NSE Indices

NIFTY 50

WHITE PAPER

SERIES #13

NIFTY Dynamic Asset Allocation Index Series

Employs dynamic asset allocation
strategy based on market valuation

September 2018

Introduction

It's often said that cricket is a game of uncertainties. The rule of 'one size fits all' doesn't always work. The game tests the mettle of the players during various phases. The game demands batsmen to 'take the bull by its horns' when bowlers run the show and make merry when the situation turns favorable. Best players are the ones that can adapt to any situation and use it to their advantage.

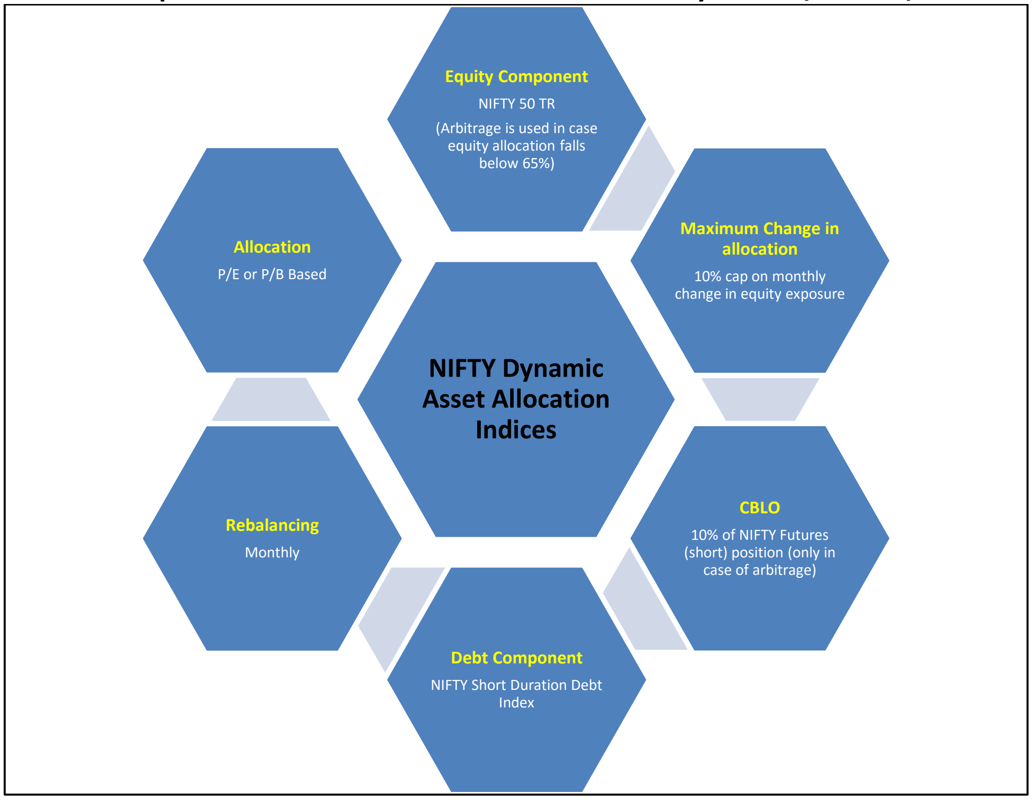
Similar to the game of cricket, in unpredictable environment in capital markets, investors are often grappled with a common question – how can one potentially sail through various phases of uncertainty? Right asset allocation strategy often plays a critical role in achieving this. Asset allocation revolves around finding the right balance between various asset classes such as Equity (which has the potential to generate higher returns with higher risk) and Fixed Income (with relatively lower risk and range bound returns).

