

# BIF Strategy & BIF Algorithm

*Explanation of algorithm and construction of score to arrive at BIF rating*

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# What makes the BIF algorithm unique?

The points below highlight what makes the BIF algorithm unique from other fundamental tools.

## 1. Application of value investing method

The algorithm is based on the philosophy of value investing. BIF's motto is "a good company at a good price." Our definition of value investing can be found later in this document (see section "Philosophy around algorithm"). With this philosophy, however, a lot of things are qualitative. With several techniques developed in-house, we also try to translate those qualitative things to quantitative. Examples include the competitive advantage indicator, determining growth assumptions, stock classification and valuation. Being conservative with the assumptions is key here. These techniques are devised with applied econometric knowledge and are developed in-house.

## 2. Application classification & no one-size-fits-all approach

Share classifications simplify the process of estimating them better. With in-house developed techniques based on Peter Lynch's classifications, this is to our knowledge the first tool to put his theory into practice. Each classification of BIF's approach differs. At BIF, we do not have a one-size-fits-all approach. The classification also indicates right away how a stock should be approached. This is unique and to our knowledge has not been done before. We have also developed our own technique to recognize a cyclical pattern.

Indeed, in addition to classifying stocks, the algorithm includes numerous exceptions to correct outliers within the data. This is done because we do not want to estimate a stock too negative or not too positive. This also makes the algorithm unique. For example, what often happens with other websites is that a bad score is given in bad times, because of overly pessimistic analyst expectations. This is not the case with this algorithm.

## 3. Risk Reward Rating (BIF Rating)

BIF assigns a risk-reward score to each stock. This score is constructed by the following points:

1. Classification
2. Fundamentals
3. Valuation (underlying value vs. share price)

These three points add up to a score and lead to a stock's BIF Rating. Later in this document, the structure of the BIF score is explained. It is also explained how this score leads to a BIF-Rating. The construction of a rating of a stock has not been done this way before to our knowledge.

## 4. Bottom-Up approach for research

In developing the algorithm, we used a bottom-up approach. We first implemented the philosophy we had in mind and then checked to see if we were scoring companies well according to our own analysis. Only then did we backtest and determine the results. In doing so, we avoided a major problem in this market: "Overfitting when performing backtesting." Overfitting is a term from statistics that refers to a modeling error that occurs when a function matches too closely to a given set of data. As a result, the model or strategy may fail with additional data, and this can affect the accuracy of predicting future observations. With a top-down approach, the risk is many times greater that the model will work worse or not at all in the future. This is something that absolutely must be avoided when developing an algorithm.

## 5. Fundamentally long term

The algorithm looks at fundamental data to determine the score and rating. As a starting point here, we only look at the underlying company. Ultimately, we look at the price. A mismatch between the underlying creates a margin of safety, it can be positive or negative. Most algorithms only look at historical price data and trade in the short term.

## 6. Focus: rating good stocks right

Instead of trying to score every stock correctly, we focus on making sure we correctly rate the good scoring stocks. In this way, we stay in our own circle of competence. In addition, we focus on the long-term price movements of the stock, which in the long run equal the valuation of the underlying company. Here, a good long-term investor takes advantage of short-term stock price volatility when it creates good buying opportunities. The BIF algorithm focuses on finding such buying opportunities.

