

INTRODUCTION TO FACTOR INVESTING

DSP Quant Fund

(An open Ended Equity Scheme investing based on a quant model theme)

DSP

MUTUAL FUND

MAY 2019

What are Factors

Factors are the building blocks of investing. They are persistent drivers of long term excess returns that research has proven to be time tested across geographies and asset classes. Understanding how factors work can help investors to make more informed decisions to earn returns, reduce risk or diversify their portfolios. Factor strategies (also known as smart beta) today occupy a sweet spot between active and passive investing as well as providing the investors with the tools to express investment preferences and philosophies in a cost efficient manner.

What drives Factor returns

The excess long term returns associated with factors are explained by a number of economically sound reasons. The major reasons are given below:

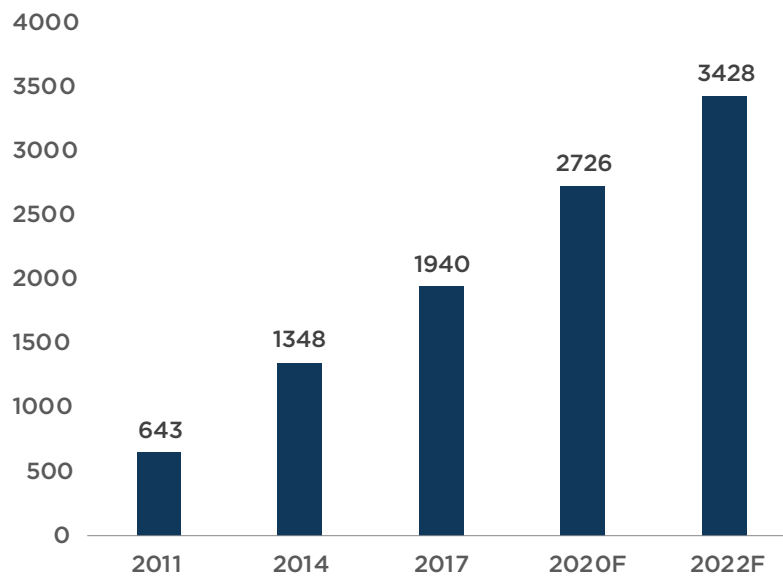
- Reward for higher risks
 - » For example, small cap companies whose businesses are inherently riskier than large established counterparts. Hence, investors would require a higher risk premium or return to invest in such companies
- Market inefficiency due to investor behavior, which tends to drive prices away from the intrinsic value
 - » For example, high growth or highly profitable companies are typically associated with a halo and investors are ready to overpay for them as they expect the high growth rates to persist long into the future. However, typically, competition, regulation, market saturation leads to growth rates reverting closer to the mean over time

Factor investing being increasingly adopted by investors

Factor investing has grown rapidly as more and more investors understand and adopt it into their portfolios to complement the traditional alpha and beta approaches. The advent of advanced quantitative techniques that allow factor exposures to be scientifically built into portfolios in a scalable, systematic, rule-based manner are also helping drive the growth of such strategies. Globally, there are several ETFs and mutual funds that offer such strategies to investors.

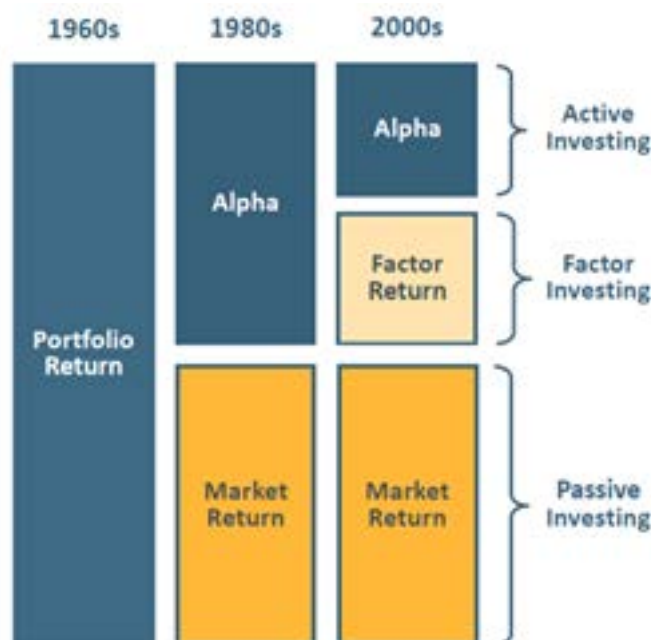
Industry trends such as shrinking alpha potential particularly in the large cap space, shift from plain market cap index into factors and high fees of actively managed funds are also driving growth of smart beta products, especially in developed markets. The AUM for factor based strategies is currently estimated at approx. USD 2 trillion and is expected to cross USD 3.4 trillion by the end of 2022 (Source: BlackRock)

