Valuation of Express Delivery Enterprises based on DCF Model - Taking S.F. Holding Co., Ltd. as an Example

Cong Fang

College of Foreign Studies
Anhui Normal University
Corresponding author. Email: Email: fancie0804@163.com

ABSTRACT

In recent years, the rapid development of the socialist economy has promoted the rise of the express delivery industry, which occupies an indispensable position in the modern service industry. However, there is a relative lack of theoretical and applied research on the valuation of express delivery enterprises. Therefore, this paper first expounds the domestic and foreign literature on the theory of enterprise investment value, and chooses the DCF model to evaluate the value of express delivery enterprises. Secondly, the paper analyzes the development status of the express delivery industry and presents the basic introduction of SF Holding, taking it as an example for empirical analysis. The analysis quotes the financial data from 2015 to 2020, and uses the DCF model to estimate the company's value in 2020. The results show that it is feasible to apply the DCF model to the valuation of the express delivery industry, which could further improve the valuation system of China's express delivery industry, and provide decision-making basis for company leaders and investors.

Keywords: DCF model, Express Delivery Enterprise, Valuation, SF Holdings

1. INTRODUCTION

With the continuous development of China's socialist economy, people's living standards are improving day by day, and the emergence of e-commerce makes people's consumption channels more diversified, which promotes the express delivery industry to enter an unprecedented golden period of development [1]. In 2016, the express delivery industry reformed greatly, with the scale of various express delivery enterprises continuing to expand and their competition becoming increasingly more fierce. From the 1980s to the present, the average annual growth rate of express delivery businesses in the past 30 years was as high as 41.5% [2]. Although the express delivery industry grows rapidly, there is still few research on the valuation of its enterprises. Therefore, this paper expounds theories of enterprise investment value according to literature research, and analyzes the development status of the express delivery industry through qualitative and quantitative methods and case study methods. The study chooses SF Holdings Co., Ltd. as the representative express delivery enterprise, using the discounted cash flow model (DCF model) to estimate

its value in 2020. This could help people better evaluate the profitability of the enterprise, provide the scientific decision-making direction for managers and an effective investment basis for investors, and deepen people's understanding of the investment value of the express delivery industry [3].

2. OVERVIEW OF INVESTMENT VALUE ANALYSIS THEORY

2.1. The Concept and Significance of Investment Value

Investment value refers to the value of assets to specific investors or a certain kind of investors with clear investment objectives [4]. The value of a company's stock should be determined by the intrinsic value of the company [5]. Investment value is an important basis for investors to choose of investment objectives and to make investment decisions. When the market price of company stocks is lower than the intrinsic value of the company, investors have room for capital gains and would like to buy the company's stocks with investment value. With

the development of the market economy, the dominant position of enterprises is becoming increasingly more obvious, and the role of financial management is getting more attention. Therefore, it is of great significance for enterprises to carry out investment valuation [6].

2.2. Investment Valuation Methods

2.2.1. Relative Valuation Method

When the capital market is efficient, the historical market price statistics of the company can reflect its investment value to a great extent [7]. The advantages of this method are that the data are true and easy to obtain, the calculation of data is convenient, and there are few subjective influencing factors. It assists the company valuation by looking for comparable companies or industry-related data [8]. Generally speaking, relative valuation methods mainly include price-earnings ratio (PE), price-to-book ratio (PB) and price-to-sales ratio (PS). Among them, the P/E ratio refers to the ratio of stock price per share to earnings per share, which directly presents the matching degree between the company stock price and its profit income. The P/B ratio refers to the ratio of stock price per share to net assets per share, which is more stable compared to the P/E method, where earnings per share may be negative. The P/S ratio refers to the ratio of stock price per share to sales per share, which truly shows stability and reliability of the company income.

2.2.2. Absolute Valuation Method

The absolute valuation method is to use various financial statements of the company so as to evaluate and predict the future related financial data, calculate the future cash flow of the company and discount it to present value. The commonly used absolute valuation method is the discounted cash flow method, including the dividend discount model (DDM) and the discounted free cash flow model (DCF model), while free cash flow can be divided into free cash flow to firm (FCFF) and free cash flow to equity (FCFE).

The dividend discount model supposes that investors pay more attention to the expected dividend return that the company can bring to investors in the future, so the cash dividends of each period are discounted and summed up to get the value of the company. The intrinsic value (V) of a stock is the sum of the present value of the company's expected returns year by year.

$$V = \sum D_t / (1+k)t \quad (1)$$

D_t is the expected value of the dividend per share in year t, and k is the expected rate of return or discount rate of stocks.