## 7. No analysts estimates

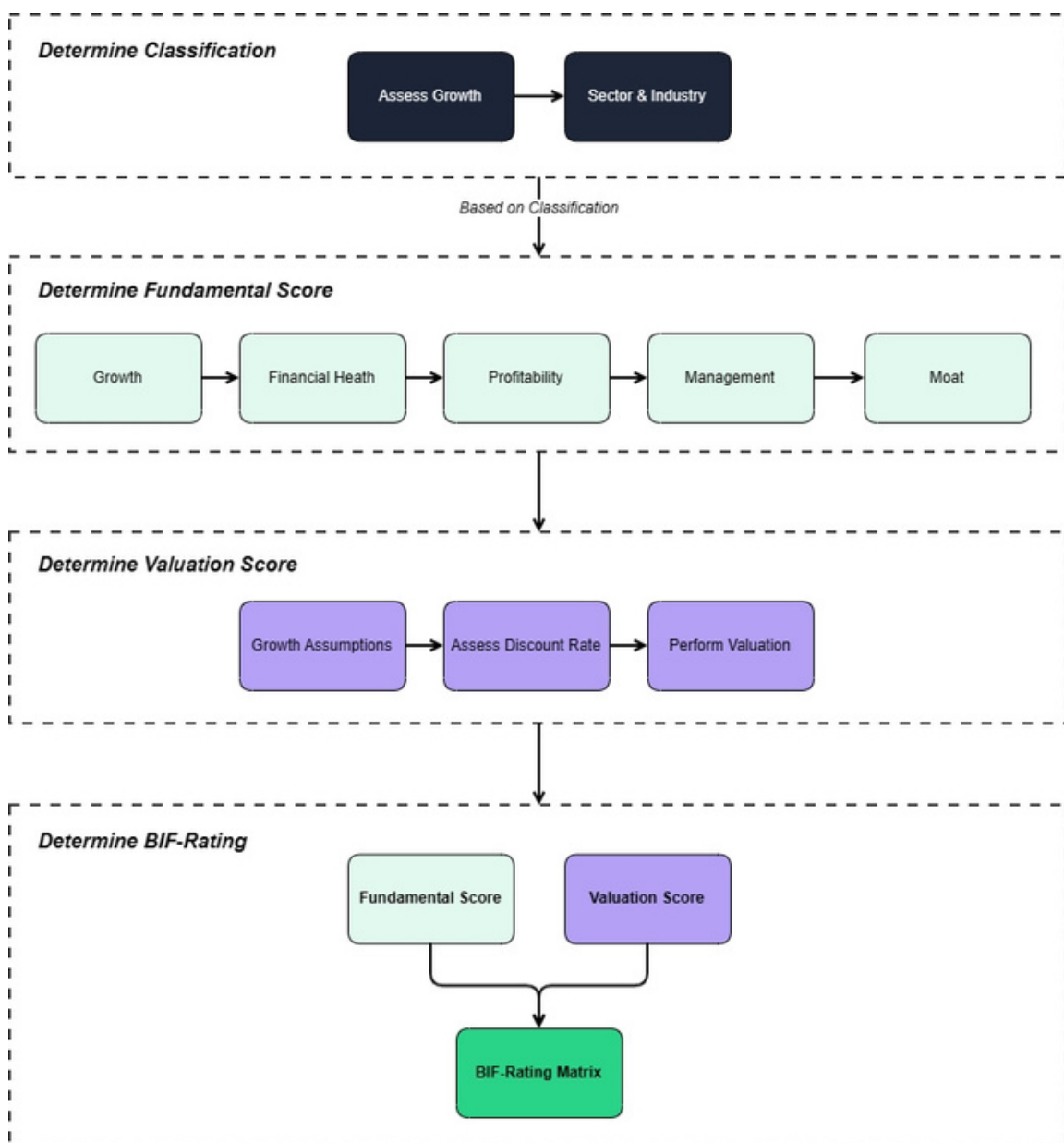
BIF does not use analyst estimates or estimates. Often analysts' price targets simply follow the stock price and often expect to be far too positive or too negative. Among other reasons for this sport, BIF does not use analyst estimates.

# Structure BIF Score & BIF- Rating

This chapter visualizes the operation of the algorithm and process for determining the BIF rating using the models below. In addition, it shows how a model portfolio is constructed using the BIF rating. A detailed explanation is also provided for each component of score construction.

## Assign BIF Rating to share

The model below shows the process by which the algorithm assigns a BIF rating to a stock.



## BIF Rating Matrix

To determine which stocks to select for strategy, we use a comprehensive scoring system that includes both fundamentals and valuation metrics. Our scoring system, known as the BIF Score, consists of two components: fundamentals and valuation (price). See the matrix below.



