Proceedings of the 3rd International Conference on Business and Policy Studies
DOI: 10.54254/2754-1169/68/20241423

An Empirical Analysis on the Feasibility of Financial Valuation of Technology Companies: A Fundamental Analysis Approach Based on Value Investing

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Abstract: This study addresses the significant challenge of accurately valuing internet companies in the contemporary business landscape, recognizing existing research gaps due to the limited applicability of conventional valuation methods such as Net Present Value (NPV) and Price to Earnings (PE) ratios in this emergent industry. This paper conducted a fundamental analysis based on the principles of value investing, utilizing 2022 financial data from thirteen internet companies listed in Forbes Global Technology companies. Key financial aspects, including liquidity, debt-servicing capacity, profitability, and shareholder returns, were meticulously analyzed. The findings reveal that internet companies face cash flow pressures impacting their liquidity. Despite a moderate long-term debt ratio, companies exhibit substantial reliance on debt financing, encountering difficulties in interest payments. While these firms demonstrate a capacity for profitability, they concurrently face intense competition and cost pressures. The market sentiment remains highly optimistic regarding the future prospects of internet companies, reflecting elevated valuations. In light of favorable market conditions, it is imperative for internet companies to strategically enhance competitive advantages, bolster core product competitiveness, and amplify profitability through innovative operational and marketing strategies, thereby augmenting their industry influence and societal impact.

Keywords: Financial Valuation, Value Investing, Technology Companies

1. Introduction

Due to the bursting of the Internet bubble in 2000 and the huge losses incurred by venture capital funds in Internet companies, how to make objective valuation of Internet companies has become an important issue in recent years. With the continuous development of time and economy, people have been searching for the most common and acceptable valuation method, but there is no answer that satisfies everyone so far. To understand the intrinsic value of an Internet business and the factors that create the value of an Internet business, it is necessary to use realistic and reasonable valuation methods, and academics and the business community have made a lot of efforts to solve this problem, such as quantitative valuation methods, for example, the multiples analysis and the discounted cash flow analysis have been recognized as the classic methods of business valuation with a long history. However, these traditional techniques may not work for Internet valuation. The valuation of Internet companies often creates significant barriers due to their own technical difficulties and logical thinking [1]. Therefore, this paper focuses on using the concept of value investing to study the liquidity, solvency, profitability, and shareholders' returns of Internet companies, exploring the dependence of Internet companies on capital flows based on the relationship between cash ratios; observing their dependence on financing and the level of interest payments from the overall debt level of Internet companies; exploring the costs and revenues of Internet companies from their costs and revenues of Internet companies, it will explore the balanced relationship between them; and then analyze the business status of the companies from their average turnover ratio, ROE, ROA, and market conditions. Based on the fundamentals of Internet companies, this paper will make valuation and investment decisions. Value investing strategies are common in practice and academia, and value investing is widely used in practice due to the achievements of world-class investor Warren Buffett [2]. Fundamental analysis, on the other hand, evaluates a company's financial position by analyzing financial indicators, calculating the intrinsic asset value and comparing it with the market price to provide a target price for the asset [3]. In a general sense, it assesses the financial position of companies and projects in terms of future results by determining the price closest to the real value of the stock, which is based on three pillars: (i) analysis of the company or asset; (ii) analysis of the industry and market; and (iii) analysis of economic and financial indicators. The important role of economic behavior in both micro and macroeconomic terms is also considered [4]. This will help future value investors to be protected from the negative effects of short-term market volatility and market noise, and to focus more on the long-term value of companies.

Based on the 2022 Forbes List of the World's Largest Technology Companies, this paper selects 13 Internet companies that meet the requirements of this paper and analyzes them in detail in an attempt to simply establish a valuation methodology for the Internet industry as a whole. During the period of the Internet bubble, scholars claimed that the relevance of financial and accounting information to market valuation declined, and this form seems to have been reversed after the bubble burst [5]. Based on the special characteristics of Internet companies with few tangible assets and most of them are difficult to make profits, this paper divides the content of fundamental analysis into four segments, analyzing various indicators such as the company's liquidity ratios, solvency ratios, profitability ratios, and investment ratios, and researching industry. The overall trend of the industry is studied.

