

Canada Persistence Scorecard

Contributors

Berlinda Liu, CFA

Director
Global Research & Design
berlinda.liu@spglobal.com

Gaurav Sinha

Managing Director
Head of Americas
Global Research & Design
gaurav.sinha@spglobal.com

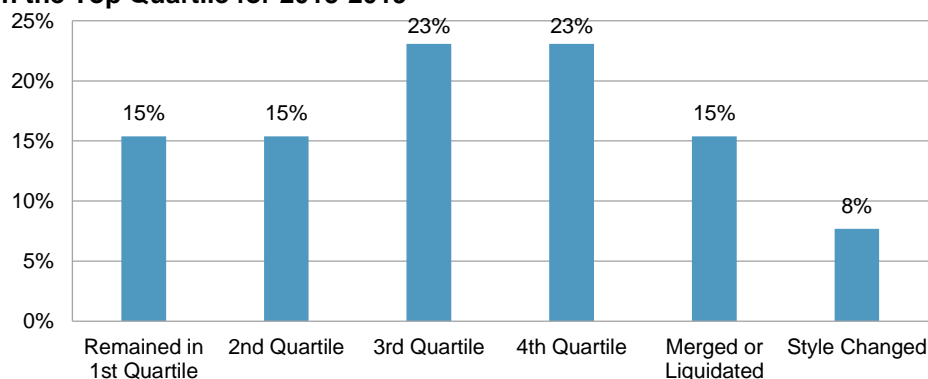
SUMMARY

Our widely followed [SPIVA® Canada Scorecard](#) repeatedly shows that most Canadian active managers underperform their benchmarks most of the time. However, if an active manager beats a benchmark, how do we know whether the result is a product of genuine skill or merely of good luck? Genuine skill is likely to persist, while luck is random and can soon dissipate.

The Persistence Scorecard attempts to distinguish luck from skill by measuring the consistency of active managers' success. The inaugural Canada Persistence Scorecard shows that, **regardless of asset class or style focus, few Canadian fund managers have consistently outperformed their peers.**

For example, across all seven categories we track, none of the equity funds in their category's top quartile in 2015 maintained that status annually through 2019. If we consider funds in the top half of 2015's performance distribution, in six of the seven categories fewer than 5% of funds maintained their performance over the next four years (see Report 2). Coin flippers had higher odds of success.¹

Exhibit 1: Only 15% of Top-Quartile Domestic Funds over 2010-2014 Stayed in the Top Quartile for 2015-2019



Source: S&P Dow Jones Indices LLC, Fundata Canada Inc. Data as of Dec. 31, 2019. CIFSC categorizations are used. Financial information provided by Fundata Canada Inc. Chart is provided for illustrative purposes. Past performance is no guarantee of future results.

¹ The odds of a top-half fund in one year randomly staying in the top half over the next four years are $50\% * 50\% * 50\% * 50\% = 6.25\%$, or 1/16.

Lengthening the horizon to consider performance over two consecutive five-year periods, Exhibit 1 shows that the top-quartile domestic equity funds of 2010-2014 had little luck maintaining their top-quartile status during the 2015-2019 period. **Only 30% of them managed to beat the median while 23% ended up in liquidation or had a style change.**

The dismal persistence of performance across the past five years deserves a special note (see Report 2). **Looking at Canadian Equity and Canadian Dividend & Income Equity funds, none of the top quartile funds of 2015 managed to make it into the top quartile for 2016.** This may reflect the difficulty of market timing during extreme market swings: the [S&P/TSX Composite Index](#) was down 8.3% in 2015 before gaining 21.1% in 2016. As such, funds within a category that were more defensively positioned may have outperformed their peers in 2015, but did not pivot in time to make the most of 2016's gains.

The transition matrices evaluate performance over longer periods, and reinforce the idea that performance is inconsistent. **The top half of Canadian Equity and Global Equity funds of 2014-2016 had a barely better than even chance (52%) of remaining in the top half over the 2017-2019 period.** In the other five categories, the odds of remaining in the top half were below 50% (see Report 4).