For fundamentals, we assess several company-specific factors, including growth, financial health, profitability, quality of management the strength of the company's competitive advantage. Stocks are scored based on their fundamental performance, with higher scores indicating stronger fundamentals.

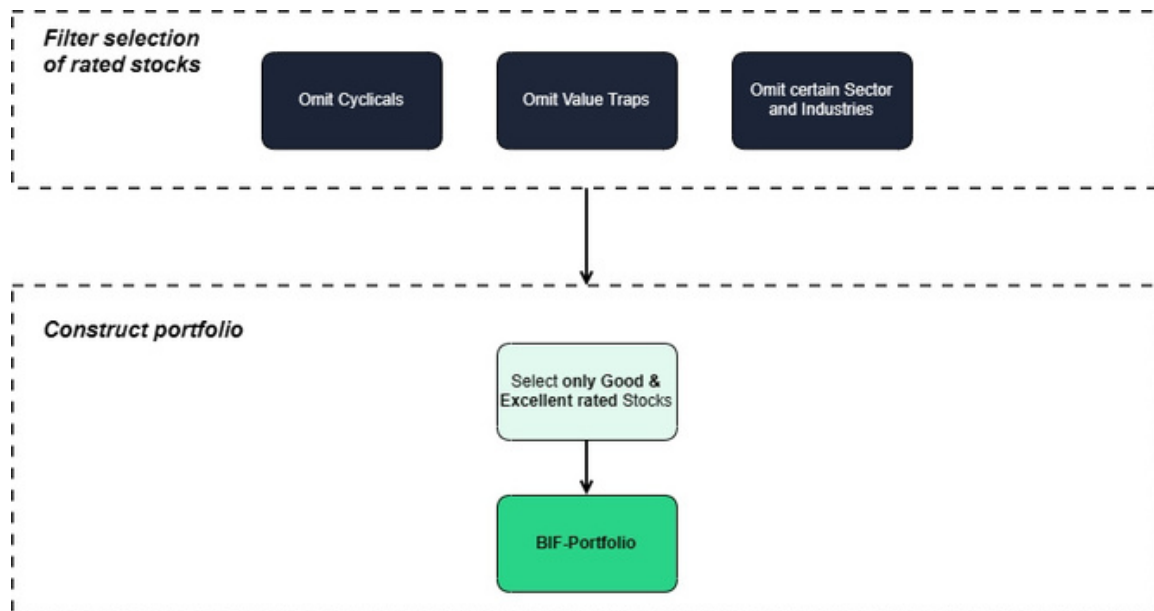
In contrast, valuation (price) considers whether a stock is trading at a significant discount to its calculated intrinsic value. A score is assigned based on relative valuation metrics, with higher scores indicating more attractive valuation levels.

The combination of the fundamental score and the valuation score results in an overall BIF Score. A score of 100 represents the highest score, indicating stocks with excellent fundamentals and attractive valuations, while a score of 0 represents the lowest score, indicating stocks with poor fundamentals and overvalued prices.

In addition, the BIF Score is used to assign a corresponding BIF Rating to each stock. The BIF Rating provides a qualitative assessment of the stock's attractiveness as a potential bargain. The available BIF ratings are Excellent, Good, Fair, Risky, Poor and Very Poor (See photo). These ratings help to quickly identify stocks with a favorable combination of fundamentals and valuation.

