IISL
India Index Services & Products Ltd.

NIFTY100 Low Volatility 30 Index

“Lower risk need not necessarily mean lower returns”

June 2017

Introduction:

In an environment of sustained uncertainty and stormy markets, investors typically grapple with a common question – how can one potentially reduce market risk while maintaining long term return benefits that equity generally provide? That's like having best of two worlds – high returns but with low risk. Introducing the NIFTY100 Low Volatility 30 Index – a focused equity index that tracks performance of 30 least volatile companies in the NIFTY 100 Index. The low volatility index, in back-tested results, has given higher risk adjusted returns as compared to NIFTY 100 – its parent index, over longer time horizons. Low-volatility investing has lot of popularity within the investment community. It works on the idea that low-volatility stocks cushion the potential damage during any sudden market downturn due to any catastrophic event. The prospect of achieving higher returns without taking the comparable risk associated with traditional market cap weighted strategies is one of the prominent reasons that low volatility based factor investing is gaining popularity globally. The asset under management of funds on low volatility strategy currently stands in excess of $40 Bn. USD globally. The higher historical returns of low-volatility index strategy is however a puzzle as it is apparently at odds with one of the most basic principles in finance: that higher volatility is typically associated with higher returns. According to the highly celebrated single factor pricing model – the Capital Asset Pricing Model (CAPM), one should not expect a long-term premium for taking less risk than the market as a whole. NIFTY100 Low Volatility 30 index strategy has defied this principle – at least in historical performance.

About the NIFTY100 Low Volatility 30 Index

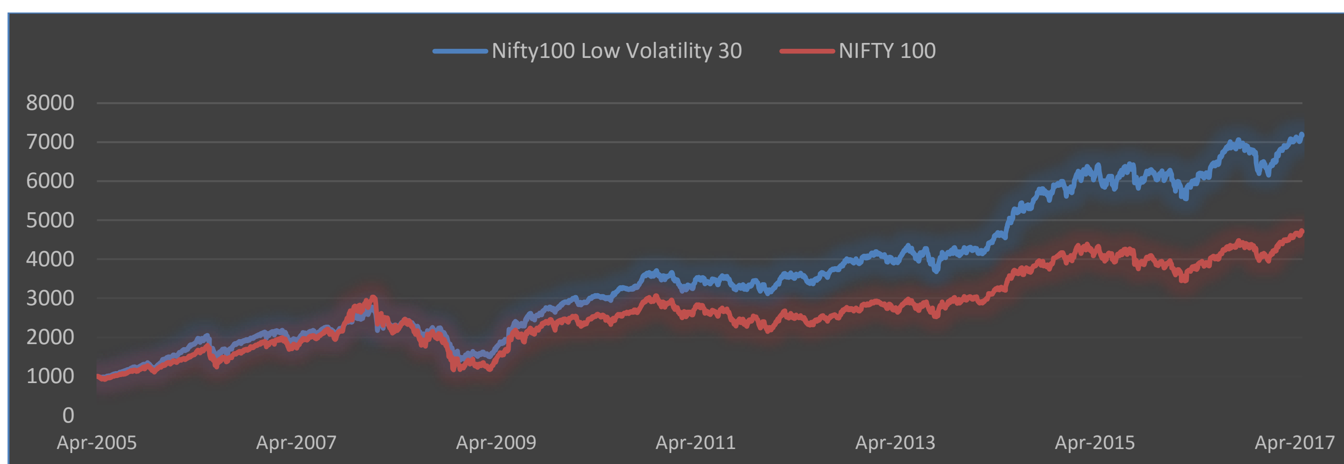
The NIFTY100 Low Volatility 30 index measures performance of the 30 least volatile stocks in the NIFTY 100. Volatility is measured as standard deviation of stock returns over a one year period. Constituents are weighted relative to the inverse of their corresponding volatility, with the least volatile stocks receiving the highest weights. The Index is designed to serve as a transparent benchmark for minimum volatility equity strategies.

Highlights

- The index has a base date of April 01, 1995 and a base value of 1000
- Index aims to measure the performance of the 30 low volatile stocks form large cap segment which are the constituents of NIFTY 100 Index.
- The selection of securities and its weights in NIFTY100 Low Volatility 30 are based on previous 1 year volatility.
- In order to make the index replicable for passive products, weightage of the stocks with low turnover has been capped at 3%

The NIFTY100 Low Volatility 30 index has achieved higher risk-adjusted returns as compared to traditional market capitalization based strategies.