AUM (Factor based Equity strategies, USD Bn)



Academic foundations and research on factors

Based on the capital asset pricing model, portfolio returns were traditionally attributed to passive market exposure (beta) and active portfolio management. In 1993, Fama & French extended upon the capital asset pricing model to identify two additional sources of return, namely size (outperformance of small-cap companies over large-cap companies and value (outperformance of low P/B stocks over high P/B stocks). In the 2000s, more factors were discovered such as momentum (outperformance of stocks that have upward price trends), minimum volatility (outperformance of stocks that have lower risk), quality (outperformance of financially healthy companies) etc. 2010s marked the rapid adoption of factor investing as well as research on multi-factor investing approaches.



Source: MSCI, Internal

Describing factors that are part of the DSP Quant Fund

Quality

The Quality factor is characterized by companies that have a durable business model with sustainable competitive advantage, are profitable and are better positioned to withstand economic downturns. The long-term outperformance of the quality factor against the market has been well documented in financial literature. The ability of these companies to deliver consistent earnings across business cycles helps them outperform over the long term as they are perceived to be well-run. Part of the outperformance can be attributed to their relative outperformance in times of market stress owing to the inherently defensive nature of these companies. Also, Quality companies seldom have excessive leverage and are hence less prone to financial distress. Typical descriptors used to measure quality are RoE, low leverage, low variability in earnings growth, high profitability etc. In recent years, growth in assets has also been used to assess quality as companies that have had excessive growth in assets have typically trailed the benchmark in performance because 'empire building' is perceived negatively by market participants and firms that have been conservative in terms of asset growth have been rewarded.

Growth

The Growth factor is characterized by companies that have grown their earnings at a faster clip and/or have better growth prospects than other companies in the relevant universe. These companies typically represent a sector in the economy that is growing faster than rest which could be the result of regulatory changes or structural tailwinds. It could also represent a new entrant in the space that is capturing market share from the incumbents. Since faster growth represents the opportunity for outsized returns, there is a return premium associated with these set of companies. However since most of the present value of the firm is derived from future cash-flows, marginal changes to the growth outlook can have drastic changes to current price making them more susceptible to changes in macroeconomic environment. Typical descriptors used to measure growth are sales growth, trailing or forecast EPS growth etc.

Value

The core thesis behind Value investing is that cheaply priced securities tend to outperform richly valued security over the long horizon. While there still is a lack of consensus within the investment community with regards to how to best capture 'Value', descriptors such as Price-to-Book, Price-to-Earnings, EV/EBIDTA, Dividend Yield and Free-Cashflow yield are the commonly used descriptors of Value. Proponents of the efficient market hypothesis explain the Value premium as being the reward for bearing higher risk typically associated with cyclical stocks or stocks that are going through some business challenges. Behaviorally, the excess returns from owning Value stocks can be attributed to market participants at times being irrationally pessimistic and thereby mispricing the security temporarily. Value companies typically have high leverage making them vulnerable to macroeconomic downturns and hence these companies usually underperform in times of market stress. In Value investing, it is important to beware of 'Value traps' or companies that are cheap for a reason and hence do not recover their valuations

How factors have worked in India

To test the performance of factors in the Indian context, using BSE 200 data starting 2002, we created 11 indices representing the most researched fundamental factors belonging to the broad factor themes of Value, Quality and Growth. These indices were created by selecting and overweighting companies displaying the highest exposure to that factor as measured through the chosen descriptor. For example, the single factor index for return on equity was created by choosing the highest RoE companies forming one-third or 33% of the BSE200 and re-balancing every quarter. This creates a 'Factor tilt' portfolio that

will be used to assess high RoE companies for their excess returns and risk characteristics. Similar process was followed for all 11 factors.

