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# EQUITY ANALYSIS: MULTIPLES AND FUNDAMENTALS


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# Table of Contents

Executive Summary 1
1 Introduction to Equity Analysis 2
2 Stock Analysis 5
2.1 Factors to Consider 5
2.2 Key Numbers 8
2.3 Multiples 10
3 CAPM: Capital Asset Pricing Model 14
4 ESG Considerations 17
5 Application: CrowdStrike 22
Bibliography 26



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# Executive Summary

Stocks are among the most popular and best-known investments. They seem simple, and many brokers and banks offer easy access to stock trading. However, investors should first understand how to analyze a stock themselves and evaluate whether the investment in a share holds a promising potential or might be a dangerous matter.

This report will lead an investor through different aspects of investing, which must be considered before making a decision and investing in a company. The report first covers different types of shares and fundamental considerations before diving into stock analysis with important factors, key numbers, and multiples. These allow investors to compare the company to its competitors and determine which company is the most promising investment. Subsequently, the report will cover the Capital Asset Pricing Model (CAPM) since the key numbers of this model are omnipresent and build the fundament for investors. Moreover, Environmental, Social, and Governance (ESG) considerations and the different rating scales will be explained. Sustainability is an eminent trend that has gained friction worldwide. A good ESG rating can benefit a company, while a low rating can impose a risk to the prospect of a company.

To conclude, the last section applies all discussed topics and multiples to CrowdStrike to show how to apply these factors and information and make an example of how an investor should approach the analysis of a stock.



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# 1 Introduction to Equity Analysis

Stocks, also known as equity or shares, are the unit shares of ownership in a company. Any individual, professional or institutional investors holding the stocks are called shareholders.

Stocks can be issued in the form of common stocks or preferred stocks. Common shareholders have voting rights that allow shareholders to exercise control and influence on the company. They are entitled to voice their opinion in a company's decision-making process by voting in annual general or special meetings. This includes the election or removal of the Board of Directors (the Board), which is the governance body that oversees the company's management. By exercising voting rights, shareholders can prevent abuse of power and ensure the decisions made by the Board are aligned with the company's long-term interest, which in turn protects the shareholders' investment interest. However, the influence of voting rights depends on the number of shares that shareholders own. Shareholders with controlling interests, as opposed to minority interests, are those who own more than 50% of shares and have a significant influence on the company's direction. On the other hand, preferred shareholders are typically not entitled to voting rights.

The dividend rights for common stocks and preferred stocks also differ. Dividends are the earnings a company distributes to its shareholders. Dividends could be paid out in terms of cash, additional stocks or natural dividends such as the company's own products. The allocation of dividends decreases the share price on the so-called "ex-dividend date" since the distributed dividend decreases the equity capital of a firm. Dividends are issued by the declaration of the Board for common shareholders, while preferred stocks' dividend payment is generally fixed. Similar to bonds, the fixed yield on preferred stocks makes them less volatile than common stocks.

Another major difference is liquidation preference. Preferred shareholders typically have seniority (priority) over common shareholders to receive their paid-in equity capital first when the company is liquidated or goes bankrupt. Notably, the characteristics of preferred stocks can be equipped with many different features and there are no standard preferred stocks. Investors should conduct research about the properties of preferred stocks they plan to acquire. For instance, preferred stocks can have an absolute fixed dividend, a dividend as a fixed share of profit, or a dividend based on other metrics. Moreover, preferred stocks can be equipped with additional features to create additional incentives for shareholders. Thus, investors need to check specifically what characteristics the preferred stocks exhibit. The table below outlines the major differences between common stocks and typical preferred stocks:

| | **Common Stocks** | **Preferred Stocks** |
|---|---|---|
| **Voting right** | Yes | No |
| **Dividend right** | Varies and depends on the declaration by the board | Typically fixed in terms of nominal value or other metrics |
| **Liquidation preference** | After preferred stocks | Before common stocks |
| **Price volatility** | Generally higher | Generally lower |

***Figure 1: Comparison of Common and Preferred Stocks***

**Issuers**

A company can raise equity capital by issuing stocks to finance its business needs or projects, such as expanding or developing new products. Compared to debt financing, which includes loan borrowing and bond issuance, equity financing offers companies an alternative fundraising method. The nature that stocks carry no repayment obligation and interest payment makes equity financing a lucrative alternative. As investors typically follow a long-term investment approach, companies can utilize the capital to create value through long-term projects.



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Stock issuance can also potentially improve a debt-to-equity ratio (D/E ratio), which is calculated by dividing a company's total liabilities by its shareholder equity. This is an important metric for investors when evaluating a company's financial leverage. A lower D/E ratio entails lower investment risk as the company is not relying on debt financing, decreasing the probability of default, increasing shareholder confidence in the company's performance, and attracting more investors.

However, stock issuance could come at the cost of dilution of control since issuance of new shares can lead to new investors taking control or existing shareholders increasing their control. This change may affect a company's strategy and operation as a new allocation of control can alter a company's future decision-making. The financial cost associated with a stock issuance process can also be significant. Companies can raise capital from public investors through an initial public offering (IPO) or equity issuance process. The most considerable direct cost incurred is underwriting fees, which are charged by investment banks who help the company determine the offering price, the number of shares, and other key details. Legal, tax, and accounting fees are also significant and increase with the complexity of IPO or issuance structure and company size. Moreover, as lenders have a higher liquidation preference over shareholders, the required return for stocks is generally higher than for debt to compensate for the additional risks and uncertain payouts.

**Investors**

Common shareholders benefit from dividends and voting rights. However, the largest gain comes from capital appreciation for the majority of listed companies. Capital appreciation happens when a share's market price increases and investors' share value exceeds the purchase price of stocks. A variety of factors drive market prices to rise, including strong company performance that boosts investors' expectations in future earnings, as well as favorable economic conditions that increase the demand for shares. The stock market is generally considered to be highly liquid with no price ceiling, while the market price of stocks is only limited downwards, which brings sizeable potential capital gains for investors.

Nevertheless, investments always imply risk-return tradeoffs. As a stock price can plummet as much as it rises, investors could suffer a loss during market turbulence when the market price is lower than the purchase price of stocks. In a liquidation scenario, shareholders would only have the residual capital left after the company's assets are sold off and debt is repaid. Holders of common stocks, in comparison to preferred stocks, are the last in line to share the remaining capital. Commonly, the proceeds from the sale of assets are not enough to cover all the company's liabilities, exposing shareholders, especially common shareholders, to high liquidation risks, given the sequence in liquidation preference.

**Stock trading**

Generally, stocks are publicly traded through exchanges or over-the-counter (OTC). Exchanges are centralized marketplaces where stocks are traded under the governance of an exchange as a central counterparty to eliminate the counterparty risk for investors. For instance, exchanges are institutions such as the New York Stock Exchange (NYSE), the Nasdaq Stock Exchange, the European New Exchange Technology (Euronext N.V.), and the Shanghai Stock Exchange (SSE). Companies are required to undergo a standardized listing process with high regulatory hurdles to be listed on exchanges. These basic listing requirements depend on the exchange and the regulations of the country of listing. Typically, the criteria include the company's financial viability, including profits, revenue, cash flow, as well as market capitalization. Subsequently, companies must file registration statements, such as the prospectus, with the regulatory bodies in the relevant jurisdiction. The prospectus provides the company's financials, business model, and risks. After approval from the regulator, stocks are issued and traded in the secondary market.



