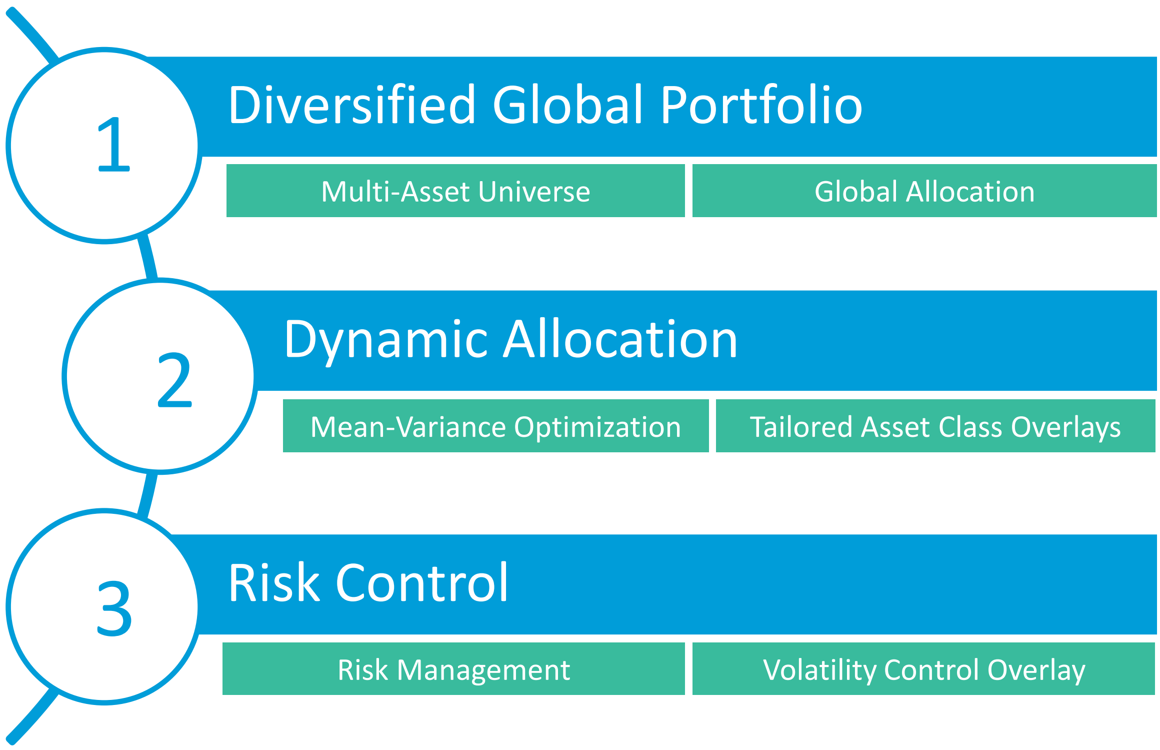
Morgan Stanley

Morgan Stanley Dynamic Global Index

Dynamically Accessing Global Markets in a Diversified Way

The Morgan Stanley Dynamic Global Index ("MSDG" or the "Index") attempts to invest dynamically in order to create a diversified, global portfolio that seeks positive returns in various market environments. The Index targets a 5% annual realized volatility level and deducts a fee equal to 0.50% per year.



Diversified Portfolio - The Index seeks to take broad exposure to a diversified universe of asset classes representing global equities, government bonds and major commodities.

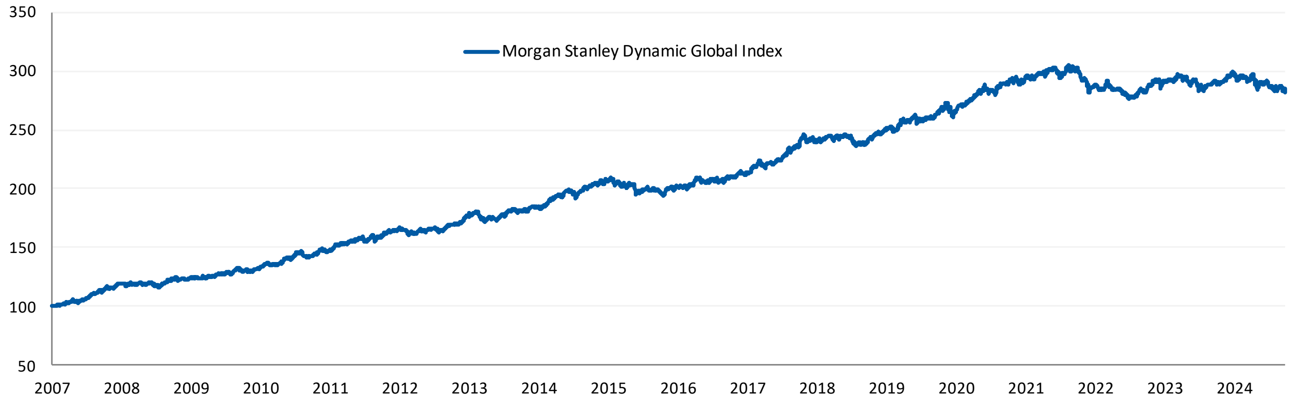
Dynamic Allocation - The Index uses modern portfolio theory & efficient frontiers to seek the highest expected returns for a given level of risk, rebalancing daily to account for changes in market conditions over both short-term and long-term horizons. In addition, the Index employs tailored asset class overlays with the aim of adjusting exposures based on specific asset class drivers of risk and return.

