Morgan Stanley

Morgan Stanley Diversified Select Index ("MSDSI")

The Morgan Stanley Diversified Select Index (the "Index") offers diversified exposure to a wide range of asset classes, such as US industry sectors, international and emerging market equities, treasuries, bonds, commodities, foreign exchange, real estate and cash. It achieves this by investing in liquid US-listed ETFs and futures-based indices, using a rules-based methodology designed by Morgan Stanley that seeks to maximize returns for a defined level of risk.

Index Description

The Index follows momentum and diversification principles to allocate exposure across six asset classes. Each asset class is made up of one or more liquid assets and is subject to exposure limits to ensure a certain level of diversification. The aim of the strategy is to select a portfolio that maximizes returns for a given level of risk.

The strategy follows a three-step process, and is rebalanced on a monthly basis:

1. Creation of Sector Momentum Basket: Each US sector ETF is ranked according to its risk-adjusted recent performance, and the top five are selected with weights set accordingly (a 30% weight is allocated to the best performing ETF, and 25%, 20%, 15% and 10% weights are allocated to the 2nd, 3rd, 4th and 5th best performing ETFs, respectively).

2. Diversification principles applied: The Sector Momentum Basket is combined with other assets from a range of asset classes to create a multi-asset portfolio (the "Asset Portfolio"). This Asset Portfolio represents the portfolio with the highest historical returns for a 5% annualized volatility.

3. Volatility Control Mechanism: The volatility of the Asset Portfolio is measured on a daily basis. The allocation between the Asset Portfolio and cash will be adjusted to aim to maintain a 5% annualized volatility target.

WEBSITE:	morganstanley.com/msdsi

Key Features

- Diversified exposure into 23 different liquid assets across all major asset classes: equities, bonds, commodities, foreign exchange, real estate and cash.
- Rules-based strategy, using momentum and diversification techniques to select an Asset Portfolio targeting highest historical returns subject to a given level of risk.
- The Asset Portfolio is monitored daily to attempt to keep volatility under control and reduce the impact of price fluctuations.
- Calculated on an excess return basis, meaning that the Index level represents the performance of the Asset Portfolio, with a volatility control mechanism, in excess of the performance of a cash investment receiving the Secured Overnight Financing Rate ("SOFR") plus 0.15%.
- A servicing fee of 0.50% per annum, calculated on a daily basis, is already included in the published Index level.

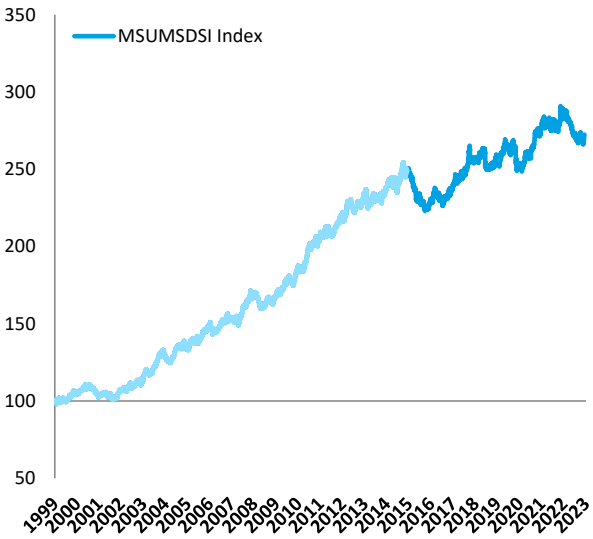
INDEX IDENTIFIER (TICKER):	MSUMSDSI
INDEX CALCULATION AGENT:	Morgan Stanley
INDEX LIVE DATE:	March 31, 2015
NUMBER OF INDEX COMPONENTS:	Maximum 23
VOLATILITY TARGET:	5% annualized
REBALANCE FREQUENCY:	Monthly on average (at intervals during the month)

