Proceedings of the 3rd International Conference on Business and Policy Studies
DOI: 10.54254/2754-1169/74/20241549

Analysis of Enterprise Value Assessment: Evidence from Xiaomi Group

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Abstract: Xiaomi's initial public offering in Hong Kong in 2018 coincided with a downturn in the Hong Kong stock market, with several mainland companies listed in Hong Kong falling below the issue price on the first day of listing. Investors have to be more cautious nowadays under the complicated international background such as the Fed's interest rate hike. On this basis, this study chooses to assess the enterprise value of Xiaomi, using the EVA valuation method and combining the various data disclosed in Xiaomi's annual reports for 2018-2022 to measure the EVA value. After measuring the data required in EVA model, Xiaomi's overall trend in recent years has first increased and then decreased. In 2018-2019 the overall development is good, and the market outlook is vast; but in 2020-2022 the development is limited due to its own and external general environment, of which 2022 experiences a substantial decline since the IPO. Xiaomi's complex attributes make its valuation difficult, and these results estimate its intrinsic value through a clear method for investors.

Keywords: EVA model, Value assessment, Internet enterprise

1. Introduction

Since the 21st century, China has entered the era of economic globalization, and at the same time, the Internet has also ushered in rapid development, in which the Internet economy has a pivotal position in China's economy, which also has a profound impact on people's work and life, and continues to promote the changes in the global economic pattern. However, while China's Internet economy is developing at a high speed, some problems also come quietly, the most obvious of which should be the Internet enterprise premium is too high, these excessive valuations will make people wonder about the truth and reasonableness of the enterprise valuation; at the same time, the complex economic environment in which the Internet enterprise is located also makes people feel the importance of measuring and evaluating the value of the enterprise. Zhang Yunfan points out the characteristics of data assets and proposes from its characteristics that data assets must rely on data technology to be processed to be used correctly, otherwise it will make the value assessment face many challenges [1]. Ren Hanxiao believes that the transaction amount and model of big data assets can provide new ideas for the value assessment of Internet companies, but all this needs to be built in a more perfect market environment [2]. Dong Gaojing, Sunna, and Wang Baoping found that the construction of a data asset value assessment framework provides a guiding reference for the advancement of data asset

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assessment [3]. All of the above proves the importance of credible data assets as well as the correct enterprise valuation model for the sustainable development of enterprises.

With the continuous progress and development of academia, the theoretical research on enterprise valuation modelling has been more closely connected with the actual situation of Chinese enterprises, and in-depth discussions have been carried out to advance both theory and practice. Zhang Genming and Wang Aiwu by comparing the differences between the characteristics of high-tech enterprises and traditional enterprises, constantly adjusting the valuation method in different stages of development of enterprises, and finally making the assessed value of high-tech enterprises converge with the actual value [4]. Zhou Cheng Yu will free cash flow method and economic value-added method for comprehensive comparative analysis, found that the economic value-added method is more suitable for measuring the sustainable and stable development of the enterprise [5]. Yu Dongfei analyzes a variety of enterprise value assessment methods, such as the cost method, the market method, the income method, etc., and also proposes that the basic connotation and characteristics of enterprise value should be by the selection of the value assessment method that is suitable for it [6].

To estimate the value of Xiaomi Group and provide positive guidance for the future decision-making of Xiaomi Group, this paper organizes and researches the relevant domestic literature on the value assessment of Internet enterprises and obtains some rules. The following will be elaborated from four aspects. The first is the current situation of Xiaomi Group, the second is the theoretical basis of the EVA model, then the process of calculating the EVA valuation of Xiaomi Group, and the last is to analyze the valuation results of Xiaomi Group.

