Financial Lens

WHITEPAPER

Financial Lens is only available to clients in Canada, Hong Kong, Singapore, and Australia

Introduction

Many financial factors such as Value, Growth, and Profitability have been studied for decades as part of academic asset pricing studies and risk factor modeling research. **Financial Lens** helps you evaluate your portfolio based on critical and quantifiable investment factors like value, growth, profitability and more. Factors are quantifiable firm-level characteristics. Define the factors that are most important to you, and let **Financial Lens** calculate an overall portfolio grade, and show you how well specific assets align with your preferences.

How it Works

We provide eight factor pillars, each of which includes multiple “building block” sub-factors. The sub-factors are comprised of fundamentals data derived from top-tier, third-party provider Refinitiv. Offering reliability, broad global coverage, and transparency, this data is sourced from thousands of company and non-company resources, including annual reports, regulatory filings, trade blogs, industry publications and social media.

Browse through the Factor Pillars and their building-blocks. For factors that are meaningful, tag them as “Important” or “Very Important.” Suppose you indicate that “Value” is “Very Important” to you. **Financial Lens** will assign an alignment value (high, medium, or low) based on key factors, like the cost of the stock and the price-to-fundamentals ratios such as price-to-book earnings. Stocks that are less expensive and have lower price-to-fundamentals ratios will show a high alignment with the “Value” factor, while stocks that are more expensive and have higher price-to-fundamentals ratios will show a lower alignment.

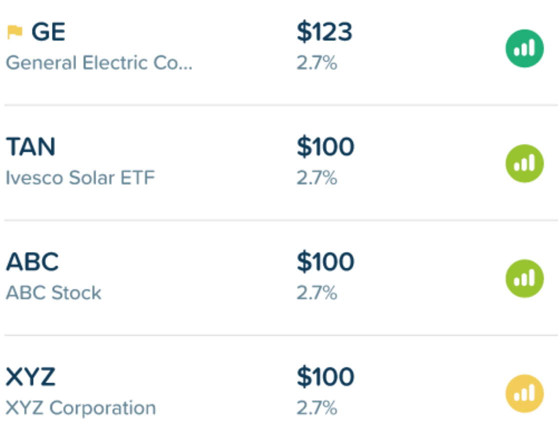
The tool will evaluate all stocks in your portfolio based on the factors you select, and provide both per-asset alignment levels and an overall portfolio grade, which is an assessment of how well your entire portfolio aligns with your preferences. You can see how well an asset aligns with both the Financial Factor (e.g. Value) as well as its associated sub-factors (e.g., Earnings-to - Price, Book-to-Price). In addition to Factors, **Financial Lens** also provides 'warning flags' to flag companies that exhibit unfavorable financial characteristics or engage in practices you prefer to avoid.

Scoring Methodology

Results from Financial Lens are tailored based on the financial preferences you select. We derive the Portfolio Financial Lens Score and Financial Alignment Effect score based on the underlying Financial sub-factors that align to a specific financial factor, such as Growth, Value, or Dividends. The process starts with defining a target benchmark. You do this when you set your preferences. A company's Financial Lens performance is measured against this benchmark to determine if it is exceeding your expectations (High), just meeting your expectations (Medium), or performing far below your expectations (Low) or. We call these levels of alignment the company's Financial Alignment Effect. Each company's Financial Alignment Effect and portfolio weight are factored to derive the Portfolio Financial Lens Score.

Financial Alignment Effect

At the security level, Financial Lens calculates the Financial Alignment Effect, which essentially indicates whether a company's alignment to your Impact Values is High (dark green chart), Medium (light green chart) or Low (yellow chart).
The Financial Alignment Effect is based on the level of importance you selected for each of your values along with the score of the security.



IB provides Impact scores for listed US and non-US stocks for which data providers have sent us financial subfactor data. See an example of Financial Alignment Effect on a set of securities within a portfolio in the image to the left.

Financial Factor and Sub-factor data from Refinitiv: As of this publication date (January 27, 2022), the universe of companies for which financial data is maintained and ESG scores are calculated consists of over 30,000 companies globally. Occasionally we won't have data for a company. In that case, Financial Lens will exclude that security from the analysis. To find the most up-to-date numbers, see **Global Coverage** at Refinitive Company Events Coverage.

Factors and Flags

The eight factor pillars used to calculate your Portfolio Grade and financial alignment levels per security include:

- Growth
- Value
- Dividend
- Profitability
- Financial Strength
- Momentum
- Analyst Rating
- Stability

See the table below for a description of each factor and its building blocks.

Factors & Sub-Factors

Growth	Companies that have historically had high earnings and sales growth relative to the market and/or their sector.
Earnings Per Share Change %	Calculated as the trailing 12-month EPS minus the trailing twelve-month EPS one year ago, divided by the absolute value of the trailing twelve-month EPS one year ago, multiplied by 100 and shown as a percent.
Revenue Change %	This is the percent change in the trailing twelve-month Sales as compared to the same trailing twelve-month period one year ago. It is calculated as the trailing twelve-month Sales minus the trailing twelve-month Sales one year ago divided by the trailing twelve-month sales one year ago, multiplied by 100.
EBITDA Growth Rate 5Y (TTM)	This growth rate is the compound annual growth rate of EBITDA over the last 5 years based upon trailing twelve-month data. NOTE: If the value for either the most recent year or the oldest year is zero or negative, the growth rate will not be calculated for this security. This value is only available for Industrial and Utility companies.

