The Impact of Macroeconomic Factors on Stock Valuation

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Abstract. The widely accepted notion that capital markets are significantly influenced by macroeconomic factors underscores the importance of examining how these factors directly and indirectly affect stock valuations. Stock prices are inherently volatile, subject to the whims of the market, yet they are expected to converge with the intrinsic value of the shares they represent. Uncovering this fair value is essential for strategic investment decisions. This review article aims to provide an in-depth analysis of the impact of macroeconomic variables on the financial performance of specific companies, using macroeconomic data to elucidate the shifts in the fair value of their shares. By focusing on Baiyunshan, a leading pharmaceutical company in China, the article illustrates the tangible effects of macroeconomic factors on stock valuation. It offers a comprehensive exploration of various evaluation models, providing investors with a robust framework to assess the intrinsic value of publicly traded pharmaceutical companies. This study not only bridges the gap in current understanding but also equips investors with the necessary tools to navigate the complexities of the capital market with greater confidence and precision.

Keywords: Stock Valuation Model; Macroeconomic Factors; EVA; Pharmaceutical companies; Value Investments.

1. Introduction

China's macroeconomic situation has been unstable due to a number of foreign events in recent years, including the Covid-19 outbreak, the trade dispute between China and the United States, and the regional conflict between Russia and Ukraine. The Chinese capital market is dealing with previously unheard-of opportunities and problems in this environment. Investigating macroeconomic uncertainty and the ways in which macroeconomic factors impact the capital market is essential if one hopes to foster innovation in the Chinese capital market. It is a forecast of upcoming financial events as well as a reaction to the current state of affairs. Because stock valuation establishes the range of a company's equity's fair value, it is crucial for financial research as it directs investment decisions. Numerous elements influence the evaluation process, including both the macroeconomic environment and the success of the individual organization [1]. This article will introduce different kind of model, and how different macroeconomic factors influence fair valuation of stocks.

2. Method

2.1. Understanding Stock Valuation

The market price is not usually consistent with the intrinsic value of a stock, but stock valuation aims to estimate that fair price. It is important for identifying overvalued or undervalued stocks. Common ways to evaluate a stock includes Price to Earnings ratio, Price to Book Ratio, Discounted Cash Flow model (Gordon Growth Model), and Economic Value Added model [2]. Each methos relied on different financial data like earnings, predicted cash flow, and book value.

2.2. Valuation Models

(1) PE Ratio: This is the ratio between a company's share price and its per share earnings. It shows how much investors are willing to pay per dollar of earnings. In different industry, the benchmark for PE ratio is different, but generally a high PE ratio indicate overvaluation vice versa. The higher the

PE ratio is, the longer investors need to get back money they invested, which means a higher investment risk and lower investment value.

(2) PB Ratio: This measures the difference between the market and book values of an organization. It is a metric used to determine if a stock is overpriced or undervalued in relation to its net asset value.

(3) Gordon Growth Rate Model: This model determines the present value of anticipated future cash flows and applies a suitable rate of discount to the anticipated cash flows. It is a well-known method of stock evaluation because it is simpler and more accurate to project cash flow in the initial time period than it is to project all possible cash flow in the future. P=D_1/r-g is the formula for the Gordon Growth Rate model, in which g is the growth rate, r is the cost of capital, D_1 is the dividend for the first time interval, and P is the fair price.

(4) EVA model: By subtracting the cost of capital from the profit, the EVA model measures the remaining profits and assesses a company's financial strength. Assessing businesses with large capital expenditures, such as those in the pharmaceutical sector, is helpful [3].

3. Macroeconomic Factors Affecting Stock Valuation

By influencing important financial performance of companies and general market sentiments, Macro-economic factors greatly influence stock valuation. Some of essential factors are inflation, interest rates, economics growth, and political stability [4].

3.1. Interest Rates

Interest rate is one of the important factors that affect stock valuation. When interest rate increase, it is more difficult for companies to borrow money, which will reduce the efficiency and the profits of companies, and consequently the stock price will fall [5].Also, a higher interest rates in general will make fixed income investment more preferable. In contrary, a lower interest rate facilitates economics growth because it encourages investment and reduce the cost of borrowing.

3.2. Inflation

Inflation is another important factor because it influences the purchasing power of future cash flows. In general, a company is able to pass their higher cost on their costumer during inflation, however, that process usually takes a lot of time, therefore we can see a temporarily decrease in net profit when inflation happens, and a decrease in dividend payment will decrease the fair value for the shares of that company according to Gordon Growth Model [6].

3.3. Economic Growth

Economic growth is a strong contributor for companies’ earnings and stock valuation. Economic growth is usually measured by real GDP. Economic growth generally come with increase in aggregate consumption and investment. An increase in consumer spending will increase the corporation profits and thus their fair value [7]. On the other hand, an economic downturn will cut companies’ profit and thus reduce their profits and fair value.

3.4. Political Stability

Political stability and government policies can significantly influence stock valuations. Stable political environments provide a conducive atmosphere for economic growth and investment, which leads to higher stock valuations. Specifically, how friendly government policies are influences stock valuation because a stable government reduces uncertainty, which stimulate people to invest. Also, a conductive policy can magnify companies’ profits in specific industry substantially, and thus increase their fair value.

