

## Persistence of Australian Active Funds

### Contributors

#### Priscilla Luk

Managing Director  
Global Research & Design  
[priscilla.luk@spglobal.com](mailto:priscilla.luk@spglobal.com)

#### Arpit Gupta

Senior Analyst  
Global Research & Design  
[arpit.gupta1@spglobal.com](mailto:arpit.gupta1@spglobal.com)

#### Tim Wang

Senior Analyst  
Global Research & Design  
[tim.wang@spglobal.com](mailto:tim.wang@spglobal.com)

### EXECUTIVE SUMMARY

- While comparing active funds against a benchmark index is a typical practice used to evaluate their performance, persistence is an additional test that reveals fund managers' skills in different market environments.
- In this report, we measure the performance persistence of active funds that outperformed their peers and benchmarks over consecutive three- and five-year periods, and we analyze their transition matrices over subsequent periods.
- A minority of Australian high-performing funds persisted in outperforming their respective benchmarks or consistently stayed in their respective top quartiles for three consecutive years, and even fewer maintained these traits consistently for the five-year period.
- Out of the top-performing funds in the 12-month period ending June 2016, only 1.0% persistently maintained a top-quartile rank, and 2.0% consistently beat their benchmarks in the following four consecutive years.
- Over two successive three- and five-year periods, the majority of outperforming funds failed to persistently beat their respective benchmarks, and most funds in the top quartile did not stay there consistently.
- Out of the 166 Australian funds that ranked in their respective top quartile in the five-year period ending June 2015, only 31.3% of them remained in the top quartile, and 11.4% were liquidated or merged in the subsequent five-year period.
- Out of the 258 Australian funds that outperformed their respective benchmark in the five-year period ending June 2015, only 28.7% continued to outperform their respective benchmark in the following five-year period, and 14.7% of them were liquidated.
- Overall, the majority of Australian fund categories showed weak performance persistence in top-performing funds across the three- and five-year periods.

## MEASURING PERFORMANCE PERSISTENCE OF AUSTRALIAN ACTIVE FUNDS

Research suggests that actively managed winning streaks are often short lived. Twice a year, S&P Dow Jones Indices releases the Persistence Scorecard, which tracks the performance consistency of U.S. actively managed funds over consecutive years. We have consistently observed that relatively few U.S. active funds can stay at the top for years.<sup>1</sup> In this report, we use similar matrices to measure the persistence of Australian active funds that outperform their benchmarks and their peers over three- and five-year periods. Our study follows the fund categories and benchmarks defined in the [SPIVA® Australia Scorecard](#), a biannual report that tracks the number of active Australian funds that beat their comparable benchmarks over short- and long-term horizons.

Exhibit 1: SPIVA Categories and Their Benchmarks	
SPIVA CATEGORY	BENCHMARK INDEX
Australian Equity General	S&P/ASX 200
Australian Equity Mid- and Small-Cap	S&P/ASX Mid-Small Index
International Equity General	S&P Developed Ex-Australia Large Midcap
Australian Bonds	S&P/ASX Australian Fixed Interest 0+ Index
Australian Equity A-REIT	S&P/ASX 200 A-REIT

Source: S&P Dow Jones LLC and Morningstar. Table is provided for illustrative purposes.

We measure the following matrices based on Australian active funds that maintain a top-quartile ranking among their peers and those that outperform their respective benchmark indices.

1. Performance Persistence over Three Consecutive Years
2. Performance Persistence over Five Consecutive Years
3. Three-Year Transition Matrix – Performance over Two Non-Overlapping Three-Year Periods
4. Five-Year Transition Matrix – Performance over Two Non-Overlapping Five-Year Periods

<sup>1</sup> For details, please refer to the latest [Persistence Scorecard](#).