The discounted free cash flow model regards the present value of the discounted future cash flow as the overall value of the enterprise, including bond value and equity value. Free cash flow is the real surplus and disposable cash flow after an enterprise pays its investment demand. Discounted free cash flow model is based on the prediction of enterprise cash flow, fully considering the ability of the enterprise to generate cash flow in the future, and having guiding significance for decision-making of enterprise development. According to the different growth rates of enterprises, the discounted free cash flow model can be divided into three types: stable growth model, two-stage growth model and three-stage growth model [9]. However, the discounted cash flow method depends on the efficient market hypothesis (EMH), which means the capital market is efficient, the business environment of enterprises is stable and sustainable, and investors are rational.

2.2.3. Comment on Investment Valuation Methods

Company value is the present value of the company's future free cash flow discounted by the corresponding discount rate. Free cash flow is of great significance to the company and its shareholders. Firstly, it eliminates the influence of non-distributable profits and truly reflects the company's value. Secondly, the discounted free cash flow model is different from the dividend discount model, which is more objective as it could not be affected by the company's dividend policy. Finally, free cash flow is largely related to the company's financial decisions, considering the time value of funds, risks and the ability of long-term sustainable development of enterprises. When comparing the two methods, the reliability of the relative valuation method depends largely on the experience of analysts [10]. The relative valuation method only uses a part of information about the company and the product market. However, the absolute valuation method mainly analyses the company's own features and integrates various data to predict the future profitability and development potential of the company more accurately, so that the results are more accurate [11]. Therefore, the study chooses the discounted free cash flow model to evaluate and predict the enterprise value of SF Express Company in 2020.

3. DEVELOPMENT STATUS OF EXPRESS DELIVERY INDUSTRY AND GENERAL INTRODUCTION OF S.F. HOLDING CO., LTD.

3.1. The Development Status of the Express Delivery Industry

After decades of development, China's express delivery industry has become an indispensable part of the modern service industry. At present, it is moving from a high-speed development goal to a high-quality goal. With

the development of e-commerce, the network coverage rate of express delivery enterprises continuously increases, and the cooperation with e-commerce platforms has been further deepened. In line with the global trend of green economy growth, express delivery enterprises vigorously use green packaging so as to reduce environmental pollution and resource consumption in all aspects of daily operation [12]. Furthermore, since 2018, with the emergence of new technologies such as 5G, Internet, cloud computing and big data, all enterprises have increased their investment in scientific and technological research and development.

3.2. General Introduction of S.F. Holding Co., Ltd.

In 1993, SF Express Company founded in Shunde, Guangdong Province. On February 24, 2017, it was officially renamed SF Holdings. After more than 20 years of operation, it now holds the leading position in the express delivery industry [13]. SF Holdings is the first express delivery enterprise in China to adopt the direct operation mode with strong scientific and technological strength. The investment in R&D accounts for 2.26% of its operating income, while that of other enterprises only accounts for less than 1% of their operating income. Additionally, it also has a huge network resource of "Sky Network", "Ground Network" and "Information Network", making its prospect quite considerable.

4. VALUATION OF SF HOLDINGS IN 2020

The discounted free cash flow model discounts the net cash flow generated in a specific period of the future to its present value. The value of an enterprise should be judged on its future profitability, not on its existing assets. In this case study, firstly, the financial statements of SF Holdings in the past six years (2015-2020) are analyzed. Generally, the free cash flow of an enterprise in the future (usually 5 years) is predicted according to the historical cash flow change trend, and the discount rate is calculated by the combination of the risk-free return rate (national debt treasury bonds return rate, Rf), market expected return rate (Rm) and β coefficient. Finally, the value of SF Holdings in 2020 is estimated through the two-stage growth model [14].

4.1. Historical Cash Flow and Average Growth Rate of SF Holdings

By sorting out the financial indicators in SF Holdings's balance sheet, income statement and cash flow statement from 2015 to 2020, Table 1 is presented below.