Risk Control - The Index attempts to target an overall 5% volatility level with daily monitoring and rebalancing, adapting to different market conditions and asset allocations.

Index Performance*

The Morgan Stanley Dynamic Global Index offers diversified exposure to a wide range of asset classes representing global equities, government bonds and major commodities. It uses modern portfolio theory to seek the highest expected returns for a given level of risk.

Index Performance



MSDG Index	Return	Annualized Weekly Volatility	Sharpe	Maximum Drawdown
2007	13.66%	4.31%	3.17	2.90%
2008	8.42%	4.93%	1.71	3.31%
2009	4.84%	4.53%	1.07	2.53%
2010	10.13%	4.87%	2.08	3.57%
2011	12.44%	4.95%	2.51	2.99%
2012	5.98%	4.59%	1.30	3.83%
2013	7.20%	4.47%	1.61	5.30%
2014	11.09%	4.27%	2.59	3.52%
2015	-2.11%	5.23%	-0.40	6.49%
2016	5.40%	4.66%	1.16	2.25%
2017	13.00%	4.22%	3.08	2.74%
2018	2.81%	5.22%	0.54	4.34%
2019	9.01%	4.62%	1.95	2.73%
2020	9.95%	5.32%	1.87	4.24%
2021	4.21%	4.79%	0.88	3.11%
2022	-6.90%	4.70%	-1.47	8.75%
2023	3.52%	4.97%	0.71	4.69%
2024	-3.21%	4.97%	-0.65	5.73%
2007-2024 *	6.01%	4.86%	1.24	9.20%
10 Year Trailing *	3.39%	4.97%	0.68	9.20%
5 Year Trailing *	1.34%	5.05%	0.27	9.20%
3 Year Trailing *	-2.29%	4.94%	-0.46	8.75%
1 Year Trailing *	-3.18%	4.97%	-0.64	5.73%

* Annualized Returns
[1]Data from April 3, 2007 to December 31, 2024.
The Index Live Date is March 17, 2022. All data prior to the Index Live Date is simulated.
Note: Past performance is not indicative of future performance.

Index Performance* (Simulated and Actual)

Back-testing and other statistical analyses provided herein use simulated analysis and hypothetical circumstances to estimate how the Index may have performed from April 3, 2007 to March 17, 2022, 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.

1 – Diversified Global Portfolio

The Index seeks to provide diversified exposure across multiple asset classes representing global equities, government bonds and broad commodities

Multi-Step Allocation of Index Components

- On daily basis, the Index **computes recent returns and realized volatilities** for each asset over two time horizons: short-term and long-term.
- All combinations are then screened to identify the highest return portfolio for 5% target volatility, subject to allocation constraints (see “Max Allocation” per asset).

Asset Class	Description	Max Allocation
Equities		
	US Large Caps Equities	66%
	US Tech Equities	66%
	Eurozone Equities	33%
	Japan Equities	33%
Fixed Income		
	5-Year US Treasury Note	100%
	5-Year German Bobl	100%
	10-Year Japanese Bond	100%
Commodities		
	Diversified	100%

		US Large Caps	US Tech	Eurozone	Japan	U.S.	German	Japan	Diversified
EQUITIES	US Large Caps	100%							
	US Tech	92%	100%						
	Eurozone	77%	67%	100%					
	Japan	61%	55%	65%	100%				
FIXED INCOME	U.S.	-21%	-15%	-30%	-27%	100%			
	German	-13%	-7%	-24%	-16%	70%	100%		
	Japan	-3%	-1%	-12%	-15%	44%	46%	100%	
COMMODITY	Diversified	17%	14%	22%	16%	-8%	-12%	-5%	100%

Low correlation, Higher potential benefits of diversification

High correlation, Lower potential benefits of diversification

* Correlations of weekly price moves between asset classes from December 31, 2007 to December 31, 2024.

