S&P Dow Jones Indices

A Division of S&P Global

CONSULTATION

S&P Managed Risk 2.0 Index Series Consultation − Updated

NEW YORK, JANUARY 28, 2020: S&P Dow Jones Indices ("S&P DJI") is conducting a consultation with members of the investment community on potential changes to the S&P Managed Risk 2.0 Index Series.

In an effort to limit index turnover and reduce the occurrence of minor asset weight adjustments, S&P DJI is proposing to expand the target volatility threshold, as well as introduce a minimum daily allocation change and mark-to-market weighting in determining the final asset weights. The changes are outlined in the following tables:

Target Volatility Threshold	
Current	0.5%
Proposed	1.0%

Minimum Daily Allocation Change	
Current	--
Proposed	5.0% for the S&P 400 Managed Risk 2.0 Index, S&P 600 Managed Risk 2.0 Index, and S&P EPAC Ex. Korea LargeMidCap Managed Risk 2.0 Index. 3.0% for the S&P 500 Managed Risk 2.0 Index, and S&P EM 100 Managed Risk 2.0 Index.

Mark-to-Market Weights	
Current	--
Proposed	Mark-to-market weights are determined as: $mmw_{E,t} = \frac{W_{E,t-1} * \frac{E_t}{E_{t-1}}}{W_{E,t-1} * \frac{E_t}{E_{t-1}} + W_{B,t-1} * \frac{B_t}{B_{t-1}} * \left(1 - W_{E,t-1} - W_{B,t-1}\right) * \frac{C_t}{C_{t-1}}}$ $mmw_{B,t} = \frac{W_{B,t-1} * \frac{B_t}{B_{t-1}}}{W_{E,t-1} * \frac{E_t}{E_{t-1}} + W_{B,t-1} * \frac{B_t}{B_{t-1}} + \left(1 - W_{E,t-1} - W_{B,t-1}\right) * \frac{C_t}{C_{t-1}}}$

Theoretical Asset Weights	
Current	--
Proposed	Theoretical asset weights are determined as: $thw_{E,t} = \varphi_t * tw_{E,t} + (1 - \varphi_t) * mmw_{E,t}$ $thw_{B,t} = \varphi_t * \min\left(tw_{B,t}, \omega_t * (1 - tw_{E,t})\right) + (1 - \varphi_t) * mmw_{B,t}$

Reference Equity Weight	
Current	--
Proposed	Reference equity weight is determined as: *If* $TradeBoolean_{t-1}$ *= True* *Then* $refw_{E,t} = thw_{E,t-1}$ *Else* $refw_{E,t} = W_{E,t}$

Trade Decision	
Current	--
Proposed	The trade decision is based on the difference between the theoretical and reference equity weights: *If* $\left\lvert refw_{E,t} - thw_{E,t} \right\rvert \geq \underline{\delta}$ *Then* $TradeBoolean_t$ *= True* *Else* *If* $thw_{E,t} = 1$ *and* $W_{E,t} < 1$ *and not (*$thw_{E,t-1} = 1$ *and* $W_{E,t-1} < 1$ *)* *Then* $TradeBoolean_t$ *= True* *Else* $TradeBoolean_t$ *= False*

Final Asset Weights	
Current	$W_{E,t} = \varphi_t * tw_{E,t} + (1 - \varphi_t) * W_{E,t-1}$ $W_{B,t} = \varphi_t * \min(tw_{B,t}, \omega_t * (1 - tw_{E,t})) + (1 - \varphi_t) * W_{B,t-1}$
Proposed	In the event that a trade was triggered, the final asset weights are determined by the two-day lagged theoretical weights. Otherwise, they are determined by marking to market the prior day's weights: *If* $TradeBoolean_{t-2}$ *= True* *Then* $W_{E,t} = thw_{E,t-2}$ $W_{B,t} = thw_{B,t-2}$ *Else* $W_{E,t} = mmw_{E,t}$ $W_{B,t} = mmw_{B,t}$

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Additionally, the current day mark-to-market weights are being proposed as a replacement for the previous day's equity and fixed income weights to calculate the short- and long-term volatility of the underlying portfolio in determining the target volatility of the index.

Target Volatility	
Current	The target volatility of the index calculated as: $\sigma_t^2 = min\left((\sigma+\varepsilon)^2, max\left((\sigma-\varepsilon)^2, Variance_{S,t}, Variance_{L,t}\right)\right)$ where: $Variance_{S,t}$ = Short-term variance of the portfolio calculated as: $$Variance_{S,t} = \frac{W_{E,t-1}{}^2 * EquityVariance_{S,t} + \left(W_{B,t-1} + H\frac{M}{D}\right)^2 * FIVariance_{S,t} + 2 * W_{E,t-1} * \left(W_{B,t-1} + H\frac{M}{D}\right)^2 * Covariance_{S,t}}{(1+H)^2}$$ $Variance_{L,t}$ = Long-term variance of the portfolio calculated as: $$Variance_{L,t} = \frac{W_{E,t-1}{}^2 * EquityVariance_{L,t} + \left(W_{B,t-1} + H\frac{M}{D}\right)^2 * FIVariance_{L,t} + 2 * W_{E,t-1} * \left(W_{B,t-1} + H\frac{M}{D}\right)^2 * Covariance_{L,t}}{(1+H)^2}$$
Proposed	The target volatility of the index calculated as: $\sigma_t^2 = min\left((\sigma+\varepsilon)^2, max\left((\sigma-\varepsilon)^2, Variance_{S,t}, Variance_{L,t}\right)\right)$ where: $Variance_{S,t}$ = Short-term variance of the portfolio calculated as: $$Variance_{S,t} = \frac{mmw_E{}^2 * EquityVariance_{S,t} + \left(mmw_B + H\frac{M}{D}\right)^2 * FIVariance_{S,t} + 2 * mmw_E * \left(mmw_B + H\frac{M}{D}\right)^2 * Covariance_{S,t}}{(1+H)^2}$$ $Variance_{L,t}$ = Long-term variance of the portfolio calculated as: $$Variance_{L,t} = \frac{mmw_E{}^2 * EquityVariance_{L,t} + \left(mmw_B + H\frac{M}{D}\right)^2 * FIVariance_{L,t} + 2 * mmw_E * \left(mmw_B + H\frac{M}{D}\right)^2 * Covariance_{L,t}}{(1+H)^2}$$

