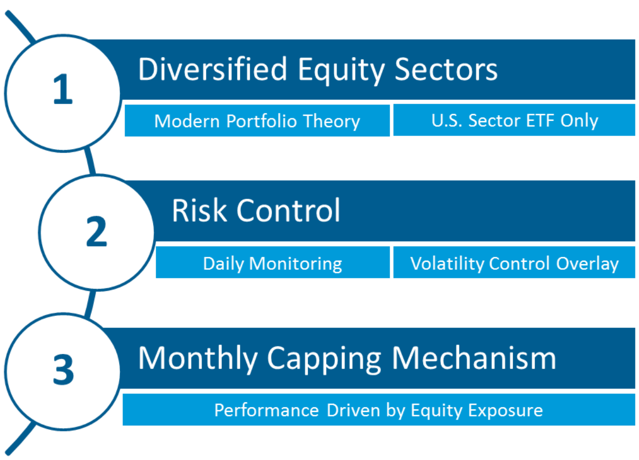
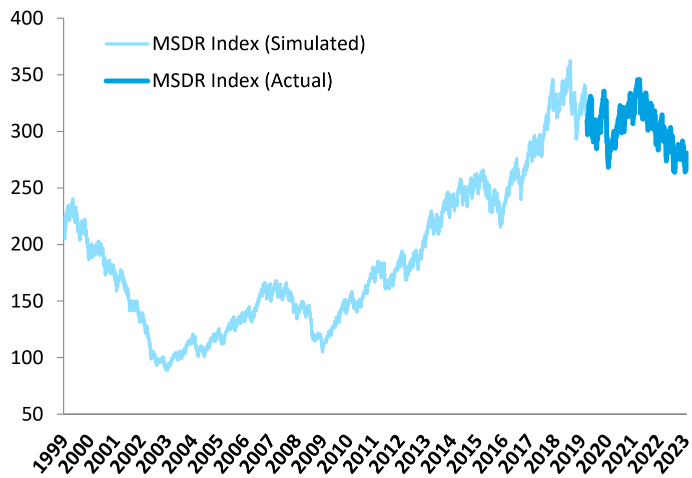
Morgan Stanley

Morgan Stanley Dynamic Rotator Index

Index Philosophy



Index Performance, Simulated and Actual*



Source: Morgan Stanley, Bloomberg.

INDEX IDENTIFIER (TICKER):
MSUSMSDR

WEBSITE:
morganstanley.com/indices/msdr

INDEX CALCULATION AGENT:
Morgan Stanley & Co. LLC

INDEX LIVE DATE:
May 24, 2019

NUMBER OF INDEX COMPONENTS:
11 US sector ETFs and Cash

REBALANCE FREQUENCY:
Daily

VOLATILITY TARGET RANGE:
18%-20% Annualized

Please see Notes on Simulated Returns, page 3

Summary Statistics, Simulated and Actual*

YTD Return	0.60%
Return** Since Index Live Date	-2.48%
1-Year Ann. Return	-8.73%
3-Year Ann. Return	0.24%
5-Year Ann. Return	-2.53%
10-Year Ann. Return	2.69%
1-Year Ann. Volatility	17.26%
10-Year Ann. Volatility	16.51%
10-Year Sharpe Ratio	0.16
Correlation to MSCI World Index	76%
Correlation to S&P GSCI Index	28%
Correlation to U.S. Dollar Index	-14%
Correlation to Bloomberg Barclays U.S. Agg. Index	-8%

Source: Morgan Stanley, Bloomberg.
** Actual Return if less than 1yr since Index Live Date; if not, Annualized Return is used.
* From March 9, 1999 to March 31, 2023.
The Index Live Date is May 24, 2019. All data prior to that are simulated.
Past performance is not indicative of future performance.

Index Construction

The Morgan Stanley Dynamic Rotator Index ("MSDR Index" or the "Index") provides exposure to eleven exchange traded-funds (ETFs) chosen to represent different US equity sectors (such as Energy, Technology, Health Care, etc) and adjusts exposure daily to target a 18%-20% volatility range.