Similarly, a five-year transition matrix showed every category clustering between a 40%-55% probability of top half funds remaining in the top half (see Report 6).

Unsurprisingly, **the one pattern that did hold across categories was the tendency of the poorest funds to close.** Fourth-quartile funds were generally the most likely to merge or liquidate over the subsequent three- and five-year windows, with 71% of Canadian Focused Equity and 54% of Canadian Equity bottom quartile funds in the 2010-2014 period disappearing by 2019 (see Report 5).

Similar to the [U.S. Persistence Scorecard](#), style changes did not appear to be correlated with fund performance. Top, middle, and bottom performers within a category all generally had similar chances of style drift over three- or five-year periods. Further calculation shows that, over a five-year period, Canadian Dividend & Income Equity funds had the highest percentage of style change (9%²), with International Equity funds leading the way over a three-year period (5%³).

² Report 5 shows that 4 (8.33%*12 +0%*11+16.67%*12+8.33%*11) out of the 47 Canadian Dividend & Income Equity Funds had a style drift over a five-year period.

³ Report 3 shows that 3 (7.14%*14 +0%*13+7.14%*14 +7.14%*14) out of the 55 International Equity Funds had a style drift over a three-year period.

ABOUT THE PERSISTENCE SCORECARD

The phrase “past performance is no guarantee of future results” (or some variation thereof) can be found in the fine print of most mutual fund literature. Yet many investors and advisors consider past performance and related metrics to be important factors in fund selection. So does past performance really matter?

To answer this question, the semiannual S&P Persistence Scorecard tracks the degree to which historical relative performance is predictive of future relative performance. As in our widely followed SPIVA Scorecards, Fundata Canada serves as our underlying data source. This scorecard highlights performance persistence over three and five consecutive 12-month periods and two non-overlapping three- and five-year periods.

Key features of the S&P Persistence Scorecard include:

- **Historical rankings without survivorship bias:** For anyone making an investment decision, all funds available at the time of that decision are part of the initial opportunity set. Ignoring funds that liquidate or merge during a period of study biases measurements of persistence. Using the Fundata Canada database, the S&P Persistence Scorecard ranks all funds available at each point in time and tracks the top-quartile and top-half performers throughout the time period.
- **Clean universe:** The mutual fund universe used in these reports comprises actively managed Canadian equity funds. Index funds, sector funds, and index-based dynamic (bull or bear) funds are excluded from the sample. To avoid double counting multiple share classes, only the share class with the highest previous period return of each fund is used.
- **Transition matrices:** Transition matrices show the movements between quartiles and halves over non-overlapping three- and five-year periods. They also track the percentage of funds that have merged or liquidated. In addition, we monitor movements across capitalization levels. This helps us capture, for example, the conversion of some large-cap funds to mid- and small-cap funds.
- **Tracking reports of top performers:** The tracking reports show the percentages of funds that remain in the top-quartile or top-half rankings over consecutive three- and five-year periods.

S&P Dow Jones Indices chooses funds that have, at any point in the previous 120 months, been classified in at least one of the following seven Canadian Investment Funds Standards Committee (CIFSC)⁴ categories.

- Canadian Equity
- Canadian Small-/Mid-Cap Equity
- Canadian Dividend & Income Equity
- U.S. Equity
- International Equity
- Global Equity
- Canadian Focused Equity

⁴ Refer to www.cifsc.org for additional information regarding CIFSC and its categories.

The categories reviewed in this report represent the major areas of interest for Canadian market participants. As a result of the foreign content limit removal in 2005, an increasing number of Canadian market participants started redeploying funds outside of Canada to gain international equity exposure. Funds in the Canadian Focused Equity category include non-Canadian equity exposure.