The comprehensive development of a country is intrinsically linked to the progress of science and technology, and the advancement of science and technology is intertwined with the support of capital, China's capital market system provides sufficient funds for enterprise financing and listing. Advanced electronic manufacturing enterprises not only have a large demand for capital but also have a long cycle and high risk, only the correct valuation analysis of the enterprise can disclose the correct information to investors to guide rational investment and further improve the capital market. Xiaomi Group has a novel business model, positioning itself as a company with cell phone products and IoT (Internet of Things) household goods as a platform, during the Hong Kong IPO roadshow in 2018, Lei Jun said that the valuation of Xiaomi should be "Apple times Tencent", i.e., Xiaomi has hardware attributes as well as Internet attributes. Taking the revenue situation in 2022 as an example, in 2022, Xiaomi Group ranked in the leading three countries and regions in terms of smartphone shipments across 54 nations around the world, with smartphone revenue of 167.217 billion yuan, accounting for 59.71% of the revenue; IoT and consumer lifestyle products revenue of 79.795 billion yuan, accounting for 28.49% of the revenue; Internet services revenue of 28.321 billion yuan, accounting for 10.11% of the revenue; other operating income, accounting for 10.11%. 10.11%; other operating income of 4.711 billion yuan, revenue accounted for 1.68%. Millet’s revenue mainly comes from the hardware business, but the profit mainly comes from the Internet business, as a representative of the business model innovation, in the listing process directly faced with valuation pricing problems and controversies.

2. Data and Method

Xiaomi Group, as an Internet enterprise mainly serving cell phones and Internet of Things home furnishings, etc., the valuation has been very controversial since its listing. For such a household name innovative Internet enterprise, this paper will take the valuation law of EVA valuation, so that people have a correct understanding of the value assessment of Xiaomi Group, and provide some reference for the subsequent valuation of other Internet enterprises.

EVA is the abbreviation of Economic Value Added, it serves as an indicator or a method to comprehensively assess the actual profitability or value generation of an enterprise's production and

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operation, reflecting the company's future value-added and the continuity of value-added ability, while also mirroring the company's inherent value [7-10]. The formula is EVA = net operating profit after tax - total invested capital × weighted cost of capital ratio

3. Xiaomi Value Assessment Based on EVA

3.1. Xiaomi EVA Accounting Adjustment Content

According to the formula for calculating EVA, it can be learned that the use of the EVA model for enterprise value assessment requires access to three data, namely, the enterprise's net operating profit after tax, the total amount of the enterprise's capital and the enterprise's weighted average cost of capital. To ensure that the valuation results can truly reflect the intrinsic value of the enterprise, our team selected several items that have a greater impact on the calculation results as adjustment items based on the three basic principles of accounting adjustments.

Deferred income tax differences are categorized into deferred income tax liabilities and deferred income tax assets. Deferred tax liabilities are assets that are recognized as liabilities by accounting standards and are not paid by the enterprise. A deferred tax asset is a notional asset that cannot be used by the business because the asset has been paid as a tax and does not generate income for the business. Therefore, deferred tax liabilities should be added and deferred tax assets should be deducted from the calculation of total capital. R&D expenditures will reduce the company's net profit in the current accounting period, but from the perspective of long-term development, the investment in R&D can bring the company more profits in the future. Therefore, R&D expenses need to be added back to net operating profit after tax and total capitalization, especially for a company like Xiaomi that invests heavily in R&D. R&D capability can create great value for the company and should be fully considered in the financial assessment. When calculating a company's EVA, since the cost of debt is already included in the calculation of the cost of capital, if the adjustment of interest expense is not made, the EVA value will be reduced due to double counting. Construction in progress refers to the funds occupied by the enterprise in the construction of unfinished projects, which have been paid for by the enterprise but have not yet generated any revenue for the enterprise. Therefore, including the amount of construction in progress in the calculation of total capital will lead to an overestimation of the actual capital available to the enterprise, and the valuation results obtained will not accurately reflect the value of the enterprise. Xiaomi, as a high-tech enterprise supported by the government, has obtained a considerable amount of financial subsidies, and although these subsidies may have a certain impact on the company's profit, they will not be repeated in the future and have no direct relationship with the company's main business and production operations, not to mention that it can not accurately reflect the company's true profitability in the current and future stages. Non-recurring gains and losses should therefore be deducted from profit after tax.

3.2. Xiaomi EVA Calculation Process

Based on the adjustments made to the relevant items of the enterprise above, the net operating profit after tax of the enterprise is calculated by combining the data of Xiaomi Group's annual report for 2018-2022. The specific calculation process is shown in Table 1. Based on the adjustments made to the relevant items of the enterprise above, the relevant financial data required for the calculation of the total capital and its adjusted items are collected in combination with the data in the annual report of Xiaomi Group for 2018-2022 to calculate the net operating profit after tax of the enterprise. The detailed calculation process is shown in Table 2.