The below table and graph shows the historical price return index performance of NIFTY100 Low Volatility 30 index along with that of its parent index - NIFTY 100.



	Annualized Returns		Annualized Volatility		Return to Risk Ratio	
Period	**NIFTY100 Low Volatility 30**	**NIFTY 100**	**NIFTY100 Low Volatility 30**	**NIFTY 100**	**NIFTY100 Low Volatility 30**	**NIFTY 100**
Since April 2005	17.7%	13.7%	18.9%	23.5%	0.94	0.58
10 years	13.1%	9.3%	18.0%	23.5%	0.73	0.40
7 years	13.1%	9.1%	13.1%	16.2%	1.00	0.56
5 years	14.9%	13.4%	13.1%	15.0%	1.14	0.90
3 years	16.1%	13.5%	13.3%	14.7%	1.21	0.92
1 year	17.0%	21.2%	11.1%	12.1%	1.53	1.75
6 months	5.5%	8.4%	11.5%	12.4%	0.48	0.68
3 months	8.0%	9.4%	7.4%	8.7%	1.09	1.08

**As on April 30, 2017*

While not indicative of future performance, the NIFTY100 Low Volatility 30 Index outpaced its parent NIFTY 100 Index by a cumulative 4.0 percent per annum since its launch in April 2005. This is in spite of witnessing a significantly lower standard deviation at 18.9% as against 23.5% of the parent index over the same period. This implies that the low volatility index has provided better risk adjusted returns than NIFTY 100 for longer investment horizons. Even in previous 3 month period where NIFTY100 Low volatility 30 has given lower absolute returns, the return to risk ratio still stands at 1.09 comparable to 1.08 of NIFTY 100.

Calendar Year Returns			Calendar Year Volatility	
Year	NIFTY100 Low Volatility 30	NIFTY 100	NIFTY100 Low Volatility 30	NIFTY 100
2005*	50.2%	35.8%	15.7%	16.8%
2006	41.2%	38.0%	26.5%	26.3%
2007	29.4%	57.5%	20.4%	25.1%
2008	-43.3%	-53.7%	33.6%	44.5%
2009	89.8%	82.7%	24.1%	34.4%
2010	23.5%	17.9%	11.0%	16.0%
2011	-13.3%	-25.8%	14.4%	20.3%
2012	29.8%	30.6%	11.2%	15.1%
2013	4.9%	6.5%	15.0%	17.7%
2014	34.8%	33.2%	12.2%	13.0%
2015	8.1%	-2.4%	14.4%	16.1%
2016	1.4%	3.6%	13.4%	15.2%
2017#	12.7%	15.2%	8.3%	9.2%

**since April 1, 2005. #as on April 30, 2017*

Analysis of calendar year performance highlights the fact that not only low volatility strategy performs well in bear market but also in the recovery phase of the equity market.