“Don’t put all of your eggs in one basket.”

This time-tested investment analogy describes the diversification concept and suggests that spreading your allocations tends to reduce the possibility that a single investment could adversely affect the overall portfolio. Generally, the lower the correlation between two assets, the higher the diversification benefit.

The correlation table to the left* illustrates the different correlation levels across asset classes and across three of the world’s most established markets: the U.S., Europe and Japan.

2 – Dynamic Allocation

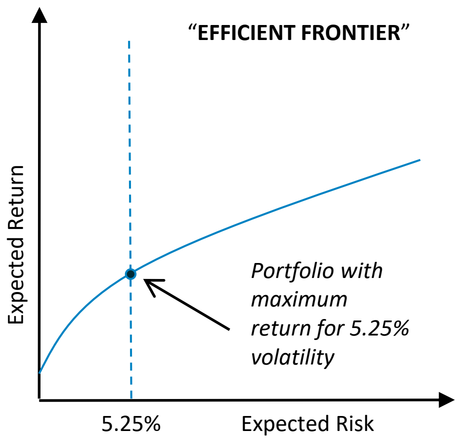
"Efficient Frontier" Philosophy: Generating Maximum Returns for a Given Risk Level

Deriving from modern portfolio theory and the efficient frontier philosophy, the Index uses a Mean-Variance Optimization ("MVO") algorithm, among the most widely used tools for asset allocation.

On a daily basis, the Index Component weights are determined by analyzing historical returns and volatility for each Index Component and the historical correlation between those returns and volatility for each Index Component. The Index Methodology seeks to determine the Portfolio that had the maximum historical return with 5.25% annualized volatility. The exposure of the Index to each market sector and the weighting of each Index Component are subject to specific limits such that 100%, 300% and 100% maximum exposure of Equities, Fixed Income and Commodities respectively to the Index.

Market Data for Index Components

- Historical returns
- Historical volatility
- Historical correlation among the underlying asset



Average Historical Weights*

- Equities 27%
- Fixed Income 114%
- Commodities 59%

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Index Methodology

- Asset Universe
- Allocation Constraints
  - Maximum/minimum weights for each market
  - Maximum weight for each Asset Class
  - Daily MVO rebalancing for a daily volatility target of 5.25%

2 – Dynamic Allocation

How do the Tailored Asset Class Overlays Work?

The Index seeks to dynamically adjust exposures within asset classes to take into account different risk and return characteristics of equities, bonds and commodities through tailored asset class overlays.

Equities Overlay	Fixed Income Overlay	Commodities Overlay
• **An Intraday Momentum overlay** is applied to the US Equity components to account for the stronger intraday momentum that equity markets tend to exhibit particularly in times of stress.	• **A Dynamic Duration adjustment** is applied to the Bond components allowing for a paring back of exposure in a rising rate environment.	• **A Commodity Curve Strategy** serves as the base for the Commodity component such that performance is not based on the commodities themselves but instead the carry difference in longer dated and shorter dated futures contracts.

Equities Overlay

Intraday Momentum

- **What is Intraday Momentum?** In US equity markets, it has been observed that if the market is lower during the day from where it closed the previous day, it will tend to continue to move lower to the end of the day
- The Intraday Momentum feature seeks to reduce US equity exposures during the day if Intraday Momentum is observed
- Whilst this feature can reduce the equity exposure down to 0% during the day, at the end of each day, the targeted equity exposure is restored based on the Efficient Frontier output

- How Does Equities Intraday Rebalancing Work?

If a negative return from previous days close → Reduce exposure to equity during the day

