



FACTOR PROFILE: QUALITY

Quality investment strategies are often focused on identifying companies that have a sustainable competitive advantage and/or have generated consistent shareholder value over time. Investing in quality companies has been established as an effective approach for a long time and has been shown to explain risk and return with a low correlation to other factors.

Quality is unlike other factors because its definition is very subjective. Academic researchers and industry practitioners tend to focus on profitability as a key measure of quality and there are multiple approaches within the profitability measure. Examples include academics like Robert Novy-Marx [2013], who defined profitability as the ratio of gross profits to assets, and Fama and French [2008], who use the ratio of EBIT to book value. Numerous others attempt to extend beyond a single profitability measure to include leverage and earnings stability as examples. These are just a few of the available measures, but they reflect the diversity of views on how quality is defined and suggests there may be multiple facets of quality that should be considered.

The quality phenomenon can be difficult to explain due to the variety of industry definitions used. In some ways, we see a relationship in the rationales for quality and low volatility. Namely, we see both behavioral and structural reasons for the presence of both factors. From a behavioral standpoint, investors show preferences for lottery ticket type stocks, which are typically characterized as low quality/high volatility stocks, and overpay for a small chance at winning a large payout. This preference leads to investors bidding up the price of low quality/high volatility stocks to the point they are bound to underperform. Structurally speaking, limits to leverage nudge risk-seeking investors towards lower quality (and higher volatility) stocks beyond what their intrinsic value would suggest.

Additional explanations suggest that investors tend to be too sanguine regarding their evaluation of companies' abilities to monetize empire building activities. Finally, we point out that quality strategies exploit investors' representative bias, which explains an attraction to stocks with strong headline earnings rather than sustainable profitability. Put another way, according to Novy-Marx [2014], quality strategies are "buying uncommonly productive assets" that can generate outperformance over time and are often overlooked.

¹ Relative to other factors. See "Factor Investing: Not Which, But When", Northern Trust Research Paper [2015].



INVESTOR PROFILE:

Lower risk tolerance

FACTOR APPLICATION:

Core position; Complementary to other factors

AVERAGE FACTOR CYCLE LENGTH:

Short; Multiple frequencies¹

OUR APPROACH TO FACTOR DESIGN

Simple factor definitions have the potential to create very large sector and regional biases in a portfolio. For example, in any universe a ranking of stocks by return on equity as a proxy for quality would show a natural concentration at the top in just a few regions and sectors, as well as a natural concentration at the bottom in just a few regions and sectors. We believe these concentrations are uncompensated over time because they add risk to the portfolio, but not necessarily return. Furthermore, factor definitions change among regions and sectors due to differing business models and accounting customs and regulations.

For the last 25 years, Northern Trust’s approach to defining factors has incorporated three primary elements:

Multidimensionality: Factor anomalies are very complex and strictly unobservable. As such, no single metric can hope to fully describe the anomaly. Our research shows that constructing factors using multiple metrics or signals that complement each other is a more robust way to capture the factor phenomenon.

Region and Sector Neutrality: To reduce biases inherent in naïve factor design, all Northern Trust factor strategies are region- and sector-neutral, with factors being ranked and scored in unique regional and sector combinations. This process limits the presence of unintended exposures that can become embedded in factor definitions that do not take this approach.

Region and Sector Specific Factor Definitions: In some instances the business models of sectors are so dissimilar they require different factor definitions. For example, one cannot use the same criteria to judge the quality of a REIT, a commercial bank, or an information technology firm. Similarly, accounting data among regions is inconsistent. For these reasons, Northern Trust’s factor definitions are customized to regional and sector needs, as appropriate.

OUR APPROACH TO QUALITY

Our approach to quality uses a multi-dimensional, sector-neutral, and sector-specific scoring method to capture various aspects of quality broadly categorized as management efficiency, profitability, and cash flow generation. Northern Trust’s quality approach has produced attractive risk adjusted long term results compared to other quality measures and has historically improved returns and lower risk when combined with other factor-based strategies.