## SECTION 1: PERSISTENCE OF FUNDS THAT MAINTAIN TOP-QUARTILE RANKING AMONG THEIR PEERS

### Performance Persistence over Three Consecutive 12-Month Periods (June 2017 to June 2020):

In the 12-month period ending June 2018, there were 203 Australian active funds ranked in their respective top quartiles across five fund categories. Of these, 41 (20.2%) remained in the top quartile in the next two consecutive 12-month periods (June 2018-June 2020). Out of the 78 top-performing Australian Equity General funds, 11 of them (14.1%) consistently remained in the top quartile in the following two consecutive 12-month periods. In contrast, only 6.7% of funds in the Australian Bonds categories managed to stay in the top quartile for three consecutive years (see Exhibit 2).

### Performance Persistence over Five Consecutive 12-Month Periods (June 2015 to June 2020):

Out of the 197 top-quartile Australian active funds in the 12-month period ending June 2016, only two of them (1.0%) stayed in the same quartile in the next four consecutive 12-month periods (June 2016-June 2020). No funds in the Australian Equity Mid- and Small-Cap, Australian Bonds, and Australian Equity A-REIT categories managed to stay in the top quartile for five consecutive years (see Exhibit 3).

**Exhibit 2: Performance Persistence of Australian Active Funds over Three Consecutive 12-Month Periods (June 2017 to June 2020)**

FUND CATEGORY	NUMBER OF FUNDS IN TOP QUARTILE AT START	% OF FUNDS STAYING IN TOP QUARTILE		
	JUNE 2018	JUNE 2019	JUNE 2020	
Australian Equity General	78	35.9	14.1	
Australian Equity Mid- and Small-Cap	30	36.7	13.3	
International Equity General	63	46.0	36.5	
Australian Bonds	15	40.0	6.7	
Australian Equity A-REIT	17	35.3	11.8	
<b>All Categories</b>	<b>203</b>	<b>39.4</b>	<b>20.2</b>	

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of June 30, 2020. The fund returns used in the analysis are net of fees, excluding loads. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

**Exhibit 3: Performance Persistence of Australian Active Funds over Five Consecutive 12-Month Periods (June 2015 to June 2020)**

FUND CATEGORY	NUMBER OF FUNDS IN TOP QUARTILE AT START	% OF FUNDS STAYING IN TOP QUARTILE				
	JUNE 2016	JUNE 2017	JUNE 2018	JUNE 2019	JUNE 2020	
Australian Equity General	80	16.3	8.8	2.5	1.3	
Australian Equity Mid- and Small-Cap	27	14.8	7.4	0.0	0.0	
International Equity General	58	15.5	6.9	3.4	1.7	
Australian Bonds	14	28.6	28.6	14.3	0.0	
Australian Equity A-REIT	18	33.3	11.1	0.0	0.0	
<b>All Categories</b>	<b>197</b>	<b>18.3</b>	<b>9.6</b>	<b>3.0</b>	<b>1.0</b>	

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of June 30, 2020. The fund returns used in the analysis are net of fees, excluding loads. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

**Three-Year Transition Matrix (period from June 2014 to June 2017 versus period from June 2017 to June 2020):** The transition matrix tracks the trajectory of funds in each quartile over two non-overlapping periods. Out of the 71 top-quartile funds in the Australian Equity General category in the three-year period ending June 2017, 46.5% remained in the top quartile in the subsequent three-year period (June 2017 to June 2020). Top-quartile funds in the Australian Equity A-REIT category showed the lowest persistence (only 18.8% maintained a top-quartile rank), while those in the Australian Bonds

category had the lowest turnover in the top quartile—75.0% of funds maintained a top-quartile rank (see Exhibit 4).

**Five-Year Transition Matrix (period from June 2010 to June 2015 versus period from June 2015 to June 2020):** Out of the 166 Australian funds that ranked in their respective top quartile in the five-year period ending June 2015, half of them stayed in the top two quartiles in the subsequent five-year period (June 2015 to June 2020). Top-quartile funds in the Australian Equity Mid- and Small-Cap category showed the lowest persistence, with only 13.6% of funds maintaining a top-quartile rank. In contrast, Australian Bonds exhibited the strongest persistence in the top quartile over the two non-overlapping five-year periods (see Exhibit 5).