## Building BIF Model Portfolio (Buy & Hold Strategy)

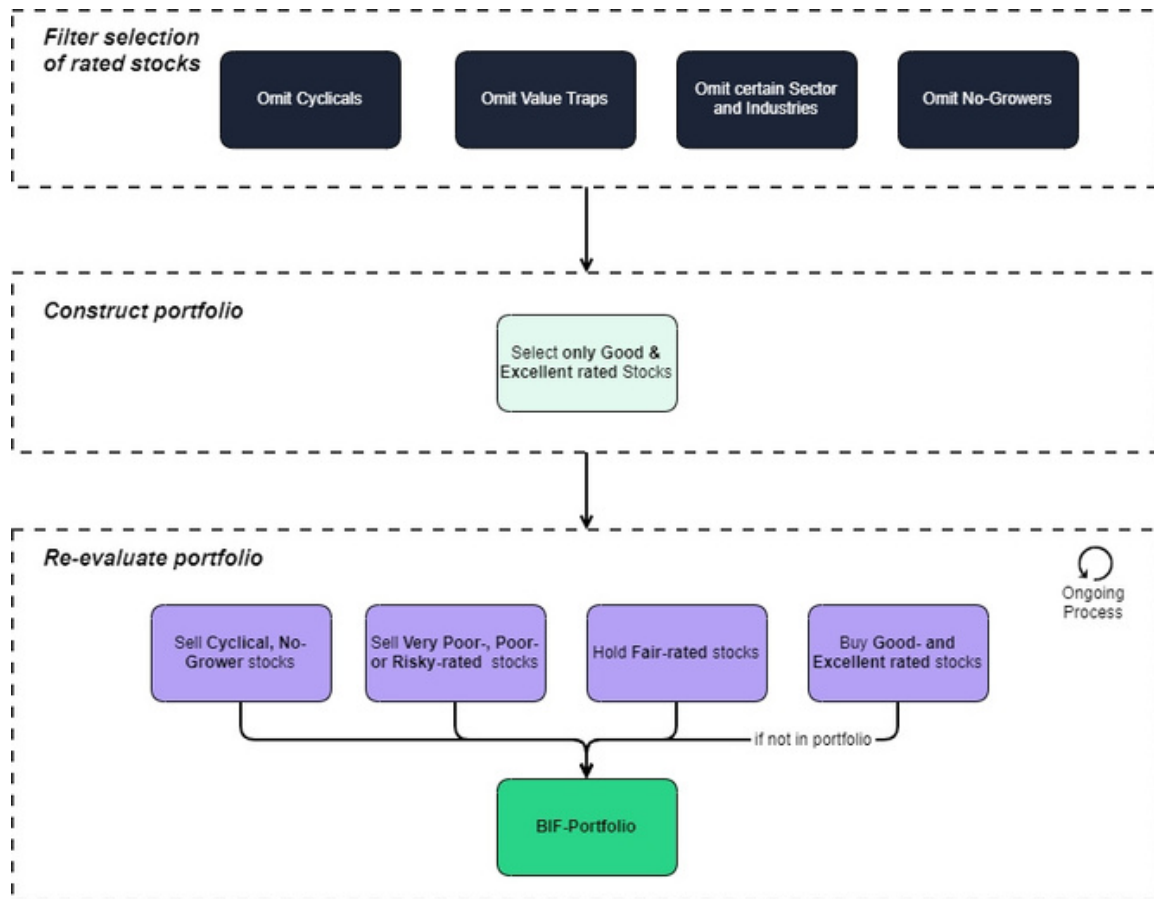
To construct a BIF model portfolio based on a Buy & Hold strategy, the following process is applied.





## Building BIF Model Portfolio (BIF- Strategy)

To construct a BIF model portfolio based on a trading strategy, the process below is applied. As



## Explanation by component for BIF- Rating

### 1. Classification

First, we classify stocks using our proprietary classification system. This very initial classification process is very important, as BIF does not believe in a one-size-fits-all approach. This classification system is based a theory of Peter Lynch and based on extensive econometric knowledge. Among other things, we look at growth and type of company and classify the company into one of our stock classification categories. We then use the classification and other company-specific characteristics to determine how we will approach the company on foundation and valuation (price).

This classification we perform BIF through our own complex algorithms. For each category, we use (our own) different valuation methods. Company-specific adjustments are also involved, to better reflect the core growth of a

company estimate. The share classification is based on the thinking of the world famous value investor Peter Lynch, he achieved in 13 years an average return of 29.2 (!) percent. BIF has 7 different classifications, below is an explanation for each classification an approach recommendation:

### Fast Growers

Fast Growers are companies that grow their profits faster than 15% per year. These are the stocks with the potential to multiply your money several times over a 10-year period. However, most of these Fast Growers are not good investments at all. Also look to see if Fast Growers can maintain their growth and if this growth remains feasible in the future. If these stocks fail to meet estimates or stop growing as fast as they did, the stock price often plunges sharply. In short, look for stocks with good balance sheets, that make significant profits, have a smaller market capitalization and can maintain their growth rate in the future. And most importantly, pay a fair price for them.