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Today, all exchanges are electronic, and algorithms execute trades automatically. Investors, through brokers or trading platforms, submit buy and sell orders, or bids and asks, with number of shares, desired price for specific stocks, and type of order to the exchange. In case of a limit order, the orders are stored in the order book, an electronic list of buy and sell orders at each price point for different stocks maintained by exchanges. The trading system continuously scans the order book to identify compatible orders in which the maximum price of buy orders exceeds or is equal to the minimum price of sell orders. Orders are then matched using different matching algorithms implemented by different exchanges. The algorithms mainly fall into two categories: First-in-First-Out (FIFO), or price-time algorithm, and Pro-Rata algorithm. Both algorithms prioritize buy orders at the highest price, with buy orders further prioritized based on the time of bid in the FIFO algorithm and shares distributed in proportion to the order size in the Pro-Rata algorithm. After the orders are matched, the trade is executed, and the order book and market price are updated. In the case of a "best" order, the order is executed directly with the next best available offer on the market.

On the other hand, stocks are traded OTC directly between one investor and another without the presence of a counterparty such as an exchange. OTC allows investors to buy or sell a large number of shares without having the risk of influencing the market adversely by selling or buying a large order at once and increasing or decreasing the share price adversely. Additionally, shares of non-listed companies are traded exclusively OTC and are not available on exchanges. Moreover, unique financial products such as structured products are generally only available on the OTC market since such instruments depend on a high level of individualization.

However, as non-listed stocks are not subjected to the same level of disclosure and reporting as their counterparts traded on exchanges, investors may not be able to make informed investment decisions or may be subject to fraud, given the lack of transparency in companies' financial health and performance, hence exposing to greater risk. The nature of decentralization also poses significant liquidity risk as dealers could freely withdraw from the market at any time, making trading stocks difficult in the absence of buyers. Moreover, exchanges provide clearing services that act as an intermediary between two parties to ensure the settlement of transactions. In contrast, investors in OTC markets bear high counterparty risk, which refers to the risk that the other party fails to fulfill the obligation of the transaction due to the lack of centralized oversight by the exchange. Therefore, investors should carefully examine their risk tolerance before entering the OTC markets.


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# 2 Stock Analysis

## 2.1 Factors to Consider

**Potential of an industry**

An industry is formed by a group of companies that provide similar goods or services as their primary business activities. The performance of companies within the same industry is highly correlated since the factors will impact similar products and business activities in a similar way. Thus, trends in an industry have a general impact on all firms in this sector.

One typical factor behind industry movement is the regulatory environment. Changes in regulation can put certain industries at risk, while those who provide solution for new regulatory compliance benefit. For example, the increased importance of climate change has induced countries around the world to implement carbon emission reduction policies, including carbon pricing and tax. On one hand, carbon-intensive industries, such as materials and utilities, are exposed to higher risks in profit decline (Eccles, Gao & Rajgopal, 2022) that drive the share price down. On the other hand, green industries such as electric vehicles (EVs) provide solutions for emission reduction, hence benefit from climate-related policy (S&P Global, 2019) that attract a huge influx of investments. Regulatory trends therefore play an important role in stock analysis.

The technology advancement within the industry can also benefit companies as a whole. Innovation provides new revenue stream that create new market demand, increasing the competitiveness of the whole industry, which creates an positive impact on companies' share price. The most recent example is the artificial intelligence (AI) boom led by the introduction of ChatGPT by OpenAI. The technology advancement in generative AI has not only contributed to the skyrocketing growth in the AI industry (Lauricella, 2023), but also benefited the supplemented semiconductor industry that push chip makers' share price sky high (Jones, 2024). Thus, it is important for stock investors to evaluate the industry's position in technology development to avoid those lagging behind and discover those at the edge.

Nonetheless, there are more underlying factors that navigate the directions of industry given the complexity of market. A top-down analysis, from industry to company, always allow investors to observe a broader context of their stock investment, helping investors to mitigate risks and discover opportunities. Likewise, an industry-wide risk will affect all companies adversely.

**Macroeconomic environment**

Contrary to microeconomics, which study the of decisions made by individuals and companies, macroeconomics focus on the performance of the large-scale economy. The macroeconomic environment is fundamental for the performance of markets, hence the individual stocks and other asset classes. It is therefore crucial for investors to incorporate macroeconomic factors, typically economic cycles, inflation, and interest rate, in stock analysis to make informed investment decision.

Economic growth generally exhibits cyclical periods of expansion and contraction with peak and trough. An economy grows rapidly during the expansion phase until it reaches the peak and enters the contraction period. The economy then at the bottom, starts recovering, and the cycle continues. Generally, stocks can be separated as cyclical stocks and non-cyclical stocks. The price of cyclical stocks is highly sensitive to economic cycles. Typical examples include companies in retail, luxury goods and constructions that provide discretionary products and services with consumer demand fluctuating with economic expansion and contraction. Non-cyclical stocks, on the other hand, are usually less affected by the macroeconomic environment, including companies in food and beverage, health care, and utilities, which provide products and services that meet consumers' basic needs. ESG related stocks can also be non-cyclical as increasing studies show their strong resilience during market downturn (Albuquerque, Koskinen, Yang & Zhang, 2020). Although investing in cyclical stocks provides higher return when the economy is thriving, it also comes with higher risk and volatility compared to non-cyclical stocks,



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which provide stability but lower returns. Both stocks should therefore be incorporated in investment portfolio to mitigate risks. Stock investors should also conduct research on key macroeconomic indicators, including gross domestic production (GDP) and unemployment rate, to understand the current phase of the economic cycle, and adjust their portfolio accordingly to achieve optimization.

Inflation, which refers to the increase in price of products and services, is one of the key determinant of economic growth. In general, mild inflation, typically around 2%, is believed to be conducive to economic growth as a moderate rise in price level can increase companies' profits and stimulate consumer spending. Excessive inflation, however, can erode the purchasing power that deters consumers from spending and increase the transaction costs of companies, squeezing companies' profits and slowing economic activities. Central banks mitigate the risks of inflation by changing interest rates to control the supply of money in the market. Theoretically, interest rates and stock prices have an inverse relationship. Rate hikes increase the borrowing costs of both companies and consumers that lower profitability and spending, and vice versa. In the real world, however, interest rates can affect different sectors of the stock market in different ways. In the banking sectors, for example, a rising interest rate can increase the yield spread of a bank's loan business. On the other hand, rates hikes can strengthen a domestic currency, and hence hit the exporting sectors as exports become less competitive and less profitable. It is therefore important for investors to evaluate different macroeconomic factors involved in the stock market.

**Competition and Competitive advantages**

A competitive advantage can come from a low-cost leadership strategy, strong brand recognition, product differentiation, innovative technology, or market leadership. A company has low-cost leadership when it has a lower cost of raw materials and efficient technology in production, and lower prices can be offered to attract more consumers. Strong brand recognition increases customer loyalty and has the benefit of customers having lower price sensitivity. Companies charge customers with brand premiums for a higher quality of products. Product differentiation and innovative technology lead to superior products. Innovative technologies are difficult for competitors to copy, which creates higher barriers to entry services. Companies with higher market share have more branches of businesses and room for adjustments of costs and types of businesses.

Moreover, competition is fierce in industries with low required investment to start a business and low regulatory requirements. For instance, services such as consulting or marketing can have low barriers for new competition while healthcare and oil or gas mining are very capital intense to enter and tend to have lower competition.

