Global Leaders Strategy

INVESTMENT LETTER | August 2022

Brown ADVISORY
Thoughtful Investing.

The Global Leaders Strategy invests in a concentrated portfolio of market-leading companies from across the globe. We believe that companies that combine exceptional outcomes for their customers with strong leadership can generate high and sustainable returns on invested capital (RoIC) which can lead to outstanding shareholder returns.

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Portfolio Manager

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The Capital Cycle

Supply chain shenanigans across the world and subsequent shortages alongside soaring inflation have set us thinking about the capital cycles we see across numerous global industries, in particular energy, commodities and semiconductors. The capital cycle is a framework articulated elegantly in *Capital Returns*[1]and *Capital Account* by editor Edward Chancellor but interestingly one of the best early descriptions comes in chapters 11 and 12 of Keynes' *General Theory*[2] masterpiece from 1936. Capital cycles appear when product shortages and subsequent high prices and rising return on invested capital (RoIC) are met by capital flowing into an industry to satiate the new demand. Returns on capital and prices return in time to a lower, more stable equilibrium. It can work in reverse too; capital exits unprofitable industries which – if they catch some renewed demand (not guaranteed due to obsolescence) – see prices and returns improve. As Chancellor succinctly describes it: "high returns tend to attract capital, just as low returns repel it." In short, it is all about the supply-side, not demand.

Traditional value investors (by which we mean low price-to-book (P/B) or low price-to-earnings (P/E) ratios) typically love a good capital cycle as it neatly explains much of the mean reversion we see across many industries. Indeed, if you can find an industry whereby capital has exited for years due to poor returns, then quickly rising prices in the face of a shortage can produce attractive investment returns. Key underpinnings to the nature of each industry's capital cycle come from variations in: competitive intensity, market structure (either due to regulation or naturally occurring), barriers to entry and/or exit, exclusive intellectual property, switching costs, product differentiation/specialty and the mechanics of each production process. This is aligned with the "structure, conduct,

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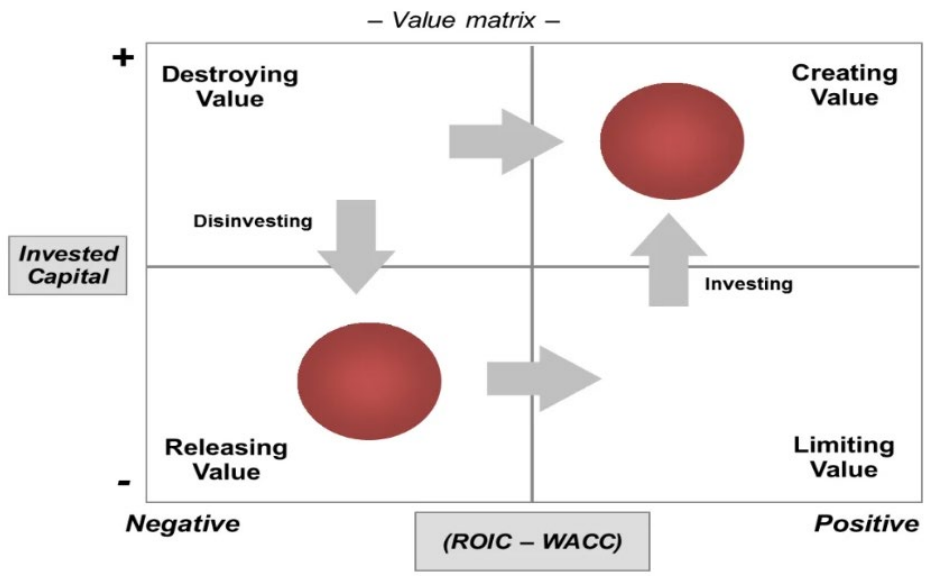
[1] *Capital Returns: Investing Through the Capital Cycle: A Money Manager's Reports 2002-15* by Edward Chancellor
Capital Account: A Fund Manager Reports on a Turbulent Decade, 1993-2002 by Edward Chancellor
[2] *The General Theory of Employment, Interest and Money* by John Maynard Keynes

performance" framework[3] from McKinsey and business school favourite the value driver's matrix[4] pictured below. The concept is easy to describe: if your return on capital is above the cost of capital shown on the right-hand side of the x-axis, then reinvesting to grow invested capital in the top right quadrant should create the most value. However, if returns are below cost then growth destroys value (top left) and it is time to shrink investment instead (bottom left). Energy, commodities, and semiconductors exhibit these capital cycles recurrently. However, in our view the problems are obvious: firstly, investment returns are highly sensitive to both entry and exit timing and secondly, if the barriers to the flow of capital are low, these are short-term trades at best.