The new NIFTY Dynamic Asset Allocation index series (NIFTY DAA) presently offers two new products viz. NIFTY 50 & Short Duration Debt – Dynamic P/E index & NIFTY 50 & Short Duration Debt – Dynamic P/B index. With their dynamic and rule-based asset allocation mechanism, these indices are designed to tactically combine 'best of two worlds' (Equity and Debt). The unique asset allocation model cuts exposure to equity when markets turn expensive and accordingly assigns higher weight to debt, thereby seeking to limit downside risk. Similarly, the design of the model is intelligent enough to align higher weight towards equity when markets turn relatively cheaper, offering higher potential upside. Thus, NIFTY Dynamic Asset Allocation indices present an ideal fit for investors desirous of stable risk-adjusted returns and are suited for benchmarking needs of Dynamic Asset Allocation funds.

About NIFTY Dynamic Asset Allocation Indices

The NIFTY Dynamic Asset Allocation Indices individually capture the performance of hybrid portfolios where asset is allocated among NIFTY 50 TR Index (equity component), NIFTY Short Duration Debt index (debt component), NIFTY 50 TR Index with Short NIFTY 50 Futures index (Arbitrage component) and CBLO based on Price-Earnings ratio (P/E) or Price-Book ratio (P/B) of NIFTY 50.

Exhibit 1: Aspects of NIFTY 50 & Short Duration Debt – Dynamic P/E and P/B Indices



The NIFTY Dynamic Asset Allocation Indices presently consist of 2 indices namely NIFTY 50 & Short Duration Debt – Dynamic P/E index and NIFTY 50 & Short Duration Debt – Dynamic P/B index. Within these indices, asset allocation between equity and debt is based on either Price-Earnings ratio (P/E) or Price-Book ratio (P/B) of NIFTY 50 index.

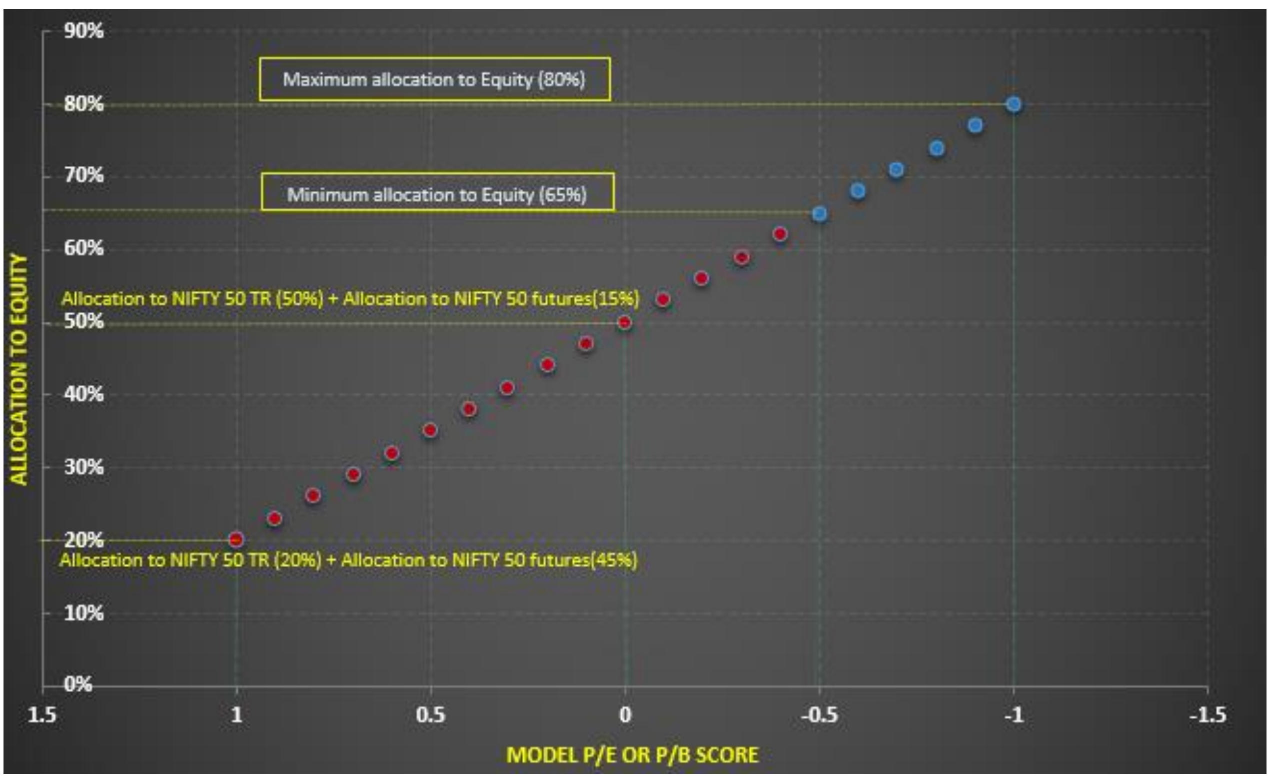
Exhibit 2: Asset Allocation rationale for NIFTY Dynamic Asset Allocation Indices