**Geopolitical and political influence**

Geopolitical tensions can affect firms through tariffs, which impact the global supply chain and lead to uncertainty and volatility for investors. For example, in the US-China trade war, when the escalation of the US-China trade conflict worsened (Chengying, Rui & Ying, 2021), the A-shares market reacted strongly. On 19 June 2018, the Shanghai Composite Index and the GEM Index plunged by 3.78% and 5.76%, respectively, and the majority of stocks fell. Moreover, wars may lead to an energy crisis by interrupting oil supply chains and causing oil prices to rise and inflation to increase. A current example is the US sanctions on Russia and the suspended oil and gas deliveries to Western countries. On 7 March 2022, the WTI crude oil futures price touched $133.460 a barrel, and the Brent crude oil futures price reached $139.130 a barrel, the highest price since July 2008 (Zhang, Hu, Jiao, & Wang, 2024). This can have a knock-on effect on the stock market, as investors are concerned about the possible impact on the global economy. Especially energy-intensive business models such as the heavy metal industry or manufacturing notice these increased costs and might have to consider relocating their operations to be competitive. Additionally, governments may change regulatory policies such as environmental or social restrictions in close collaboration with lobbying groups or because of pressure from voters. For instance, carbon tax rules may raise expenses and decrease the earnings of businesses. On the contrary, lowering tax rates may result in larger earnings and boost stock prices.



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**History of Scandals**

Scandals lower investor's trust and confidence and decrease stock prices. For instance, accounting scandals call into doubt the integrity and dependability of a company's financial statements. For example, in the 2000s, Enron was unveiled with deceptive accounting tactics such as hiding debt and misrepresenting profits, which severely impacted Enron's stock price and led to its bankruptcy. The incident triggered tightened legislation and the introduction of the Sarbanes-Oxley Act, which was intended to improve corporate governance and financial disclosure. Nevertheless, investors should verify the audit's opinion on the correctness of reported figures in the financial statements.

**Large Shareholder**

Institutional investors such as mutual funds and hedge funds can interfere with the company's management and strategy. Especially, so-called activist shareholders start campaigns to alter a company's leadership or strategic direction in the industry to maximize their profits on investments. They execute their power to advocate for changes consistent with their beliefs or interests. For example, they may campaign for the firm to adopt more sustainable or socially responsible practices and emphasize long-term growth above short-term profits. Larger shareholders have significant influence and establish a coalition with other shareholders.

**The number of shares outstanding**

The ownership structure of listed companies can vary significantly and has to be analyzed by investors before making an investment. Companies such as Gucci have a large share of the overall stocks that are owned by the founding family and not traded in the market. On the other hand, other companies might have all their shares traded actively in the market and have no large shares of stocks that are held by founders or long-term investors. Suppose a significant number of shares, for instance, more than 50% of shares, are owned by an investor and are not traded in the market. In that case, this will impact the liquidity of the stock heavily, and shareholders might not have the intended influence through their voting rights in the general shareholder meeting.

**Market capitalization**

The market capitalization informs investors about the size of the company. The smallest category is so-called "small-caps" such as Casio with a market capitalization of less than 2 billion USD, followed by "mid-caps" such as Asus with more than 2 billion but less than 10 billion USD. The highest category is "large-caps" with a market capitalization of more than 10 billion USD such as Apple or IBM.

Different market capitalization sizes may affect the company's financial performance through various factors. The risk profile of large-cap firms have a higher financial stability and are less vulnerable when economic downturns occur because of large amounts of financial resources and solid market position. The growth potential of small-cap firms is higher as there is a higher potential for growth, expansion and market penetration. Moreover, the investor interest can change with the capitalization. Large-cap companies may receive higher coverage in the news, analysts recommendations, and more. This benefits their stock demands and can result in higher valuation.

**Stock Buybacks**

Stock buybacks describe the situation in which a business buys back its own shares on the open market. In the short-term, stock buybacks result in a rise in the company's stock price. This is because the repurchase decreases the number of outstanding shares, increasing the earnings per share (EPS) of the remaining shares. Investors consider the firm to be more valuable, which leads to an increase in the stock price. A share buyback is considered an alternative to dividend payouts. In the long-term, stock buybacks may lessen investments in research



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development and other primary operations, which limits innovation and competitiveness of the company as this may lead to uncertain effects on future success. Moreover, share buybacks can incentivize the management of a company to rather buy back shares instead of investing long-term in the company, since the salaries of managers are typically coupled to the share price.

### Analyst recommendations

The research departments of large banks publish analyst recommendations on listed stocks to guide investors with their opinions. These suggestions are expressed in "buy" for a favorable outlook, "hold" for a neutral stance on the company, or "sell" if the bank's analysts think that the company will perform poorly in the future. These recommendations can act as a credible source for investors to inform themselves about the current outlook. For example, when HSBC publishes a recommendation on "buy" for a stock, investors may rush into buying the stock and push up the stock prices. The stock market may become less volatile when analysts make recommendations on holding a stock.

### History of management

The history of the management can give investors information on how the company is run. If the management is known to be slow in adapting or pivots to new strategies too often then this behavior might be adverse for the company and its stock.

For instance, if management decides to compensate their bonuses unproportionally high and is interested in only short-term profits, then shareholders should act and try to vote for a new management with a long-term strategy that expands the company sustainably.

## 2.2 Key Numbers

Consequently, the key terms and numbers are defined with their respective formula.

### EBITDA, EBIT, Net earnings

These metrics measure the profits earned from the company's operations (Dahlquist & Knight, 2022).

- **EBITDA** (Earnings before Interest, taxes, depreciation & amortization)
  Shows the net income while excluding interest, tax, depreciation, and amortization expenses. Useful for showing the cash flow from operating activities.
  $$EBITDA = Revenue - Operating\ expenses + Depreciation\ \&\ Amortization$$
- **EBIT** (Earnings before Interest and taxes)
  It shows the net income while excluding interest and tax expenses.
  $$EBIT = Revenue - Operating\ expenses$$
- **Net earnings** (also known as net income)
  Shows the final income after deducting all expenses incurred from the total revenue.
  $$Net\ earnings = EBIT - Interest\ expense - Tax\ expense - (Other\ expenses)$$

The relationship between the three metrics can be illustrated as follows:

$$\underbrace{\overbrace{(Net\ earnings) + Interest\ expense + Tax\ expense}^{EBIT} + Depreciation\ \&\ Amortization}_{EBITDA}$$



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**Non-cash working capital**

Non-cash working capital records the amount of liquid assets, for instance, accounts receivable or inventory, a company has, excluding cash, after deducting its short-term liabilities such as various types of payables. It can be used as an indicator of a company's liquidity and its short-term financial health (Dahlquist & Knight, 2022).

$$Non - cash\ working\ capital = Current\ Assets - Cash - Current\ Liabilities$$

**Capital expenditure**

Capital expenditures records the amount a company is investing in its fixed assets, also referred to as property, plant and equipment, to facilitate future operations. It includes any new purchases or upgrades of fixed assets. This number is calculated using the change in the total amount of fixed assets plus the depreciation incurred in the period.

$$Capital\ expenditure = \Delta\ Fixed\ assets + Depreciation$$

**Depreciation and Amortization**

They record the wear or loss of value incurred on a company's assets. Due to the difficulty of recording the actual loss of value, an estimate is used instead. The methods of estimation applied depend primarily on the accounting standard of the company, which is required by law, such as IFRS or US GAAP. Depreciation shows the amount of wear incurred on a company's tangible assets, for instance plant or equipment. The method used to calculate the depreciated value in each year varies from company to company. Common methods include the straight-line method and the double declining balance method. Amortization is the loss of value incurred on a company's intangible assets, including but not limited to patents, copyrights and goodwill. In most cases, the straight-line method is used where an item's value is evenly distributed across its lifetime and amortized year by year (Dahlquist & Knight, 2022).