Diversified Equity Sectors – The Index provides exposure to a subset of US equity sectors by following trends in their performances. The Index allocates using principles based on Markowitz's Modern Portfolio Theory (MPT).

Risk Control – The Index targets a 18%-20% volatility range by adjusting its allocation on a daily basis. If the Index´s holdings experience significant changes in volatility, the Index will rebalance the allocation in order to bring the holdings' volatility back to the target level of volatility.

Monthly Capping Mechanism – The Index performance is driven by equity exposure but with its growth potential limited over any rolling one-month period, as it is comprised of four weekly-staggered tranches, each with a one-month 4% cap on positive performance.

There are risks associated with the Index, including that the increase in the Index level over any rolling one-month period is limited as it is comprised of four weekly-staggered tranches, each with a one-month +4% performance cap. There is however no floor on monthly declines. In addition, the Index includes (i) a synthetic dividend deduction of 0.50% per annum, (ii) notional transactional costs applied based on rebalances to the underlying ETFs and (iii) a deduction of the Federal Funds rate that would apply to a cash investment linked to the Index, each of which will reduce the Index level and the returns of any investment linked to the Index. Please see pages 7 and 8 for further information.

Index Components

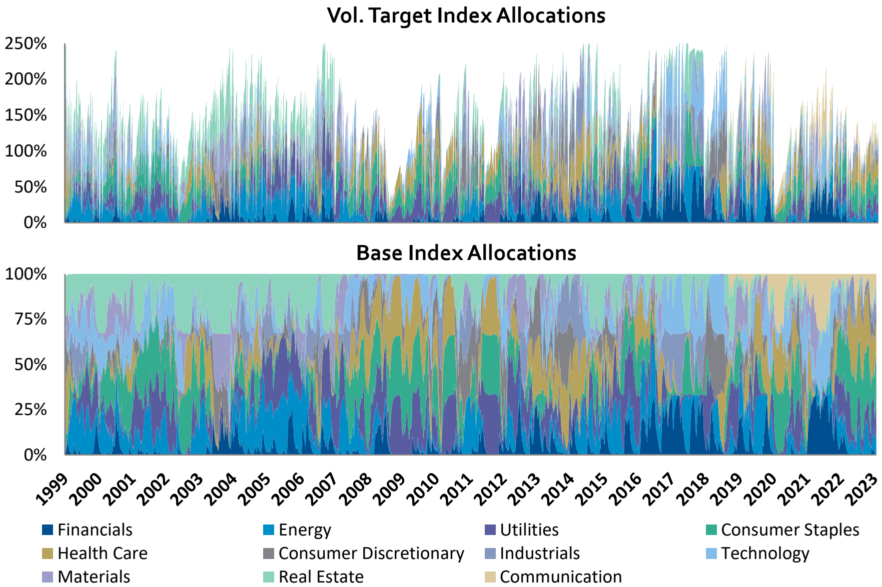
Diversified Equity Investment Universe

ASSET CLASS	INDEX COMPONENT	MAX ALLOCATION
US EQUITIES		
	Financials ETF	33%
	Energy ETF	33%
	Utility ETF	33%
	Consumer Staples ETF	33%
	Health Care ETF	33%
	Consumer Discretionary ETF	33%
	Industrials ETF	33%
	Technology ETF	33%
	Materials ETF	33%
	Communication Services ETF	33%
	Real Estate ETF	33%

Multi-Step Allocation Mechanism to Index Components

- The Base Index allocates to a subset of **11 different US equity sector ETFs u**sing **historical returns and realized volatilities** to **identify the portfolio with highest risk-adjusted returns**, subject to allocation and risk constraints.
- The **Index** then utilizes **leverage of up to 250%** to the Base Index to target **a 18%-20% volatility range**.
- The growth potential of the Index is limited over any rolling one-month period, as it is comprised of **four weekly-staggered tranches**, each with a **one-month +4% performance cap**.