For more information, please refer to the S&P Managed Risk 2.0 Index Series Methodology available here.

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IMPACT ANALYSIS

The tables below and on the following page show the actual risk-return characteristics and turnover, as well as the hypothetical results that would have occurred had all of the proposed changes been applied from the respective index first value dates to June 28, 2019.

Index	Performance	Actual	Hypothetical
S&P 400 Managed Risk 2.0 Index	Return	10.91%	10.87%
	Volatility	12.47%	12.44%
	Return/Volatility	0.8750	0.8739
	Maximum Drawdown	-19.67%	-19.80%
	Daily Turnover	1.06%	0.83%
	No. of Trading Days	4135	369
S&P 500 Managed Risk 2.0 Index	Return	10.37%	10.45%
	Volatility	11.68%	11.72%
	Return/Volatility	0.8879	0.8920
	Maximum Drawdown	-24.07%	-23.94%
	Daily Turnover	0.95%	0.88%
	No. of Trading Days	4169	632
S&P 600 Managed Risk 2.0 Index	Return	9.75%	9.75%
	Volatility	12.95%	13.04%
	Return/Volatility	0.7527	0.7474
	Maximum Drawdown	-23.78%	-23.35%
	Daily Turnover	1.39%	1.01%
	No. of Trading Days	4264	307
S&P EPAC Ex. Korea LargeMidCap Managed Risk 2.0 Index	Return	7.02%	7.12%
	Volatility	10.95%	10.98%
	Return/Volatility	0.6408	0.6488
	Maximum Drawdown	-31.23%	-31.09%
	Daily Turnover	1.19%	0.83%
	No. of Trading Days	6848	365
S&P EM 100 Managed Risk 2.0 Index	Return	8.09%	8.18%
	Volatility	11.91%	11.98%
	Return/Volatility	0.6794	0.6825
	Maximum Drawdown	-32.22%	-30.47%
	Daily Turnover	1.50%	1.33%
	No. of Trading Days	3705	668

QUESTIONS

Please answer the following questions and provide S&P DJI with the reasoning behind your answers:

1. **Do you agree with the proposed change to the target volatility threshold?**
2. **Do you agree with the proposed change to introduce a minimum daily allocation change?**
3. **Do you agree with the proposed change to introduce mark-to-market weighting for trade decision purposes?**
4. **When should these proposed changes be implemented, should any be adopted?**
5. **Do you have any other comments or feedback regarding the proposed changes outlined above?**

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Your participation in this consultation is important as we gather information from various market participants in order to properly evaluate your views and preferences. S&P DJI will make responses to consultations externally available upon request.[1] If you do not want your response to be made available, you must clearly state that in your response. Please respond to this survey by **February 26, 2020**. After this date, S&P DJI will no longer accept survey responses. Prior to the Index Committee's final review, S&P DJI will consider the issues and may request clarifications from respondents as part of that review. Alternative options to the proposed questions after the deadline require that the consultation be re-opened to the public.

To participate in this consultation, please visit the online survey available here.

For further information about this consultation, please contact S&P Dow Jones Indices at index_services@spglobal.com.

Please be advised that all comments from this consultation will be reviewed and considered before a final decision is made; however, S&P DJI makes no guarantees or is under any obligation to comply with any of the responses. The survey may result in no changes or outcome of any kind. If S&P DJI decides to change the index methodology, an announcement will be posted on our website.

Thank you for taking the time to complete this survey.

For more information about S&P Dow Jones Indices, please visit *www.spdji.com*.

ABOUT S&P DOW JONES INDICES

S&P Dow Jones Indices is the largest global resource for essential index-based concepts, data and research, and home to iconic financial market indicators, such as the S&P 500® and the Dow Jones Industrial Average®. More assets are invested in products based on our indices than products based on indices from any other provider in the world. Since Charles Dow invented the first index in 1884, S&P DJI has been innovating and developing indices across the spectrum of asset classes helping to define the way investors measure and trade the markets.

S&P Dow Jones Indices is a division of S&P Global (NYSE: SPGI), which provides essential intelligence for individuals, companies and governments to make decisions with confidence. For more information, visit *www.spdji.com*.

FOR MORE INFORMATION:

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[1] Individual and company names as well as contact details will be redacted.