Value	Companies that historically tend to have high earnings to price, book to price, sales to price and cash-flow to price ratios, relative to the market and/or their sector.
Normalized Earnings to Price	This is the Normalized Earnings Per Share value for the trailing twelve months divided by Current Price.
Book to Price (TTM)	This is the Book Value Per Share for the trailing twelve months divided by Current Price.
Sales to Price (TTM)	This is the Sales Per Share for the trailing twelve months divided by Current Price.

Cash Flow Per Share to Price(TTM)	This is the current Price divided by Cash Flow Per Share for the trailing twelve months. Cash Flow is defined as Income After Taxes minus Preferred Dividends and General Partner Distributions plus Depreciation, Depletion and Amortization.

Dividend Payouts	Companies that have historically paid out high and sustainable dividend yield, relative to the market and/or their sector.
Payout Ratio (TTM)	This ratio is the percentage of the Primary/Basic Earnings Per Share Excluding Extraordinary Items paid to common stockholders in the form of cash dividends during the trailing twelve months. When payout ratio is higher than 1 it means that dividend payouts in the future may not be sustainable.
Dividend Yield (TTM)	This value is the current percentage dividend yield calculated as the Dividends paid per share to the primary common shareholders for the trailing twelve months divided by the current Price Close, multiplied by 100.

Profitability	Companies that have historically generated profit margins and produced attractive returns on investments, relative to the market and/or their sector.
Operating Margin (TTM)	This value measures the percent of revenues remaining after paying all operating expenses. It is calculated as the trailing 12 months Operating Income divided by the trailing 12 months Total Revenue, multiplied by 100. Operating Income is defined as Total Revenue minus Total Operating Expenses.
Net Profit Margin (TTM)	Also known as Return on Sales, this value is the Income After Taxes for the trailing twelve months divided by Total Revenue for the same period and is expressed as a percentage. NOTE: Most Banks and Finance companies do not report revenues when they announce their preliminary quarterly financial results in the press. When this happens, the trailing twelve-month value will not be available (NA).

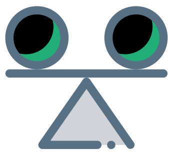
Return On Avg Equity (TTM)	This value is the Income Available to Common Stockholders for the trailing twelve months divided by the Average Common Equity and is expressed as a percentage. Average Common Equity is calculated by adding the Common Equity for the 5 most recent quarters and dividing by 5.
Return On Investment (TTM)	This value is the trailing twelve-month Income After Taxes divided by the average Total Long-Term Debt, Other Long-Term Liabilities and Shareholder's Equity, expressed as a percentage.

Financial Strength	Companies that have historically had low debt ratios and sufficient cash flow to pay bills and repay debt and outstanding liabilities, relative to the market and/or their sector.
Quick Ratio - LFI (TTM)	The Quick Ratio, also known as the Acid Test Ratio, is defined as Total Current Assets minus Total Inventory for the most recent interim period divided by the Total Current Liabilities for the same period. NOTE: This item is Not Available (NA) for Banks, Insurance companies and other companies that do not distinguish between current and long-term assets and liabilities.
LT Debt/Equity - LFI (TTM)	This ratio is the Total Long-Term Debt for the most recent interim period divided by Total Shareholder Equity for the same period. In general a high Debt/Equity ratio suggests higher riskiness.
Total Debt/Total Assets (LFY)	This ratio is the Total Debt for the most recent fiscal year divided by Total Assets for the same period. Total Debt is the sum of Short-Term Debt, the Current Portion of Long-Term Debt and Capitalized Lease Obligations, Long Term Debt and Capitalized Lease Obligations for the most recent fiscal year. In general a high Debt/Assets ratio suggests higher riskiness.

Analyst Rating	Companies that third-party analysts forecast to have an attractive upside compared to current price, relative to the market and/or their industry sector.
Percent Upside (Avg Target)	Percentage that the Average Price Target (the average of the analyst price targets we receive from Refinitiv) is above the current price.
Consensus Rank (Avg. Rating)	Average rating number across analysts. Refinitiv rating number range from 1 to 5 where: 1. Strong Buy 2. Buy 3. Hold 4. Underperform 5. Sell

NOTE: Analyst Rating is currently unavailable to clients of Interactive Brokers Canada Inc (IBC).

Momentum	Companies with attractive historical price returns over a three-, six- and 12-month timeframe, relative to the market and/or their industry sector.
Three-month price return	Percentage change in adjusted security price over a three-month period.
Six-month price return	Percentage change in adjusted security price over a six-month period.
12-month price return	Percentage change in adjusted security price over a 12-month period.