Exhibit 4: Three-Year Transition Matrix – Performance over Two Non-Overlapping Three-Year Periods (Period from June 2014 to June 2017 versus Period from June 2017 to June 2020)							
QUARTILE	FUND COUNT AT START (JUNE 2017)	THREE-YEAR PERCENTAGES AT END JUNE 2020 (%)					
		1ST QUARTILE	2ND QUARTILE	3RD QUARTILE	4TH QUARTILE	MERGED/ LIQUIDATED	TOTAL
<b>AUSTRALIAN EQUITY GENERAL</b>							
1st Quartile	71	46.5	7.0	16.9	26.8	2.8	100.0
2nd Quartile	71	12.7	43.7	15.5	11.3	16.9	100.0
3rd Quartile	71	8.5	32.4	22.5	23.9	12.7	100.0
4th Quartile	71	18.3	2.8	31.0	23.9	23.9	100.0
<b>AUSTRALIAN EQUITY MID- AND SMALL-CAP</b>							
1st Quartile	24	37.5	12.5	16.7	25.0	8.3	100.0
2nd Quartile	23	26.1	17.4	34.8	21.7	0.0	100.0
3rd Quartile	24	4.2	25.0	29.2	20.8	20.8	100.0
4th Quartile	24	16.7	20.8	8.3	16.7	37.5	100.0
<b>INTERNATIONAL EQUITY GENERAL</b>							
1st Quartile	48	33.3	35.4	14.6	12.5	4.2	100.0
2nd Quartile	47	21.3	19.1	23.4	19.1	17.0	100.0
3rd Quartile	48	16.7	16.7	29.2	20.8	16.7	100.0
4th Quartile	48	14.6	12.5	16.7	33.3	22.9	100.0
<b>AUSTRALIAN BONDS</b>							
1st Quartile	12	75.0	8.3	16.7	0.0	0.0	100.0
2nd Quartile	11	18.2	36.4	36.4	0.0	9.1	100.0
3rd Quartile	11	0.0	45.5	27.3	27.3	0.0	100.0
4th Quartile	12	0.0	0.0	16.7	66.7	16.7	100.0
<b>AUSTRALIAN EQUITY A-REIT</b>							
1st Quartile	16	18.8	37.5	37.5	0.0	6.3	100.0
2nd Quartile	16	31.3	25.0	25.0	12.5	6.3	100.0
3rd Quartile	16	25.0	18.8	12.5	43.8	0.0	100.0
4th Quartile	16	18.8	12.5	18.8	43.8	6.3	100.0
<b>ALL CATEGORIES</b>							
1st Quartile	171	40.9	18.7	18.1	18.1	4.1	100.0
2nd Quartile	168	19.0	31.0	22.6	14.3	13.1	100.0
3rd Quartile	170	11.2	26.5	24.7	24.7	12.9	100.0
4th Quartile	171	15.8	8.8	21.6	30.4	23.4	100.0

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of June 30, 2020. The fund returns used in the analysis are net of fees, excluding loads. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

**Exhibit 5: Five-Year Transition Matrix – Performance over Two Non-Overlapping Five-Year Periods  
(Period from June 2010 to June 2015 versus Period from June 2015 to June 2020)**