**Interest Expense**

Interest expenses records the total amount of interest payments made each year on outstanding debts owed by the company to their respective lenders. It measures the cost of the company's debts and can be used to evaluate a company's debt management, including the financial burden from debts on the company and its ability to repay them. (Dahlquist & Knight, 2022)

$$Interest\ Expense = EBIT \times Interest\ rate$$

**Dividend Yield**

Dividend yield measures the ratio between the total dividends paid each year by the company and its share price. (Morgan Stanley, 2024)

$$Dividend\ Yield = \frac{Annual\ Dividends\ per\ Share}{Average\ Price\ per\ Share}$$

**ROE (Return on Equity)**

ROE is the percentage obtained from dividing the company's shareholders equity by its net earnings. It measures the company's ability to generate profit using money invested by the shareholders. (Morgan Stanley, 2024)

$$ROE = \frac{Net\ earnings}{Shareholders\ Equity}$$



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**ROIC (Return on Invested Capital/Return on Capital)**

The percentage obtained from dividing the invested capital of the company by its taxed operating profit. It measures the company's ability to allocate resources to generate profit using all its available capital (Mauboussin & Callahan, 2022).

$$ROIC = \frac{NOPAT\ (Net\ Operating\ Profit\ After\ Tax)}{Average\ invested\ capital}$$

where:

$$NOPAT = EBIT - Tax\ expense$$

$$Average\ invested\ capital = \frac{Invested\ capital\ in\ current\ year\ +\ Invested\ capital\ in\ previous\ year}{2}$$

$$Invested\ capital = Current\ assets - Current\ liabilities + Total\ fixed\ assets$$

## 2.3 Multiples

Multiples adjust for differences in scale between firms. It is a ratio of the desired value to some measure of the firm's scale. They are used to evaluate a firm's performance by comparing the measures with comparable companies in the market. The advantages of multiples are that they are easy to calculate, measure and compare with competitors. The disadvantage of multiples is that it is often difficult to determine comparable companies, especially if a company is in a niche sector or is a unique player in the industry. Moreover, the evaluation of multiples is based on comparison and may fail to capture target-specific strengths, weaknesses, opportunities, and risks. Additionally, accounting practices may differ widely among firms depending on the underlying accounting standard, which can lead to diverging results, and ratios vary over the time of the year and may not be representative at the end of the fiscal year. Nevertheless, they offer a more accessible approach to compare and analyze companies.

**Price to Earnings Ratio (P/E)**

The price-to-earnings ratio is one of the most commonly used multiples. It measures how much an investor is willing to pay for a dollar of a company's earnings. A variation, the forward P/E, is used as an indication of the future growth of the company. The trailing P/E is calculated from the trailing 12-month Earnings per Share (EPS) and is favored when the recent past is more indicative for the ratio. When given the P/E of a comparable company, one can multiply the P/E by the expected EPS of the target firm to receive a predicted share price.

Some notable limitations of this multiple include that the P/E ratio is not meaningful for companies with zero or negative earnings, and it does not take into account the leverage of the company.

Trailing P/E

$$\frac{Share\ Price}{Last\ 12\ Months'\ Earnings\ per\ Share}$$

Forward P/E

$$\frac{Share\ Price}{Expected\ Earnings\ per\ Share}$$



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**PEG Ratio**

The PEG ratio takes into account that the P/E ratio is generally higher in industries with higher growth rates. Generally, a lower PEG ratio indicates a more attractive company for an investor. A PEG ratio of less than 1 indicates the company is fairly priced or undervalued (Berk et al., 2021).

$$\frac{P/E}{Expected\ Earnings\ Growth\ Rate}$$

**Price to Book Ratio (P/B)**

The price-to-book ratio is a ratio of a firm's market capitalization compared to the book value of stockholders' equity. Firms with a low P/B ratio are classified as value stocks, while those with high P/B ratios are classified as growth stocks. A P/B ratio exceeding one indicates that the firm's assets value exceeds their historical costs or liquidation value.

$$\frac{Market\ Value\ per\ Share}{Book\ Value\ per\ Share}$$

**Interest Coverage Ratio (Times Interest Earned)**

The interest coverage ratio is used to assess a firm's ability to satisfy its interest payments, meaning how easily the firm will be able to cover its interest payments. It reveals the company's financial policy, risk portfolio, and capacity for growth (Berk et al., 2021). A low ICR can be caused by a higher leverage, which generally indicates a higher risk of financial distress due to debt payment burdens. Additionally, if a company has a fluctuating EBIT, it may not be able to afford a high level of debt and should lower its interest expense and increase the ICR.

$$\frac{EBIT\ or\ EBITDA}{Interest\ Expense}$$

**EV/EBITDA**

A firm's enterprise value assesses the value of the underlying business, which is unencumbered by debt and separate from any cash and marketable securities. The ratio is independent of capital structure and taxes, as well as any distortions that may arise from differences in depreciation and amortization (D&A) among different companies (Rosenbaum & Pearl, 2009, p.35).

$$\frac{Enterprise\ Value}{EBITDA}$$

**EV/EBIT**

The EBIT is less indicative as a measure of operating cash flow than EBITDA because it includes non-cash D&A expenses. Furthermore, D&A reflects discrepancies among different companies in capital spending and/or depreciation policy and acquisition histories (Rosenbaum & Pearl, 2009, p.35). For example, one company may have spent heavily on new machinery and equipment in recent years, resulting in increased D&A for the current and future years. In contrast, another company may have deferred its capital spending until a future period. In the interim, this situation would produce disparities in EBIT between the two companies that would not be reflected in EBITDA. EV/EBIT may be helpful in situations where D&A is unavailable, for instance, when valuing pubic companies or for companies with high capital expenditure (CAPEX).



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$$\frac{Enterprise\ Value}{EBIT}$$

**EV/Sales**

Although sales may provide an indication of size, it does not necessarily translate into profitability or cash flow generation. Consequently, EV/sales is mainly used as a sanity check on the earnings-based multiples discussed above. In certain sectors, however, as well as for companies with little or no earnings, EV/sales may be relied upon as a meaningful reference point for valuation. For example, EV/sales may be used to value an early-stage technology company that has aggressively growing sales but has yet to achieve profitability.

$$\frac{Enterprise\ Value}{Sales}$$

**Liquidity Ratios**

These ratios are indicative of whether a company has sufficient liquidity to meet its short-term needs. They can be used to identify risks in a firm's future operation. For example, a drop in the quick ratio due to an unusual increase in inventory could be an indicator that the firm is facing difficulties selling its products. The quick ratio is a more conservative measure of liquidity compared to its current ratio.