2. Liquidity Performance

The current ratio is a financial ratio that measures the short-term solvency of a business, and it usually compares a business's current assets with its current liabilities. This ratio provides investors and creditors with a quick and testable way to assess the financial health of a business. Based on Table 1, it can be seen that the Internet industry generally has a high current ratio, which represents that they have more than sufficient funds to cover their short-term debts. This will result in Internet companies being able to have more cash and liquid assets as they are more likely to attract venture capital (VC/PE) due to their own active financing. Secondly, Internet companies are capital light (low fixed capital investment) compared to traditional manufacturing and retailing, in which the business model eschews large amounts of fixed capital such as land, machinery and buildings. Instead, they focus more on talent, technology and innovation, which helps the company improve its flexibility and ability to adapt to the market, which is why it shows a higher current ratio. Analysis according to Table 1 can be found, Sohu and Weibo's current ratio is particularly high, even beyond 3 times, which on the one hand reflects the financial stability of the company, but on the other hand also means that the company has a large amount of money idle, not being fully utilized. In its 2022 annual report,

DOI: 10.54254/2754-1169/68/20241423

Weibo mentions that although the Group does not currently require dividends, deposits and advances from subsidiaries in the People's Republic of China, VIEs and subsidiaries of VIEs to provide liquidity and other financing purposes [6]. The Group may require additional cash resources from subsidiaries. VIEs and subsidiaries of VIEs in the People's Republic of China in the future due to changes in its business conditions for future acquisitions and developments or simply to declare and pay dividends or make distributions to its shareholders. As of December 31, 2022, the Group is restricted in the amount of US$566.9 million, representing 16.7% of the Group's total consolidated net assets. Sohu noted in its 2022 annual report that of its cash and cash equivalents, US$506.5 million was deposited in financial institutions in mainland China and US$191.3 million was is deposited in financial institutions outside mainland China [7]. They believe that their current liquidity and capital resources are sufficient to meet anticipated working capital requirements, commitments, capital expenditures and investing activities for at least the next twelve months. However, they may require additional cash resources due to changes in business conditions and other future developments, or changes in general economic conditions (details in item 3). Amazon and Apple on the other hand show low current ratios, their current ratios are 0.94 and 0.88 respectively, which means that the business does not have enough funds to pay off short-term debt, which might lead to financial risk for the business. In Amazon's annual report, it can be learned that the capital expenditures for 2022 are $58.3 billion, which is an increase of 29% year-on-year compared to 2021's 55.4 billion [8]. An increase of $2.9 billion year-over-year, primarily reflecting investments in technology infrastructure (much of which is being used to support the growth of the AWS business) and additional capacity for the company's fulfillment network. And Amazon used cash on hand to fund the acquisition of MGM Holdings, Inc. and is expected to use cash on hand to fund the acquisitions of 1Life Healthcare, Inc. (One Medical) and iRobot Corporation. Apple, for its part, disclosed in its annual report that Apple has a balance of $156.4 billion in cash, cash equivalents, etc., but that the company is exposed to credit risk and volatility in the value of its investment portfolio [9]. Although the Company has not realized any significant losses on its cash, cash equivalents, and marketable and non-marketable securities, future fluctuations in their value could result in significant losses and could have a material adverse effect on the Company's results of operations and financial condition. Also, the downturn in the economic environment has led to an increase in the riskiness of collecting the company's trade receivables, reducing its current ratio.

The quick ratio represents a company's ability to pay its current obligations from their company's most liquid assets without relying on selling inventory. It evaluates whether a company can afford to pay off its short-term debt without selling inventory. The Internet industry generally has high velocity ratios, which represents their ability to pay off short-term debt even after subtracting inventory, reflecting the fact that this industry generally has a better ability to pay off debt in the short term. Interestingly, by comparing the speed ratios and current ratios of the above Internet companies, it is surprising to find that there is little difference between the two, with only a few companies having speed ratios that are slightly lower than their current ratios. This phenomenon can again indicate that the Internet industry has less inventory and the related companies have a higher degree of flexibility and market adaptation. According to Table 1, it can be seen that the companies with the highest current ratios - Weibo and Sohu - also have the highest speed ratios, and surprisingly these two companies have current ratios equal to their speed ratios, which means they have no relevant inventories. Apple and Amazon also have lower quick ratios because of their own poor current ratio numbers. It is worth noting that the difference between the quick ratio compared to the current ratio for the two companies, Jingdong and Amazon, is due to the fact that these two companies are e-commerce companies, which provide online sales and delivery of goods through an internet platform, and therefore, they will have a relatively large amount of inventory. In Jingdong's annual report for 2022, it is concluded that there is a significant increase in their inventory from RMB 58,933 million

