

Australia Persistence Scorecard

Contributors

Priscilla Luk

Managing Director
Global Research & Design
priscilla.luk@spglobal.com

Tim Wang

Senior Analyst
Global Research & Design
tim.wang@spglobal.com

Arpit Gupta

Senior Analyst
Global Research & Design
arpit.gupta1@spglobal.com

EXECUTIVE SUMMARY

- While comparing active funds against their respective benchmark indices is a typical practice to evaluate their performance, persistence is an additional test that can reveal 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.
- Overall results suggested only a minority of Australian high-performing funds persisted in outperforming their respective benchmarks or consistently stayed in their respective top quartiles for three or five consecutive years.
- Over a consecutive three-year period, 27.5% of funds consistently maintained top-quartile rankings and 38.8% of funds consistently beat their benchmark.
- Over a consecutive five-year period, only 1.0% of funds consistently maintained top-quartile rankings and 2.2% of funds consistently beat their benchmark.
- Top-quartile and outperforming Australian funds did not show strong persistence over two non-overlapping three- and five-year periods, though they recorded lower liquidation rates.
- Only 36.6% of funds maintained top-quartile rankings over two successive three-year periods and fewer (26.9%) did so for two successive five-year periods.
- Among Australian funds that outperformed their benchmarks, 47.1% consistently beat their benchmarks consecutively over the three-year period and only 26.5% of them did so for the five-year period.

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.¹ 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

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

Performance Persistence over Three Consecutive Years (2018-2020): In 2018, there were 207 Australian active funds ranked in their respective top quartiles across five categories. Of these funds, 27.5% stayed in the top quartile over the next two consecutive years (2019 and 2020). Top-quartile funds in the Australian Equity A-REIT category had the highest retention rate (47.1%), while those in the Australian Equity Mid- and Small-Cap category had the lowest tendency to stay in the top quartile (16.1%) over three consecutive years (see Exhibit 2).

Performance Persistence over Five Consecutive Years (2016-2020): In contrast to the observations over the three-year period, persistence of fund performance over five consecutive years was much weaker. Out of the 201 top-quartile Australian active funds in 2016, only 1.0% remained in the same quartile in the next four consecutive years (2017-2020). The Australian Bonds fund category had the lowest turnover in the top quartile over five consecutive years, and no fund in the Australian Equity General, Australian Equity Mid- and Small-Cap, and Australian Equity A-REIT categories managed to stay in the top quartile for five consecutive years (see Exhibit 3).

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

Exhibit 2: Performance Persistence of Australian Active Funds over Three Consecutive Years (2018-2020)

FUND CATEGORY	NUMBER OF FUNDS IN TOP QUARTILE AT START	% OF FUNDS STAYING IN TOP QUARTILE	
	2018	2019	2020
Australian Equity General	80	37.5	25.0
Australian Equity Mid- and Small-Cap	31	29.0	16.1
International Equity General	64	43.8	32.8
Australian Bonds	15	53.3	20.0
Australian Equity A-REIT	17	58.8	47.1
All Categories	207	41.1	27.5

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of Dec. 31, 2020. 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 Years (2016-2020)

FUND CATEGORY	NUMBER OF FUNDS IN TOP QUARTILE AT START	% OF FUNDS STAYING IN TOP QUARTILE			
	2016	2017	2018	2019	2020
Australian Equity General	81	24.7	9.9	0.0	0.0
Australian Equity Mid- and Small-Cap	28	17.9	7.1	0.0	0.0
International Equity General	61	14.8	1.6	1.6	1.6
Australian Bonds	14	64.3	42.9	35.7	7.1
Australian Equity A-REIT	17	29.4	11.8	0.0	0.0
All Categories	201	23.9	9.5	3.0	1.0

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of Dec. 31, 2020. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