QUARTILE	FUND COUNT AT START (JUNE 2015)	FIVE-YEAR PERCENTAGES AT END JUNE 2020 (%)					
		1ST QUARTILE	2ND QUARTILE	3RD QUARTILE	4TH QUARTILE	MERGED/ LIQUIDATED	TOTAL
<b>AUSTRALIAN EQUITY GENERAL</b>							
1st Quartile	70	30.0	12.9	15.7	30.0	11.4	100.0
2nd Quartile	70	18.6	31.4	24.3	11.4	14.3	100.0
3rd Quartile	70	14.3	12.9	22.9	22.9	27.1	100.0
4th Quartile	71	14.1	19.7	14.1	14.1	38.0	100.0
<b>AUSTRALIAN EQUITY MID- AND SMALL-CAP</b>							
1st Quartile	22	13.6	18.2	27.3	22.7	18.2	100.0
2nd Quartile	22	22.7	9.1	27.3	18.2	22.7	100.0
3rd Quartile	22	27.3	27.3	9.1	18.2	18.2	100.0
4th Quartile	22	9.1	18.2	9.1	18.2	45.5	100.0
<b>INTERNATIONAL EQUITY GENERAL</b>							
1st Quartile	47	34.0	25.5	10.6	17.0	12.8	100.0
2nd Quartile	46	13.0	19.6	23.9	17.4	26.1	100.0
3rd Quartile	46	15.2	15.2	10.9	15.2	43.5	100.0
4th Quartile	47	8.5	8.5	25.5	21.3	36.2	100.0
<b>AUSTRALIAN BONDS</b>							
1st Quartile	11	63.6	18.2	18.2	0.0	0.0	100.0
2nd Quartile	11	9.1	45.5	27.3	0.0	18.2	100.0
3rd Quartile	11	18.2	18.2	36.4	27.3	0.0	100.0
4th Quartile	12	0.0	0.0	0.0	58.3	41.7	100.0
<b>AUSTRALIAN EQUITY A-REIT</b>							
1st Quartile	16	31.3	25.0	12.5	25.0	6.3	100.0
2nd Quartile	16	31.3	6.3	12.5	37.5	12.5	100.0
3rd Quartile	16	25.0	31.3	18.8	12.5	12.5	100.0
4th Quartile	17	0.0	23.5	41.2	17.6	17.6	100.0
<b>ALL CATEGORIES</b>							
1st Quartile	166	31.3	18.7	15.7	22.9	11.4	100.0
2nd Quartile	165	18.2	23.6	23.6	15.8	18.8	100.0
3rd Quartile	165	17.6	17.6	18.2	19.4	27.3	100.0
4th Quartile	169	9.5	15.4	18.3	20.1	36.7	100.0

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of June 30, 2020. The fund returns used in the analysis are net of fees, excluding loads. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

## SECTION 2: PERSISTENCE OF FUNDS THAT OUTPERFORM THEIR RESPECTIVE BENCHMARK INDICES

**Performance Persistence over Three 12-Month Periods (June 2017 to June 2020):** There were 317 Australian active funds that outperformed their respective benchmarks across five fund categories in the 12-month period ending June 2017. In the next two consecutive 12-month periods (June 2018 to June 2020), 60 (18.9%) of them continued to outperform the benchmark. However, out of the 138 Australian Equity General funds that beat the [S&P/ASX 200](#) in the 12-month period ending June 2017, only 8 (5.8%) of them consistently outperformed in the two following 12-month periods (see Exhibit 6).

**Performance Persistence over Five Consecutive 12-Month Periods (June 2015 to June 2020):** There were 251 Australian active funds that beat their respective benchmark in the 12-month period ending June 2016, and only five (2.0%) of them managed to continue their outperformance in the following four 12-month periods (June 2016 to June 2020). Outperforming funds in the Australian Bonds category tended to have the highest persistence in beating the benchmark over five consecutive 12-month periods (see Exhibit 7).

