

PREDICTING MULTI-BAGGER STOCKS THROUGH A HIGHER EMPHASIS ON INCOME STATEMENT

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ABSTRACT

Piotroski's F-score generates a number that determines the strength of any company based on the fundamentals. The score focuses on nine areas and allots a value of either zero or one to each parameter depending on whether the parameter satisfies the criteria. . The score generated is out of 9 and a score above 7 is considered the sign of a fundamentally strong company. The companies having a high F-score are expected to perform better in their respective industries and give better returns overall to the shareholder. In this paper we attempt to build a new score and use it to generate good returns in the Indian Stock Market. The score emphasises on key areas in the income statement of the companies. We have taken 7 parameters for the analysis.

KEYWORDS: *Fundamental Strengths, Investor, Profitable.*

1. INTRODUCTION

Joseph D. Piotroski, in his paper - Value Investing: The Use of Historical Financial Statement Information to Separate Winners from Losers, developed a binary composite score, known as the F-score to evaluate a company on its fundamental strengths. He used the following nine parameters and awarded a score of one for each of the conditions holding true. [1]

1. Positive change in Net Income year-on-year
2. Positive change in Return on Assets year-on-year
3. Positive change in Operating Cash Flow year-on-year
4. Cash flow from Operations > Net Income
5. Reduction in Long-Term Debt year-on-year
6. Increase in the Current Ratio year-on-year
7. No issuance of new shares
8. Increase in the Gross Margin year-on-year

9. Increase in the Asset Turnover Ratio year-on-year

A company with a score > 7 is considered a fundamentally sound company. This company can be picked by investors for getting good returns in the market. This paper attempts to come up with an alternate score to beat the market and Piotroski returns.

2. LITERATURE REVIEW

J. D. Piotroski in his 2000 paper, "Value investing: the Use of Historical Financial Statement Information to Separate Winners from Losers" examined how a simple analysis based on accounting fundamentals can help an investor increase their returns. By selecting firms for investment based on their financial credentials an investor can distinguish between expected victors and losers in the share market. According to Piotroski, the market initially under-reacts to the release of quarterly reports by a firm, and it is the perfect period for an investor to analyze the firm's historical records and make a sound judgment. [1]

Following this, in his 2016 paper, Charles E. Hyde also established that the Piotroski's F-score (a parameter to measure the performance of a firm) stood its integrity when tested against the Australian market. By utilizing a market-neutral strategy that was long [short] on stocks with high [low] Piotroski F-score yielded statistically significant higher returns. However, for large capital stocks, the Carhart four-factor model alpha is not statistically different from zero and hence leads Hyde to question whether different factors in the Piotroski score can be taken into account. [2]

Kansanen and Antti in 2016 applied the F-score test on the Finnish stock market. They aimed to see whether financially strong countries would yield higher risk-adjusted returns. Their study analyzed two holding periods, three months and twelve months. The dataset analyzed by them included 112 companies in the Finnish stock market between January, 2004 and December 2015. Following this, they then combine the score with book-to-market value and company size to see if the score stands for well-known size and value effects. What they found was similar to Hyde's conclusions. The returns on the financially strong firms were indeed higher when adjusted for risk. However, they were not statistically significant. Also, the F-score test seemed to work only for small-size corporations.

Krauss, Christopher, Kruger, Tom, Beerstecher, and Daniel in 2015 tried the Piotroski F-score on the US market, this time from an investor's perspective. Obtaining screenshots of the US stock market universe from 2005-2015 on a weekly basis, they executed a long-short variant of the Piotroski strategy. The results were satisfactory. The strategy generated returns of 30.93% per annum. However, they found that the strategy did not hold in low liquidity stock universe where the liquidity was low and the transaction cost high. In that case, the strategy appeared unviable. [3]

Finally, Sharma, Kapur, Bhatnagar, and Singh in their 2020 paper sought to reform the Piotroski F-score test. By eliminating some parameters they deemed irrelevant and providing reasoning for indicators they deem are better suited to the analysis of the US stock market. [4]