Snapshot of Asset Portfolio as of March 31, 2023

ASSET CLASS	MAX ALLOCATION TO ASSET CLASS	ASSETS	ASSET CLASS	ASSET WEIGHTS*	MAXIMUM WEIGHT
Cash	100%	Cash	43.2%	43.2%	100.0%
Equities	75%	Health Care Select Sector SPDR Fund (XLV UP Equity)	22.8%	0.0%	22.5%
		Utilities Select Sector SPDR Fund (XLU UP Equity)		0.0%	22.5%
		Industrials Select Sector SPDR Fund (XLI UP Equity)		0.0%	22.5%
		Energy Select Sector SPDR Fund (XLE UP Equity)		0.0%	22.5%
		Consumer Discretionary Select Sector SPDR Fund (XLY UP Equity)		0.0%	22.5%
		Consumer Staples Select Sector SPDR Fund (XLP UP Equity)		0.0%	22.5%
		Financial Select Sector SPDR Fund (XLF UP Equity)		0.0%	22.5%
		Materials Select Sector SPDR Fund (XLB UP Equity)		0.0%	22.5%
		Technology Select Sector SPDR Fund (XLK UP Equity)		0.0%	22.5%
		iShares MSCI EAFE ETF (EFA UP Equity)		20.0%	20%
		iShares MSCI Emerging Markets Index Fund (EEM UP Equity)		2.8%	15%
Bonds	50%	2-Year US Treasury Note Futures Index	12.3%	0.0%	20%
		10-Year US Treasury Note Futures Index		6.7%	20%
		US Treasury Long Bond Futures Index		5.7%	20%
		iShares iBOXX High Yield Corporate Bond Fund (HYG UP Equity)		0.0%	10%
		iShares JP Morgan USD EM Bond Fund (EMB UP Equity)		0.0%	5%
Commodities	30%	WTI Crude Futures Index	16.7%	0.0%	10%
		COMEX Gold Futures Index		10.0%	10%
		Soybean Futures Index		6.7%	10%
Foreign Exchange	20%	AUDUSD FX Futures Index	5.0%	0.0%	10%
		The US Dollar Index Futures Index		5.0%	15%
Real Estate	20%	Vanguard REIT ETF (VNQ UP Equity)	0.0%	0.0%	20%

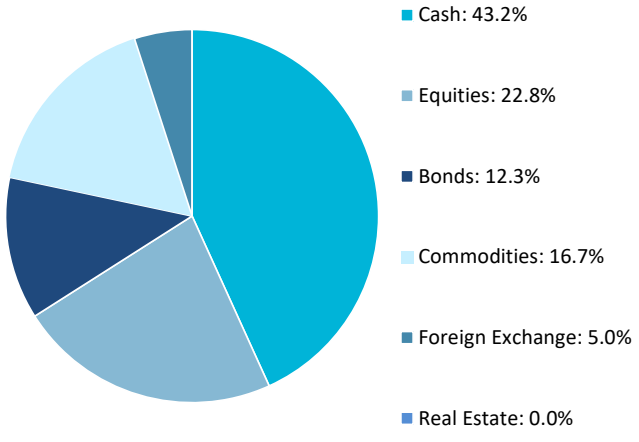
* Average of Optimized Weights from Mean-Variance Optimization - March 2023.
Source: Morgan Stanley.

INDEX LEVEL, SIMULATED AND ACTUAL



Source: Morgan Stanley. Includes simulated returns from April 30, 1999 to March 31, 2015 and actual thereafter. Past performance is not an indication of future performance.

ASSET CLASS ALLOCATION



Snapshot of Asset Portfolio as of March 31, 2023.
Source: Morgan Stanley.

Overview of the Volatility Control

MSDSI is a rules-based index that attempts to maximize returns for a defined level of risk using momentum and diversification principles. On each Rebalance Date, the Index identifies the Asset Portfolio that has the maximum historical return with 5% annualized volatility. On a daily basis, the allocation between this Asset Portfolio and cash will be monitored and adjusted so that the targeted annualized volatility of the Index remains around 5%.

This feature means that in higher volatility environments, the Index will reduce the exposure to the Asset Portfolio and increase the exposure to cash. As volatility falls, the exposure to the Asset Portfolio will increase, up to the maximum exposure of 150%. The overall goal of the Volatility Control mechanism is for the returns of the Index to be smoother than they would otherwise be.

WHAT IS THE EXPOSURE TO THE ASSET PORTFOLIO IN DIFFERENT MARKET CONDITIONS?