Factor	Descriptor	CAGR	Volatility (Std. Dev.)	Risk Adj. Return	Business Cycle
Growth	3 year historical EPS growth	14.7%	22.8%	0.64	Pro-Cyclical
Growth	5 year historical EPS growth	14.7%	23.7%	0.62	Pro-Cyclical
Growth	3 year forecast EPS growth	15.6%	24.0%	0.65	Pro-Cyclical
Quality	Return on equity	15.0%	20.4%	0.73	Defensive
Quality	Earnings growth variability	19.0%	21.6%	0.88	Defensive
Quality	Return on invested capital	15.2%	19.0%	0.80	Defensive
Value	P/B ratio	11.6%	27.0%	0.43	Pro-Cyclical
Value	Forward P/E ratio	13.6%	25.2%	0.54	Pro-Cyclical
Value	Dividend Yield	18.0%	22.8%	0.79	Neutral
Value	Free Cash Flow Yield	15.5%	25.1%	0.62	Pro-Cyclical
Value	EV/EBIDTA	12.6%	23.3%	0.54	Pro-Cyclical
Benchmark	BSE 200 TRI	13.2%	22.5%	0.59	-

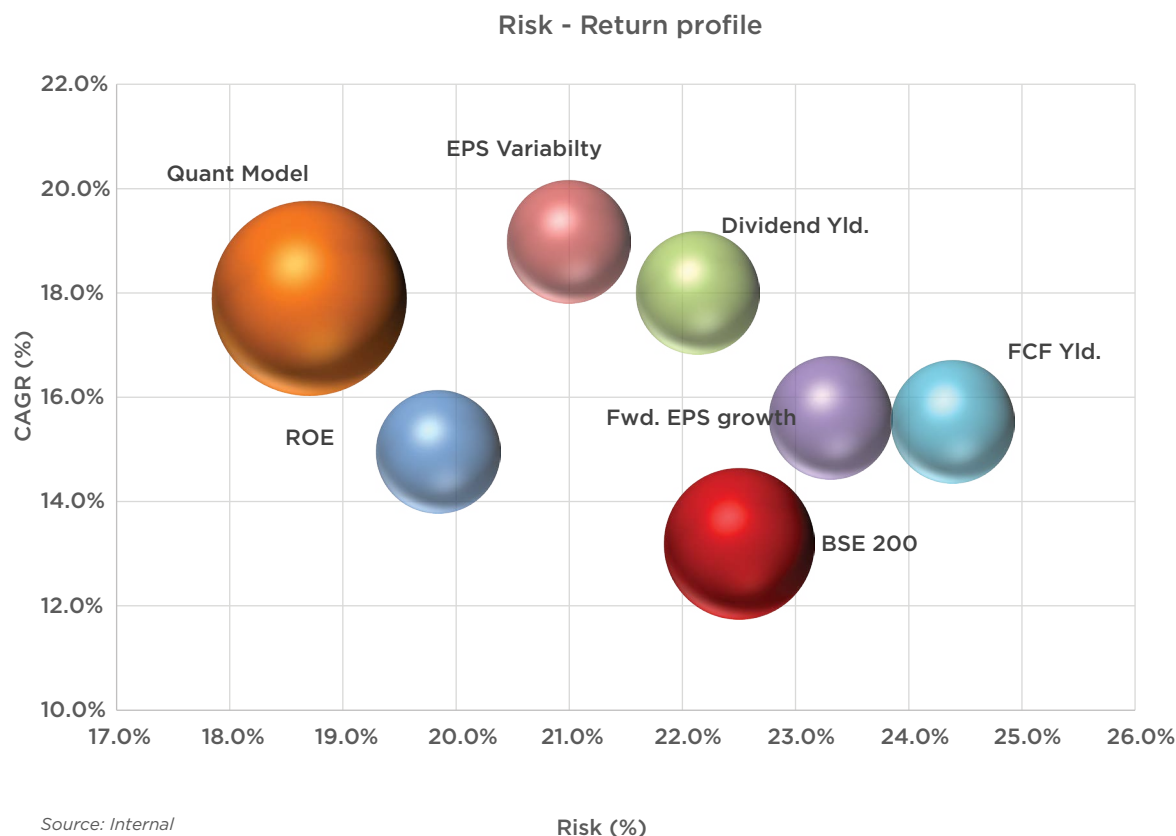
** Note: The performance numbers are total return series from 30-Sep-2005 to 31-Mar-2019. Factor portfolios are created using factor tilting approach representing portfolios having stocks displaying high values on the respective factor.*