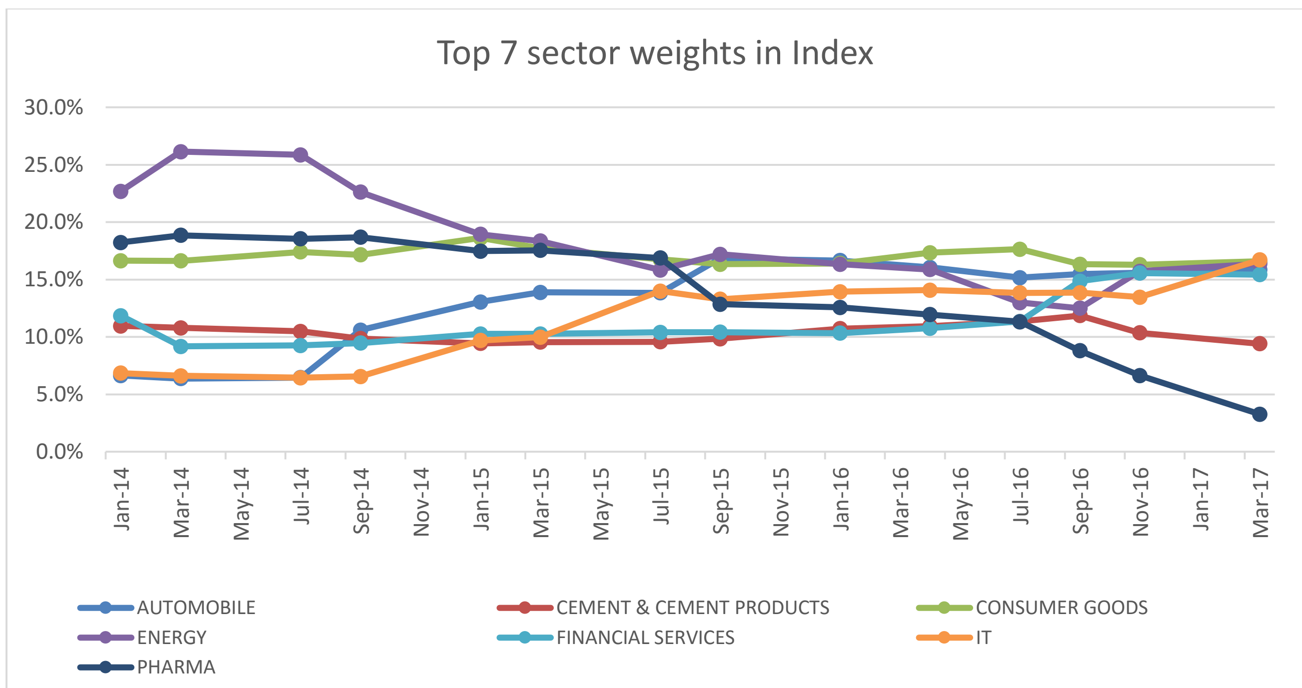
During the sub-prime crisis of 2008, NIFTY100 Low Volatility 30 fell 10.4% lesser than NIFTY 100 with 10.9% lower volatility. Similarly in 2011, NIFTY100 Low Volatility 30 fell 12.50% lesser than NIFTY 100 with 6.0% lower volatility.
In recovery year of 2009, low volatility index gave higher returns with substantially lower volatility. The return to risk ratio for NIFTY100 Low Volatility 30 index is 3.72 for 2009 in comparison to 2.40 of NIFTY 100.

For a prudent investor, who is not only conscious about returns but equally about risk adjusted returns, the low volatility strategy may be appealing.

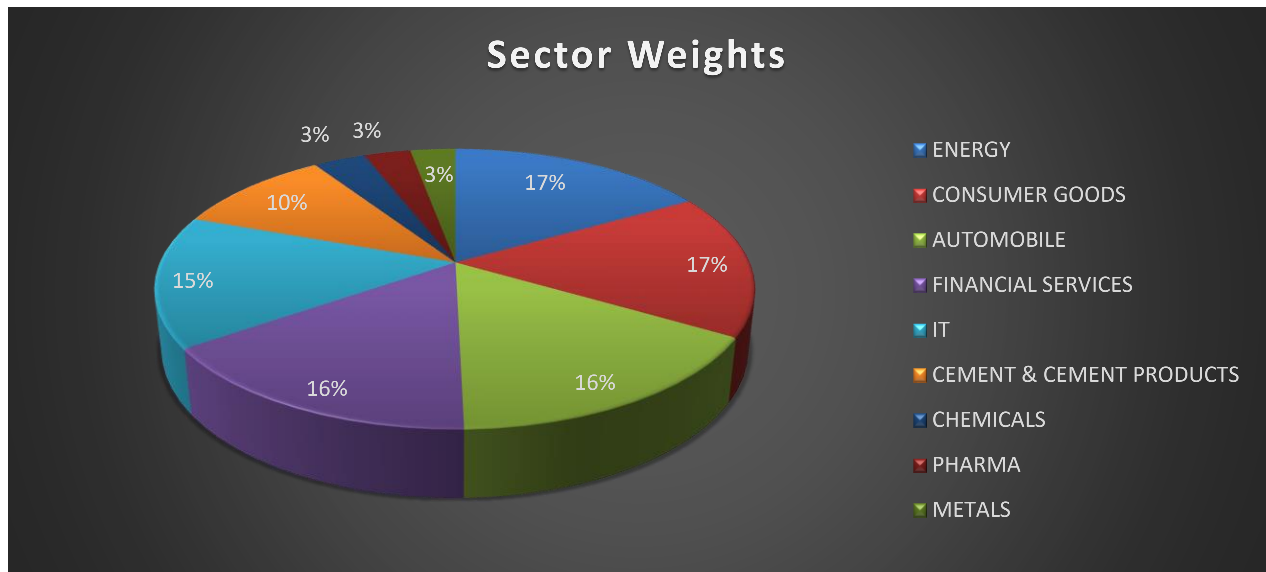
The NIFTY100 Low Volatility index 30 witnesses higher weight diversification resulting in low portfolio concentration risk