Quick Ratio

$$\frac{Current\ Assets - Inventories}{Current\ Liabilities}$$

Current Ratio

$$\frac{Current\ Assets}{Current\ Liabilities}$$

**Gross Profit Margin**

The gross profit margin reflects the profitability of the company, its ability to sell a product for more than the sum of the direct costs of producing it (Berk et al., 2021). Note that gross profit does not capture the indirect costs associated with production.

$$\frac{Gross\ Profit\ (Sales - COGS)}{Sales}$$

**Return on Equity**

The return on equity is an essential ratio for investors to compare a firm's return to its competitors. The net income is compared to the book value of shareholders' equity to receive an return on the invested capital.

$$\frac{Net\ Income}{Book\ Value\ of\ Equity}$$



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DuPont Analysis

The DuPont analysis disaggregates the return on equity into its individual parts. Thus, investors can analyze which factors lead to a change in return on equity.

$$ROE = Net\ Profit\ Margin \times Total\ Asset\ Turnover \times Equity\ Multiplier$$

$$ROE = \frac{Net\ Income}{Sales} \times \frac{Sales}{Total\ Assets} \times \frac{Total\ Assets}{Total\ Equity}$$



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# 3 CAPM: Capital Asset Pricing Model

The Capital Asset Pricing Model (CAPM) is a widely used financial model that helps describe the relationship between systematic risk, or the general perils of investing, and expected return for assets, particularly stocks. It provides a framework for estimating the expected return of an investment based on its risk relative to the overall market. The CAPM model can be represented by the following formula:

$$E(r) = r_f + \beta \times [E(r_M) - r_f]$$

where:

- $E(r)$ is the expected return on a security
- $r_f$ is the risk-free rate
- $\beta$ is the beta of a security (measure of volatility relative to the market)
- $E(r_m)$ is the expected return on the market
- $[E(r_M) - r_f]$ is the market risk premium

In essence, CAPM suggests that the expected return of an investment is equal to the risk-free rate, typically the yield on government bonds, plus a risk premium, which is proportional to the asset's beta, representing the systematic risk.

The beta of a potential investment is a measure of how much risk the investment will add to a portfolio in comparison to a market index or benchmark. Generally, if a stock has a beta greater than one, it is riskier than the market index and has higher potential returns. If a stock has a beta of less than one, the stock is less volatile than the market with lower returns, but it reduces the risk of a portfolio with a beta of one. Since the average return on the market is usually higher than the average risk-free rate in the long run, the market risk premium $E(R_M) - R_f$ is presumably positive. Thus, the formula implies that the expected return on a security is positively related to its beta. In addition, it establishes that the expected return on a security is linearly related to its risk beta.

The goal of the CAPM formula is to evaluate whether a stock is fairly valued when its risk and the time value of money are compared with its expected return. In other words, by knowing the individual parts of the CAPM, it is possible to gauge whether the current price of a stock is consistent with its likely return.

The CAPM model assumes that investors are rational and risk-averse, seeking to maximize their returns while minimizing risk. It's often used in the process of determining the appropriate discount rate for the valuation of investments, such as stocks, and is a cornerstone in modern portfolio theory. However, it has its limitations and critics, particularly regarding its reliance on certain assumptions like market efficiency and the validity of the beta coefficient.

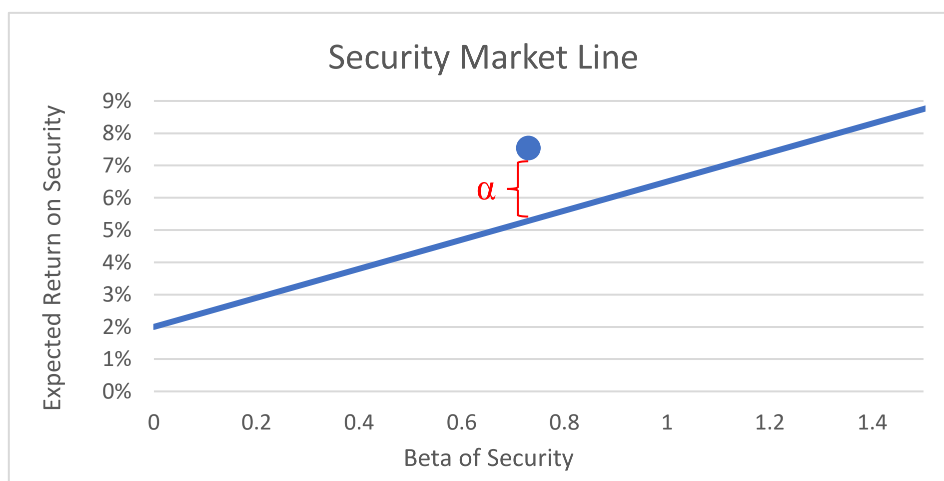


***Figure 2: Security Market Line***



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The expected return of the CAPM formula is used to discount the expected dividends and capital appreciation of the stock over the expected holding period. If the discounted value of those future cash flows is equal to $100, then the CAPM formula indicates the stock is fairly valued relative to its systematic risk.

**Linearity of the CAPM Model**

The CAPM model, as represented by the security market line (SML), slopes upward because, intuitively, high-risk securities should have an expected return above that of low-risk securities to compensate for the additional risk. According to the model, securities lying above the SML are underpriced, while securities lying under the SML are overpriced. Thus, underpriced securities compensate for a return higher than their risk implies. In equilibrium, all securities are on the Security Market Line, and there should be no over- or underpriced offerings in the market. The SML for a portfolio becomes the Capital Market Line when its beta is equal to one.

**Alpha and Beta**

Alpha (α) measures an investment's return or performance, which is not explained by the risk-free return or the risk premium. The alpha stems from company-specific factors such as management decisions or company events and represents idiosyncratic risk. Idiosyncratic or firm-specific risk only applies to each company individually and cannot be diversified in a portfolio. The alpha is a single number indicating the percentage above or below a benchmark index. If a stock is overvalued in relation to the SML, the stock will generate a return below its required rate of return and, therefore, generate a negative alpha. Conversely, if the stock is undervalued, it should generate positive alpha. Strategies focusing on alpha search for undervalued stocks and aim to generate a positive return without taking additional systematic risk.

Suppose a mutual fund returned 8% over one year and the S&P 500 returned 5% growth the same year, then the fund has an alpha of 3%. Conversely, if another stock returned 2%, then it has an alpha of -3%. Alpha is a historical number, meaning it tracks a stock's performance over time to see how a stock performed, but it cannot predict how performance will develop in the future.

Alpha is calculated with the following formula:

$$\text{Alpha} = r_i - [\text{r}_\text{f} + \beta \times [\text{E}(r_\text{M}) \text{ -} r_\text{f}\,]$$

where:

- $r_i$: actual return of asset i

Beta (β) indicates the volatility of an investment in comparison with the market as a whole. It is a measure of how much risk the investment will add to a portfolio. The market index is assumed to represent the general stock market and is set as the benchmark with a beta of one. For instance, the SPDR S&P 500 ETF Trust (SPY), an exchange-traded fund (ETF) that tracks the S&P 500, is commonly used as the benchmark for large US stocks.

If the beta of an investment is greater than one, then it is riskier and has higher volatility than the market index with higher potential returns. In other words, it is considered aggressive. If the beta is equal to one, then it is exactly as volatile as the market. If the beta is less than one, then it is less risky and has lower volatility than the market index with lower potential returns, which means it is considered conservative.