Past performance may or may not be sustained in the future and should not be used as a basis for comparison with other investments. These figures pertain to performance of the factor and do not in any manner indicate the returns/performance of the Scheme.

To evaluate and short list the descriptors for the DSP Quant Fund, we considered their alpha potential, risk characteristics, pro-cyclical or defensive characteristics and correlation with each other. We short listed five descriptors that exhibit highest excess long term returns. While there is no exact scientific basis to five, the objective was to have a flavor of all the chosen factors of Quality, Growth and Value, to avoid unnecessary complexity and double counting of factors which offer limited diversification benefit because they are highly correlated with each other.

- **Alpha potential:** Long term excess returns over BSE 200
- **Risk characteristics:** Volatility, Risk-adjusted returns
- **Pro-cyclical or defensive characteristics:** We further drill down into factor return behavior by isolating monthly factor returns in ‘up’ markets and in ‘down’ markets. ‘Up’ markets are characterized by months in which BSE 200 returns were greater than 0% whereas down markets are characterized by months where the BSE 200 posted a negative total return. Factors that are ‘pro-cyclical’ tend to outperform during ‘up’ markets and underperform during ‘down’ markets. ‘Defensive’ factors provide protection on the downside but underperform in raging bull markets
- **Correlation across factors:** We also looked at active return correlations across factors. Modern portfolio theory suggests that fundamental factors with low correlations provide higher diversification benefit and improve portfolio risk adjusted returns. This also helps to eliminate double-counting of factors i.e. choosing multiple factors having similar characteristics. Using uncorrelated factors in portfolio construction also avoids unwanted sector concentration.

Factors considered in DSP Quant Fund



* Note: The performance numbers are total return series from 30-Sep-2005 to 31-Mar-2019. Quant model returns are net of (fees and impact costs to the tune of 3%) other returns are gross.

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Factor Cyclicity - The case for a Multifactor approach

Consistent with research findings in other markets, factors in India also demonstrate excess long term returns. However, individual factors go through phases of outperformance and underperformance over a business cycle which could persist for several years. For a more balanced performance across cycles, our preference was for a multifactor strategy that has a mix of 'pro-cyclical' and 'defensive' factors. Our descriptor selection is also influenced by this fact. Hence, DSP Quant Fund has a mix of Quality, Growth and Value investing styles.

Factor performance and business cycles

Analysis of macroeconomic regimes suggests that in early stages of expansion in the business cycle, also popularly called the 'Goldilocks' phase, Growth companies tend to outperform as the economy is coming out of a trough and inflation is subdued.