Constituent weight of NIFTY100 Low Volatility 30 index is based on inverse of individual stock volatility. This removes the bias towards large cap stock, which is typically present in a traditional market capitalization weighted index strategy. It has been observed that the weights of stocks based on volatility results in more evenly distributed weight pattern since volatility factor scores have relatively less variation. Since inception, average weight of the stocks ranges between 2.29% to 5.18% with average weight being 3.33%. Such uniform distribution of weights ensures lower stock concentration risk.

Sector exposures within the index are also well-diversified. Since inception, 6 sectors have over 10% average weight, with Energy and Pharma having highest weights at 17.4% and 16.0% respectively. The figure below shows the movement in the sector weights within the index.



*Sector weights effective immediately after every rebalancing is considered



*Weight are 6 month average ending April 2017

Currently Energy, Consumer Goods, Automobile, Financial services and IT are the top 5 contributing sectors in the index and the fact that weight of these sectors are in the range of 15-17% further highlights the sector-diversification in NIFTY100 Low Volatility Index 30.

The NIFTY100 Low Volatility 30 index has portfolio construction rules that make the index easy to replicate

In order to ensure easy replication of the NIFTY100 Low Volatility 30 index, only stocks eligible for having derivatives contract are selected in the index. Further the weight of stocks having 6 month average turnover lesser than the stock with the lowest 6 month average turnover in NIFTY 50 Index are capped at 3% each.

A hypothetical Rs 1000 Mn. investment in NIFTY100 Low Volatility 30 can be created in a single day by buying in the range of 0.08% to 16% of the average daily trade value of the index constituents. This allows the fund manager to maintain a lower tracking error vis-à-vis the index since the money can be deployed relatively quickly.

Signing off…

The bottom-line is that each index strategy has its unique strengths and limitation. There can seldom be a single investment strategy that would outshine other strategies consistently in all market conditions. If we believe markets are informationally efficient and thus beating the market is difficult in long run, then traditional market capitalization based index strategies are expected to outperform others. However, if we believe that markets may not necessarily be informationally efficient in practice and that there are opportunities available to exploit pricing discrepancies based on certain risk factors (say volatility), then alternative index strategies like low volatility may outperform, especially during turbulent times.

Low volatility factor is one of the few factors that have performed well during turbulent markets, providing capital protection when it is needed most. It continues to remain an anomaly as it has produced better-than-market returns over long time periods while offering less risk. Using 12 years of available data as well as the 1 years of history since the index has been live, the index has produced considerably lower volatility than the market, behaved defensively in market downturns and outperformed the market during these periods. Over the long term, this index has generated superior performance, benefiting from the low volatility premium. The analysis of NIFTY Low volatility 30 shows that index not only provides higher risk adjusted returns but has also given higher absolute returns in several periods than traditional Mcap based indices. When this is clubbed with the fact that NIFTY100 Low Volatility 30 has lower stock and sector concentration risk, the index becomes an ideal passive investment tool for prudent investors who are concerned about risk-adjusted returns.

For information on Index methodology and factsheet, please visit us at www.nseindia.com

About India Index Services & Products Ltd. (IISL):

India Index Services & Products Ltd. (IISL), a subsidiary of NSE, was setup in May 1998 to provide a variety of indices and index related services for the capital markets. IISL focuses upon the index as a core product. IISL owns and manages a portfolio of indices under the NIFTY brand of NSE, including the flagship index, the NIFTY 50. IISL equity Indices comprises of broad-based benchmark indices, sectoral indices, strategy indices, thematic indices and customised indices. IISL also maintains fixed income indices based on Government of India securities, corporate bonds and money market instruments. Many investment products based on IISL indices have been developed in the recent past, within India and abroad. These include index based derivatives traded on NSE, Singapore Exchange Ltd. (SGX), Chicago Mercantile Exchange Inc. (CME), Osaka Exchange Inc. (OSE), Taiwan Futures Exchange (TAIFEX) and a number of index funds and exchange traded funds. The flagship 'NIFTY 50' index is widely tracked and traded as the benchmark for Indian Capital Markets.

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