VALUE	QUALITY	MOMENTUM	LOW VOLATILITY
Current Value	Management Efficiency	Market Sentiment	Asymmetric Risk
Normalized Value	Profitability	Analyst Sentiment	Fundamental Variability
Prospective Value	Cash Flow		Historical Volatility

Source: Northern Trust

FACTOR PROFILE: QUALITY

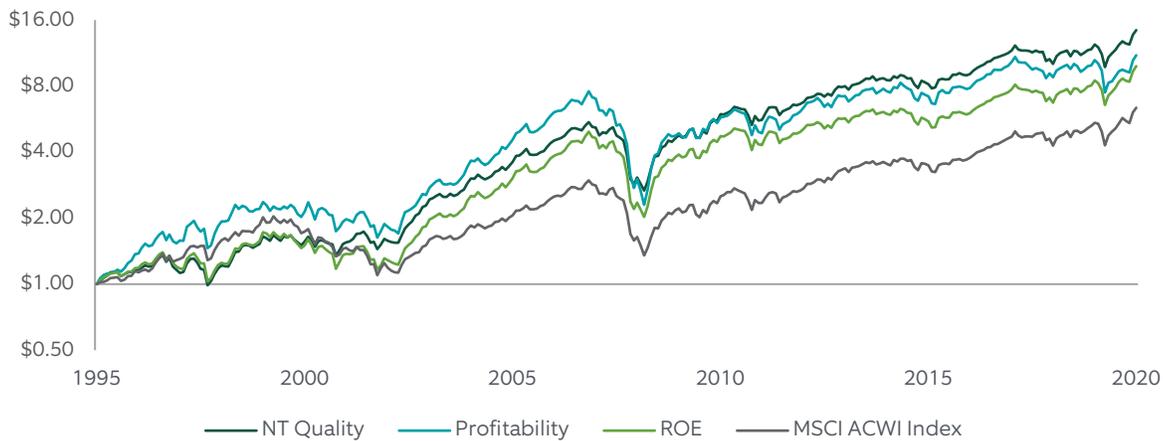
There are three sets of signals that comprise our proprietary quality factor: management efficiency, profitability, and cash flow generation signals.

Management efficiency signals help us evaluate whether the management team uses capital in a prudent and conservative manner. Our research and external studies (Titman, Wei, Xie [2004]) show that aggressive management can excessively deploy capital that is unlikely to deliver positive, incremental return and cash flow to shareholders. Examples of management efficiency signals are total asset growth and capital expenditures to depreciation.

Profitability signals are used to evaluate a company’s ability to turn capital into cash flow and bottom line earnings. Our research shows that firms that are more profitable than their competitors are more likely to deliver excess returns to shareholders, but no one measure of profitability is best. Examples of profitability signals include operating margin and return on invested capital.

Cash flow generation signals are used to identify companies that produce sufficient cash to meet their debt obligations and day-to-day liquidity needs, while sustaining or growing dividends. We prefer companies that generate liquidity internally and self-finance their capital needs, which is especially important during times when credit is expensive and/or difficult to acquire. An example of a cash flow signal is free cash flow to invested capital.

OUR RESEARCH AND SUPPORTING EVIDENCE:



Source: Northern Trust Quantitative Research. Cumulative performance (log scale) of the top 20% of stocks ranked by the quality measure. The research portfolios are equally weighted portfolios rebalanced monthly that are sector- and region-neutral. Period 12/31/1995 – 12/31/2020. Benchmark is the MSCI ACWI Total Return Index. “NT Quality” = Northern Trust proprietary definition, “Profitability” = profitability as defined by revenue-COGS, interest expense, and SGA/book equity, “ROE” = return on equity or net income/common equity. This graph does not show actual performance results. For illustrative purposes only. Past performance is not indicative or a guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index.

	Annualized Ret, %	Annualized Vol, %	Annualized Excess Return, %	Sharpe Ratio	Max Drawdown
NT Quality	11.26%	15.93%	3.57%	0.57	-51.2%
Profitability	10.09%	20.83%	2.40%	0.38	-69.7%
ROE	9.59%	17.77%	1.90%	0.42	-59.2%
MSCI ACWI Index	7.69%	15.64%		0.35	-54.5%

REFERENCES AND RELATED READING:

Hunstad, Michael and Robert Lehnherr. "Foundations in Factors." Northern Trust Research Paper (2019).
"What Is Quality", Northern Trust Asset Management Research Paper (2013).
Beneish, Messod D., Charles MC Lee, and Robin L. Tarpley. "Contextual fundamental analysis through the prediction of extreme returns." *Review of Accounting Studies* 6.2-3 (2001): 165-189.
Fama, Eugene F., and Kenneth R. French. "Dissecting anomalies." *The Journal of Finance* 63.4 (2008): 1653-1678.
Novy-Marx, Robert. "The other side of value: The gross profitability premium." *Journal of Financial Economics* 108.1 (2013): 1-28.
Novy-Marx, Robert. "Quality investing." Unpublished Results (2014).
Titman, Sheridan, KC John Wei, and Feixue Xie. "Capital investments and stock returns." *Journal of financial and Quantitative Analysis* 39.4 (2004): 677-700.
Daniel, Kent D. and Mota, Lira and Rottke, Simon and Santos, Tano, "The Cross-Section of Risk and Return," (2018).

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