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on December 31, 2020 to December 2021 31, 2021 to RMB75,601 million and further to RMB77,949 million (US$11,302 million) as of December 31, 2022, which represents 13% of total assets [10]. Part of the reason for the large amount of net inventory is that some of the merchandise is stagnant or damaged, which relates to issues such as the effects of aging inventories, historical and forecasted consumer demand, and pricing affecting the causes of market conditions.

The cash ratio is a relatively conservative ratio for assessing a company's liquidity because it does not take into account other assets that can be used to pay down debt, where "cash" usually includes cash and cash-equivalent investments, such as short-term investments that can be liquidated quickly in the marketplace. According to Table 1, it can be seen that the Internet industry generally has a low cash ratio, basically no more than 1, compared with the first two ratios, it can be seen that most of the liquidity of the Internet business is not cash. And in response to the phenomenon of higher current ratio and lower cash ratio, it can be concluded that companies are more inclined to reinvest cash in their business to support growth and expansion, or may be more investment in certain non-cash current assets. As a result of a low cash ratio and a high current ratio, for Internet companies this could include prepaid advertising costs, partner payments, or other expenses related to operations. But a low cash ratio could also mean some cash-flow pressure on the company when faced with unexpected expenses or investment opportunities. The same goes for Weibo and Sohu, two companies whose cash ratios are still remarkably high compared to other competitors in their industries. Weibo stated in their 2022 annual report that their ability to repay principal and pay interest on their debt depends on their ability to manage business operations, generate sufficient cash flow, raise additional capital and other factors [6]. They may not be able to meet their payment obligations if they are unable to obtain financing on a timely basis or on commercially acceptable terms. They may incur additional debt in the future, which requires them to have sufficient cash flow.

Table 1: Liquidity ratios for technology companies.

Stock code	Current ratio	Quick ratio	Cash ratio
BABA.N	1.67	1.59	0.58
BIDU.O	2.67	2.67	0.81
JD.O	1.31	1.02	0.37
NTES.O	2.31	2.30	0.53
SOHU.O	3.18	3.18	1.84
WB.O	3.73	3.73	2.96
GOOGL.O	2.38	2.34	0.90
AMZN.O	0.94	0.72	0.62
TCEHY.OO	1.30	1.30	0.53
AAPL.O	0.88	0.85	0.35
MPNGF.OO	1.87	1.86	0.29
NFLX.O	1.17	1.17	0.77
MSFT.O	1.78	1.75	0.61