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Beta is calculated according to the following formula:

$$\text{Beta} = \frac{Cov(r_i, r_m)}{\sigma^2(r_m)}$$

where:

- $r_i$: return of asset i
- $r_m$: return of index/benchmark

For example, suppose an investment has a beta of 1.5, meaning it has a 50% higher volatility and, therefore, 50% more systematic risk than the overall market index.

**Example**

First, we can estimate the expected return for Apple (AAPL). A quick search online reveals that AAPL's 1-year beta is 1.04. Using the 10-year US government bond yield as a proxy for nominal risk-free interest rate, this equals to 4.6250% as of 19. April 2024. The historical average yearly return of the S&P 500 is 12.68% over the last ten years, as of the end of February 2024 (Yahoo Finance, 2024a).

We can estimate the expected return on Apple, assuming that Apple stockholders are compensated only for the systematic risk they bear.

$$4.6250\% + 1.04 \times (12.68\% - 4.6250\%) = 13.00\%$$

In reality, the past 52-week change for AAPL was 3.16%. The CAPM model merely offers an estimation of a stock's return, as it has a number of assumptions that might not always hold true in the real world, such as the assumption that investors can lend and borrow at the risk-free rate, which is rarely the case in the real world. In addition, if a stock carries high idiosyncratic risk, the model does not capture such risk. Moreover, the standard deviation of Apple's return is large, which partially explains why actual returns may be significantly different from the expected return (Yahoo Finance, 2024a).

The CAPM model is also applicable to other investments, such as mutual funds like the HSBC Global Money Market Funds – US Dollar (HSBC Fund Code U62931). Its description displays a variety of information related to this investment. Firstly, its risk level is rated at one, or the least volatile category, according to HSBC's risk rating scale. The alpha is -0.06 and its beta is 1.16 with the benchmark index being the Morningstar USD 1M Cash TR USD. Based on this information, we can see that the fund returned less compared to the benchmark index used, and it is slightly more volatile than the index and more aggressive (HSBC, 2024).



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# 4 ESG Considerations

ESG, referring to Environmental, Social, and Governance has risen as an irreplaceable qualification and essential KPI for many firms around the globe. The escalating pressure of climate change and the growing importance of corporate social responsibility has raised the ESG score as a highly valuable tool for worldwide investors. In fact, 88 percent of public and two-thirds of privately-owned companies actively utilize the ESG score as their key matrix. The Bloomberg ESG rating has greater than 90% coverage of US and European corporate investment grade bond indices and 70,000 funds relying on a bottom-up approach aggregating the ESG score percentiles (Moody's, 2023).

ESG scores quantify assessments based on a company's performance in environmental, social, and governance divisions. Rating agencies, financial data providers, and research firms, including MSCI, Sustainalytics, and Bloomberg, generate and display these scores on their respective platforms or integrated databases (MSCI, 2020).

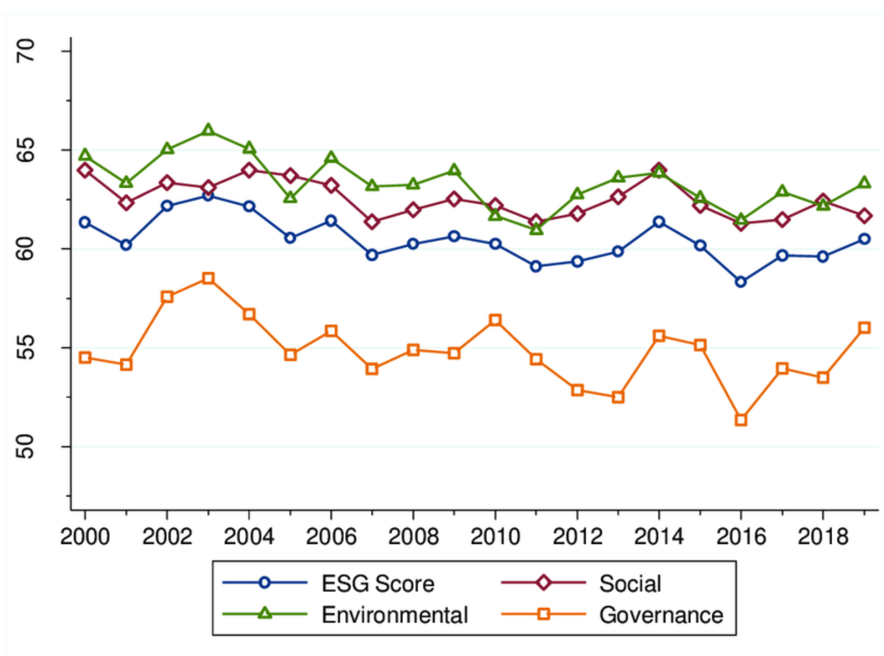


***Figure 3: ESG Scores (Verga Matos, Barros & Miranda Sarmento, 2020)***

As Figure 3 displays, the graph presents the average ESG score per year for all Stoxx Euro 600 index firms that compose our sample. Holistically, all three components of the score follow a similar pattern as the total ESG score, but the governance score is consistently lower than the total score average, highlighting the difficulty that European companies are experiencing in obtaining a good governance rating (Verga Matos at el., 2020).

The scores are primarily used for performance screening on material ESG issues, in-depth research, in-house score creation, and portfolio/index construction. The scores act as a guide for company engagement on ESG performance and disclosure, shareholder proposals, and voting decisions. A high ESG score could indicate the company's sustainability preferences and definition of sustainable investment. Many analysts use the scores as a benchmark for comparing different funds' ESG performance, thus setting fund selection criteria.

Bloomberg scores measure best-in-class performance within peer groups. Traditionally, ESG scores are calculated based on various ESG metrics such as carbon emissions, raw material sourcing, labour management and tax transparency. The scoring process includes research, data collection as well as quality assurance, scoring, validation, and publication. The scores evaluate a company's aggregated ESG performance, across the E, S and G pillars.



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**GHG Emissions Management Issue Priorities - Utilities**

| | Integrated utilities & power generation | Electric transmission & distribution | Gas utilities |
|---|---|---|---|
| **Probability** | High | High | Medium |
| **Magnitude** | High | High | high |
| **Timing** | Short | Short | Short |
| **Issue priority** | 1 | 1 | 1 |

***Figure 4: Bloomberg ESG scores (November 2023)***

For material environmental and social ("ES") areas, Bloomberg assigns issue priorities for each peer group based on a three-part assessment of probability, magnitude, and timing of impact, as shown in Figure 4 (Bloomberg, 2023). The platform tracks a wide array of data regarding carbon emissions, energy efficiency, waste management, and water usage to assess environmental traces.

A company committed to renewable energy and efforts to mitigate climate change would likely be given a favorable "E" rating. For social factors, the company would be assessed from various angles, such as a company's treatment of its employees, supply chain practices, diversity and inclusion policies, labor rights, and community engagement initiatives. For example, Microsoft is well known for its social commitment as they invest in community development, education, and digital inclusion.

Similar to ES components, material Governance or "G" issues are selected from country and market-specific corporate governance codes and listing rules. While the given priority might be weighted differently, G score is generally measured by board composition, executive compensation, shareholder rights and audit.

| AA | AAA | A | BBB | BB | B | CCC |
|---|---|---|---|---|---|---|
| **Leader** | | **Average** | | | **Laggard** | |
| A company leading its industry in managing the most significant ESG risks and opportunities | | A company with a mixed or unexceptional track record of managing the most significant ESG risks and opportunities relative to industry peers | | | A company lagging its industry based on its high exposure and failure to manage significant ESG risks | |

***Figure 5: MSCI ESG ratings***

The environmental, social and governance (ESG) information of listed companies has always been valued by the global capital market, and more mature ESG investment and rating systems have been developed. Following the inclusion of Chinese A-share by MSCI, ESG ratings are also gaining more attention in China (Deloitte, 2021). Under the MSCI score, companies are considered leader, average or laggard depending on the rating score range as shown in figure 5.