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Table 1: Xiaomi Group's net operating profit after tax, 2018-2020 (in billions of yuan)

Accounting year	2018	2019	2020	2021	2022
Net profit	134.8	101.0	203.1	192.8	25.03
+Finance costs	-2.16	-4.02	24.01	16.12	-11.17
+Income tax expense	4.49	20.60	13.21	51.34	14.31
Earnings before interest and taxes	137.13	117.58	240.32	260.26	28.17
+Increase in impairment losses on assets	——	——	0.26	38.68	4.51
+ Expensed research and development expenses	57.77	74.93	92.56	131.67	160.28
-Gain on change in fair value	44.30	38.13	131.74	81.32	16.62
1-Income tax rate	75%	75%	75%	75%	75%
-Non-recurring gains and losses after tax	-27.17	7.73	-69.18	64.55	94.28
Earnings after interest and tax	140.12	108.06	220.23	197.42	37.98
+Deferred income tax liabilities	7.78	5.80	3.01	12.03	9.83
-Deferred income tax assets	13.12	12.83	20.11	16.62	22.78
Net operating profit after tax	134.78	101.03	203.13	192.83	25.03

Table 2: Calculation of total capitalization of Xiaomi Group in 2018-2020 (in billions of yuan).

	2018	2019	2020	2021	2022
Total Owners' Equity	712.5	816.6	1240	1374	1439
Total current liabilities	619.4	921.81	1079.27	1157.27	896.28
Total non-current liabilities	120.38	97.91	217.39	397.32	399.57
Total debt capital	739.78	1019.72	1296.66	1554.59	1295.85
+Increase in impairment losses on assets	——	——	0.26	38.68	4.51
+Deferred income tax liabilities	7.78	5.80	3.01	12.03	9.83
-Deferred income tax assets	13.12	12.83	20.11	16.62	22.78
+Expensed research and development expenditures	57.77	74.93	92.56	131.67	160.28
-Non-recurring gains and losses after tax	-27.17	7.73	-69.18	64.55	94.28
-Construction in progress	45.43	39.95	16.76	17.07	28.77
Adjusted total capitalization	1486.45	1856.54	2664.80	3012.73	2763.64

Xiaomi's WACC is calculated using the WACC model, which is calculated as follows, taking into account data from Xiaomi Group's annual reports for 2018-2022:

$$WACC = Re (E/V) + Rd (1-Tc) (D/V) \quad (1)$$

Here, Re is the cost of equity capital; Rd is the cost of debt capital; E is the market value of the company's equity; D is the market value of the company's debt; and Tc is the corporate tax rate. The firm's cost of equity capital is calculated using the CAPM model, which is calculated as:

$$Re = Rf + \beta(Rm-Rf) \quad (2)$$

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where Rf is the risk-free rate of return; Rm is the average market rate of return;β is the β coefficient for the industry in which the firm being evaluated is located generally, the firm's assets are financed through debt and equity. The market value of debt is often difficult to calculate, and this paper uses the book value of debt (D), a process that can be simplified by adding the latest two-year average of short-term borrowings and capitalized lease obligations to long-term borrowings and capitalized lease obligations. For the cost of equity, this paper uses the fixed 10-year Treasury bond rate as the risk-free rate; the Beta factor is a risk index that measures the price volatility of an individual stock or equity fund relative to the stock market as a whole; and a market premium of 6 per cent is required. For debt initially, use the most recent year's interest expense divided by the most recent two-year average debt to derive a simplified cost of debt. For the tax rate use the average tax rate of the two most recent years to calculate it. Table 3 shows the WACC calculation for Xiaomi, and Figure 1 shows the change in WACC value. Based on the above calculations, the specific process of calculating the EVA value of Xiaomi Group based on the EVA formula is shown in Table 4.

Table 3: Calculation of weighted average cost of capital for Xiaomi Group, 2018-2022 (in billions of yuan).