3. Solvency Performance

Gearing ratio is usually used to measure a company's financial leverage, which can be used to derive how much of the company's assets are exchanged through borrowing, and it can assess the company's financial risk. According to Table 2, it can be seen that the overall gearing ratio of Internet companies is as high as 50%, which to some extent reflects the companies' reliance on debt financing. Generally speaking, Internet companies are recognized as a high-growth industry, in order to achieve the goal of rapid expansion and capture market share, companies will use more aggressive financial strategies, and due to the rapid rate of innovation in the Internet industry, companies may need to continue to invest in research and development, which will lead to a tendency to debt financing. According to Table 2, Amazon and Apple have high gearing ratios of 68.44% and 85.64% respectively, which represents that the two firms have high debt burdens. According to Apple's annual report, as of September 24, 2022, Apple had a total of $111.8 billion in fixed rate notes (collectively, the "Notes") outstanding as of September 24, 2022, of which $11.1 billion is repayable within 12 months [9]. Future interest payments related to the Notes total $41.3 billion, of which $2.9 billion is payable within 12 months. Apple also issues unsecured short-term promissory notes (Commercial Paper) under the Commercial Paper Program. As of September 24, 2022, the Company had $10 billion of commercial paper outstanding, all of which must be paid within 12 months. Amazon, on the other hand, notes in its 2022 Annual Report that the Company's 2021 and 2022 payments from short-term debt and other long-term debt to generate cash inflows of $27 billion and $62.7 billion, respectively [8]. This is a significant portion of the company's debt. And a significant portion of this cash is used for share repurchases, payments on short-term debt, long-term debt, finance leases and financing obligations. The company says there is significant uncertainty about future cash needs and cash flow projections. The Company continually evaluates opportunities to sell additional equity or debt securities, obtain credit facilities, obtain financing and operate lease arrangements, enter into financing obligations, repurchase common stock, pay dividends or repurchases, refinance or otherwise restructure debt. At the same time, economic conditions and actions by policy-making bodies have resulted in higher interest rates and significant volatility in the capital markets. This, along with an increase in the company's borrowing levels, could increase the company's borrowing costs in the future. Google only has a 29.87% gearing ratio, which means that Google is a company with a healthier and more conservative financial structure relative to other internet companies, while having more self-capital. Google notes in its 2022 annual report that the company classifies its assets, and the company classifies effective maturities of three months or less from the date of purchase of Transferable debt securities are classified as cash equivalents, while securities with effective maturities greater than three months are classified as transferable securities [11]. After considering risk and return objectives and liquidity requirements, the company may sell these debt securities prior to their effective maturity dates. At the same time, the company records these securities at fair value and reports unrealized gains and losses, net of tax, as a component of shareholders' equity. Changes in the fair value of certain negotiable debt securities are recorded in other income (expense). And for certain market transferable debt securities, the company selects the fair value option. All of the above contributes to maintaining a low debt ratio.

The long-term gearing ratio indicates how much of a company's assets are backed by long-term liabilities (bonds, long-term borrowings, etc.). Based on Table 2, it can be concluded that the long-term gearing ratio for the Internet industry as a whole-is not that high, averaging 23%. Relative to other industries, this is a moderate ratio, showing that companies have some debt but are not overly reliant on external financing. Apple and Neflix, on the other hand, are two companies with high long-term gearing ratios, at 41.98% and 40.92%, respectively. Apple noted in its annual report that total combined long-term debt was $111,824 million as of September 24, 2022, and that to manage interest rate risk on certain U.S. dollar-denominated fixed rate notes [9]. The company entered into interest rate swaps that effectively convert the fixed interest rates on these notes to floating rates. In addition, to manage foreign exchange risk on certain foreign currency denominated notes, the company entered into foreign exchange swaps that effectively converted these notes to U.S. dollar denominated notes. Netflix explained in its Annual Report 2022 that as of December 31, 2022 , the company had a total outstanding notes ("Notes") balance of $14,353 million, less issuance costs of $79 million, with various maturity dates [12]. Netflix has its future capital needs, and as the company expects its future capital needs from the debt markets to be more limited than in previous years, it is preparing to raise additional funds through the issuance of equity and debt securities. These securities may have rights superior to those of the common stock, being able to have more preferences and privileges. NetEase has a long-term gearing ratio of only 4.09% in 2022, according to NetEase's annual report, NetEase received net proceeds of RMB4,845.0 million (US$702.5 million) from short-term and long-term loans in 2022 [13]. The net cash outflow from financing activities was mainly due to NetEase's repurchase of its American Depositary Shares (ADSs) and purchase of shares of its subsidiaries, as well as dividend payments to shareholders and non-controlling shareholders, while there were net proceeds from short-term and long-term loans, but these proceeds partially offset the cash outflow from share repurchases and dividend payments. Finally, all of the above resulted in less long-term debt due to the existence of multiple loan agreements between NetEase and Youdao, even though the original terms of the loans were shorter, as well as the fact that the actual amount of long-term loans utilized was relatively small despite the availability of a revolving loan facility to support Youdao's long-term growth.