Scenario	Asset Allocation
Market is relatively expensive	*Lower allocation to Equity (Higher allocation to Debt)*
Market is relatively cheaper	*Higher allocation to Equity (Lower allocation to Debt)*

Asset Allocation rules:

- Equity allocation (NIFTY 50 TR) is determined by an asset allocation model which compares the current value of P/E or P/B of NIFTY 50 with the average, maximum and minimum P/E or P/B of NIFTY 50 in previous 7 years
- Maximum allocation to equity component is 80% and minimum allocation is 65% including arbitrage
- In case, the model prescribes an allocation to equity that is lower than 65%, the equity arbitrage is used to maintain the equity allocation at 65%. Arbitrage is done by giving equal allocation to Long NIFTY 50 TR index and Short NIFTY 50 Futures index
- Remaining allocation is given to debt component (NIFTY Short duration debt index), hence maximum allocation to debt (including CBLO) component is 35% and minimum allocation is 20%
- In case arbitrage is used, 10% of the asset allocated to NIFTY 50 Futures index (short) is allocated to NIFTY 1D Rate index (CBLO component) in order to capture the margin requirement
- The asset allocation in the index is rebalanced on a monthly basis
- The month over month change in allocation to equity component (NIFTY 50 TR, excluding arbitrage component) by asset allocation model at the time of rebalancing is capped at 10%

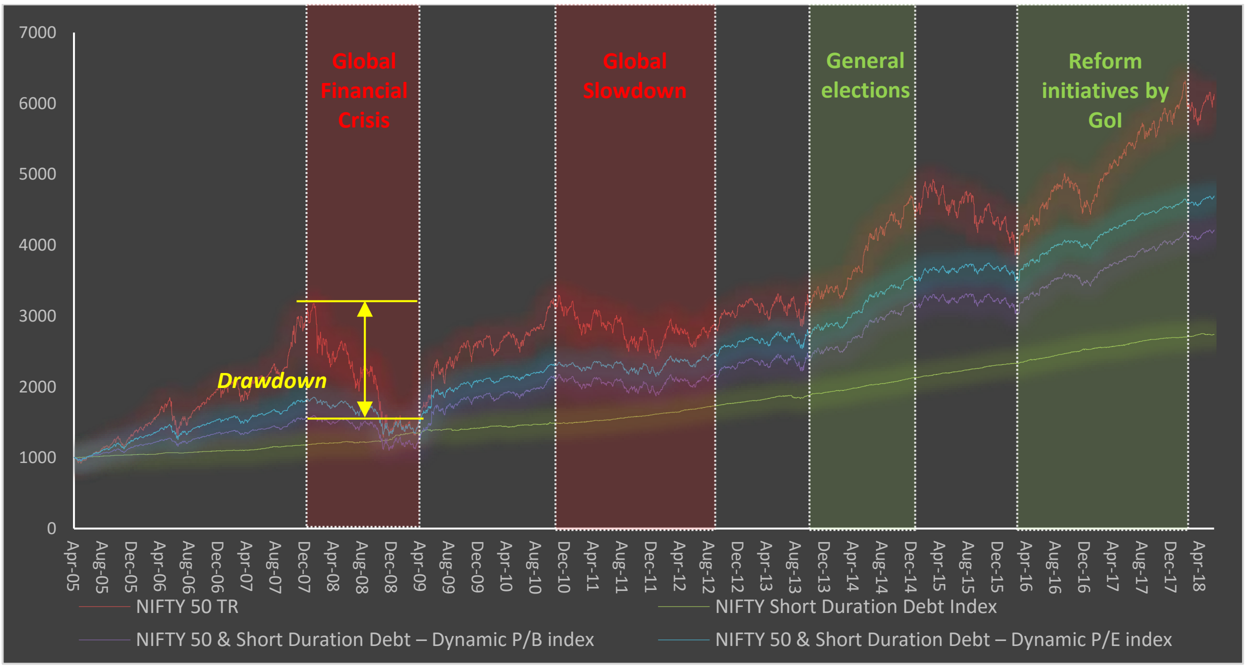
Exhibit 3: Allocation between equity and debt components depending on comparative ratio



