech industry, the upgrading of product and technology is of high frequency, so the recovery of research input may not be realized because of technological advance, rendering huge operating risk. What's more, after the launching of new product, if it is recognized by the market, its capacity of expansion will grow strong, and the company will grow in high speed. However, it is because the updating of technology of the NEWOTCBB listed company is fast that the main products can easily be replaced by other company's research achievements, then the company will fall and be in a state of recession. Therefore, the NEWOTCBB listed company bears the features of high growth and mutability. Because not one of traditional value assessment methods estimates company's profits in dynamic way, and thinks that the future cash flows are fixed, these methods can hardly estimate the company's future cash flows and its value. The features of the NEWOTCBB listed company are in accordance with real options method, so adopting this method will be more efficient for valuing the company.

(2) The NEWOTCBB listed company develops periodically and its decisions are in dynamic series. There is a process in launching a product, including technology innovation, feasibility study, product research, experimentation for improvement, marketization and so on. Each stage will have a decisive influence to the next. The periodicity of development and fluctuation of decisions require constant adjustments of previous estimated value according to conditions of the last stage and markets and market information, and then new decisions will have to be made. The real options method can reflect the dynamic nature of decisions and uncertainty of their outcomes properly.

(3) The value of traditional company usually comes from capital and fixed assets, but the NEWOTCBB listed company emphasizes intangible assets like technology and human resource. The influence of their intangible assets and scientific achievements is more important than that of physical assets. These potential profits will be neglected and the company will be undervalued to a large extent by adopting traditional value assessment methods, but the real options method will help dig out the potential value and estimate the true value of the company.

3. CASE STUDY ON VALUE ASSESSMENT OF THE NEWOTCBB LISTED X COMPANY

3.1 Basic Introduction to X Company

X company is a high-tech company of national level and high credit position. It is a new energy company, whose major business is solar electric energy generation and

the registered capital is 0.14 billion yuan. The company already has 100 deals with turnover of 0.243644278 billion yuan and 14.9566 million numbers of exchange in share since January, 2013. The B-S model is chosen as pricing model to study share prices of X company.

The share dealing materials of X company are downloaded from unlisted company transfer system on the website of Shenzhen Share Exchange. Because X company was listed in March, 2010, the chosen materials were in prior to June, 2010. If there were several deals in a day, the last one was chosen.

3.2 Selection of Parameters

(1) Price S_0 of Underlying Assets: Debt capital is relatively stable because of not trading in market, so total liabilities in the report form can be regarded as bond prices. In this way, the sum of share prices and bond prices can be looked as market prices in the exchange.

On 5th April, 2012, share price was 15.8 yuan, and total share capital was 140000000 shares, so the share price was 2.212 billion yuan. Semi-annual report of 2012 showed that the total liabilities of X company was 9.3560981763 billion yuan; then price of underlying assets S_0 was 3.14760981763 billion yuan.

(2) Strike Price X: According to limited liability of modern stock company, the strike price of the NEWOTCBB listed company can be regarded as the sum of debt, principal and interest needed to pay, calculated at the expiration date of option.

The annual report of 2011 of X company showed that the total liabilities were 0.93560981763 billion yuan, of which 0.59958421763 yuan was current liabilities and 0.3360256 billion yuan was noncurrent liabilities. Because the period of long-term loan was 3 years, based on loan base rate of 6.4% of the 3 years, up to the expiration date of option, the total sum of debt, principal and interest needed to pay could be calculated. It was 0.99548884596 billion yuan, which is also the strike price of underlying assets.

(3) Term of Option T: In the semi-annual report of 2012, 0.28 billion yuan mentioned is a 3 years' long-term loan from China Eximbank. We choose 3 years as term of option T when doing the value assessment of X company for convenience.

(4) Volatility σ : The overall market price of X company can be divided as share price and bond price, but there is no market for bond, so it is relatively stable and nearly of no volatility. In this way, the volatility of share price is to be considered, which can be regarded as volatility of the overall price of the company approximately. Based on the data of X share exchange from the website of Shenzhen Share Exchange, the standard deviation of share price's daily rate of return is 16%, which is also the daily volatility. Suppose there are 250 work days, then the annual fluctuation ratio σ is 247%.

(5) Risk-free Interest Rate r: The risk-free interest rate option in the parameter is supposed to be fixed in

the duration of options, so we would often take national debt interest rate in a certain period within the duration of options as risk-free interest rate in the model.

According to national debt interest rate of 3 years' period in certain time, the risk-free interest rate r is fixed as 4.76%.

We have already estimated 5 parameters needed in the B-S model, including price of assets S_0 3.14760981763 billion yuan, strike price X 0.99548884596 billion yuan, term of option T 3 years, volatility of underlying assets yield rate σ 247%, and risk-free interest rate r 4.76%.

3.3 Data Operation

Put parameters into the B-S model

$$C = S_0 N(d_1) - X e^{-rt} N(d_2) \quad (1.1)$$

(in which):

$$d_1 = \frac{\ln\left(\frac{S_0}{X}\right) + \left(r + \frac{\sigma^2}{2}\right)T}{\sigma\sqrt{t}} \quad (1.2)$$

$$d_2 = \frac{\ln\left(\frac{S_0}{X}\right) + \left(r - \frac{\sigma^2}{2}\right)T}{\sigma\sqrt{t}} \quad (1.3)$$

C represents option price

S_0 represents share price at present

X represents strike price of option

r represents risk-free interest rate

T represents term of option

σ represents standard deviation of rate of return

We can get that $C=3147007376.95$, which is to say the value of X company is 3.14700737695 billion yuan. It is known that the total share capital is 140000000 shares, so the intrinsic value of share is 22.48 yuan.

The goal of this essay is to provide a proper method for value assessment, so we will do a comparative analysis between the share price of X company recently and intrinsic value of share being calculated.

Because of the uncertainty of its development and timeliness of value assessment, we choose average share price from base date of value assessment -- June, 2012 to now as data to compare. At last we get the average share price of X company in corresponding period, which is 18.79 yuan, and it is 16.4% lower than intrinsic value. We can see that there exists certain deviation between market price and calculation, and the main reasons are as follows. First, the industry of X company is at its bottom period recently, the competition in the area of photovoltaic system integration is fierce, gross profit rate drops constantly and the increase of installation scale also cannot reduce the adverse effect of the drop. These makes share price of the company fall to some extent. However, calculated intrinsic value is reasonable to a certain extent on the whole.

CONCLUSION

By the case study of value assessment to X company in way of real options, we can draw the following conclusions.

First, the real options method can make up the shortcomings when valuing the NEWOTCBB listed company in traditional way and it can be used as a method for value assessment of the NEWOTCBB listed company, which is high-input, high-risk, high-benefit and high-tech company. These features are in accordance with real options method, so adopting this method will be more efficient for valuing the company.

Second, when valuing the NEWOTCBB listed company by real options method, we much take into consideration the factors that affect the value of the company and go deep into its real options features. The nonfinancial factors have big influence on company's value. Only if carrying out deep analysis on the nature of the NEWOTCBB listed company and its included type of real options, can we do proper assessment to the company.

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