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| Key aspect subjects | Related issues |
|---|---|
| 1. Corporate governance | Business ethics, controversial investment, and others |
| 2. Labor practices | Labor-management relations, employee health and safety, supply chain-child labor/forced labor, and others |
| 3. Fair operating practices | Anti-competitive practices, bribery and corruption and others |
| 4. Community involvement & development | Adverse impact on local communities and others |
| 5. Human rights | Freedom of expression and censorship, human rights, abuses, and others |
| 6. Environment | Land use and biodiversity spills and sewage, operation toxic or non-toxic waste impact of products and services, and others |
| 7. Consumer issues | Marketing and advertising production quality and safety, customer relations, and others |

***Figure 6: Key seven aspects and guidelines for ESG ratings***

<table>
<tr><td>AAA</td><td>AA+</td><td>AA</td><td>AA-</td><td>A+</td><td>A</td><td>A-</td><td>BBB+</td><td>BBB</td><td>BBB-</td><td>BB+</td><td>BB</td><td>BB-</td><td>B</td><td>C</td><td>D</td></tr>
<tr><td colspan="4">Sustainable</td><td colspan="3">Responsive</td><td colspan="3">Normal</td><td colspan="2">Minimal</td><td colspan="4">Vulnerable</td></tr>
<tr><td colspan="4">Systematic risk management with sustained results</td><td colspan="3">Responsive to stakeholders' needs and expectations</td><td colspan="3">Various ESG practices implemented</td><td colspan="2">Minimal actions or disclosures</td><td colspan="4">Vulnerable</td></tr>
</table>

***Figure 7: ESG Service (Hang Seng Indexes, 2024)***

Similarly, in Hong Kong, Hang Seng Indexes collaborates with the Hong Kong Quality Assurance Agency (HKQAA) to introduce the ESG rating system (Hang Seng Indexes, 2024). This rating system is built to assess a company's management system neutrality and risks with regards to sustainability performance by evaluating based on seven aspect subjects, as shown in Figure 6: corporate governance, labor practices, fair operating practices, community involvement and development, human rights, environment, and consumer issues. As shown in Figure 7, Companies with AAA or AA ratings are considered to be sustainable, the A rating is responsive, and the BBB rating is normal, while a BB rating or below are referred to as minimal or even vulnerable. Ratings are divided into investment grade and speculative grade, with the threshold being BBB ratings and all lower ratings being speculative.

ESG scores or ratings offer various array of benefits for companies. First, an outstanding ESG rating reflects market recognition of the company's social responsibility efforts and performance, which helps improve brand image. In addition, many European and American financial institutions have taken the ESG rating into consideration in the investment screening process. Therefore, a good ESG rating can further help companies to attract investment and lower the cost of financing.

While different rating agencies set up ESG rating systems, the rating systems are generally divided between ESG performance-based and ESG risk-based. More specifically, ESG rating agencies rate the companies based on their



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ESG policies, systems, and measures, and they gather data from multiple sources, including the company's publication, government data bank, media, NGOs, or other stakeholders. Questionnaires may also be used to collect additional information from the companies. During the rating process, the agencies will use a specific mechanism to adjust the company's score based on its industry. At the same time, the company's relative performance against its peers will also be used as a benchmark to obtain a universal rating that is comparable across industries.

When the company decides to join the ESG rating scheme, it needs to establish a sound ESG governance structure to ensure that there are sufficient and effective ESG management policies and systems, internal controls, and implementation measures in order to achieve good ESG performance as well as forming a loop to improve and optimize the performance continuously. However, before submitting ESG data to rating agencies, companies should also review the data to ensure that it clearly, accurately, and effectively addresses the rating criteria.

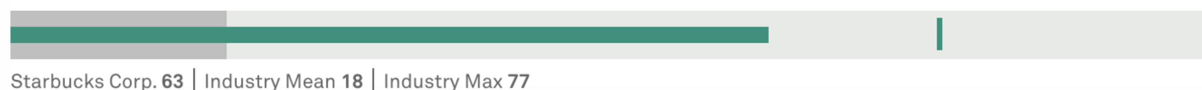
In conclusion, an ESG score transcends mere compliance. It serves as a compass guiding companies toward sustainable practices and profitable business management. As a higher rating signifies successful risk mitigation and robust financial performance, those with good ESG scores gain a competitive edge in their industry. Simultaneously, their reputation and trust with stakeholders and potential investors flourish, positioning them as resilient players in the dynamic business landscape. Conversely, a poor ESG score jeopardizes capital coordination and market competitiveness, eroding shareholder trust and diminishing the firm's overall value.

**Case Study: Starbucks**

Score Breakdown

Starbucks Corp. Industry Max Industry Mean

Environmental



Starbucks Corp. **63** | Industry Mean **18** | Industry Max **77**

Social

Starbucks Corp. **32** | Industry Mean **20** | Industry Max **76**

Governance & Economic

Starbucks Corp. **27** | Industry Mean **24** | Industry Max **69**

***Figure 8: S&P Global 2023 Starbucks' ESG score report***

Starbucks, with over 32,000 stores in more than 80 countries and 98.33 billion market cap, has achieved remarkable success as the most recognized coffee brand worldwide. S&P Global, a financial rating agency, has evaluated Starbucks with a total ESG score of 37, whose breakdown is displayed in Figure 8. Based on market and firm data collected in 2023, the above chart shows the ESG score distribution of Starbucks compared with the industry mean and maximum. The brand has been well-recognized for its commitment to using green products such as reusable cups, paper straws, and plant-based options. Therefore, the "E" score is rated as 63 while the industry mean is merely 18, proving the successful position of Starbucks to have met the needs of green consumers and environmental initiatives in the current market. Socially, the brand displays a decent record of 32 while the industry mean is 20 with its contribution to employee welfare, valuing diversity, and community



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engagement. The corporate culture in Starbucks encourages employees to spread positive impact through acts of volunteerism and inclusion. However, the brand lacks its strength in governance as Starbucks records only 3 points above the industry mean. Starbucks suffers from a CEO succession transition and a less independent board structure (S&P Global, 2023).

As seen in the case of Starbucks, the ESG score visualizes and illustrates how the company manages its business in terms of ecological footprint, welfare, and transparent management. It enables investors and general consumers to evaluate the company's performance and prospects. However, it is essential to recognize that the score could be influenced by the collected data and the rating agency's interpretation. As readers, we would need to maintain an objective lens when fully comprehending the concept of ESG score. By utilizing the ESG score efficiently, stakeholders can take crucial advantage of the ESG score.


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# 5 Application: CrowdStrike

Subsequently, all concepts are applied to CrowdStrike, a US company leading in cyber-security.

**Growth in industry/sector**

The cybersecurity sector profits from the increasing scale and sophistication of hack (CrowdStrike, 2024). Additionally, the SEC's new mandatory cybersecurity breach reporting rule (SEC, 2023), requires the listed company to disclose any material cybersecurity incident within four business days. Moreover, increasing digitalization leads to an increasing number of endpoint devices in need of cyber security solutions. On the other hand, the industry benefits from the cloud-based endpoint security sector (CrowdStrike, 2022) with lower administrative and maintenance costs and transmission of cloud-centric business.