### Stalwarts

Stalwarts are established companies that grow their profits by 8 to 15% annually. You normally invest more defensively here at the right price. You are more likely to find the right price with Stalwarts that are currently in excessive negative sentiment. However, you cannot expect to easily triple your money as these are larger established companies. Therefore, aim for a 30-50% gain on your position and don't hold them for too long. This is because these are too defensive stocks for the risk you are running.

### Medium Growers

Medium Growers are companies that grow their profits by about 8 to 15% annually. These are companies with a smaller market capitalization and not yet very established or established in a niche. If they have a sustainable competitive advantage, you can rate them the same as Stalwarts. Focus on how they can maintain their profit growth. Also see if they are not wasting money on unnecessary acquisitions. Aim for a profit on your position of 30 to 50%, and do not hold them for a very long period. This is because these are too defensive stocks for the risk they carry.

### Slow Growers

Slow Growers are companies that grow their profits by 0 to 8% annually. If they have a good market position, they can be interesting defensive stocks for the portfolio. However, these stocks are not meant to be held for long periods of time. You want to look for companies with solid profits, because for less profit the growth may not be worth it. In addition, a healthy balance sheet is key.

## No Growers

No Growers are companies that are losing ground. They have declining profits over the past 10 years (on average). However, this does not mean they are worth nothing. In evaluating these types of companies, you would follow the so-called "cigar butt" investing approach (a few free puffs). You are trying to find the very cheap ones. You want to look for a good return for shareholders (in the form of share repurchases and dividends) because they don't have a very bright future. Therefore, free cash flow and a good balance sheet are both very important. These may not be the most interesting stocks for your portfolio, but sometimes you can find real bargains.

## Cyclicals

A Cyclical is a company whose sales and profits rise and fall in a pattern that may or may not be consistent. With a Cyclical, timing is most important. When things are going well, the price rises faster than other stocks. But when things are worse, the price seems to fall much faster. When evaluating cyclical stocks, you need to be able to detect the early signs that the company's cycle is shifting. In that case, you want to go with a contrarian approach. However, a Cyclical does require much more company-, sector- and industry-specific knowledge, and is generally not recommended by BIF. Paraphrased (because of translation) from a paper by de Heer & Koller (2001),

*"Companies in industries prone to significant fluctuations in profitability pose a particular problem for managers and investors trying to understand how to value them."* In addition, Peter Lynch wrote the following about Cyclicals in his book *One Up On Wallstreet*: *"Cyclical stocks are the most misunderstood of all types of stocks. It is here that the unwary "stockpicker" is most easily robbed of his money, and in stocks he considers safe. Because the big cyclical stocks are large and well-known companies, they are naturally lumped in with the loyal stalwarts. Because Ford is a blue chip, one might assume that the company will behave similarly to Bristol-Myers, a company with a great reputation. will behave similarly to Bristol-Myers, another blue chip. But this is far from the truth."*

## Turnarounds

Turnarounds are companies that (at the time of purchase) are in worse shape than before. They have had a difficult year or have had several bad years. If these bad results are temporary, Turnarounds can offer great return opportunities. In fact, when things improve, the stock price rises rapidly. The approach to Turnarounds is to find out whether the bad years of results are temporary or structural. A Fast Grower that has a year of poor earnings but where revenue growth is still

continues to do well, are the most interesting kind of Turnarounds. Indeed, in such companies you can buy a rapidly growing company cheaply. This distinction (the type of Turnaround) is also made in the background in our algorithm.

This classification of stocks also has corrections for outliers. This ensures that a bad year does not result in an immediate change in classification. This sets us apart from other tools that change course at the slightest change. This is because the long-term trajectory is our focus.