Three-Year Transition Matrix (period from December 2014 to December 2017 versus period from December 2017 to December 2020): The transition matrix tracks the trajectory of funds in each quartile over two non-overlapping periods. High-performing funds in the Australian Equity Mid- and Small-Cap category showed the highest persistence. Out of the 24 top-quartile Australian Equity Mid- and Small-Cap funds in the three-year period ending December 2017, 50.0% remained in the top quartile in the subsequent three-year period (December 2017-December 2020). In contrast, high-performing funds in the Australian Equity A-REIT category showed the lowest persistence (only 26.7% maintained a top-quartile ranking). Apart from the Australian Bond category, funds ranked in the bottom two quartiles for the first three-year period had a higher tendency to be merged or liquidated in the subsequent three-year period (see Exhibit 4).

Five-Year Transition Matrix (period from December 2010 to December 2015 versus period from December 2015 to December 2020): As opposed to the observation for the three-year transition matrix, top-quartile funds in the Australian Bonds category had the highest persistence (63.6%), while Australian A-REIT funds had the lowest persistence (17.6%) in the five-year transition matrix. Overall, out of the 167 Australian funds that ranked in their respective top quartile in the five-year period ending December 2015, only 26.9% of them stayed in the first quartile in the subsequent five-year period (December 2015-December 2020), though they had a lower liquidation rate (see Exhibit 5).

**Exhibit 4: Three-Year Transition Matrix – Performance over Two Non-Overlapping Three-Year Periods
(Period from December 2014 to December 2017 versus Period from December 2017 to December 2020)**

QUARTILE	FUND COUNT AT START (DECEMBER 2017)	THREE-YEAR PERCENTAGES AT END (%)					
		1ST QUARTILE	2ND QUARTILE	3RD QUARTILE	4TH QUARTILE	MERGED/ LIQUIDATED	TOTAL
AUSTRALIAN EQUITY GENERAL							
1st Quartile	72	38.9	23.6	13.9	19.4	4.2	100.0
2nd Quartile	72	27.8	31.9	13.9	12.5	13.9	100.0
3rd Quartile	72	11.1	19.4	30.6	23.6	15.3	100.0
4th Quartile	72	9.7	11.1	29.2	31.9	18.1	100.0
AUSTRALIAN EQUITY MID- AND SMALL-CAP							
1st Quartile	24	50.0	16.7	8.3	20.8	4.2	100.0
2nd Quartile	23	17.4	34.8	21.7	21.7	4.3	100.0
3rd Quartile	24	4.2	29.2	25.0	20.8	20.8	100.0
4th Quartile	24	12.5	4.2	29.2	20.8	33.3	100.0
INTERNATIONAL EQUITY GENERAL							
1st Quartile	51	31.4	17.6	21.6	19.6	9.8	100.0
2nd Quartile	51	17.6	41.2	15.7	17.6	7.8	100.0
3rd Quartile	51	13.7	15.7	27.5	23.5	19.6	100.0
4th Quartile	51	21.6	9.8	19.6	23.5	25.5	100.0
AUSTRALIAN BONDS							
1st Quartile	13	30.8	30.8	15.4	7.7	15.4	100.0
2nd Quartile	13	23.1	23.1	23.1	15.4	15.4	100.0
3rd Quartile	13	30.8	7.7	23.1	30.8	7.7	100.0
4th Quartile	13	7.7	23.1	23.1	38.5	7.7	100.0
AUSTRALIAN EQUITY A-REIT							
1st Quartile	15	26.7	20.0	33.3	20.0	0.0	100.0
2nd Quartile	17	23.5	41.2	11.8	23.5	0.0	100.0
3rd Quartile	16	25.0	12.5	31.3	18.8	12.5	100.0
4th Quartile	16	18.8	18.8	18.8	31.3	12.5	100.0
ALL CATEGORIES							
1st Quartile	175	36.6	21.1	17.1	18.9	6.3	100.0
2nd Quartile	176	22.7	35.2	15.9	16.5	9.7	100.0
3rd Quartile	176	13.6	18.2	28.4	23.3	16.5	100.0
4th Quartile	176	14.2	11.4	25.0	28.4	21.0	100.0