Fiscal year	2018	2019	2020	2021	2022
Percentage of debt capital	50.94%	55.53%	51.12%	53.09%	47.39%
Percentage of equity capital	49.06%	44.47%	48.88%	46.91%	52.61%
Weighted average cost of capital	8.60%	7.47%	7.17%	8.24%	8.89%

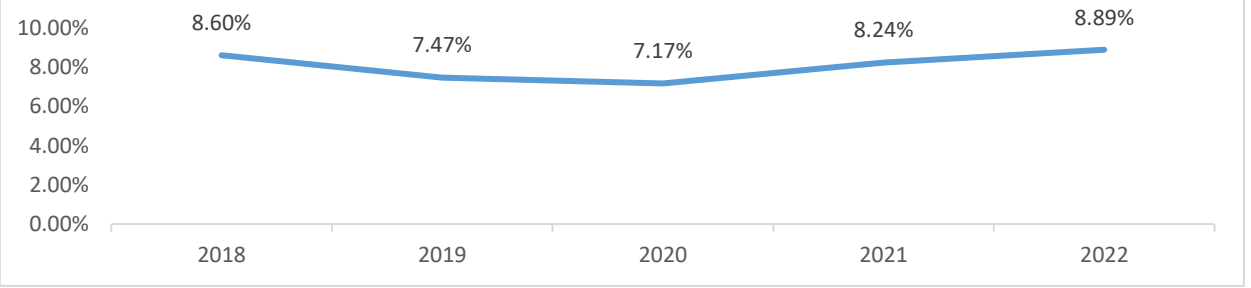

Figure 1: Xiaomi Group WACC Value 2018-2022.

Table 4: Xiaomi Group EVA Calculations 2018-2022 (in billions of yuan).

Accounting year	2018	2019	2020	2021	2022
Net operating profit after tax	134.78	101.03	203.13	192.83	25.03
Adjusted total capitalization	1486.45	1856.54	2664.8	3012.73	2763.64
Weighted average cost of capital	8.60%	7.47%	7.17%	8.24%	8.89%
EVA	6.9453	-37.6535	12.06384	-55.419	-220.658

4. EVA Value analysis

From the above calculations, the EVA value of Xiaomi Group is in a downward trend in 2018 and 2019.2020 Due to the impact of the pandemic, people mostly choose to work online at home, and Xiaomi Group, as an IoT company, shows an upward trend in the EVA value, which reaches 12.06384. However, due to the economic depression in the late stage of the epidemic, the economy is in a period of downward trend, and the people's overall level of consumption is declining, coupled with the rebound of Samsung and Glory as well as the surge of Apple, Xiaomi Group's market share in the domestic, European and Indian markets has been declining; at the same time, as can be seen from the

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table of the weighted average cost of capital, Xiaomi's cost of capital in 2022 has a slight increase compared to the previous years while the profit has decreased significantly, all of the above lead to the declining value of EVA in 2021 and 2022. Based on the above analysis, the development of Xiaomi Group is close to stagnation in the last two years. Although Xiaomi's development in the past two years has faced a lot of difficulties, but it has been focusing on product research and development and invested a lot of money, due to the high cost of inputs of the Xiaomi Group which led to a low EVA value. Considering the overall business situation in the past five years, the momentum is positive, but there is still a need to have a development strategy change.

5. Conclusion

In summary, from the above calculations, the EVA value of Xiaomi Group grew in 2018 and 2020, and the EVA value fell off a cliff in 2019, 2021 and 2022. From the analysis of the previous financial data and the table during the calculation of the EVA values, the cost of capital of Xiaomi in 2022 has a small increase compared to the previous years while the profit has a significant decrease. Based on the above analysis, Xiaomi has had a difficult time developing in the last two years and needs to have a change in its development strategy in the future. Enterprises use the EVA valuation method to assess the value of the enterprise is conducive to enterprises understanding their financial situation, while using their own big data assets and value to reduce the asymmetry of information. In addition, the valuation can make the right guidance for the enterprise's future decision-making, and enhance the competitiveness of the enterprise's industry. However, because the EVA valuation method involves many project adjustments in the calculation and operation process, and the calculation of EVA relies on the disclosure of financial information, the result has a certain degree of subjectivity, which results in a reduction in the precision of the assessment. When using the EVA valuation method to value an enterprise, it should consider the different types of enterprises, the actual situation, the economic environment in which they are located, and their development prospects, among other factors. As a giant Internet company, Xiaomi Group's business is divided into several different segments, and these business segments are not independent but are influenced by each other, and have a huge impact on the company's business and profit level; at the same time, order to enable business managers to better understand the enterprise and its value, the value of the driving factors should be calculated more accurately. Companies should also rationalize their capital structure, especially the cost of capital - one of the factors determining the intrinsic value of a company, which acts as a crucial factor in enhancing the capital structure of a company. Simultaneously, business managers also need to be mindful of the truthfulness of information when disclosing financial information to help evaluators make decisions that are beneficial to the business.

Author Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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