The EBITDA multiple is used to measure the profitability of the company as well as its ability to pay interest. According to Table 2, it is concluded that the Internet industry generally has a low EBITDA multiple, which represents that the company is not very profitable and may face difficulties in paying interest. Meituan's EBITDA multiple in 2022 is -3.68,which represents one year of earnings in the U.S. that is not enough to cover its interest payables [14]. Meituan attributes the higher interest payable to the fact that the time value of money and risks specific to the obligation are taken into account in the measurement of withholding, which are reflected through interest rates, resulting in an increase in interest expense. Interestingly, MMT additionally elaborates on how an organization recognizes and measures provisions (provisions) for liabilities, particularly legal or constructive obligations related to past events, and MMT's higher interest payable is due to the fact that the measurements of provisions take into account the time value of money and the risks specific to the obligation, which leads to an increase in the provision and the recognition of the corresponding interest expense. Microsoft exhibits a surprisingly high EBITDA multiple of 40.58 among many Internet companies. In Microsoft's annual report, it can be learned that in 2022, the company's interest payments are $1.9 billion, that changes in interest rates may have a direct impact on interest expense due to the use of the company's interest rate swaps and other financial contracts [15]. The company's use of a hedging strategy may affect the company's financial performance, particularly in relation to the portion of interest expense. Finally, interest expense accrued as a result of uncertain tax positions could directly impact the Company's earnings, thereby increasing the EBITDA multiple.

Table 2: Solvency ratios for technology companies.

Stock code	Total debt ratio	Long-term debt ratio	Times-interest-earned
BABA.N	36.17%	13.54%	3.59
BIDU.O	39.17%	18.81%	2.33
JD.O	53.95%	9.17%	6.58
NTES.O	36.98%	4.09%	N/A
SOHU.O	43.84%	22.76%	N/A
WB.O	52.44%	35.33%	1.32
GOOGL.O	29.87%	10.90%	N/A
AMZN.O	68.44%	34.85%	-1.93
TCEHY.OO	50.39%	22.88%	21.19
AAPL.O	85.64%	41.98%	40.67
MPNGF.OO	47.36%	16.09%	-3.68
NFLX.O	57.24%	40.92%	7.98
MSFT.O	54.35%	28.29%	40.58

DOI: 10.54254/2754-1169/68/20241423

4. Profitability Performance

Net Profit Margin is a financial ratio that measures a company's profitability and provides creditors with insight into the efficiency and profitability of a company's operations by showing how much of each unit of a company's sales revenue is retained as net profit. By looking at the net profit margin, the company can assess the effectiveness of its business strategy and operational strategy efficiency and adjust accordingly. According to Table 3, it can be seen that the general net profit margin in the Internet industry is 12.6%, which is an interesting figure, in general, Internet companies have relatively low fixed costs but invest more in technology development and personnel, this average net profit margin may reflect the efficiency of individual companies in controlling their operating costs, which suggests that the Internet companies are able to achieve profitability to a certain extent, however are also facing competitive and cost pressures. Tencent Holdings and Microsoft have the highest net profit margins, at 34.03% and 36.69% respectively. A higher net profit margin, which can effectively convert sales revenue into net profit, indicates a stronger competitive position in the market and also reflects a company's ability to control costs. According to Microsoft's annual report, it can be seen that the net income increased by 19% from $61,271 million to $72,738 million [15]. It indicates that the company's sales are performing well and the market demand is strong. Also, net income and diluted EPS for the year were positively impacted by the net tax advantage associated with the transfer of intangible assets. Interestingly, the Supreme Court of India ruled in favor of the company, holding that software sales are not subject to withholding tax, and Microsoft has further effectively reduced its tax burden by producing and distributing its products and services in foreign jurisdictions (e.g., Ireland) at a lower tax rate. Tencent mentioned in its annual report that the company took measures to further reduce loss-making operations and optimize its cost structure [16]. This helped improve the company's overall profitability. At the same time the company is focusing on self-developed PaaS (Platform-as-a-Service) solutions with healthier profit margins, such as audio and video clouds and databases. This shows that the company is selecting and growing its business with a greater focus on its profitability. Finally the company offers solutions that help automakers enhance their IT infrastructure and product offerings, such as customized smart cockpit solutions, digital maps, and data management. This may help the company to increase the value and attractiveness of its services, which in turn increases profits. Sohu and Meituan, on the other hand, did not have good net profit margins, at -2.30% and -3.04%, respectively. Sohu's 2022 annual report reveals that the company's net loss from continuing operations in 2022 was $17.3 million [7]. The net loss attributable to Sohu.com Limited was relatively high in 2022, which suggests that Sohu faced some financial pressure during the year. It is also known that Sohu's net income rate was impacted by its investments in Changyou and Sogou, equity plan modifications and other related matters. The equity plan modification and merger of Long Tour and the fact that Sohu no longer holds an equity stake in Sogou are important factors that affect Sohu's net income and net income ratio.The presence and variability of these factors increases the complexity of Sohu's net income (net loss) and affects its net income ratio. In its annual report, an increase in gross profit from its food and beverage takeout and Meituan flash sales businesses [7]. However, this increase was offset by lower profits in the hotel and travel business. Meanwhile the epidemic led to fewer customers visiting stores, which may have affected the company's overall profits. And Meituan revealed in a sidebar that the company is working to reduce costs and expenses across all of its businesses and improve operational efficiency. This suggests that the company may be facing some challenges in controlling costs. The operating loss of Meituan's new business unit decreased from RMB9.4 billion in the fourth quarter of 2021 to RMB6.4 billion in the same period of 2022, which is an improvement, narrowing 36.8 percentage points year-on-year from 75% to 38.2%, but is still high enough that even with cost reductions and operational efficiencies in the merchandise retailing business, the company will not be able to turn around its profitability.