**Exhibit 6: Performance Persistence of Australian Active Funds over Three 12-Month Periods (June 2017-June 2020)**

FUND CATEGORY	NUMBER OF OUTPERFORMING FUNDS AT START (JUNE 2018)	% OF FUNDS OUTPERFORMING THE BENCHMARK IN CONSECUTIVE PERIODS	
		JUNE 2019	JUNE 2020
Australian Equity General	138	9.4	5.8
Australian Equity Mid- and Small-Cap	75	36.0	24.0
International Equity General	79	45.6	35.4
Australian Bonds	19	36.8	26.3
Australian Equity A-REIT	6	16.7	16.7
<b>All Categories</b>	<b>317</b>	<b>26.5</b>	<b>18.9</b>

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of June 30, 2020. The fund returns used in the analysis are net of fees, excluding loads. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

**Exhibit 7: Performance Persistence of Australian Active Funds over Five Consecutive Years (June 2015-June 2020)**

FUND CATEGORY	NUMBER OF OUTPERFORMING FUNDS AT START (JUNE 2016)	% OF FUNDS OUTPERFORMING THE BENCHMARK IN CONSECUTIVE PERIODS			
		JUNE 2017	JUNE 2018	JUNE 2019	JUNE 2020
Australian Equity General	137	32.8	24.1	1.5	0.7
Australian Equity Mid- and Small-Cap	41	14.6	2.4	2.4	2.4
International Equity General	53	32.1	9.4	3.8	1.9
Australian Bonds	10	50.0	30.0	30.0	20.0
Australian Equity A-REIT	10	90.0	0.0	0.0	0.0
<b>All Categories</b>	<b>251</b>	<b>32.7</b>	<b>16.7</b>	<b>3.2</b>	<b>2.0</b>

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of June 30, 2020. The fund returns used in the analysis are net of fees, excluding loads. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

**Three-Year Transition Matrix (period from June 2014 to June 2017 versus period from June 2017 to June 2020):** In the three-year period ending June 2017, 220 Australian active funds outperformed their respective benchmarks. Of these, 40.9% had persistent outperformance in the subsequent three-year period (June 2017 to June 2020). Outperformers among the Australian Bonds funds showed the strongest persistence (62.5%), while those in the Australian Equity General category had the least tendency to continue to outperform, at 34.2% (see Exhibit 8).

**Five-Year Transition Matrix (period from June 2010 to June 2015 versus period from June 2015 to June 2020):** Out of the 258 Australian funds that outperformed in the five-year period ending June 2014, 28.7% of them persistently beat their respective benchmark in the following five years (June 2015 to June 2020). Funds in the Australian Bonds and Equity A-REIT categories showed the strongest persistence, with more than half of the funds outperforming over two consecutive five-year periods (see Exhibit 9).

<b>Exhibit 8: Three-Year Transition Matrix – Performance over Two Non-Overlapping Three-Year Periods (Period from June 2014 to June 2017 versus Period from June 2017 to June 2020)</b>						
RELATIVE PERFORMANCE	FUND COUNT AT START (JUNE 2017)	THREE-YEAR PERCENTAGES AT END JUNE 2020 (%)				TOTAL
		OUTPERFORM BENCHMARK	UNDERPERFORM BENCHMARK	MERGED/LIQUIDATED		
<b>AUSTRALIAN EQUITY GENERAL</b>						
Outperform Benchmark	114	34.2	55.3	10.5		100.0
Underperform Benchmark	170	16.5	67.1	16.5		100.0
<b>AUSTRALIAN EQUITY MID- AND SMALL-CAP</b>						
Outperform Benchmark	34	50.0	44.1	5.9		100.0
Underperform Benchmark	61	32.8	44.3	23.0		100.0
<b>INTERNATIONAL EQUITY GENERAL</b>						
Outperform Benchmark	39	38.5	56.4	5.1		100.0
Underperform Benchmark	152	15.1	67.1	17.8		100.0
<b>AUSTRALIAN BONDS</b>						
Outperform Benchmark	8	62.5	37.5	0.0		100.0
Underperform Benchmark	38	13.2	78.9	7.9		100.0
<b>AUSTRALIAN EQUITY A-REIT</b>						
Outperform Benchmark	25	56.0	36.0	8.0		100.0
Underperform Benchmark	39	33.3	64.1	2.6		100.0
<b>ALL CATEGORIES</b>						
Outperform Benchmark	220	40.9	50.9	8.2		100.0
Underperform Benchmark	460	19.3	64.8	15.9		100.0