NIFTY Dynamic Asset Allocation Indices achieved higher risk-adjusted returns and witnessed lower drawdowns during phases of market downturn

Exhibit 4 below shows the performance of NIFTY Dynamic Asset Allocation Indices vis-à-vis NIFTY 50 TR & NIFTY Short Duration Debt Index.

Exhibit 4: Benchmarked performance comparison of NIFTY Dynamic Asset Allocation Indices vis-à-vis NIFTY 50 TR & NIFTY Short Duration Debt Index



Drawdown refers to the peak to trough decline during a specific period of investment. It is reported as the drop from peak to subsequent trough in percentage terms. *(Indicated in Exhibit 4 above*). For instance in calendar year 2008, NIFTY 50 & Short Duration Debt – Dynamic P/E index dropped from peak value of 1519.7 on August 11, 2008 to trough of 1098.5 on November 20, 2008 and hence the drawdown for the calendar year 2008 is -27.7%.

Exhibit 5: Calendar year-wise drawdowns of NIFTY 50 TR and NIFTY Dynamic Asset Allocation Indices

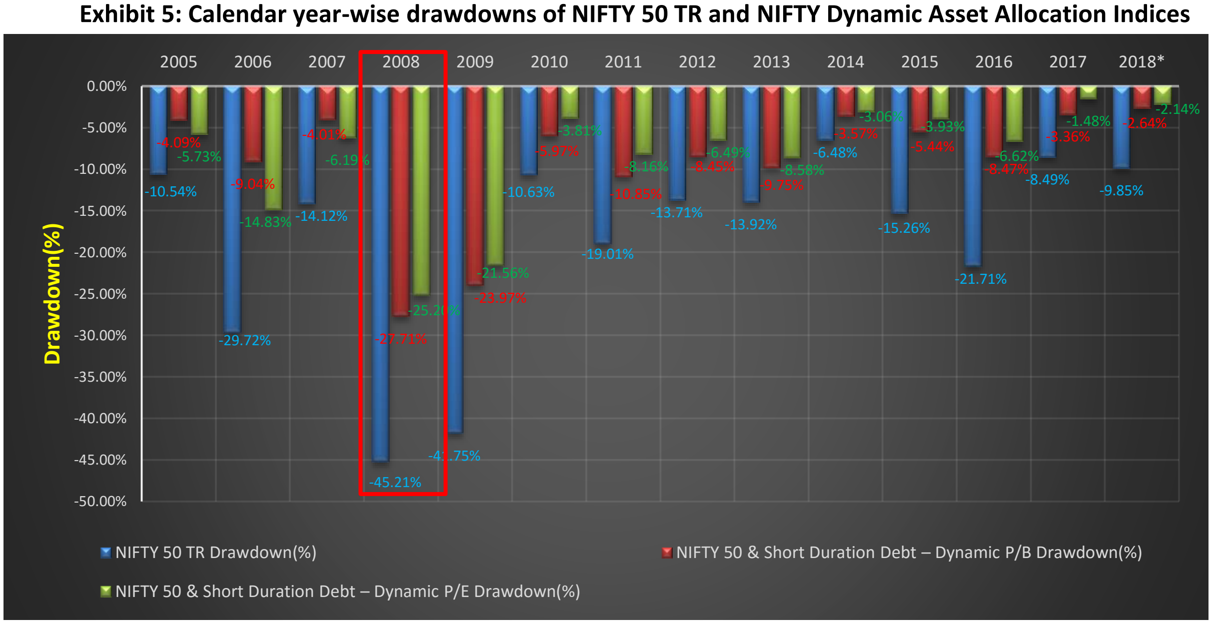


Exhibit 5 above shows the calendar year-wise drawdowns of NIFTY Dynamic Asset Allocation Indices and NIFTY 50 TR. Highest drawdowns recorded by NIFTY 50 & Short Duration Debt – Dynamic P/E index and NIFTY 50 Dynamic Short Duration Debt - P/B indices were -25.2% & -27.7% respectively during financial crisis of 2008 as against -45.2% of NIFTY 50 TR observed during the same period. Similar instance is also observed during slowdown of 2011 when NIFTY Dynamic Asset Allocation indices fell lesser than NIFTY 50 TR. On overall basis, out of 14 calendar years, NIFTY Dynamic Asset Allocation indices recorded lower drawdowns compared to NIFTY 50 TR in all instances indicating relatively robust performance of NIFTY Dynamic Asset Allocation indices during periods of market correction/downturn.

Exhibit 6: Annualized returns, volatility and return-risk ratio of NIFTY 50 TR, NIFTY Short Duration Debt Index and NIFTY DAA indices