**Macroeconomic environment**

Due to the ongoing inflation and high interest rates, customers show constrained spending and spending fatigue on security and IT operations. They continue to use legacy security products and delay or cut adoption of cloud-based endpoint security with longer sales cycles for products and services and reduced number of modules or endpoint deployment customers willing or able to purchase. The yields of investment are fixed rate and not exposed to significant interest rate risk. In contrast, the interest on the revolving credit facility is tied to SOFR, while the interest rate on Senior Notes is fixed. An increasing portion of operating expenses is incurred outside the United States and prone to fluctuations in foreign exchange rates. A hypothetical 10% adverse change in the US dollar against other currencies would have resulted in an increase in an operating loss of approximately $75.8 million, $55.5 million, and $36.3 million for the fiscal years ended January 31, 2024, January 31, 2023, and January 31, 2022, respectively.

**Competition and Competitive Advantages**

Facing major competitors such as Microsoft, SentinelOne, Wiz, Splunk, CrowdStrike relies on its innovative and advanced products to compete with its competitors. CrowdStrike differentiates through cloud-native, single-agent Falcon platform. Falcon integrates with a wider variety of third-party tools. Partnerships with leading security providers, such as Cisco, Microsoft, and Amazon Web Services (AWS) give it an edge in cloud security.

**Geopolitical and political influence**

In December 2020, SolarWind Hack, the "supply chain attack," allowed the adversary to create a backdoor into companies like Microsoft and Intel—along with nine US federal agencies, including the Cybersecurity and Infrastructure Security Agency (CISA), which is designed to protect against cybersecurity breaches in the federal government.

**Scandals**

Crowdstrike has had no significant scandals in the past, and no cases of insider trading have been recorded to date (Alpha Spread, 2024).



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**Largest shareholders** (Yahoo Finance, 2024c)

| Holder | Shares | Date Reported | % Out | Value |
|---|---|---|---|---|
| **Blackrock Inc.** | 16,954,354 | 30. Dec 2023 | 7.39% | 5,493,380,405 |
| **Vanguard Group Inc** | 15,746,120 | 30. Dec 2023 | 6.86% | 5,101,900,494 |
| **Jennison Associates LLC** | 6,340,819 | 30. Dec 2023 | 2.76% | 2,054,488,826 |
| **Morgan Stanley** | 5,311,705 | 30. Dec 2023 | 2.32% | 1,721,045,588 |
| **State Street Corporation** | 4,678,773 | 30. Dec 2023 | 2.04% | 1,515,969,285 |

***Figure 9: CrowdStrike largest Shareholders***

**Number of shares outstanding**

CrowdStrike shares outstanding for the quarter ending 31. January 2024 were **244 mn**, a **4.5% increase** year over year (Macrotrends, 2024).

**Market capitalization**

**Large-cap** with a market capitalization of **70.75B USD** at 31. January 2024 (YCharts, 2024). Ranked as third in the 2023 Fortune Future 50 List.

**Stock Buybacks**

No share buybacks have been recorded since the IPO in 2019.

**Current analyst recommendations**

- Zacks: Buy to Strong Buy (Yahoo Finance, 2024d)
- HSBC: maintains Buy and raises the price target from $411 to $412 (Webull, 2024)

**History of management**

The management's strategic preference is to grow its customer base by replacing legacy and other endpoint security products (SEC, 2024) and strengthening its threat detection capabilities through significant investments in R&D, with a focus on artificial intelligence and machine learning. In order to expand its product line and penetrate new markets, Initial public offering (IPO) in 2019, CrowdStrike raised over $600 million to go public.



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**Key Numbers**

CrowdStrike

(Amount in thousands, USD)

| | FY 2024 | YoY Growth |
|---|---|---|
| Revenue | 3055555 | 36.33% |
| EBITDA (Earnings before Interest, Taxes, Depreciation & Amortization) | 124843 | -210.61% |
| EBIT (Earnings before Interest & Taxes) | -1995 | -98.95% |
| Net Earnings | 90585 | -149.69% |
| Non-cash working capital | -1315047 | 42.29% |
| Capital Expenditure | 340650 | -38.80% |
| Depreciation & Amortization | 126838 | 64.20% |
| Interest Expense | 25756 | 1.73% |

| | | |
|---|---|---|
| Dividend Yield | 0% | 0% |
| ROE (Return on Equity) | 1.363% | -137.58% |
| ROIC (Return on Invested Capital) | -0.498% | -87.97% |

***Figure 10: Key Numbers CrowdStrike***

| | CrowdStrike | Palo Alto Networks | Fortinet | Cloudflare | Zscaler |
|---|---|---|---|---|---|
| Market Cap | 71.134B | 90.836B | 48.857B | 29.278B | 25.921B |
| P/B | 30.43 | 20.85 | 39.75 | 38.37 | 27.01 |
| Trailing P/E | 789.05 | 43.52 | 43.83 | - | - |
| Forward P/E | 537.37 (constant growth) | 45.45 | 37.59 | 147.06 | 52.91 |
| Interest Coverage Ratio | 5.77 | 63.27 | 69.91 | -6.16 | -2.61 |
| EV/EBITDA | 232.97 | 77.69 | 32.27 | -80.29 | -225.90 |
| EV/EBIT | 460.18 | 103.29 | 34.97 | -16.88 | -140.152 |
| EV/Sales | 22.40 | 11.91 | 8.93 | 2.24 | 15.26 |
| Current Ratio | 1.76 | 0.83 | 1.06 | 3.50 | 1.98 |
| Gross Profit Margin | 0.75 | 0.74 | 0.77 | 0.76 | 0.77 |
| ROE | 4.51% | 95.79% | -8056% | -26.70% | -17.85% |

***Figure 11: Multiples CrowdStrike***

**CAPM**

CrowdStrike Holdings, Inc. (Nasdaq: CRWD) has an alpha of 0.98% and a 5y beta of 1.05 against the Nasdaq Index. The positive alpha implies that CRWD is undervalued and is outperforming the market. The expected return for CRWD can be calculated with the 5y beta, the 10-year US government bond yield of 4.6250% (as of 19. April 2024), and 20.9% yearly return of NASDAQ over the last 10 years (Yahoo Finance, 2024b).

$$4.6250\% + 1.05 \times (20.9\% - 4.6250\%) = 21.71\%$$

According to the CAPM, investors are recommended to buy CRWD because of its high expected return of 21.71% and current undervaluation.



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**ESG**

CrowdStrike has a moderate ESG rating with CIS-3, according to Moody's. The Environmental and Social rating is E-2 and S-2, while the governance rating is G-3. Moody's scale has five tiers with one being the highest and 5 being the lowest. Therefore, CrowdStrike ranks in the upper middle field compared to its competitors (Moody's, 2024).

**Conclusion**

To summarize, CrowdStrike has a competitive position with popular products and invests in new products and the development of existing services. There are no significant threats to CrowdStrike and no management scandals. The regulatory environment is benefiting the firm, and prices have increased since its listing. The company succeeded by recording its first positive net earnings since listing in 2019 and is developing into a more mature company. The multiples show a growth company with an attractive valuation, confirmed by the positive alpha and the buy recommendations.


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