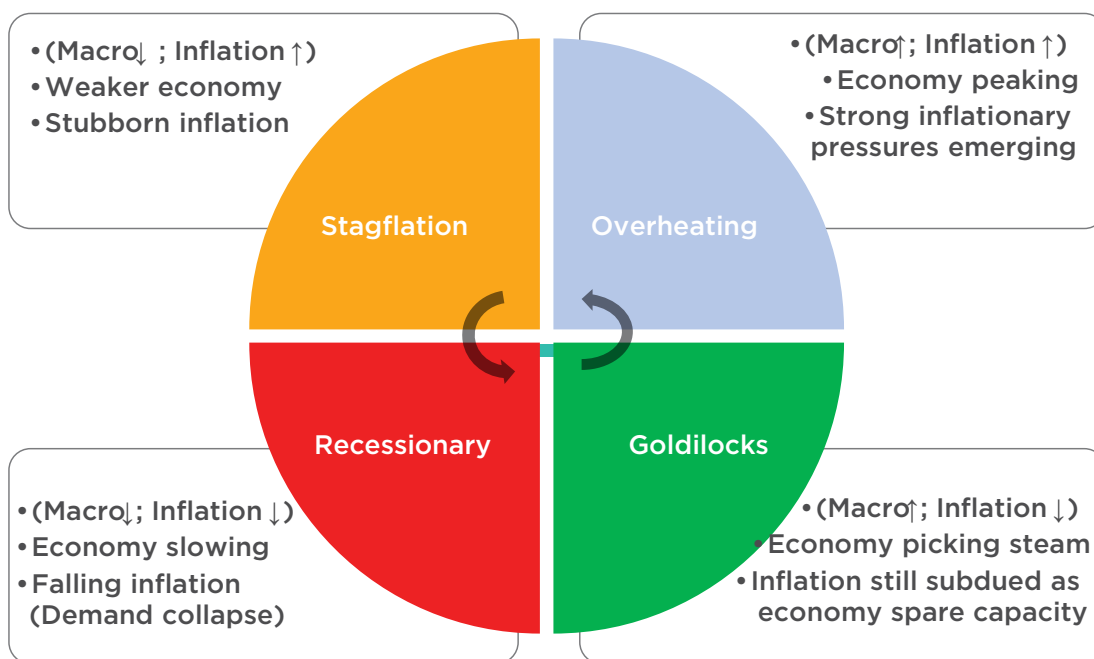
In the late stages of the expansion cycle called the 'Overheating' phase, companies with high operating

leverage outperform as idle capacity is put to use helping such companies improve margins and profitability. As a result Value companies tend to outperform the market.

As central banks embark upon raising interest rates in order to cool an overheating economy, interest costs rise, profits shrink and demand fumbles. In this stage, called ‘Stagflation’, market participants prefer the comfort of sectors that are less susceptible to market downturns and have high earnings visibility. As a result, ‘Quality’ companies tend to outperform in this economic phase.

When the economy is in a full-blown recession, there is a collapse in aggregate demand and as a result investors flock to low-beta sectors/stocks with low correlation to economic prospects of the country to cushion the brunt of the market fall helping the ‘Quality’ factor outperform again.

Macroeconomic regimes



Sources: OECD, Factset

Factor performance in various Macroeconomic regimes

	Goldilocks	Overheating	Stagflation	Recessionary
Growth	31.7%	39.4%	-3.4%	-2.1%
Quality	24.5%	35.6%	3.5%	0.2%
Value	21.6%	44.7%	-3.7%	-2.2%
Quant Model	30.4%	39.2%	3.7%	-0.2%
BSE 200	24.7%	39.2%	-3.4%	-5.8%

Source: OECD, Internal, Factset

Growth descriptors: 3 year forecast EPS growth

Quality descriptors: Return on equity and Earnings growth variability

Value descriptors: P/B, P/E and Dividend Yield

Factor timing

To potentially further enhance the returns of a multi-factor strategy, a dynamic factor-weighting scheme can also be employed to tilt portfolios towards the factors that are expected to outperform in the current economic regime and away from factors that are expected to underperform. While factor timing has the potential to enhance returns it also introduces additional complexity to the model. As institutional investors increasingly start accounting for macroeconomic conditions in their asset allocation framework, such models can help them in equity allocation decisions.

Product Labelling

DSP Quant Fund

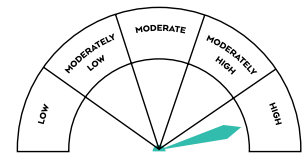
(Open Ended Equity Scheme investing based on a quant model theme)

This open ended equity Scheme is suitable for investors who are seeking*

- Long term capital growth
- Investment in active portfolio of stocks screened, selected, weighed and rebalanced on the basis of a pre-defined fundamental factor model

* Investors should consult their financial advisers if in doubt about whether the Scheme is suitable for them.

Riskometer



Investors understand that their principal will be at high risk

NFO Period: May 20, 2019 to June 03, 2019

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