Operating margin represents a company's ability to generate profits from its core business. According to Table 3, it can be seen that the average operating margin in the Internet industry is 15%, which represents the viability and robustness of the business model of most Internet companies, and also shows that most Internet companies do an excellent job of controlling their operating costs, and are able to maintain a reasonable balance between revenues and costs. Microsoft's operating margin is as high as 42.06% in its annual report that the Operating Income in 2022 is $83,383 million, and from their business analysis [15]. The revenue of each business unit, especially the "Intelligent An analysis of the company's business shows that all business segments, particularly the "Intelligent Cloud" segment, are experiencing significant revenue growth. The diversified business structure, which includes Productivity and Business Processes, Intelligent Cloud, and Personal Computing, helps to diversify risks and achieve stable revenues and profits. Profitability. Microsoft has invested in high-margin business areas such as cloud engineering, LinkedIn, and gaming, where the return on investment is likely to be high. Finally, thanks to Microsoft's effective management of costs, this has maintained high operating margins. Meituan's operating margin is similar to its net profit margin, again one of the lowest among the companies researched at -3.81%. In their annual report, Meituan states that operating profit received a degree of negative impact in 2022 due to the macroeconomic environment, with operating margins in the core local commerce segment [14]. The operating profit margin of the core local business segment declined from 16.6% to 3.5%, or 20.1% YoY, while the operating loss margin of the new business segment narrowed from 38.2% to 3.4%. As noted in the article, the operating loss of the bike-sharing and tram-sharing business increased due to seasonal factors, which may be due to the fact that people are less likely to use bike-sharing during the winter or rainy season. Finally, even though the operational efficiency of the merchandise retailing business has been improved and the operating loss ratio of the new business unit has been improved, it still cannot turn around, representing a degree of immaturity in the business model, meaning that the company is at a higher risk in the face of changes in the market.