Stability	Companies that have historically shown low volatility and stable performance over time, relative to the market and/or their industry sector.
Volatility	It is calculated as the annualized standard deviation of daily returns over the past year. In general a high volatility number suggests higher riskiness.
Beta	Beta is a measure of a company's common stock price volatility relative to the market. Refinitiv Beta is the slope of the 60-month regression line of the percentage price change of the stock relative to the percentage price change of the local index. Beta values are not calculated if less than 40 months of pricing is available. in general a high Beta suggests higher riskiness.
Leverage	Average Total Asset of the most recent fiscal year divided by the average total equity for the same period. In general a high Leverage ratio suggests higher riskiness.
Liquidity (Volume)	Total number of shares traded during one month divided by shares outstanding. The higher the share turnover, the more liquid company shares are.
Market Cap (USD)	This value is calculated by multiplying the current Price by the current number of Shares Outstanding.

Performance

Please note that the current level of alignment with a factor is not indicative of future performance. For example, if **Financial Lens** shows high alignment with the Value factor, it does not follow that the portfolio will outperform the general broad market in the future. There are periods of time when a portfolio (e.g., Russell Value ETF) with higher exposure to the value factor outperforms the broad stock market (e.g., S&P 500 ETF), and other times when it underperforms.

This disclaimer applies to all of the factor pillars. For example, there will be periods of time when "stable" stocks like Apple and portfolios like the Russell Top 200 ETF (where alignment with the Stability factor is higher) outperform portfolios like Russell Microcap ETF (where alignment with the Stability factor is lower), and times when it will underperform.

In general it is difficult to predict under which exact conditions there will be outperformance/underperformance. However some factors tend to do well during certain macroeconomic conditions while others tend to do better during completely different periods. That said, as investors set investment objectives such as risk and return requirements, and then choose financial factors that align with their outlook on markets, it's paramount for them to understand how their stock and portfolio characteristics align with these financial factors. For example, if you are looking to generate income by purchasing dividend paying stocks, it would be useful to know whether that stock is in high, medium, or low alignment with the Dividend pillar.

Warning Flags

Choose 'warning flags' to identify companies that have unfavorable characteristics. For example, if you want to see which stocks are risky, selecting the 'High volatility' flag would identify those stocks in your portfolio that had experienced extreme price volatility in the past year. Details for the various flags are provided below.

Note that warning flags are informational only, and are not used to calculate your Portfolio Grade or individual asset alignment.

See the table below for descriptions of the warning flags.

High volatility	This flag identifies companies with extremely volatile daily returns over the past year, both in an absolute sense and also relative to the rest of the universe. Typically investors regard high volatility as being very risky.

Negative earnings	This flag identifies companies with negative earnings. When earnings per share is negative, it means the company is losing money.
Deteriorating profit margin	This flag identifies companies where Operating Margin for the most recent fiscal year is significantly lower than same ratio from the prior fiscal year, both in an absolute sense and also relative to the rest of the universe. This could mean that the company is losing its competitive edge.
Increased borrowing	This flag identifies companies where Debt to Total Assets for the most recent fiscal year is significantly higher than same ratio from the prior fiscal year, both in an absolute sense and also relative to the rest of the universe. All things being equal, an increasing debt-to-assets ratio is riskier for equity investors; debt holders often have seniority over company assets during bankruptcy.
Low cash buffer	This flag identifies companies where Quick Ratio for the trailing twelve months is low, both in an absolute sense and also relative to the rest of the universe. The Quick Ratio is used as a solvency metric to determine a firm's ability to pay down current liabilities with its cash, short term equivalents, and accounts receivables. A low Quick Ratio (typically less than 1) may mean that the firm is potentially having solvency issues.
Share dilution	This flag identifies companies where shares outstanding for the most recent fiscal year is significantly higher than the same metric from the prior fiscal year, both in an absolute sense and also relative to the rest of the universe. Existing shareholders usually dislike share dilution because their ownership stake decreases without them trading any stock.

Reduced dividends	This flag identifies companies whose cash dividends (as a fraction of market capitalization) for the most recent fiscal year are significantly lower than the same metric from the prior fiscal year, both in an absolute sense and also relative to the rest of the universe. Investors usually buy shares in dividend-paying companies for the regular dividend payments. A cut or halt in dividend payments affects the cash inflows of these investors. Investors assume that a company is reducing dividends because it is having cash flow problems. This could be the result of deteriorating business conditions, such as declining sales, rising expenses and falling profits.
Illiquid	This flag identifies companies whose market capitalization is less than 50 million USD, or whose monthly trading share volume (as a fraction of shares outstanding) is very low relative to the rest of the universe. In general investors tend to view illiquidity as a risk.
High accruals	This flag identifies companies with high positive accruals, both in an absolute sense and also relative to the rest of the universe. Accruals are the non-cash net income earned by a business as a result of accrual-based accounting. Businesses with large positive accruals generally have large non-cash earnings like sales on account that have not yet been paid by customers. Investors are wary of businesses that have large positive accruals over long periods of time.