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of Dec. 31, 2020. 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 December 2010 to December 2015 versus Period from December 2015 to December 2020)**

QUARTILE	FUND COUNT AT START (DECEMBER 2015)	FIVE-YEAR PERCENTAGES AT END (%)					
		1ST QUARTILE	2ND QUARTILE	3RD QUARTILE	4TH QUARTILE	MERGED/ LIQUIDATED	TOTAL
AUSTRALIAN EQUITY GENERAL							
1st Quartile	71	25.4	9.9	16.9	38.0	9.9	100.0
2nd Quartile	70	24.3	35.7	12.9	8.6	18.6	100.0
3rd Quartile	71	9.9	18.3	32.4	12.7	26.8	100.0
4th Quartile	71	19.7	14.1	16.9	19.7	29.6	100.0
AUSTRALIAN EQUITY MID- AND SMALL-CAP							
1st Quartile	22	22.7	18.2	9.1	31.8	18.2	100.0
2nd Quartile	22	22.7	22.7	18.2	27.3	9.1	100.0
3rd Quartile	22	9.1	18.2	40.9	18.2	13.6	100.0
4th Quartile	23	21.7	17.4	8.7	0.0	52.2	100.0
INTERNATIONAL EQUITY GENERAL							
1st Quartile	46	26.1	32.6	15.2	17.4	8.7	100.0
2nd Quartile	46	10.9	21.7	26.1	10.9	30.4	100.0
3rd Quartile	46	23.9	6.5	23.9	13.0	32.6	100.0
4th Quartile	47	12.8	10.6	8.5	31.9	36.2	100.0
AUSTRALIAN BONDS							
1st Quartile	11	63.6	18.2	0.0	0.0	18.2	100.0
2nd Quartile	11	27.3	27.3	27.3	9.1	9.1	100.0
3rd Quartile	11	0.0	36.4	45.5	9.1	9.1	100.0
4th Quartile	11	0.0	0.0	9.1	72.7	18.2	100.0
AUSTRALIAN EQUITY A-REIT							
1st Quartile	17	17.6	23.5	11.8	29.4	17.6	100.0
2nd Quartile	16	25.0	18.8	12.5	25.0	18.8	100.0
3rd Quartile	16	31.3	12.5	25.0	25.0	6.3	100.0
4th Quartile	17	11.8	23.5	35.3	5.9	23.5	100.0
ALL CATEGORIES							
1st Quartile	167	26.9	19.2	13.8	28.1	12.0	100.0
2nd Quartile	165	20.6	27.9	18.2	13.3	20.0	100.0
3rd Quartile	166	15.1	15.7	31.3	14.5	23.5	100.0
4th Quartile	169	16.0	13.6	14.8	22.5	33.1	100.0

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of Dec. 31, 2020. 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 Consecutive Years (2018-2020): Out of 214 Australian active funds that outperformed their respective benchmarks across five fund categories in 2018, 38.3% continued to outperform the benchmark over the next two consecutive years (2019-2020). Outperforming funds in the Australian Equity General category had the highest persistence (47.7%) in

outperforming the benchmark, while Australian Equity Mid- and Small-Cap funds had the least consistency (31.8%) of outperformance over three consecutive years (see Exhibit 6).

Performance Persistence over Five Consecutive Years (2016-2020): There were 179 Australian active funds that beat their respective benchmark in 2016, and only 2.2% managed to continue their outperformance in the following four consecutive years (2017-2020). None of the fund categories showed strong persistence in their outperforming funds. The Australian Bonds category had the highest persistence rate (5.3%) over five consecutive years (see Exhibit 7).