Volatility Control in MSDSI

- The aim of the Volatility Control mechanism is to stabilize the realized volatility of the Index to approximately 5%, by adjusting the allocation between the Asset Portfolio and Cash.
- The actual exposure to the Asset Portfolio will generally be equal to 5% divided by the realized volatility of the Asset Portfolio.
- The realized volatility of the Asset Portfolio is calculated by using the higher of the 40 and 80 day (with a decay[1]) realized volatility on an annualized basis.
- Any reallocation between the Asset Portfolio and Cash resulting from the Volatility Control mechanism has to be at least 5%.
- The minimum and maximum exposure to the Asset Portfolio are 0% and 150% respectively. The allocation to cash will be the difference between 100% and the actual exposure to the Asset Portfolio.

What is volatility?

Volatility is a measure for how much the price of an asset has changed over time. An asset with low volatility will typically have a stable price, whereas an asset with high volatility will have a price that can fluctuate quite frequently and sharply. Higher volatility is therefore typically associated with higher risk.

Historic volatility (also called "realized volatility") is calculated by looking at historical prices for an asset over a set period, and measuring how much these historical prices vary from the average historical price over that same period.

Historically, realized volatility tends to be higher when markets are falling. The realized volatility of a portfolio can be decreased by reducing the allocation to volatile assets and replacing it with cash, which has no volatility.

1. A volatility decay factor is applied to put more emphasis on recent volatility levels than more historical ones.

INDEX RETURNS, SIMULATED AND ACTUAL

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	1 Year Return	2 Year Return	5 Year Return
2023	2.3%	-2.1%	1.4%												
2022	-1.0%	2.1%	1.3%	0.1%	-0.4%	-1.0%	-0.4%	-1.8%	-1.8%	0.2%	-1.0%	-0.8%	-4.5%	-0.7%	5.6%
2021	0.8%	0.4%	0.0%	2.6%	0.4%	-0.9%	1.2%	-0.2%	-2.3%	2.3%	-2.0%	1.5%	3.9%	5.0%	21.5%
2020	-2.2%	-2.8%	-0.4%	0.1%	0.0%	0.1%	2.4%	0.8%	-0.7%	-0.8%	2.4%	2.4%	1.0%	7.4%	18.0%
2019	1.4%	-0.9%	1.9%	0.7%	-2.6%	2.6%	0.8%	2.5%	-0.6%	0.2%	-1.6%	2.0%	6.3%	5.3%	8.0%
2018	3.8%	-2.7%	0.0%	0.2%	-0.4%	1.6%	-0.3%	1.9%	-0.4%	-4.7%	-0.1%	0.3%	-1.0%	8.8%	7.5%
2017	0.4%	1.9%	0.2%	1.5%	1.7%	-0.6%	1.3%	0.1%	-0.5%	1.4%	1.2%	0.8%	9.9%	10.9%	11.1%
2016	-1.1%	-0.4%	1.3%	1.1%	-0.2%	3.4%	-1.4%	-1.3%	0.2%	-1.1%	0.2%	0.2%	1.0%	-6.6%	8.6%
2015	2.5%	-1.4%	-0.2%	-0.9%	-0.5%	-1.4%	-2.1%	-2.8%	0.7%	-0.2%	-1.2%	-0.3%	-7.5%	-2.1%	12.9%
2014	-1.5%	2.4%	0.1%	1.4%	1.6%	0.2%	-1.5%	1.9%	-2.3%	0.8%	1.9%	0.8%	5.9%	8.4%	38.8%
2013	-0.2%	-0.3%	1.7%	1.8%	-2.4%	-1.3%	0.7%	0.6%	0.7%	0.7%	0.2%	0.2%	2.4%	9.9%	40.1%
2012	1.4%	0.4%	1.6%	1.1%	-1.7%	1.7%	3.0%	0.1%	-1.2%	-1.0%	0.8%	1.0%	7.3%	12.7%	39.6%
2011	0.4%	0.7%	-0.1%	2.5%	-0.1%	-1.2%	2.7%	-0.2%	-1.9%	0.1%	0.9%	1.1%	5.0%	19.3%	38.8%
2010	-1.4%	1.7%	2.3%	2.1%	-0.7%	0.6%	-0.1%	2.0%	3.4%	1.6%	-0.5%	1.9%	13.7%	21.5%	41.9%
2009	-1.3%	-0.7%	2.0%	1.3%	1.8%	-0.1%	0.9%	0.5%	2.0%	-0.8%	2.7%	-1.6%	6.9%	9.0%	30.1%
2008	1.6%	3.3%	-2.4%	0.3%	0.6%	-1.1%	-2.2%	-1.2%	-0.3%	0.7%	2.3%	0.6%	2.0%	8.8%	30.1%
2007	0.6%	-0.1%	-0.1%	0.1%	-0.2%	-1.0%	0.5%	-0.8%	2.9%	3.3%	0.3%	1.1%	6.7%	14.5%	46.3%
2006	2.7%	-0.1%	1.2%	0.7%	-1.7%	-0.8%	0.1%	0.6%	0.6%	2.3%	1.4%	0.2%	7.3%	11.9%	50.4%
2005	-1.6%	2.7%	-2.1%	-1.4%	2.1%	1.5%	1.3%	-1.1%	2.2%	-2.3%	1.4%	1.6%	4.3%	11.4%	31.7%
2004	1.3%	1.6%	0.8%	-3.5%	-1.6%	-0.3%	0.8%	1.5%	2.0%	2.5%	1.1%	0.6%	6.9%	22.6%	31.5%
2003	0.9%	1.1%	-1.5%	1.7%	3.9%	0.2%	-1.4%	2.1%	-0.5%	3.3%	0.9%	3.5%	14.7%	25.8%	
2002	0.7%	0.7%	3.4%	0.3%	1.2%	0.4%	-1.0%	1.8%	1.9%	-2.0%	-0.2%	2.2%	9.7%	3.1%	
2001	-0.2%	-1.6%	-1.8%	-1.4%	0.8%	1.1%	-0.4%	0.5%	-1.6%	0.9%	-2.1%	-0.5%	-6.0%	-2.2%	
2000	-1.1%	1.8%	0.8%	-0.5%	-0.3%	1.5%	1.0%	2.1%	-1.1%	0.0%	2.1%	-2.1%	4.1%		
1999					-1.9%	3.0%	-1.3%	0.5%	0.7%	-1.2%	1.0%	3.3%			