Table 1. Important Financial Indicators of SF Holdings (All amounts in RMB Yuan unless otherwise stated, unit: 10k)

	2015	2016	2017	2018	2019	2020
Total profit	169050.50	519073.14	650203.65	586754.87	742631.11	1003865.58
Interest cost	31681.18	39779.87	46420.25	64416.73	90062.03	101674.84
Earnings Before Interest and Tax (EBIT)	200731.68	558853.01	696623.90	651171.61	832693.14	1105540.42
Net profit	109422.11	416078.49	475184.86	446426.86	562479.36	693203.29
Depreciation	399435.81	555372.82	749044.95	972025.35	1181359.18	1427091.60
Amortization	21109.68	41044.29	69267.87	113674.88	189132.15	286338.11
Current assets	1858248.76	2133317.48	3148962.08	3192161.40	4289702.02	5167697.04
Current liabilities	1642409.94	1838695.85	2154460.38	2636935.55	3098206.38	4180875.34
Working capital	215838.82	294621.63	994501.69	555225.85	1191495.64	986821.69
Cash paid for the purchase and construction of fixed assets	541272.29	486185.70	564254.70	1163821.12	642146.00	1226747.16

and other long-term assets						
Cash recovered from disposal of fixed assets and other long-term assets	1825.28	3118.96	410.13	2446.02	4912.54	6492.09
Capital expenditure	539447.00	483066.74	563844.58	1161375.10	637233.46	1220255.07

Cash flow = EBIT * (1 - income tax rate) - depreciation - amortization - working capital - capital expenditure (2)

$$EBIT = total\ profit - interest\ cost\ (3)$$

Working capital = current assets - current liabilities (4)

Capital expenditure = cash paid for the purchase and construction of fixed assets and other long-term assets - cash recovered from the disposal of fixed assets and other long-term assets (5)

SF Holdings is a high-tech enterprise recognized by the state government, so the income tax rate is calculated at 15%, and its historical free cash flow from 2015 to 2020 is shown in Table 2.

Table 2. Historical Free Cash Flow from 2015 to 2020 of SF Holdings (All amounts in RMB Yuan unless otherwise stated, unit: 10k)

	2015	2016	2017	2018	2019	2020
Free Cash Flow	-164118.41	293753.80	-147903.13	-77404.86	249551.39	446062.31

SF Holdings has always adopted a direct operation mode, with fast logistics transportation speed, safety and reliability, and high service quality. In addition, with the rapid development of e-commerce, SF Holdings has independently created a smart network system and vigorously developed its international business. In recent years, its total assets, business volume, operating income, and net profit have continued to grow at a high speed.

SF Holding Co., Ltd. successfully backdoor listed on February 24, 2017, and its stock price increased rapidly in the short-term market reaction level, resulting in positive effects [15]. It can be seen that the reason for the abnormal cash flow in 2017 and 2018 is that the cash flow was sufficient and the working capital increased too fast when it went public in 2017 [16]. What's more, SF

Holding has made great efforts to build infrastructure, recruit a large number of talents and lease storage locations in recent years, all of which have caused a sharp increase in capital expenditure.

4.2. Value Forecast of Free Cash Flow of SF Holdings in 2021-2025

Considering the actual status of the enterprise, the study calculates the future free cash flow of SF Holdings by taking the compound average annual growth rate of net profit (g1) of 44.66%. The data is shown in Table 3.

g1 = (existing profit / basic profit) ^ (1 / years) - 1 (6)

$$FCFF_t = FCFF_{t-1} * g1\ (7)$$

Table 3. Forecast Value of Free Cash Flow of SF Holdings in 2021-2025 (All amounts in RMB Yuan unless otherwise stated, unit: 10k)

	2021	2022	2023	2024	2025
Forecast Value of Free Cash Flow	645277.66	933464.34	1350357.74	1953439.38	2825862.60

4.3. Calculation of the Discount Rate

4.3.1. Calculation of Cost of Equity by Using CAPM Model

$$CAPM: Re=Rf +\beta* (Rm-Rf) (8)$$

Rf is a risk-free return rate, which generally equals to national debt treasury bonds return rate. Taking going concern as the accounting assumption, the return rate of 10-year national debt of the central bank on December 31, 2020 is selected as 3.14%.

Rm is the expected market return rate. According to CSI All Share Index, the weighted average annual return rate from 2018 to 2020 can be taken as 8.70%.

Beta (β) is the risk factor that indicates the volatility of an enterprise relative to the whole industry and reflects the reaction of its stock to the price fluctuation of the whole stock market. According to the CSMAR database, the β coefficient of SF Holdings Co., Ltd. in 2020 is 0.99.

Therefore, the study gets the cost of equity Re = 8.64%, that is, the necessary return rate of investors.