Exhibit 6: Performance Persistence of Australian Active Funds over Three Consecutive Years (2018-2020)

FUND CATEGORY	NUMBER OF OUTPERFORMING FUNDS AT START	% OF FUNDS OUTPERFORMING THE BENCHMARK IN CONSECUTIVE PERIODS		
	2018	2019	2020	
Australian Equity General	44	63.6	47.7	
Australian Equity Mid- and Small-Cap	66	50.0	31.8	
International Equity General	84	45.2	38.1	
Australian Bonds	5	100.0	40.0	
Australian Equity A-REIT	15	60.0	40.0	
All Categories	214	52.8	38.3	

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of Dec. 31, 2020. 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 (2016-2020)

FUND CATEGORY	NUMBER OF OUTPERFORMING FUNDS AT START	% OF FUNDS OUTPERFORMING THE BENCHMARK IN CONSECUTIVE PERIODS				
	2016	2017	2018	2019	2020	
Australian Equity General	81	45.7	6.2	3.7	1.2	
Australian Equity Mid- and Small-Cap	23	17.4	8.7	4.3	4.3	
International Equity General	37	37.8	5.4	5.4	2.7	
Australian Bonds	19	73.7	10.5	10.5	5.3	
Australian Equity A-REIT	19	63.2	15.8	0.0	0.0	
All Categories	179	45.3	7.8	4.5	2.2	

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of Dec. 31, 2020. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

Three-Year Transition Matrix (period from December 2014 to December 2017 versus period from December 2017 to December 2020): Of the 240 Australian active funds that outperformed their benchmarks between December 2014 and December 2017, 47.1% of them continued to outperform in the subsequent three-year period (December 2017-December 2020). Outperforming funds in the Australian Equity Mid- and Small-Cap category had the highest persistence in outperformance (71.4%), while those in the International Equity General category had the lowest tendency (37.5%) to continue to outperform (see Exhibit 8).

Five-Year Transition Matrix (period from December 2010 to December 2015 versus period from December 2015 to December 2020): Out of the 268 Australian funds that outperformed in the five-year period ending December 2015, 60.4% underperformed their respective benchmarks and 13.1% were merged or liquidated in the following five years (December 2015-December 2020). Apart from Australian Bonds, none of fund categories exhibited strong performance persistence for two successive five-year periods (see Exhibit 9).

Exhibit 8: Three-Year Transition Matrix – Performance over Two Non-Overlapping Three-Year Periods (Period from December 2014 to December 2017 versus Period from December 2017 to December 2020)					
RELATIVE PERFORMANCE	FUND COUNT AT START (DECEMBER 2017)	THREE-YEAR PERCENTAGES AT END (%)			
		OUTPERFORMED BENCHMARK	UNDERPERFORMED BENCHMARK	MERGED/LIQUIDATED	TOTAL
AUSTRALIAN EQUITY GENERAL					
Outperformed Benchmark	120	45.0	49.2	5.8	100.0
Underperformed Benchmark	168	12.5	69.6	17.9	100.0
AUSTRALIAN EQUITY MID- AND SMALL-CAP					
Outperformed Benchmark	28	71.4	25.0	3.6	100.0
Underperformed Benchmark	67	29.9	49.3	20.9	100.0
INTERNATIONAL EQUITY GENERAL					
Outperformed Benchmark	48	37.5	54.2	8.3	100.0
Underperformed Benchmark	156	20.5	61.5	17.9	100.0
AUSTRALIAN BONDS					
Outperformed Benchmark	16	43.8	37.5	18.8	100.0
Underperformed Benchmark	36	25.0	66.7	8.3	100.0
AUSTRALIAN EQUITY A-REIT					
Outperformed Benchmark	28	50.0	50.0	0.0	100.0
Underperformed Benchmark	36	38.9	50.0	11.1	100.0
ALL CATEGORIES					
Outperformed Benchmark	240	47.1	46.7	6.3	100.0
Underperformed Benchmark	463	20.7	62.2	17.1	100.0