Index Composition*



Volatility Targeted Index Monthly Allocations*

Average Leverage (Curr. Month): 125.1%	Average Core Allocations[1]	Monthly Average Core Allocations[1]	Cumulative Return Attributions[2]
Sector ETF Description	**Full History**	**March 2023**	**March 2023**
Financials	7%	1%	-0.18%
Energy	11%	10%	0.21%
Utilities	13%	13%	0.67%
Consumer Staples	13%	25%	1.42%
Health Care	13%	18%	0.46%
Consumer Discretionary	8%	7%	0.56%
Industrials	6%	9%	-0.01%
Technology	10%	2%	0.36%
Materials	6%	1%	-0.06%
Communication	2%	9%	0.73%
Real Estate	11%	4%	0.40%

* As of March 31, 2023. The Index Live Date is May 24, 2019. All data prior to that are simulated.
[1] Computed as the average of the daily allocations over the corresponding month, before applying leverage.
[2]The sum of the index components' return attribution is not equal to the Index return over that month due to costs, synthetic dividend, performance cap and return compounding effects. Individual return attributions are calculated after applying leverage.

Certain Key Risks

- The Index level may decrease due to a number of factors including trends in the markets for the underlying components.
- The Index's volatility scaling mechanism makes use of leverage and may result in exposures different from one-for-one to the Base Index. This may lead to underperformance in both downward and upward markets.
- The growth potential of the Index is limited over any rolling one-month period, as it is comprised of four weekly-staggered tranches, each with a one-month +4% performance cap. This will reduce the Index level and the returns of investments linked to the Index.
- The level of the Index reflects a deduction of the Federal Funds rate that would apply to such a cash investment. Changes in the Federal Funds rate will affect the value of the Index. In particular, an increase in the Federal Funds rate will reduce the Index level and the returns of investments linked to the Index.
- The weights applied to the underlying ETFs may not be the optimal weights.
- It is possible that the Index may be composed of a very small number of index components at any time.
- The Index has a limited performance history and past performance is not an indication of future performance.
- The Index level is adjusted for notional costs associated with trading ETFs as well as the deduction of a 0.50% per annum synthetic dividend applied on the Index before the monthly performance cap, both of which will reduce the Index level and the returns of investments linked to the Index.

The risks identified above are not exhaustive. Please see the full set of risk factors included in any disclosure materials relating to instruments linked to the Index for additional information.

NOTE ON SIMULATED RETURNS:

Back-testing and other statistical analyses provided herein use simulated analysis and hypothetical circumstances to estimate how the Index may have performed between March 9, 1999 and May 24, 2019, prior to its actual existence. The results obtained from such "back-testing" should not be considered indicative of the actual results that might be obtained from an investment in the Index. The actual performance of the Index may vary significantly from the results obtained from back-testing. Unlike an actual performance record, simulated results are achieved by means of the retroactive application of a back-tested model itself designed with the benefit of hindsight and knowledge of factors that may have possibly affected its performance. Morgan Stanley provides no assurance or guarantee that any product linked to the Index will operate or would have operated in the past in a manner consistent with these materials. The hypothetical historical levels presented herein have not been verified by an independent third party, and such hypothetical historical levels have inherent limitations. Alternative simulations, techniques, modeling or assumptions might produce significantly different results and prove to be more appropriate. Actual results will vary, perhaps materially, from the simulated returns presented in this document. Calculation based on simulated performance is purely hypothetical and may not be an accurate or meaningful comparison. Past performance (actual or simulated) is not necessarily indicative of future results.