Reduced downside participation if equities continue to fall during the day

Reduced upside participation if the market recovers and rallies during the day

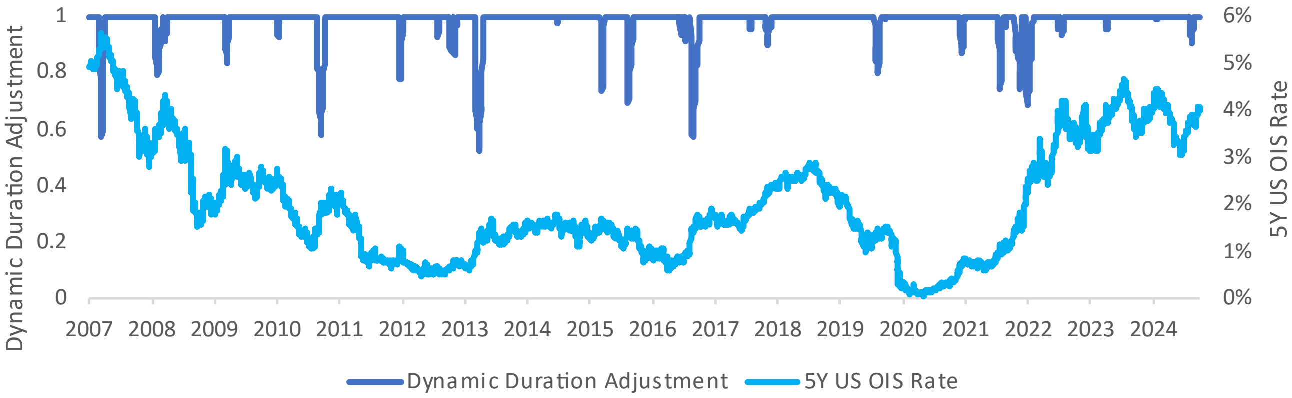
2 – Dynamic Allocation

How do the Tailored Asset Class Overlays Work?

Fixed Income Overlay

- **What is a Dynamic Duration adjustment?** The ratio of short- and long-term price moving averages is used to compute the trend and resulting Fixed Income exposure
- The signal is designed to be reactive to changing interest rate environments but limits the maximum daily change in allocation to avoid significant swings between consecutive days.

Dynamic Duration Adjustment of Bond Bucket vs. 5Y U.S. Swap Rate – Illustrative Only[1]



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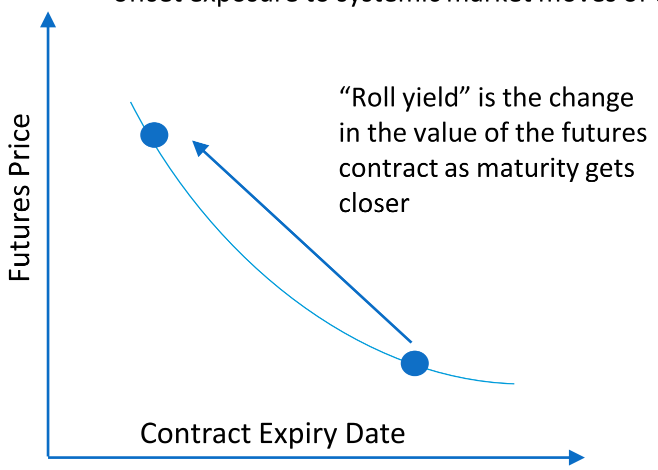
Commodities Overlay

- The commodities allocation is a beta neutral long-short commodity index, seeking to provide investment returns that are not correlated to commodity market cycles or the equity and fixed income exposures.
  - The long component tracks a diversified basket of commodity exposures, investing in the futures contracts of each commodity which have the most attractive roll yield.
  - The short component is a beta-adjusted notional to a broad benchmark index, designed to offset exposure to systemic market moves of the long component.



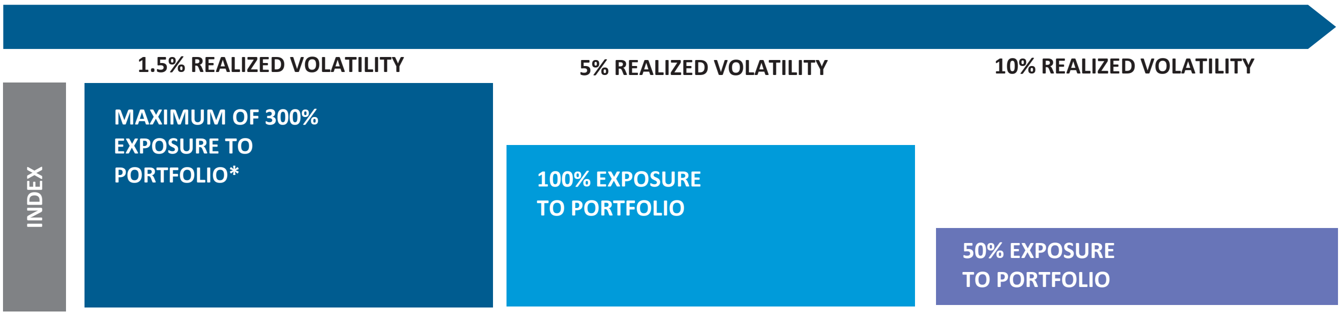
- Supply and demand dynamics in the commodity market can lead to parts of the futures curve which are cheaper to invest in than other parts.
- By investing in these parts of the curve and selling the benchmark to remove the overall market beta, uncorrelated returns are generated.