REPORTS

Report 1: Performance Persistence of Domestic Equity Funds over Three Consecutive 12-Month Periods			
FUND CATEGORY	FUND COUNT AT START (DECEMBER 2017)	PERCENTAGE REMAINING IN TOP QUARTILE	
		DECEMBER 2018	DECEMBER 2019
TOP QUARTILE			
Canadian Dividend & Income Equity	12	50.00	33.33
Canadian Equity	14	35.71	7.14
Canadian Focused Equity	21	38.10	19.05
Canadian Small-/Mid-Cap Equity	8	37.50	0.00
Global Equity	35	48.57	28.57
International Equity	14	7.14	0.00
U.S. Equity	27	55.56	33.33
FUND CATEGORY	FUND COUNT AT START (DECEMBER 2017)	PERCENTAGE REMAINING IN TOP HALF	
		DECEMBER 2018	DECEMBER 2019
TOP HALF			
Canadian Dividend & Income Equity	23	56.52	43.48
Canadian Equity	27	44.44	18.52
Canadian Focused Equity	42	38.10	23.81
Canadian Small-/Mid-Cap Equity	15	60.00	26.67
Global Equity	72	51.39	40.28
International Equity	27	40.74	22.22
U.S. Equity	53	64.15	47.17

Source: S&P Dow Jones Indices LLC, Fundata Canada Inc. Data as of Dec. 31, 2019. CIFSC categorizations are used. Financial information provided by Fundata Canada Inc. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

Report 2: Performance Persistence of Domestic Equity Funds over Five Consecutive 12-Month Periods						
FUND CATEGORY	FUND COUNT AT START (DECEMBER 2015)	PERCENTAGE REMAINING IN TOP QUARTILE				
		DECEMBER 2016	DECEMBER 2017	DECEMBER 2018	DECEMBER 2019	
TOP QUARTILE						
Canadian Dividend & Income Equity	13	0.00	0.00	0.00	0.00	0.00
Canadian Equity	18	0.00	0.00	0.00	0.00	0.00
Canadian Focused Equity	22	9.09	4.55	4.55	0.00	0.00
Canadian Small-/Mid-Cap Equity	8	25.00	12.50	0.00	0.00	0.00
Global Equity	42	7.14	4.76	0.00	0.00	0.00
International Equity	15	13.33	6.67	0.00	0.00	0.00
U.S. Equity	27	3.70	0.00	0.00	0.00	0.00
FUND CATEGORY	FUND COUNT AT START (DECEMBER 2015)	PERCENTAGE REMAINING IN TOP HALF				
		DECEMBER 2016	DECEMBER 2017	DECEMBER 2018	DECEMBER 2019	
TOP HALF						
Canadian Dividend & Income Equity	25	24.00	16.00	16.00	4.00	4.00
Canadian Equity	35	31.43	20.00	14.29	2.86	2.86
Canadian Focused Equity	43	32.56	11.63	9.30	2.33	2.33
Canadian Small-/Mid-Cap Equity	16	43.75	25.00	18.75	18.75	18.75
Global Equity	83	27.71	13.25	3.61	3.61	3.61
International Equity	30	36.67	23.33	10.00	3.33	3.33
U.S. Equity	55	27.27	7.27	3.64	1.82	1.82

Source: S&P Dow Jones Indices LLC, Fundata Canada Inc. Data as of Dec. 31, 2019. CIFSC categorizations are used. Financial information provided by Fundata Canada Inc. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