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of Dec. 31, 2020. 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 December 2010 to December 2015 versus Period from December 2015 to December 2020)					
RELATIVE PERFORMANCE	FUND COUNT AT START (DECEMBER 2015)	FIVE-YEAR PERCENTAGES AT END (%)			TOTAL
		OUTPERFORMED BENCHMARK	UNDERPERFORMED BENCHMARK	MERGED/LIQUIDATED	
AUSTRALIAN EQUITY GENERAL					
Outperformed Benchmark	136	27.2	58.8	14.0	100.0
Underperformed Benchmark	147	15.6	56.5	27.9	100.0
AUSTRALIAN EQUITY MID- AND SMALL-CAP					
Outperformed Benchmark	74	16.2	68.9	14.9	100.0
Underperformed Benchmark	15	13.3	20.0	66.7	100.0
INTERNATIONAL EQUITY GENERAL					
Outperformed Benchmark	33	27.3	66.7	6.1	100.0
Underperformed Benchmark	152	13.2	55.3	31.6	100.0
AUSTRALIAN BONDS					
Outperformed Benchmark	12	66.7	16.7	16.7	100.0
Underperformed Benchmark	32	18.8	68.8	12.5	100.0
AUSTRALIAN EQUITY A-REIT					
Outperformed Benchmark	13	38.5	53.8	7.7	100.0
Underperformed Benchmark	53	41.5	39.6	18.9	100.0
ALL CATEGORIES					
Outperformed Benchmark	268	26.5	60.4	13.1	100.0
Underperformed Benchmark	399	18.3	53.4	28.3	100.0

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of Dec. 31, 2020. 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 of 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.

Various evaluation matrices in the latest report showed that only a minority of Australian high-performing funds persisted in outperforming their respective benchmarks or consistently stayed in their respective top quartiles for three or five consecutive years; 27.5% of funds maintained top-quartile rankings over the consecutive three-year period and much fewer (1.0%) for the consecutive five-year period. Among Australian funds that outperformed their benchmarks, 38.3% of them consistently beat their benchmarks consecutively over three-year period and only 2.2% of them did so for the five-year period.

The transition matrix tracking the trajectory of funds in each quartile showed the majority of top-quartile Australian funds did not persist for over two non-overlapping three- and five-year periods, though they recorded lower liquidation rates. Only 36.6% of funds maintained top-quartile rankings over two successive three-year periods and fewer (26.9%) over two successive five-year periods. Among Australian funds that outperformed their benchmarks, 47.1% of them consistently beat their benchmarks consecutively over three-year period and only 26.5% of them did so for the five-year period.

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	Senior Analyst	cristopher.anguiano@spglobal.com
Nazerke Bakytzhan, PhD	Senior Analyst	nazerke.bakytzhan@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
Alberto Allegrucci, PhD	Senior Analyst	alberto.allegrucci@spglobal.com
Panos Brezas, PhD	Senior Analyst	panos.brezas@spglobal.com
Leonardo Cabrer, PhD	Associate Director	leonardo.cabrer@spglobal.com
Andrew Cairns, CFA	Associate Director	andrew.cairns@spglobal.com
Niall Gilbride, CFA	Senior Analyst	niall.gilbride@spglobal.com
Rui Li, ACA	Senior Analyst	rui.li@spglobal.com
Jingwen Shi, PhD	Senior Analyst	jingwen.shi@spglobal.com
INDEX INVESTMENT STRATEGY		
Craig J. Lazzara, CFA	Global Head	craig.lazzara@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	Associate	sherifa.issifu@spglobal.com

GENERAL DISCLAIMER

© 2021 S&P Dow Jones Indices. All rights reserved. S&P, S&P 500, S&P 500 LOW VOLATILITY INDEX, S&P 100, S&P COMPOSITE 1500, S&P 400, S&P MIDCAP 400, S&P 600, S&P SMALLCAP 600, S&P GIVI, GLOBAL TITANS, DIVIDEND ARISTOCRATS, S&P TARGET DATE INDICES, S&P PRISM, S&P STRIDE, GICS, SPIVA, SPDR and INDEXOLOGY are registered trademarks of S&P Global, Inc. ("S&P Global") or its affiliates. DOW JONES, DJ, DJIA, THE DOW 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 Global, 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.