4. Case Study: Pharmaceutical Industry

The pharmaceutical industry in China is an appropriate example showing how macroeconomic factors affect stock evaluation. This industry needs high research and development costs, regulatory scrutiny, and lots of capital expenditure. These investment related factors make this industry easily influenced by macroeconomic factors since economic downturn will cut company's investment [8].

4.1. Valuation of Guangzhou Baiyunshan Pharmaceutical Holdings Company Limited

In the article Jiang Hui analyzes the valuation of Baiyunshan using the P/E ratio, P/B ratio, and EVA model [2]. Baiyunshan's valuation is influenced by several macroeconomic factors. Healthcare demand: the demand for medicines increase since the increased health awareness, aging populations and rapid economic growth of China, which positively impact its revenue and stock fair price [9].

1. The government policies influence the profits of Baiyunshan, for example drug pricing regulation and healthcare reforms in China supported the medicine industry, and especially the "Healthy China 2030" plan improves healthcare infrastructure and increase access to medical services. It creates a more profitable environment for Medicine Company like Baiyunshan. Also, the China Food and Drug Administration has made the process to get medicine approval easier, their effort reduces the cost of Medicine Company and thus increase their net profits

2. To create new medications, the pharmaceutical business always has to invest a significant amount of money in R&D. Macroeconomic variables such as inflation and interest rates have an impact on the quantity invested since rising interest rates raise the cost of borrowing money, which discourages investment in the pharmaceutical sector. In accordance with the Gordon Growth Model of stock appraisal, a drop in investment will decrease the predicted growth rate and may therefore lower the fair valuation of the company's share.

4.2. Financial Analysis of Baiyunshan

Jiang Hui assessed Baiyunshan's financial performance from 2016 to 2020 using the EVA-Model. According to the analysis, Baiyunshan has produced positive EVA, demonstrating that it has added value for its investors. The operational industry benefits from the company's positive return on equity (ROE), underscoring its impressive financial success.

4.2.1. Interest rate

Table 1. ROE and Interest rate on business loan comparison graph for Baiyunshan.

Years	2016	2017	2018	2019	2020
ROE%	10.98%	11.44%	19.70%	13.93%	11.26%
Interest rate on business loan	5.60%	4.90%	4.75%	4.60%	4.40%

Table 1 is the ROE for Baiyunshan during 2016 to 2020 and the interest rate on business loan in China. In this chart we can see a clear path of interest rate deceasing, which, in most cases will increase companies' ability to earn money. As interest rate decrease, the ROE for Baiyunshan increase substantially, during 2016 to 2018. That means that the ability of Baiyunshan to create value on its retained earnings increased during the period of decreasing interest rate. The formula for growth rate is the plowback ratio (percentage of money that company retains) times the ROE. An increase in ROE increases the growth rate in Gordon Growth model and thus will increase the valuation of Baisyunshan's shares.

4.2.2. Inflationary Pressures

There are two threats to stock valuations from inflation: It diminishes the actual worth of future cash flows, on the one hand. However, it drives up business expenses, which reduces profit margins. Price inflation, in which businesses raise prices to preserve margins, can result from high inflation and lower demand [10]. Businesses in industries where demand is inelastic, like utilities and healthcare, might do better, but those in more competitive marketplaces will have to bear the brunt of cost-passing.

4.2.3. Economic Growth Uncertainty

Economic growth projections are rife with uncertainties. A sudden lull or recession can have a significant impact on stock prices. For instance, as economic activity fell precipitously during the 2008 financial crisis, stock prices significantly plummeted globally. Economic indicators are frequently used by investors to forecast growth, however they can be deceptive or make evaluation processes more difficult [11].

4.2.4. Political and Regulatory Risks

Quantifying political and regulatory risks can be particularly difficult. Geopolitical developments, trade disputes, and policy changes can all have a direct and significant impact on stock values. For instance, market volatility has been observed in the US-China trade war as investors respond to additional taxes and trade barriers [12]. Comparably, modifications to healthcare regulations, such those pertaining to drug prices, have the potential to significantly alter the financial situation of pharmaceutical firms [13].

5. Case Analysis: Impact of Macroeconomic Factors on Baiyunshan

Understanding the relationship between macroeconomic variables and stock valuation can be gained by examining Baiyunshan's valuation.

5.1. Interest Rates

Interest rate fluctuations have an impact on capital costs as well as R&D investment. Because lower interest rates lower the cost of borrowing, they have historically made larger investments in R&D possible. As a result, Baiyunshan has been able to innovate, create new goods, boost sales, and raise stock values. On the other hand, growing interest rates can reduce the growth of macroeconomic variables and stock valuation, raise the cost of capital, and restrict R&D expenditure.

5.2. Inflation

Table 2. Gross Profit Margin and CPI comparison graph for Baiyunshan.