Report 3: Three-Year Transition Matrix – Performance over Two Non-Overlapping Three-Year Periods (Based on Quartile)							
QUARTILE	FUND COUNT AT START (2014-2016)	THREE-YEAR PERCENTAGES AT END (2017-2019)					
		1ST QUARTILE (%)	2ND QUARTILE (%)	3TH QUARTILE (%)	4TH QUARTILE (%)	MERGED/LIQUIDATED (%)	STYLE CHANGED (%)
CANADIAN DIVIDEND & INCOME EQUITY							
1st Quartile	12	33.33	16.67	16.67	8.33	8.33	16.67
2nd Quartile	12	8.33	33.33	33.33	16.67	8.33	0.00
3rd Quartile	12	16.67	16.67	8.33	33.33	25.00	0.00
4th Quartile	13	7.69	7.69	15.38	23.08	46.15	0.00
CANADIAN EQUITY							
1st Quartile	15	40.00	26.67	0.00	13.33	20.00	0.00
2nd Quartile	14	7.14	28.57	35.71	7.14	14.29	7.14
3rd Quartile	14	7.14	0.00	7.14	28.57	50.00	7.14
4th Quartile	15	6.67	6.67	26.67	20.00	40.00	0.00
CANADIAN FOCUSED EQUITY							
1st Quartile	22	27.27	4.55	22.73	18.18	27.27	0.00
2nd Quartile	21	28.57	19.05	14.29	9.52	28.57	0.00
3rd Quartile	22	4.55	4.55	0.00	9.09	72.73	9.09
4th Quartile	22	0.00	31.82	13.64	27.27	27.27	0.00
CANADIAN SMALL-/MID-CAP EQUITY							
1st Quartile	9	44.44	11.11	22.22	11.11	11.11	0.00
2nd Quartile	8	12.50	25.00	50.00	0.00	12.50	0.00
3rd Quartile	8	12.50	25.00	0.00	62.50	0.00	0.00
4th Quartile	9	11.11	11.11	11.11	11.11	55.56	0.00
GLOBAL EQUITY							
1st Quartile	36	50.00	19.44	19.44	8.33	2.78	0.00
2nd Quartile	35	14.29	20.00	20.00	17.14	25.71	2.86
3rd Quartile	35	5.71	17.14	20.00	25.71	31.43	0.00
4th Quartile	36	8.33	16.67	19.44	27.78	25.00	2.78
INTERNATIONAL EQUITY							
1st Quartile	14	28.57	35.71	21.43	0.00	7.14	7.14
2nd Quartile	13	7.69	23.08	30.77	23.08	15.38	0.00
3rd Quartile	14	7.14	0.00	14.29	14.29	57.14	7.14
4th Quartile	14	21.43	14.29	0.00	35.71	21.43	7.14
U.S. EQUITY							
1st Quartile	24	12.50	20.83	25.00	29.17	8.33	4.17
2nd Quartile	24	33.33	12.50	16.67	25.00	12.50	0.00
3rd Quartile	24	8.33	25.00	20.83	12.50	33.33	0.00
4th Quartile	25	24.00	20.00	16.00	12.00	28.00	0.00

Source: S&P Dow Jones Indices LLC, Fundata Canada Inc. Data as of Dec. 31, 2019. CIFSC categorizations are used. Financial information provided by Fundata Canada Inc. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

Report 4: Three-Year Transition Matrix – Performance over Two Non-Overlapping Three-Year Periods (Based on Halves)					
HALF	FUND COUNT AT START (2014-2016)	THREE-YEAR PERCENTAGES AT END (2017-2019)			
		TOP HALF (%)	BOTTOM HALF (%)	MERGED/LIQUIDATED (%)	STYLE CHANGED (%)
CANADIAN DIVIDEND & INCOME EQUITY					
Top Half	24	45.83	37.50	8.33	8.33
Bottom Half	25	24.00	40.00	36.00	0.00
CANADIAN EQUITY					
Top Half	29	51.72	27.59	17.24	3.45
Bottom Half	29	10.34	41.38	44.83	3.45
CANADIAN FOCUSED EQUITY					
Top Half	43	39.53	32.56	27.91	0.00
Bottom Half	44	20.45	25.00	50.00	4.55
CANADIAN SMALL-/MID-CAP EQUITY					
Top Half	17	47.06	41.18	11.76	0.00
Bottom Half	17	29.41	41.18	29.41	0.00
GLOBAL EQUITY					
Top Half	71	52.11	32.39	14.08	1.41
Bottom Half	71	23.94	46.48	28.17	1.41
INTERNATIONAL EQUITY					
Top Half	27	48.15	37.04	11.11	3.70
Bottom Half	28	21.43	32.14	39.29	7.14
U.S. EQUITY					
Top Half	48	39.58	47.92	10.42	2.08
Bottom Half	49	38.78	30.61	30.61	0.00