Source: Morgan Stanley. Data based on simulated returns from April 30, 1999 to March 31, 2015 and actual returns thereafter.

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 April 30, 1999 and March 31,2015, 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. Actual results will vary, perhaps materially, from the simulated returns presented in this document. Because certain ETFs included in the sub-asset classes existed for only a portion of the back-tested period, substitute data has been used for portions of the simulation. Wherever data for one or more ETFs did not exist, the simulation has included the value of each ETF's benchmark index less the relevant expense ratio.

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. The Index is calculated on an excess return basis over an equivalent cash investment, which means that the Index level reflects the deduction of SOFR plus 0.15% that would apply to such a cash investment. Prior to December 1, 2021 the Index utilized 3-month LIBOR rather than SOFR plus 0.15% for the excess return calculation. The Index also reinvests dividends.

There are risks associated with this Index:

- **The Index may not increase in value, or may decrease in value due to a number of factors.**
- **The volatility of the Index could be greater than the target volatility.**
- **The volatility target may reduce the performance of the Index in rising markets.**
- **It is possible that the Index may be composed of a very small number of assets at any one time.**
- **The Index involves risks associated with foreign exchange, non-U.S. equities, precious metals and other commodities.**
- **The Index has a limited performance history and past performance is no indication of future performance.**
- **The Index is calculated on an excess return basis and has embedded costs.**

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In calculating the performance of the Index, Morgan Stanley deducts on a daily basis a servicing cost of 0.50% per annum. This reduces the potential positive change (or increases the negative change) in the Index and thus lowers the return of any product linked to the Index. The volatility control calculation applied by Morgan Stanley may reduce the potential positive change (or increase the negative change) in the Index and thus lower the return of any product linked to the Index. In addition, because the volatility control calculation is expected to reduce the overall volatility of the Index, it will also reduce the cost of hedging certain products linked to the Index.

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