Years	2016	2017	2018	2019	2020
Gross Profit Margin	0.4078	0.4525	0.2384	0.1982	0.1693
CPI	101.8	102.15	101.5	101.7	105.4

Table 2 is the table that show Gross Profit Margin of Baiyunshan and CPI of China. Baiyunshan works in an industry where inflation can have a variety of effects. On the one hand, inflation increases the cost of inputs like raw materials for drug production. The increasing trend of Gross Profit Margin show that the cost of inputs of Baiyunshan had been decreasing during 2016 to 2017, which can be attributed to inflation in China especially during 2019 to 2020. On the other hand, the company can pass these costs on to consumers due to unmet demand for healthcare products. A company's ability to effectively manage these costs without significantly affecting demand is critical to its stock valuation. In general, however, it is a negative factor for a company.

5.3. Economic Growth

Baiyunshan's prospective revenue is directly impacted by China's economic growth. Consumer spending on healthcare is enabled by rapid economic growth, which raises the awareness and need for medicines. However, a downturn in the economy may have an impact on healthcare expenses and disposable income, which will decrease the aggregate demand in economy. Despite changes in the home economy, Baiyunshan's effort to diversify its product line and enter foreign markets can lessen these risks.

5.4. Regulatory Environment

For Baiyunshan, the regulatory environment is crucial. Profitability and stock valuation can be increased by advantageous regulatory developments, such as expedited medication approval procedures and supporting healthcare legislation. Strict laws, however, may make compliance more expensive and restrict market access. These risks can be reduced and Baiyunshan's valuation supported by its proactive response to regulatory changes, which includes compliance with international standards and interaction with regulatory organizations.

6. Suggestions for Action Based on Macroeconomic Situations

Based on the observations we have maden, investors can adopt several strategies when facing macroeconomic uncertainties.

(1) Investors should keep a careful eye on changes in interest rates and central bank policy. It could be wise to minimize exposure to highly indebted businesses or those that rely significantly on borrowing for expansion when interest rates are predicted to rise [14]. When borrowing costs are low and innovation is encouraged, investing in pharmaceutical businesses that have strong R&D supplies may result in substantial returns.

(2) If investors want to protect themselves from inflation should choose to look into commodities or inflation-linked bonds, which have a history of doing well during inflationary times. Investing in businesses that can pass costs on to customers and companies that have significant pricing power can also function as a cushion against the negative effects of inflation on profit margins.

(3) Companies with strong financial standing should be given preference by investors since they are more likely to continue operating and have growth opportunities even in the face of challenging macroeconomic circumstances [15]. In difficult times, Baiyunshan's positive EVA (Economic Value Added) indicates, for instance, that it is stable financially and able to maintain value for shareholders.

(4) Even though abrupt changes in the market might be frightening, it's critical to keep a long-term investment perspective when there is economic uncertainty. Markets often bounce back over time, and companies with strong fundamentals typically see their valuations increase, according to historical statistics. Instead of panicking, investors should concentrate on their investments' potential for long-term gain.

7. Conclusion

An in-depth analysis on the influence of macroeconomic factors on stock valuations, using Baiyunshan as a case study, is presented in this article. The critical elements identified include interest rates, inflation, economic growth and political stability—each playing a significant role in impacting companies’ financial performance and stock valuation.

The relationship between Interest Rates and cost of capital & R&D investments is direct. Seen during Baiyunshan's growth period were innovation stimulation and value enhancement due to lower interest rates; while higher ones potentially stunted investment activities leading to reduced company valuation.

Inflation possesses multiple effects involving both input costs as well as profit margins maintenance and even increase abilities by firms. This risk factor alters future cash flows' real values thus threatening the security of stocks evaluations.

Economic Growth contributes heavily towards corporate earnings hence directly influencing stock evaluations too. A clear example can be seen from Baiyunshan's experience where an expanded economy boosted healthcare demand which subsequently increased revenues improving their share prices.

Particularly for highly regulated sectors like pharmaceuticals, Political Stability coupled with conducive regulatory environments make an immense difference—an exhibited fact when favorable policies` implementation significantly augmented profitability levels along with company's shares evaluation rate.

Robust financial health, established R&D capabilities combined with flexibility underscoring ongoing regulatory changes demonstrated successful handling by Baiyunshan amidst macroscale challenges faced economically without any negative impact upon market evaluation mark these key findings are crucial investor strategies assimilation dealing effectively against uncertainty in a macroeconomic context emphasizing specific focus towards firms possessing solid finance attributes promising long-lasting development potentiality maintaining overall vigilance for varying socio-economic indicators cultivates alert investors retaining continual broader outlook approach comprehension better facilitating decision-making processes also supplementing further predictions pertaining businesses resilience based equities preferences selections international fiscal landscape evolutionary pace accelerates understanding anticipatory measures concerning cause-effect over ever-shifting decisive element played via numerous influential facets generally within global shareholding trading environment attaining optimum successful navigation means securing highest possible returns.

8. Research Prospect

Macroeconomic uncertainty is predicted to be maintained or even worse in the future because of trade dispute, political attention, and rapid changes in technology. The uncertainty of economic growth, inflation, and interest rates will lead to price fluctuation of stocks and difficulties for investors to find intrinsic value of stocks. Thus, intending to minimize risks and fluctuation, investors should focus more on companies that have good financial health, and should diverse their portfolio.

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