Period	Annualized Returns				Annualized Volatility				Return - Risk Ratio			
	NIFTY 50 TR	NIFTY Short Duration Debt Index	NIFTY 50 & Short Duration Debt – Dynamic P/B index	NIFTY 50 & Short Duration Debt – Dynamic P/E index	NIFTY 50 TR	NIFTY Short Duration Debt Index	NIFTY 50 & Short Duration Debt – Dynamic P/B index	NIFTY 50 & Short Duration Debt – Dynamic P/E index	NIFTY 50 TR	NIFTY Short Duration Debt Index	NIFTY 50 & Short Duration Debt – Dynamic P/B index	NIFTY 50 & Short Duration Debt – Dynamic P/E index
Since inception	15.2%	8.0%	11.6%	12.5%	22.5%	2.2%	11.9%	10.9%	0.68	3.65	0.98	1.14
10 years	11.7%	8.6%	11.4%	11.0%	20.7%	2.3%	12.9%	10.9%	0.57	3.69	0.89	1.01
7 years	14.3%	8.6%	12.1%	11.8%	14.9%	1.5%	8.9%	7.5%	0.96	5.60	1.35	1.56
5 years	17.8%	8.7%	14.0%	13.3%	13.7%	1.3%	7.5%	6.3%	1.30	6.52	1.87	2.13
3 years	15.1%	7.4%	10.8%	9.8%	12.3%	1.3%	6.2%	4.9%	1.23	5.63	1.73	1.99
1 year	19.4%	4.9%	11.0%	8.8%	10.1%	0.8%	3.7%	2.8%	1.91	6.17	2.96	3.12

**As on August 31, 2018*

Note: Returns for more than 1 year are CAGR returns

Exhibit 6 above captures the annualized returns, volatility and return-risk ratio of NIFTY Dynamic Asset Allocation Indices, NIFTY 50 TR & NIFTY Short Duration Debt Index. NIFTY Dynamic Asset Allocation Indices registered higher return-risk ratio in comparison to NIFTY 50 TR across all investment horizons on account of much lower volatility (highlighted in 'green' in Exhibit 6). Whereas, NIFTY Short Duration Debt Index has delivered higher return-risk ratio in comparison to NIFTY Dynamic Asset Allocation Indices, the returns of NIFTY Short Duration Debt Index are lower across all investment horizons amid lower volatility. Thus, NIFTY Dynamic Asset Allocation Indices, with their unique market valuation linked asset allocation design, represent an ideal fit between equity and debt assets.