Source: S&P Dow Jones Indices LLC, Fundata Canada Inc. Data as of Dec. 31, 2019. CIFSC categorizations are used. Financial information provided by Fundata Canada Inc. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

Report 5: Five-Year Transition Matrix – Performance over Two Non-Overlapping Five-Year Periods (Based on Quartile)

QUARTILE	FUND COUNT AT START (2010-2014)	FIVE-YEAR PERCENTAGES AT END (2015-2019)					
		1ST QUARTILE (%)	2ND QUARTILE (%)	3TH QUARTILE (%)	4TH QUARTILE (%)	MERGED/ LIQUIDATED (%)	STYLE CHANGED (%)
CANADIAN DIVIDEND & INCOME EQUITY							
1st Quartile	12	25.00	16.67	16.67	8.33	25.00	8.33
2nd Quartile	11	36.36	18.18	27.27	9.09	9.09	0.00
3rd Quartile	12	8.33	25.00	8.33	16.67	25.00	16.67
4th Quartile	12	0.00	16.67	16.67	33.33	25.00	8.33
CANADIAN EQUITY							
1st Quartile	13	15.38	15.38	23.08	23.08	15.38	7.69
2nd Quartile	13	38.46	23.08	15.38	7.69	15.38	0.00
3rd Quartile	13	7.69	23.08	15.38	15.38	38.46	0.00
4th Quartile	13	0.00	0.00	7.69	23.08	53.85	15.38
CANADIAN FOCUSED EQUITY							
1st Quartile	21	28.57	19.05	14.29	9.52	28.57	0.00
2nd Quartile	20	10.00	25.00	10.00	15.00	35.00	5.00
3rd Quartile	20	15.00	5.00	0.00	25.00	50.00	5.00
4th Quartile	21	0.00	0.00	28.57	0.00	71.43	0.00
CANADIAN SMALL-/MID-CAP EQUITY							
1st Quartile	9	33.33	33.33	22.22	0.00	11.11	0.00
2nd Quartile	8	25.00	12.50	25.00	12.50	12.50	12.50
3rd Quartile	8	0.00	12.50	0.00	37.50	50.00	0.00
4th Quartile	9	0.00	0.00	22.22	22.22	44.44	11.11
GLOBAL EQUITY							
1st Quartile	31	51.61	22.58	3.23	12.90	3.23	6.45
2nd Quartile	30	10.00	23.33	26.67	26.67	6.67	6.67
3rd Quartile	30	10.00	20.00	23.33	23.33	20.00	3.33
4th Quartile	31	9.68	12.90	19.35	6.45	41.94	9.68
INTERNATIONAL EQUITY							
1st Quartile	11	36.36	27.27	18.18	9.09	0.00	9.09
2nd Quartile	11	0.00	18.18	18.18	36.36	18.18	9.09
3rd Quartile	11	9.09	27.27	36.36	9.09	18.18	0.00
4th Quartile	12	16.67	8.33	8.33	25.00	33.33	8.33
U.S. EQUITY							
1st Quartile	19	36.84	10.53	21.05	15.79	10.53	5.26
2nd Quartile	19	31.58	31.58	5.26	5.26	26.32	0.00
3rd Quartile	19	5.26	26.32	36.84	26.32	5.26	0.00
4th Quartile	19	5.26	10.53	15.79	26.32	42.11	0.00

Source: S&P Dow Jones Indices LLC, Fundata Canada Inc. Data as of Dec. 31, 2019. CIFSC categorizations are used. Financial information provided by Fundata Canada Inc. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