Asset turnover, a financial ratio that measures how effectively a company utilizes its assets to generate sales revenue, can help investors understand the operational efficiency of a company, especially in using its assets to drive sales and revenue. According to Table 3, it can be seen that the average asset turnover ratio of the Internet industry is 0.73, which is a surprising value because it is a bit too low compared to other industries. As an industry that requires constant technological upgrades and innovation, it requires consistently higher R&D investments, which take a lot of time to translate into sales revenues, and due to intense competition, companies need to keep investing in order to gain market share and users. Jingdong has a considerably higher asset turnover ratio than other Internet companies, as high as 1.91, and its annual report shows that its inventory turnover days in 2022 will be 33.2 days, which indicates that the company takes an takes an average of 30-33 days to sell and replace inventory in a year [10]. This indirectly shows that the company is doing better in using its assets (inventory) to generate sales. Similarly, asset turnover is not directly mentioned in the text, but the issue regarding the operational efficiency of the company is discussed in detail through the metrics such as accounts payable turnover days, accounts receivable turnover days, etc. the company's accounts payable turnover days have increased, from 47.1 days in 2020 to 52.5 days in 2022. This means that the company has more time to pay its vendors without having to utilize its cash flow prematurely, which may help maintain a high asset turnover ratio. The company's accounts receivable turnover days have increased, but remain relatively low (2.7 days in 2020 and 4.5 days in 2022). This indicates that the company is able to collect its accounts receivable quickly, which helps maintain liquidity and high asset turnover.

Table 3: Profitability ratios for technology companies.

Stock code	Profit margin	Operating margin	Asset turnover
BABA.N	5.52%	11.11%	0.50
BIDU.O	6.09%	12.87%	0.32
JD.O	0.93%	1.75%	1.92
NTES.O	20.56%	20.34%	0.59
SOHU.O	-2.30%	-0.12%	0.35
WB.O	5.33%	26.72%	0.25
GOOGL.O	21.20%	26.46%	0.78
AMZN.O	-0.53%	2.38%	1.16
TCEHY.OO	34.03%	18.04%	0.35
AAPL.O	25.31%	30.29%	1.12
MPNGF.OO	-3.04%	-3.81%	0.91
NFLX.O	14.21%	17.82%	0.68
MSFT.O	36.69%	42.06%	0.57

5. Investment Performance

ROE, or Return on Equity, is a financial indicator that measures a company's profitability and indicates how much profit a company is able to generate with its own capital. As can be seen in Table 4, the average ROE for the Internet industry is 24.9%, but the variance is extremely high and the gap between companies is too large. Apple has the highest ROE of 175.4%, which means that Apple manages efficiently and is able to get more out of its limited resources. Apple states in its annual report that when the company repurchases stock it pays for it using cash or equivalents, which can directly reduce the company's assets [9]. Since stockholders' equity equals assets minus liabilities, a decrease in assets leads to a decrease in stockholders' equity. At the same time, a stock repurchase also reduces the "shares outstanding" or "treasury stock" account, which is also part of stockholders' equity. Therefore, this also leads to a decrease in stockholders' equity. While a decrease in average shareholders' equity is one aspect of an increase in ROE, a decrease in assets is not necessarily a positive sign, and may be behind a company's hidden financial risks. By comparing Apple's financials for the previous two years, it can be seen that the company's total revenues are increasing each year, with total net sales of $27,451.5 million in 2020, $36,581.7 million in 2021, and $39,432.8 million in 2022. Apple's revenue increase is due to the strong performance of its various product lines, as well as its successful marketing strategy to realize net revenue increases in specific regions, such as Greater China. Meituan's ROE is only -5.2%, which is a relatively less impressive figure. Meituan's less-than-ideal net income for 2022 is constrained by a number of reasons as mentioned earlier, both of which indicate that the company is poorly run, resulting in high costs and lower profits.

ROA shows how effectively the company utilizes its assets to generate profits by comparing the company's net income to its total assets. According to Table 4, the Internet industry generally has an ROA of 9.6%, and although this average is not high when comparing ROE, the variance is much smaller, indicating that within the industry, companies are similar in their ability to utilize their assets to generate profits, and that firms are generally able to utilize their assets efficiently to generate revenue. Apple's ROA is also significant at 33.9%, and as mentioned earlier, net income has increased year over year due to strong performance across the company's product lines and successful marketing strategies in certain regions. The ROA of -2.4% for MMT, on the other hand, also represents the fact that this could mean that the company is facing difficulties in utilizing its assets to generate revenues and may need to review its business strategy and operational efficiency.