Exhibit 7: Calendar year returns and volatility of NIFTY Dynamic Asset Allocation Indices, NIFTY 50 TR and NIFTY Short Duration Debt Index

	Calendar Year Returns				Calendar Year Volatility			
Year	NIFTY 50 TR	NIFTY Short Duration Debt Index	NIFTY 50 & Short Duration Debt – Dynamic P/B index	NIFTY 50 & Short Duration Debt – Dynamic P/E index	NIFTY 50 TR	NIFTY Short Duration Debt Index	NIFTY 50 & Short Duration Debt – Dynamic P/B index	NIFTY 50 & Short Duration Debt – Dynamic P/E index
2005*	39.3%	4.4%	17.3%	27.9%	17.1%	0.8%	7.0%	10.6%
2006	41.9%	5.0%	15.4%	20.5%	26.1%	1.1%	7.3%	11.6%
2007	56.8%	8.5%	16.7%	19.2%	25.4%	1.5%	6.8%	8.7%
2008	-51.3%	10.8%	-21.5%	-20.1%	44.2%	3.6%	22.1%	20.7%
2009	77.6%	8.2%	52.3%	43.7%	34.6%	4.3%	23.3%	19.9%
2010	19.2%	4.2%	13.4%	10.9%	16.3%	2.8%	9.2%	6.1%
2011	-23.8%	8.7%	-11.8%	-7.3%	21.0%	2.2%	13.2%	10.3%
2012	29.4%	10.7%	24.3%	22.3%	15.2%	1.6%	10.4%	8.7%
2013	8.1%	8.0%	8.9%	9.2%	18.0%	2.2%	12.3%	11.0%
2014	32.9%	10.5%	23.2%	21.8%	12.7%	1.2%	7.4%	6.5%
2015	-3.0%	8.5%	3.3%	5.3%	16.2%	1.2%	7.8%	6.2%
2016	4.4%	9.3%	7.2%	8.2%	15.1%	1.7%	8.5%	6.8%
2017	30.3%	6.4%	17.2%	14.2%	9.0%	1.2%	4.2%	3.1%
2018#	12.2%	3.7%	7.0%	5.9%	10.5%	0.9%	3.5%	3.0%

**Since April 1, 2005. #Data as on August 31, 2018*

Analysis of calendar year-wise performance highlights that not only did NIFTY Dynamic Asset Allocation Indices perform well in bear markets but also during the recovery phase of the equity market. During the financial crisis of 2008, NIFTY Dynamic Asset Allocation Indices fell lesser (NIFTY 50 & Short Duration Debt – Dynamic P/E index : -20.1% and NIFTY Dynamic Short Duration Debt - P/B Index: -21.5%) than NIFTY 50 TR (-51.3%) during market downturn in 2008 (highlighted in red in Exhibit 7). Similar observation was made in 2011. In recovery phase of 2009, NIFTY Dynamic Asset Allocation Indices gave decent returns in relation to NIFTY 50 TR index amid significantly lower volatility. For a prudent investor, who is not only conscious about returns but equally about risk-adjusted returns, dynamic asset allocation strategy offered by NIFTY Dynamic Asset Allocation Indices is an apt investment strategy.

On rolling return basis, NIFTY Dynamic Asset Allocation Indices have consistently delivered healthy absolute returns

Rolling return analysis was conducted to eliminate recency bias in performance. Figures in Exhibits 8 & 9 below show number of instances of for various ranges of absolute returns delivered by NIFTY 50 & Short Duration Debt – Dynamic P/B index and by NIFTY 50 & Short Duration Debt – Dynamic P/E index.