Report 6: Five-Year Transition Matrix – Performance over Two Non-Overlapping Five-Year Periods (Based on Halves)					
HALF	FUND COUNT AT START (2010-2014)	FIVE-YEAR PERCENTAGES AT END (2015-2019)			
		TOP HALF (%)	BOTTOM HALF (%)	MERGED/LIQUIDATED (%)	STYLE CHANGED (%)
CANADIAN DIVIDEND & INCOME EQUITY					
Top Half	23	47.83	30.43	17.39	4.35
Bottom Half	24	25.00	37.50	25.00	12.50
CANADIAN EQUITY					
Top Half	26	46.15	34.62	15.38	3.85
Bottom Half	26	15.38	30.77	46.15	7.69
CANADIAN FOCUSED EQUITY					
Top Half	41	41.46	24.39	31.71	2.44
Bottom Half	41	9.76	26.83	60.98	2.44
CANADIAN SMALL-/MID-CAP EQUITY					
Top Half	17	52.94	29.41	11.76	5.88
Bottom Half	17	5.88	41.18	47.06	5.88
GLOBAL EQUITY					
Top Half	61	54.10	34.43	4.92	6.56
Bottom Half	61	26.23	36.07	31.15	6.56
INTERNATIONAL EQUITY					
Top Half	22	40.91	40.91	9.09	9.09
Bottom Half	23	30.43	39.13	26.09	4.35
U.S. EQUITY					
Top Half	38	55.26	23.68	18.42	2.63
Bottom Half	38	23.68	52.63	23.68	0.00

Source: S&P Dow Jones Indices LLC, Fundata Canada Inc. Data as of Dec. 31, 2019. CIFSC categorizations are used. Financial information provided by Fundata Canada Inc. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

S&P DJI RESEARCH CONTRIBUTORS		
Sunjiv Mainie, CFA, CQF	Global Head	sunjiv.mainie@spglobal.com
Jake Vukelic	Business Manager	jake.vukelic@spglobal.com
GLOBAL RESEARCH & DESIGN		
AMERICAS		
Gaurav Sinha	Americas Head	gaurav.sinha@spglobal.com
Laura Assis	Analyst	laura.assis@spglobal.com
Cristopher Anguiano, FRM	Analyst	cristopher.anguiano@spglobal.com
Smita Chirputkar	Director	smita.chirputkar@spglobal.com
Rachel Du	Senior Analyst	rachel.du@spglobal.com
Bill Hao	Director	wenli.hao@spglobal.com
Qing Li	Director	qing.li@spglobal.com
Berlinda Liu, CFA	Director	berlinda.liu@spglobal.com
Lalit Ponnala, PhD	Director	lalit.ponnala@spglobal.com
Maria Sanchez, CIPM	Associate Director	maria.sanchez@spglobal.com
Hong Xie, CFA	Senior Director	hong.xie@spglobal.com
APAC		
Priscilla Luk	APAC Head	priscilla.luk@spglobal.com
Arpit Gupta	Senior Analyst	arpit.gupta1@spglobal.com
Akash Jain	Associate Director	akash.jain@spglobal.com
Anurag Kumar	Senior Analyst	anurag.kumar@spglobal.com
Xiaoya Qu	Senior Analyst	xiaoya.qu@spglobal.com
Yan Sun	Senior Analyst	yan.sun@spglobal.com
Tim Wang	Senior Analyst	tim.wang@spglobal.com
Liyu Zeng, CFA	Director	liyu.zeng@spglobal.com
EMEA		
Andrew Innes	EMEA Head	andrew.innes@spglobal.com
Leonardo Cabrer, PhD	Associate Director	leonardo.cabrer@spglobal.com
Andrew Cairns, CFA	Associate Director	andrew.cairns@spglobal.com
Jingwen Shi	Analyst	jingwen.shi@spglobal.com
INDEX INVESTMENT STRATEGY		
Craig J. Lazzara, CFA	Global Head	craig.lazzara@spglobal.com
Chris Bennett, CFA	Director	chris.bennett@spglobal.com
Fei Mei Chan	Director	feimei.chan@spglobal.com
Tim Edwards, PhD	Managing Director	tim.edwards@spglobal.com
Anu R. Ganti, CFA	Senior Director	anu.ganti@spglobal.com
Sherifa Issifu	Analyst	sherifa.issifu@spglobal.com