They removed parameters like Return on Asset and Operating Cashflow, believing they were automatically included in other parameters. According to them, if net income is positive, then return on assets (which is net income/total asset) will automatically be positive as total assets cannot be negative. Since net income is already a parameter within the F-score test, the researchers believe Return on Asset is redundant. Replacing them, four new parameters were included by, which are the Price-Earnings ratio, Price-Book Value ratio, Enterprise-Value EBITDA ratio, and the Change in FCFF. They tested two long-only portfolios, one based on the original Piotroski score and the other based on their modified Piotroski score, and found the returns on the modified score higher. They compared the Sharpe ratios of both portfolios (theirs exceeding the original one by 0.63). However, their analysis was limited to fifty stocks only, and neither was data available

for all stocks for all years. It is also unstated whether the stocks analyzed were of large or small corporations.

3. METHODOLOGY

The paper has considered the stocks on the Nifty 50 from 2012 onwards. Returns for the last 10 years have been measured against the return for stocks selected by the Piotroski score. The following parameters have been used:

1. Positive change in Revenue year-on-year
2. Positive change in Return On Capital Employed year-on-year
3. Positive change in the Cash Flow from Operating Activities year-on-year
4. Positive change in EBITDA year-on-year
5. Positive change in EBITDA growth year-on-year
6. Positive change in Earnings per share year-on-year
7. Decrease in the Current Ratio year-on-year
8. Decrease in the Long Term Liabilities year-on-year

Instead of a positive change in net income year-on-year, we have considered a positive change in revenue and a positive change in EBITDA. Positive change in revenue can be used as a proxy for increasing market share as well as the increase in the size of the overall market. Positive change in EBITDA shows that the firm is becoming more profitable every year and we are only considering companies that are already profitable. Earnings Per Share is used as a proxy to determine increasing profitability and also to ensure that newly issued shares of the company do not negatively impact individual shareholders.

Current Ratio tells about the company's ability to clear short term debts. It is an important measure of liquidity for any company. Declining current ratio is a red flag in any company. Increasing Current Ratio is a positive sign of the company's ability to operate in the short run. Decrease in the Long Term Liabilities for any company is a good indicator of the company becoming increasingly profitable. With lower debts to take care of, company can deliver better returns to its shareholders.

RESULTS OF BACKTESTING

Years	Piotroski	Nifty	Our Model
2014-16	89.97	14.9	60.17
2016-18	71.27	31.62	61.08
2018-20	5.96	-20.84	-20.17

Table 1: Percentage returns on the given time frame from the stocks screened through Piotroski and our model, and the overall Nifty 50 returns.

4. CONCLUSION

Our score has been able to outperform the market in all the given time periods. The score was, however, unable to beat Piotroski score due to certain limitations. The Piotroski return displayed had more favorable entry points. Our score will generate better returns with optimized entry points. Another limitation is that the universe of stocks is limited to NIFTY 50. Further research can be done taking into account stocks from midcap indices such as Nifty Midcap 100.

REFERENCES

1. Pitroski JD. Value Investing: The Use of Historical Financial Statement Information to Separate Winners from Losers. *Journal of Accounting Research*, 2000;38(supplement):1-41.
2. Hyde CE. The Piotroski F-score: Evidence from Australia. *Accounting & Finance*. 2018;58 (2):423–444.
3. Krauss C, Krüger T, Beerstecher D. The Piotroski F-Score: A fundamental value strategy revisited from an investor's perspective, IWQW Discussion Papers, No. 13/2015, Friedrich-Alexander-Universität Erlangen-Nürnberg, Institut für Wirtschaftspolitik und Quantitative Wirtschaftsforschung (IWQW), Erlangen.
4. Sharma D, Kapur S, Bhatnagar S, Singh T. Modified Piotroski Score for Higher Returns. *Asian Journal of Research in Banking and Finance*. 2021;11(1)1-7.