## 2. Foundation

With a stock's fundamentals, BIF looks at the underlying company behind the stock. With this, we determine if there is a "good" fundamental company behind the stock. Within the determination of foundation, we look at a number of sections

### Growth

In addition to determining the classification, we also look at growth in the foundation. We approximate the historical growth of the company and try to determine the conservative growth rate. This growth is determined using linear regression methods combined with our own developing techniques to also correct for outliers. This requires econometric knowledge and is one of the trickier pieces of the algorithm.

### Financial strength & profitability

To estimate financial strength and profitability, we mainly look at two metrics. The Altman Z-Score and the Piotroski F-Score. These are science-based metrics that help us estimate financial health and get an idea.

### Altman Z-Score

Precisely because BIF is long-term focused, it is important for a company to have a healthy balance sheet. The Altman Z-Score helps estimate this. The Altman Z-score (Altman et al., 1983) is a formula for determining whether a company is headed for bankruptcy. It takes into account profitability, leverage, liquidity, solvency and activity ratios. In general, the lower the Z-score, the more likely a company is to fail. A value of less than 1.81 means that there is a high probability that the company will fail or be in great distress. If the value is between 1.81 and 2.99, the company has an average chance of going bankrupt or an average distressed company. An Altman Z-Score greater than 2.99 indicates that a company is in the safe zone. Here we are talking about the 1983 Altman Z-Score, which is best for general use. More recently, it has been proven that those Altman Z-Score coefficients are robust and work well in international setting about

different countries (Altman et al., 2016). Hence the reason BIF chose the Altman Z-score.

### Piotroski F-Score

The Piotroski F-score is a number between 0 and 9 used to assess the strength of a company's financial position. The score is named after Stanford professor of accounting Joseph Piotroski (Piotroski, 2000). Several scientific articles by Mohr (2012), Krauss et al., (2015), Hyde (2018) and Walkshäusl (2020), among others, show that the Piotroski F-Score is still a relevant score. The Piotroski F-Score (composed of 9 components) includes efficiency and profitability ratios in addition to financial-. Therefore, BIF also uses this score to efficiently get an idea of a company's financial condition and profitability.

### Management

To get an assessment of how management allocates capital, three different points are looked at. Not all managers and/or executives allocate capital effectively and think about their shareholders. This is due to the fact that short-term financial reporting goals of executives influence their "real" decisions, even if these decisions are costly in the longer term (e.g., Dechow and Sloan, 1991; Lys and Vincent, 1995; Bushee, 1998; Ayers et al., 2002). BIF therefore considers the trend of outstanding shares, dividends and acquisitions of other companies.

### Buybacks

One of the components around assessing management at BIF is looking at growth or decline in outstanding shares. At BIF, we are consistent issuance of shares as a negative thing (and thus has a negative effect on score within this section), because your shareholding as an investor is reduced by that dilution.

However, companies can also buy back their own shares if they think the company is undervalued by the market (Dittmar, 2000). Indeed, if the company is undervalued, it is interesting if the company's capital does not achieve a better return somewhere else. However, there are plenty of companies that do not buy back shares in this situation, or for this reason. As Bens et al. (2003) says "*The buying decisions of executives are specifically driven by their incentive for financial reporting.*" It is important to consider this.

For companies with certain classifications (think Stalwarts, Slow Growers, Medium & No Growers) it is actually interesting if buybacks of own shares take place since the company itself is not growing as fast anymore. Again we mention that this is only interesting if the share

is undervalued. This is among other reasons why BIF always looks for a good foundation and a cheap price.

#### Dividend

At BIF, not much value is placed on dividends being issued when building the score. Dividend is seen at BIF as a way out for management if it does not know how to allocate the money better. This is because no return is made on dividends for the company, in addition to being taxed twice (at company and shareholder). In some cases (for example with No-Growers) some points are awarded, if the payout ratio is justified here. Since that that one of the few ways where value can be returned to the shareholder (if a company stops growing).