GENERAL DISCLAIMER

Copyright © 2020 S&P Dow Jones Indices LLC. All rights reserved. STANDARD & POOR'S, S&P, S&P 500, S&P 500 LOW VOLATILITY INDEX, S&P 100, S&P COMPOSITE 1500, S&P MIDCAP 400, S&P SMALLCAP 600, S&P GIVI, GLOBAL TITANS, DIVIDEND ARISTOCRATS, S&P TARGET DATE INDICES, GICS, SPIVA, SPDR and INDEXOLOGY are registered trademarks of Standard & Poor's Financial Services LLC, a division of S&P Global ("S&P"). DOW JONES, DJ, DJIA and DOW JONES INDUSTRIAL AVERAGE are registered trademarks of Dow Jones Trademark Holdings LLC ("Dow Jones"). These trademarks together with others have been licensed to S&P Dow Jones Indices LLC. Redistribution or reproduction in whole or in part are prohibited without written permission of S&P Dow Jones Indices LLC. This document does not constitute an offer of services in jurisdictions where S&P Dow Jones Indices LLC, S&P, Dow Jones or their respective affiliates (collectively "S&P Dow Jones Indices") do not have the necessary licenses. Except for certain custom index calculation services, all information provided by S&P Dow Jones Indices is impersonal and not tailored to the needs of any person, entity or group of persons. S&P Dow Jones Indices receives compensation in connection with licensing its indices to third parties and providing custom calculation services. Past performance of an index is not an indication or guarantee of future results.

It is not possible to invest directly in an index. Exposure to an asset class represented by an index may be available through investable instruments based on that index. S&P Dow Jones Indices does not sponsor, endorse, sell, promote or manage any investment fund or other investment vehicle that is offered by third parties and that seeks to provide an investment return based on the performance of any index. S&P Dow Jones Indices makes no assurance that investment products based on the index will accurately track index performance or provide positive investment returns. S&P Dow Jones Indices LLC is not an investment advisor, and S&P Dow Jones Indices makes no representation regarding the advisability of investing in any such investment fund or other investment vehicle. A decision to invest in any such investment fund or other investment vehicle should not be made in reliance on any of the statements set forth in this document. Prospective investors are advised to make an investment in any such fund or other vehicle only after carefully considering the risks associated with investing in such funds, as detailed in an offering memorandum or similar document that is prepared by or on behalf of the issuer of the investment fund or other investment product or vehicle. S&P Dow Jones Indices LLC is not a tax advisor. A tax advisor should be consulted to evaluate the impact of any tax-exempt securities on portfolios and the tax consequences of making any particular investment decision. Inclusion of a security within an index is not a recommendation by S&P Dow Jones Indices to buy, sell, or hold such security, nor is it considered to be investment advice.

These materials have been prepared solely for informational purposes based upon information generally available to the public and from sources believed to be reliable. No content contained in these materials (including index data, ratings, credit-related analyses and data, research, valuations, model, software or other application or output therefrom) or any part thereof ("Content") may be modified, reverse-engineered, reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written permission of S&P Dow Jones Indices. The Content shall not be used for any unlawful or unauthorized purposes. S&P Dow Jones Indices and its third-party data providers and licensors (collectively "S&P Dow Jones Indices Parties") do not guarantee the accuracy, completeness, timeliness or availability of the Content. S&P Dow Jones Indices Parties are not responsible for any errors or omissions, regardless of the cause, for the results obtained from the use of the Content. THE CONTENT IS PROVIDED ON AN "AS IS" BASIS. S&P DOW JONES INDICES PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM BUGS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT'S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall S&P Dow Jones Indices Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs) in connection with any use of the Content even if advised of the possibility of such damages.

S&P Global keeps certain activities of its various divisions and business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain divisions and business units of S&P Global may have information that is not available to other business units. S&P Global has established policies and procedures to maintain the confidentiality of certain non-public information received in connection with each analytical process.

In addition, S&P Dow Jones Indices provides a wide range of services to, or relating to, many organizations, including issuers of securities, investment advisers, broker-dealers, investment banks, other financial institutions and financial intermediaries, and accordingly may receive fees or other economic benefits from those organizations, including organizations whose securities or services they may recommend, rate, include in model portfolios, evaluate or otherwise address.