Index Monthly Returns*

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Full Year
2023	1.60%	-4.54%	3.72%										
2022	-5.18%	-1.21%	3.87%	-3.37%	0.26%	-4.47%	4.39%	-4.06%	-7.07%	4.83%	3.72%	-3.13%	-11.73%
2021	-1.92%	-2.16%	4.08%	4.65%	0.58%	-4.57%	-2.29%	4.86%	-9.62%	5.70%	-4.37%	3.79%	-2.52%
2020	-2.26%	-7.26%	-4.00%	3.25%	2.64%	-1.66%	5.54%	3.51%	-3.31%	-2.30%	4.99%	3.08%	1.25%
2019	5.81%	2.51%	0.15%	4.79%	-12.35%	7.99%	-1.53%	-6.36%	2.68%	-0.64%	2.75%	3.30%	7.60%
2018	4.45%	-5.47%	-1.58%	0.98%	2.56%	-1.46%	2.82%	6.27%	1.70%	-11.95%	3.84%	-10.04%	-9.35%
2017	2.53%	4.83%	1.65%	1.15%	-2.90%	1.17%	4.34%	-4.37%	6.03%	4.06%	2.62%	2.49%	25.69%
2016	-3.19%	0.27%	5.23%	3.50%	2.97%	1.30%	1.69%	1.58%	-1.03%	-5.13%	3.17%	1.19%	11.65%
2015	1.87%	1.29%	-1.46%	1.54%	1.23%	-6.56%	1.75%	-5.58%	-0.44%	5.55%	-1.62%	-3.15%	-6.07%
2014	-7.67%	6.67%	-0.69%	-0.50%	3.10%	2.55%	-5.91%	5.26%	-4.52%	4.67%	3.33%	-3.50%	1.56%
2013	5.12%	-0.32%	6.86%	3.96%	-2.41%	-2.87%	4.86%	-6.12%	5.61%	4.77%	3.14%	2.91%	27.57%
2012	0.30%	4.34%	3.58%	-1.36%	-9.29%	4.46%	2.21%	-0.66%	2.78%	-0.14%	0.86%	1.77%	8.39%
2011	1.95%	4.47%	-0.28%	3.84%	-0.86%	-2.38%	-2.16%	-4.28%	-2.41%	4.67%	0.84%	2.55%	5.60%
2010	-4.24%	3.16%	3.91%	2.74%	-5.85%	-3.24%	4.29%	-1.41%	6.14%	2.89%	0.18%	5.97%	14.52%
2009	-2.06%	-7.51%	3.56%	2.63%	4.43%	2.23%	3.34%	2.23%	3.24%	-0.79%	5.47%	4.17%	22.15%
2008	-5.83%	-2.55%	-0.75%	2.33%	3.41%	-5.26%	1.78%	1.77%	-10.24%	-7.63%	-0.66%	0.89%	-21.40%
2007	1.89%	-6.26%	2.51%	2.93%	2.10%	-5.00%	-0.18%	0.70%	3.58%	-1.10%	-3.08%	-1.85%	-4.25%
2006	7.39%	-3.44%	3.61%	1.20%	-3.19%	1.73%	2.95%	3.71%	3.59%	3.47%	3.34%	-3.08%	22.74%
2005	-1.59%	2.27%	-2.77%	-3.23%	3.97%	3.79%	4.74%	2.33%	2.57%	-5.90%	3.59%	-1.60%	7.75%
2004	-0.16%	2.83%	0.16%	-10.42%	0.83%	3.43%	-2.91%	-0.24%	2.71%	4.09%	2.28%	3.67%	5.47%
2003	-3.51%	-0.27%	-1.03%	3.52%	5.74%	0.85%	0.67%	1.76%	-4.24%	6.68%	2.52%	5.08%	18.53%
2002	-6.34%	-2.30%	2.89%	-9.15%	-0.87%	-8.00%	-9.64%	-0.09%	-7.45%	1.03%	1.50%	-1.67%	-34.29%
2001	2.04%	-6.59%	-2.36%	4.34%	0.97%	-3.36%	-3.43%	-4.06%	-5.81%	-3.47%	2.64%	1.05%	-17.22%
2000	-7.92%	-6.70%	4.37%	-3.79%	0.74%	-0.07%	-1.30%	1.89%	-3.03%	-1.84%	-3.93%	-0.05%	-20.18%
1999			-1.57%	7.84%	-2.73%	5.00%	-4.38%	-1.50%	-2.66%	-0.56%	-1.81%	5.89%	2.76%

Source: Morgan Stanley, Bloomberg.
* Data based on simulated returns from March 9, 1999 to May 24, 2019 and actual thereafter. Data through March 31, 2023.
Please see Notes on Simulated Returns.
Past performance is not indicative of future performance.

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