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of June 30, 2020. The fund returns used in the analysis are net of fees, excluding loads. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

**Exhibit 9: Five-Year Transition Matrix – Performance over Two Non-Overlapping Five-Year Periods  
(Period from June 2010 to June 2015 versus Period from June 2015 to June 2020)**

RELATIVE PERFORMANCE	FUND COUNT AT START (JUNE 2015)	FIVE-YEAR PERCENTAGES AT END JUNE 2020 (%)			
		OUTPERFORM BENCHMARK	UNDERPERFORM BENCHMARK	MERGED/ LIQUIDATED	TOTAL
<b>AUSTRALIAN EQUITY GENERAL</b>					
Outperform Benchmark	122	27.9	60.7	11.5	100.0
Underperform Benchmark	159	16.4	52.2	31.4	100.0
<b>AUSTRALIAN EQUITY MID- AND SMALL-CAP</b>					
Outperform Benchmark	74	21.6	54.1	24.3	100.0
Underperform Benchmark	14	14.3	50.0	35.7	100.0
<b>INTERNATIONAL EQUITY GENERAL</b>					
Outperform Benchmark	30	23.3	66.7	10.0	100.0
Underperform Benchmark	156	9.6	57.1	33.3	100.0
<b>AUSTRALIAN BONDS</b>					
Outperform Benchmark	17	52.9	35.3	11.8	100.0
Underperform Benchmark	28	7.1	75.0	17.9	100.0
<b>AUSTRALIAN EQUITY A-REIT</b>					
Outperform Benchmark	15	53.3	40.0	6.7	100.0
Underperform Benchmark	50	40.0	46.0	14.0	100.0
<b>ALL CATEGORIES</b>					
Outperform Benchmark	258	28.7	56.6	14.7	100.0
Underperform Benchmark	407	16.0	54.8	29.2	100.0

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of June 30, 2020. The fund returns used in the analysis are net of fees, excluding loads. Table is provided for illustrative purposes. Past performance is no guarantee of future results.



### SECTION 3: CONCLUSION

While comparing returns against a benchmark is a common practice to evaluate the performance of active funds, performance persistence is an additional test on the fund managers' skills at overcoming different market environments. In this report, we measured the performance persistence of active funds that outperformed their peers and benchmarks over consecutive three- and five-year periods, and their transition matrices over subsequent time periods.

The results showed that only a small portion of Australian outperforming or high-performing funds showed persistent outperformance against their respective benchmarks or consistently stayed in their respective top quartiles over three consecutive years, and even fewer could maintain outperformance for five consecutive years. Out of the top-performing funds in the 12-month period ending June 2016, only 1.0% persistently maintained a top-quartile rank, and 2.0% consistently beat the benchmarks in the following four consecutive years.

The transition matrices showed that over two successive three- and five-year periods, a majority of outperforming funds failed to beat their respective benchmarks, and most of the top-quartile funds did not remain in the same quartile consistently. Out of the 166 Australian funds that ranked in their respective top quartile in the five-year period ending June 2015, only 31.3% of them remained in the top quartile, and 11.4% were liquidated or merged in the subsequent five-year period. Furthermore, out of the 258 Australian funds that outperformed their respective benchmark in the five-year period ending June 2015, only 28.7% continued to outperform their respective benchmark, and 14.7% of them were liquidated in the following five-year period.

Overall, results from various evaluation matrices suggest weak performance persistence in top-performing funds in Australia across the three- and five-year periods, with Australian Bond funds tending to have the strongest performance persistence among all the categories.

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

## 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.

ASX, ALL ORDINARIES are trademarks of ASX Operations Pty Ltd. and have been licensed for use by S&P Dow Jones Indices.