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The P/E ratio is used to assess whether a company's market value is higher or lower than its book value. Investors can use the P/E ratio to identify stocks that may be undervalued or overvalued as a reference for investment decisions. According to Table 4, it can be concluded that the average P/E ratio of Internet companies is 6.9, which indicates that market participants are willing to pay 6.9 times the book value of the companies, which reflects the market's high regard for these companies and expectations for future growth. As the market is currently optimistic about the outlook for the Internet industry, this could also push up the overall P/E ratio for the industry. Apple has a far superior P/E ratio of 40.8%.

Table 4: Investment ratios for technology companies.

stock code	ROE	ROA	Market-to-book ratio
BABA.N	6.54%	4.37%	1.55
BIDU.O	3.48%	1.76%	1.23
JD.O	4.91%	2.54%	2.87
NTES.O	20.33%	14.86%	3.17
SOHU.O	-1.45%	1.10%	0.47
WB.O	2.47%	1.29%	1.36
GOOGL.O	23.62%	19.69%	4.46
AMZN.O	-1.92%	-1.03%	5.87
TCEHY.OO	24.64%	13.27%	3.91
AAPL.O	175.46%	33.88%	40.79
MPNGF.OO	-5.26%	-2.40%	7.30
NFLX.O	24.53%	12.09%	6.32
MSFT.O	47.15%	23.97%	10.73

6. Outlook and Trends

The Internet industry may pay more attention to cash flow to cope with major investments and other risk issues; most of the Internet industry's long-term debt ratio is not high, their degree of demand for external financing will remain a slightly floating trend; companies in the profitability of the company needs to spend effort and energy to operate through excellent business solutions and marketing to achieve higher profitability, so that there is the ability to pay interest and continue operating Facing competition and cost pressures, Internet companies should "adapt to local conditions", according to their own situation to develop a practical program, one-dimensional control of operating costs is not a long-term choice, the need for another feasible plan; Internet industry can survive the key point is to be able to keep pace with the times, product upgrades and technological innovation must be the most important thing for all enterprises to focus on. Product upgrades and technological innovation must be the most important part of all enterprises, and the development and grasp of a good operating cycle is also a part of all companies to consider clearly; enterprises need to achieve a balance between the relationship between shareholder returns and company assets, and to use limited assets to continuously produce unlimited profits, re-examine their own business strategies and efficiency; rocketing up, in the current good market situation, to further develop their own advantages, strengthen competitiveness and expand the influence of the industry. to strengthen its competitiveness and expand its influence in the industry.

DOI: 10.54254/2754-1169/68/20241423

7. Conclusion

The following points are summarized from the study of liquidity, solvency, profitability and shareholders' returns of Internet companies: First, cash ratios in the Internet industry are generally low, and companies prefer to reinvest funds in their businesses. However, companies will face cash flow pressure if they encounter unexpected situations such as investment, for example, Weibo and Sohu. This is also a side reflection of the need for companies to have sufficient cash flow. Second, the overall debt ratio of Internet companies is as high as 50%, and companies rely heavily on debt financing. However, the long-term debt ratio of the entire Internet industry is not high, and companies do not particularly rely on external financing. And Internet companies are not highly profitable, with generally low EBITDA multiples, which may make interest payments more difficult. Third, Internet companies can achieve profitability to a certain extent, but face competition and cost pressures. However, most Internet companies are controlling their operating costs, i.e., maintaining a balanced relationship between revenues and costs. Fourth, the average turnover rate of the Internet industry is low. At present, the Internet industry needs to continuously upgrade its technology and innovation, and then convert R&D investment into sales revenue, which requires a suitable cycle. Fifth, the ROE difference between the Internet industry is relatively large, the reduction of assets will lead to a reduction in shareholders' equity. But the trend is all about prompting companies to be able to use limited resources to get more resource information. While ROA is lower compared to ROE, the surface industry, the company's ability to use assets to produce profits is comparable. Sixth, the market is highly appraised and positively optimistic about the prospects of the Internet industry.

Finally, it is important to note that for the convenience of the study, the chosen companies are from China as well as the U.S. However, Internet companies do not exist only in these two regions, which can lead to the development of the studied companies being affected by the policies of a particular region. In the future, companies from other regions could be added to the above analysis, which could be used to dilute the impact of policies on the conclusions, in order to facilitate an in-depth study of the issue.

Authors Contribution

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

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