Exhibit 8: Rolling year returns of NIFTY 50 & Short Duration Debt – Dynamic P/B index

Investment period	Absolute returns delivered by NIFTY 50 & Short Duration Debt – Dynamic P/B index (% instances)					
	Absolute returns (>15%)	Absolute returns (>10% & <15%)	Absolute returns (>7% & <10%)	Absolute returns (>5% & <7%)	Absolute returns (>0% & <5%)	Absolute returns (negative)
7 years	*3%*	*73%*	*24%*	*0%*	*0%*	*0%*
5 years	*5%*	*63%*	*32%*	*0%*	*0%*	*0%*
3 years	*15%*	*44%*	*28%*	*6%*	*5%*	*1%*
2 years	27%	28%	22%	7%	12%	4%
1 year	34%	27%	13%	6%	8%	13%

**Data as on August 31, 2018*

Exhibit 9: Rolling year returns of NIFTY 50 & Short Duration Debt – Dynamic P/E index

Investment period	Absolute returns delivered by NIFTY 50 & Short Duration Debt – Dynamic P/E index (% instances)					
	Absolute returns (>15%)	Absolute returns (>10% & <15%)	Absolute returns (>7% & <10%)	Absolute returns (>5% & <7%)	Absolute returns (>0% & <5%)	Absolute returns (negative)
7 years	*2%*	*78%*	*20%*	*0%*	*0%*	*0%*
5 years	*7%*	*63%*	*30%*	*0%*	*0%*	*0%*
3 years	*16%*	*38%*	*36%*	*6%*	*4%*	*0%*
2 years	26%	26%	26%	11%	6%	4%
1 year	32%	26%	17%	5%	9%	10%

**Data as on August 31, 2018*

As can be observed in Exhibits 8 & 9, NIFTY Dynamic Asset Allocation Indices have always (100% of the times) delivered absolute returns of >7% for an investment horizon of 5 & 7 years. For shorter time horizon of 1, 2 and 3 years, NIFTY 50 & Short Duration Debt – Dynamic P/B index delivered >7% absolute returns in 74%, 77% and 87% of the times respectively. For the same investment period, NIFTY 50 & Short Duration Debt – Dynamic P/E index delivered >7% absolute returns in 76%, 79% and 90% of the times respectively. Both NIFTY Dynamic Asset Allocation indices have delivered very few instances of negative absolute returns for shorter than 3 year investment horizons.

Signing off…

Each index strategy has its unique strengths and limitations. There is seldom a single investment strategy that can outshine others consistently in all market conditions. Investment decisions often revolve around finding the right balance between various asset classes such as Equity, Equity Arbitrage and Debt to sail through unpredictable market conditions.

NIFTY Dynamic Asset Allocation indices provide a dynamic, rule-based asset allocation mechanism that intend to tactically combine the unique benefits of Equity, Equity arbitrage and Debt asset classes. NIFTY Dynamic Asset Allocation indices have consistently delivered stable risk adjusted returns across multiple investment horizons. These indices have lower drawdowns compared to NIFTY 50 TR index, underlining the robustness in performance especially during periods of market downturns.

Dynamic asset allocation design of NIFTY Dynamic Asset Allocation indices has delivered healthy & stable absolute returns. NIFTY Dynamic Asset Allocation indices is an ideal fit for investors seeking stable risk-adjusted returns over long term investment horizons and well-suited for benchmarking needs of Dynamic Asset Allocation funds.

About NSE Indices Limited:

(Formerly known as India Index Services & Products Limited-IISL)

NSE Indices Limited, a subsidiary of NSE, provides a variety of indices and index related services for the capital markets. The company focuses on the index as a core product. The company owns and manages a portfolio of indices under the NIFTY brand of NSE, including the flagship index, the NIFTY 50. NIFTY equity indices comprises broad-based benchmark indices, sectoral indices, strategy indices, thematic indices and customised indices. NSE Indices Limited also maintains fixed income indices based on Government of India securities, corporate bonds, money market instruments and hybrid indices. Many investment products based on NIFTY indices have been developed within India and abroad. These include index based derivatives traded on NSE, NSE IFSC, Singapore Exchange Ltd. (SGX) and 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.

For more information, please visit: www.niftyindices.com

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