#### Acquisitions

In BIF, acquisitions (and certainly larger ones) have a negative impact on the score. In theory, overvalued companies can create value for shareholders if they exploit their overvaluation. Companies then do this by using their shares as a bargaining chip to buy less overvalued companies. However, overvalued companies often pay far too much for the company being acquired. Moreover, these acquisitions seem to be concentrated among acquirers with the biggest governance problems. CEO compensation, not shareholder value creation, seems to be the main driver behind takeovers by overvalued acquirers. (Fu et al., 2013)

In addition, firms that make an acquisition with low earnings quality (i.e., firms that are more likely to use stock splits to manipulate their stock values) exhibit worse long-term returns (Guo et al, 2008). Especially when this acquisition is financed through stock issuance. However, this is not the case for companies with higher earnings quality.

#### Competition Advantage

A unique part of building the BIF Score and BIF Rating is the competitive advantage indicator. From the value investing philosophy, this is a very important component. With investors such as Warren Buffet, Charlie Munger, Peter Lynch, Monish Pabrai and Guy Spier, this is highly regarded. A competitive advantage for a company can be described as something that protects the company's market share over a period of time. However, this is a qualitative component, and not initially readily apparent in the data. Based on ideas from Bruce Greenwald, an authority on competitive advantage, BIF has developed its own cocompetitive advantage indicator.

Bruce Greenwald is an authority on corporate "Competitive Advantage" as he is a leading economist, expert on "value investing," and professor at Columbia Business School. Greenwald has had a strong impact on the world of finance and investment and is considered an authority on "value investing." Greenwald has done extensive research on business strategy and competitive advantage. He has written several books, including "Competition Demystified: A Radically Simplified Approach to Business Strategy," in which he lays out his insights and approach to competitive strategy. Beyond that, the methodology he describes is well argued.

The concept of our competitive advantage indicator works as follows. The Earnings Power Value (the value of the company if it held last year's or past years' profits constant) of a company is compared to the Net Reproduction Value (the value of the company if you were to recreate it right now). If the Earnings Power Value is a lot higher than the Net Reproduction Value, this is an indication of a moat. If the Earnings Power Value is higher than the Net Reproduction Value over several years, it would mean that another company is struggling to enter the market and be able to snatch some of this higher profitability. This would then logically lower profits. As with previous components for building score, models are also used to capture outliers. Thus, a company does not simply lose its competitive advantage because of a one-time worse year.

### 3. Rating

Valuing a business is more an art than a science. Conservatism is central to BIF. For valuations, we use a Discounted Cash Flow (DCF) model. With a DCF model, it is very important what assumptions are used as input to this model. Here the following principle applies: "*Garbage in, garbage out*". The intrinsic value resulting from the DCF is set against the share price. If the intrinsic is higher than the share price at that time, we speak of a positive safety margin. Points are then assigned to this. Below is a general description of how the valuation process is carried out.

#### Determine growth assumptions and starting value

First, based on the growth calculated earlier (see Growth under Foundation), we determine the growth assumptions for the DCF. Warren Buffet expresses this as the following: "*All the money a company would give you between now and doomsday, discounted to today.*" These growth assumptions are corrected (if necessary) so that they remain conservative given the nature of the business. This is also the case for the starting value of the DCF, a BIF-adjusted Earnings Per Share (EPS). The Terminal Multiple (the multiplier used in calculating the residual value after the forecast period) is set at

determined based on the growth of the company. The forecast period of our DCF is 10 years. Again, BIF tries to remain conservative.

Apart from adjustments of outliers in connection with the conservativeness ideal of BIF, a slightly more positive starting value can also be used for companies that do a little worse than before (Turnarounds). Sometimes the market exaggerates in these kinds of circumstances, and this allows the algorithm to find these kinds of potential opportunities as well.

#### Determine discount rate

In addition to determining the growth assumptions and starting value, the discount rate is also determined. The discount rate is set at a minimum of 10% for each company at BIF. This is because BIF requires a return expectation of at least 10% per year on every investment made. In addition to the minimum 10%, this discount rate is also supplemented by a value calculated from the consistent issuance of shares. This is because if there is massive dilution, the growth of the diluted Earnings Per Share (EPS) is adversely affected.