3 – Risk Control: How Does the Volatility Control Work?

The Index aims to maximize returns across the dynamic portfolio for a defined level of risk. On a daily basis, the Index methodology monitors the volatility of the portfolio and adjusts the exposure so that the targeted annualized volatility of the Index remains around 5%.

This means that in higher volatility environments, the Index will take less exposure to the Portfolio of Equities, bonds and commodities. As volatility falls, the Index will take more exposure to the Portfolio (up to the maximum limit of 3x the Index level). The overall goal of this "volatility target" mechanism is for the returns of the Index to be smoother than they would be otherwise.

What is the Exposure to the Portfolio of Index Components in Different Market Conditions?



*Portfolio means global equities, government bonds and major commodities.
Source: Morgan Stanley, illustrative only.

Volatility Target Mechanism

The aim of the volatility target mechanism is to stabilize the realized volatility of the Index at approximately 5%, by adjusting the allocation between the Portfolio of equities, bonds and commodities.

The maximum exposure of the Index to the Portfolio of equities, bonds and commodities is 3x the Index level. The allocation to cash will be the difference between 100% and the actual exposure to the Portfolio.

Historically, volatility tends to be higher when markets are falling. Volatility of a portfolio can be decreased by reducing the allocation to volatile assets.

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.

Historical 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.

Intraday Volatility Control: Quick De-Levering to Adjust to Changing Market Conditions

The volatility of the US equity assets is updated one hour prior to the adjustment in exposure to the portfolio to allow for quick de-leveraging and faster adjustment to potential changing market conditions.

Summary of the Index

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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 positive change or increase the negative change in the Index level and thus decreases the return of any product linked to the Index. The volatility control calculation applied by Morgan Stanley as part of the Index’s methodology may decrease the Index’s performance and thus 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.

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 3, 2007 and March 17, 2022, 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. 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.

Risk Factors

The following is a non-exhaustive list of key risk factors related to the Index. If you are considering purchasing or investing in a product linked to the performance of the Index, you should read and be aware of the risks inherent to this Index. You should also consult with your investment, legal, tax, accounting and other advisors prior to investing or purchasing such products. Neither Morgan Stanley nor any other party (including without limitation any calculation agents or data providers) makes any representation or warranty, express or implied, regarding the advisability of purchasing any such product.

Neither Morgan Stanley nor any other party (including without limitation any calculation agents or data providers) makes any representation or warranty, express or implied, regarding the advisability of purchasing any such product. Morgan Stanley does not have any obligation or liability to owners of any products in connection with the administration or marketing of such product, and neither Morgan Stanley nor any other party guarantees the accuracy and/or the completeness of the Index or any data included therein.

- **The level of the Index can go down**. The Index components are exposed to various risk and their market price may be influenced by many unpredictable factors including risks associated with global equities markets, currency exchange rates, interest rates, commodities, and precious metals.
- **There are risks relating to the volatility target mechanism**. The Index's volatility target mechanism is applied to target an overall level of realized volatility equal to 5% but the realized volatility may be less than or greater than 5% and the volatility target may adversely affect Index performance. The Index may have greater than 100% exposure (up to 300%) to the various Index components at any time as a result of the volatility target mechanism, which may exacerbate losses and subsequent deleveraging may increase the time taken to recover from a drawdown event.
- **There are risks associated with leverage**. The Index rules contemplate the possibility of leverage within the Index to achieve the 5% volatility target, which is expected to magnify declines.
- The Index has a limited performance history and **past performance is no indication of future performance**.
- **The Index has embedded costs**, including but not limited to transaction costs, futures roll cost and margin costs. The components that are used in constructing the Index include adjustments for costs associated with trading within and between various components, as applicable. The return of such components and, as a result, the return of the Index will be lower than if there were no associated costs.
- Purchasers of products linked to the index will have **no access to the assets underlying the Index**.
- **The Index methodology is fixed** subject to certain adjustments and will not change over time even if the Index underperforms a relevant benchmark.
- Morgan Stanley and its affiliates may from time to time engage in transactions involving the components of the Index, which **may negatively impact the level of the Index**.