4.3.2. Calculation of the Discount Rate (WACC) by Using Weighted Average Cost of Capital

$$WACC = (E/V) * Re + (D/V) * Rd * (1-Tc) (9)$$

$$V = E + D (10)$$

V is the total assets of the enterprise. E is the total share capital of the enterprise, and D is the total debts of the enterprise. The related data in Table 4 is selected according to the annual report of SF Holdings in 2020.

Table 4. Total Assets, Share Capital and Debts of SF Holdings in 2020 (All amounts in RMB Yuan unless otherwise stated, unit: 10k)

	V	E	D
Total amount	11116004.23	5440034.12	5675970.11

Rd is the cost of debt. According to the financial statements of SF Holdings, most corporate debts are medium and long-term loans, so the study chooses the 5-year bank loan interest rate on December 31, 2020 as Rd, which is 4.75%. The income tax rate (Tc) for high-tech enterprises is 15%. To sum up the above data, WACC is 6.39%.

4.4. Enterprise Value Forecast of SF Holdings

According to the two-stage growth model:

$$P = P1 + P2 (11)$$

P is the company value. P1 is the present value of the company's total free cash flow in the high-speed growth stage, and P2 is the present value of the company's total free cash flow in the sustainable development stage.

$$P1 =\Sigma FCFFt / (1+WACC)t (12)$$

The letter t represents the year, which is from 1 to infinity. FCFF is free cash flow of the enterprise, and FCFFt is the cash flow of the enterprise in the year t.

$$P2 = TV / (1 + WACC) t (13)$$

TV is the company's terminal value. Given WACC=6.39%, the present value of free cash flow of SF Holdings in 2021-2025 is shown in Table 5.

Table 5. Present Value of Free Cash Flow of SF Holdings in 2021-2025 (All amounts in RMB Yuan unless otherwise stated, unit: 10k)

	2021	2022	2023	2024	2025	Total amount
Present value	606521.80	824702.47	1121368.06	1524751.49	2073241.78	6150585.60

Therefore, the total free cash flow (P1) of SF Holdings in 2021-2025 is about 61505.856 million yuan.

The study conservatively estimates that the high-speed growth period of SF Holdings is 5 years (2021-2025), and then it enters the sustainable development stage. The growth rate of the enterprise perpetual annuity is generally calculated according to the growth rate of gross domestic product (GDP). The study selects the percentage of tertiary industries contributing to GDP from 2015 to 2020 as the growth rate, which can make the data more accurate. The rate of tertiary industry contributing to GDP in each year from 2015 to 2020 is shown in Table 6.

Table 6. The Rate of Tertiary Industry Contributing to GDP from 2015 to 2020 [17]

	2015	2016	2017	2018	2019	2020
The rate of secondary industry contributing to GDP	3.90%	4.10%	4.20%	3.80%	3.80%	1.00%

Calculating the arithmetic average of 6 years' rate, the growth rate of the perpetual annuity of SF Holdings (g2) is 3.47%.

$$TV = FCF2025 \times (1 + g2) / (WACC\text{-}g2) \ (14)$$

The terminal value of SF Holdings (TV) is 457587.83 million yuan.

$$P2 = TV / (1 + WACC)5 \ (15)$$

The present value of the total cash flow of SF Holdings (P2) in the sustainable development stage is 335717.03 million yuan, so the value of SF Holdings (P, as of December 31, 2020) is 397222.89 million yuan.

According to the data from Eastmoney.com on the base date of assets evaluation (December 31, 2020), the market value of SF Holdings Co., Ltd. is 402015 million yuan. Therefore, the deviation between the estimated value from the DCF model and the market value of SF Holdings in 2020 is 1.19%, which means the enterprise value is slightly overvalued by the market.

5. CONCLUSION

Based on the analysis of investment value methods and the development of the express delivery industry, the study takes SF Holdings Co., Ltd. as an example, and uses the discounted free cash flow model to evaluate its enterprise value in 2020. It is found that SF Holdings has great development momentum, and its enterprise value in 2020 is slightly overvalued by the market, but the deviation is only 1.19%. The study can provide some decision-making basis for enterprise managers, help investors have a deep understanding of the value of express delivery enterprises, and enrich the existing valuation system of express delivery enterprises.

Although the study has tried to adopt more scientific data collection and processing methods, there are still some shortcomings. For example, the use of the DCF model is based on many assumptions about the future operation of SF Holdings, which are influenced by many factors such as policies, the economy and the market environment, and the risks SF Holdings faces in the future are uncertain. Therefore, in order to get more comprehensive data results, the combination of the DCF model with relative valuation methods could be applied to further valuation of the enterprise.

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