#### Perform valuation and safety margin

After the above points are determined, the DCF is performed. This results in an intrinsic value, which is compared to the current share price. If the intrinsic value is higher than the share price at that time, we speak of a positive safety margin. Points are awarded based on the amount of this safety margin.

It can also sometimes be the case that a stock has a much too high or much too low margin of safety. In this case, you may be dealing with "value traps" in a positive sense (much too high margin of safety): Stocks that appear to be a bargain, but are trading cheaply because of a very good reason not yet reflected in the data. In negative terms (much too low margin of safety), you may be dealing with a company that may not be valued well by our algorithm. When safety margins are too high or too low, BIF deliberately does not assign points to valuation.

## Philosophy around BIF- algorithm

Although many investment strategies exist, value investing has proven to be a reliable and effective approach to long-term investing.

### Value investing definition

Compared to other strategies that rely on predicting short-term market movements or following popular trends, value investing focuses on understanding the underlying value of a company and buying shares at



a discount to that value. This approach is based on the belief that over time the market will recognize and reflect the true value of the company, leading to higher returns for investors who had the patience and discipline to invest in undervalued companies.

The definition of "value investing" is viewed differently by BIF than just investing in value stocks. Especially fast growing companies (which, by the way, are profitable) are of particular interest to BIF. From the "value investing" principle of BIF, a good and growing company can actually be a bargain. BIF explicitly mentions this in this document because there is often a misconception about the concept of "value investing". It does not use the well-known jargon that distinguishes between value stocks and growth stocks.

## The importance of understanding the value of a business

By focusing on a company's fundamentals rather than short-term price movements, value investing also allows investors to avoid getting caught up in the emotional swings of the market and make more rational investment decisions. With value investing, the focus is entirely on the company behind the stock and not on the stock's price charts, technical analysis or trading patterns. After all, when you buy a stock, you are essentially buying a fraction of the company. Therefore, it is important to understand the true value of the company to determine whether or not the stock is a good investment. This is because the price of a stock does not necessarily reflect the underlying business value of the company. In other words, just because the stock price changes every second does not mean that the intrinsic value of the company is changing at the same rate. As an investor, it is important to focus on the long-term fundamentals of the company and not get carried away by short-term fluctuations in the stock price.

## Core concepts of Value Investing

One of the key concepts in value investing is the margin of safety. This means that when estimating the value of a company, investors always try to be conservative and ensure that the price they pay for a stock is significantly less than its estimated value. This provides a safety buffer in case their estimate turns out to be wrong.

Another important concept in value investing is the idea of a competitive advantage or "moat" that a company has over its competitors. This means that the company has a unique advantage that makes it difficult for competitors to challenge its dominance in the market. Value investors often look for companies with a strong competitive advantage because it provides some protection against future competition and increases the likelihood of long-term success.

The concept of "Mr. Market" is another important idea in value investing. This analogy, coined by Benjamin Graham, one of the founders of value investing, refers to the market's tendency to overreact to short-term events and -swings. As a result, stock prices can vary widely from the actual value of the underlying company. In the long run, however, the value of the company will ultimately determine the stock price. Investors can take advantage of this by buying shares when the market undervalues a good company, and holding them until the market sees the true value of the company.

## BIF Score & Value Investing

Our BIF Score is specifically designed based on these principles of value investing. We have developed models internally using econometric knowledge, science and experience from major "value" investors that incorporate various financial ratios and measures to evaluate companies. By using these models, we can make the research required for value investing simple and quick and provide our clients with valuable insights into which companies are undervalued and have growth potential.

## Backtesting and proven results

In addition, we conducted our own backtests using historical data to validate the effectiveness of value investing principles. These tests have consistently shown that companies that meet our criteria for undervaluation and growth potential have generated higher returns over time. Therefore, we believe that by following our BIF rating and incorporating these principles of value investing into your investment strategy, you can become a better investor and achieve your financial goals.

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