Creating Value: ROIC less WACC versus Growth



Source: https://pt.slideshare.net/mputrawal/creating-value-roic-wacc

Global Leaders invests using an insight derived from capital cycle analysis which is that some industries and companies don't appear to exhibit one! The expected competitive forces don't materialise, and we believe that superior economics can be maintained for a lot longer than our

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[3] https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/enduring-ideas-the-scp-framework

[4] https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/balancing-roic-and-growth-to-build-value and https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/how-to-choose-between-growth-and-roic

standard microeconomics mean-reversion frameworks would suggest. The key to this is analysis of the supply-side.

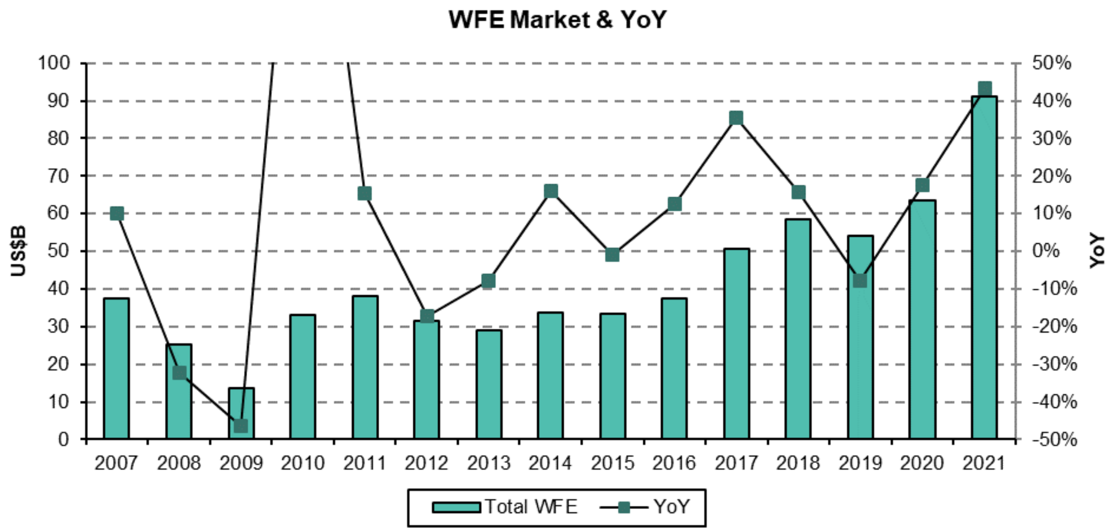
Supply-side or capital risk is the biggest risk we face with most of our investments in Global Leaders: another business stealing the customer away with a better product or service leaving us with an unproductive economic engine. We look for high return on capital but require the protection of moats and barriers to entry (and exit) to new capital in addition to relative competitive advantages within each industry to enable durability to our expected returns. We wrote about our moats framework extensively in our August 2020 letter *FOJI* (Fear of Joining In) and in 2Q 2017's Caped Crusade. Barriers to scale is another important framework when capital can come in or out easily – fintech payments is a good example of a highly competitive space but the dominance of Visa and Mastercard's "network of networks" remains unsurpassed due to difficulty in scaling rivals. Is your product unique or easily replicable? Can a rival enter and steal your customers? Will the product or service become redundant? These are some of the important questions we grapple with in an effort to understand if our investments will continue to deliver the high returns on invested capital we seek. We want investments specifically protected against a textbook capital cycle!

The Elephant in the Portfolio

The global semiconductor industry is a poster child for the capital cycle and we have meaningful investments here. In the manufacturing process, supply comes on in large increments using over U.S.$15bn in capital per factory with up to five-year delays from board-level commitment to volume production. The chart below shows global sales of wafer factory equipment with clear cycles over the past 14 years. Basically, it is a capital intensive, highly cyclical industry with variable end demand. However, there is an important nuance in that more players have exited than the limited number who entered over time due to high barriers to entry and exit. Recently governments in the U.S., EU and Japan have committed a combined U.S.$100bn in subsidies to support local manufacturing and secure domestic supply of semiconductors. We believe that this has all the hallmarks of a capital cycle.

Global Wafer Factory Equipment Sales 2007-2021

As of 31 December 2021

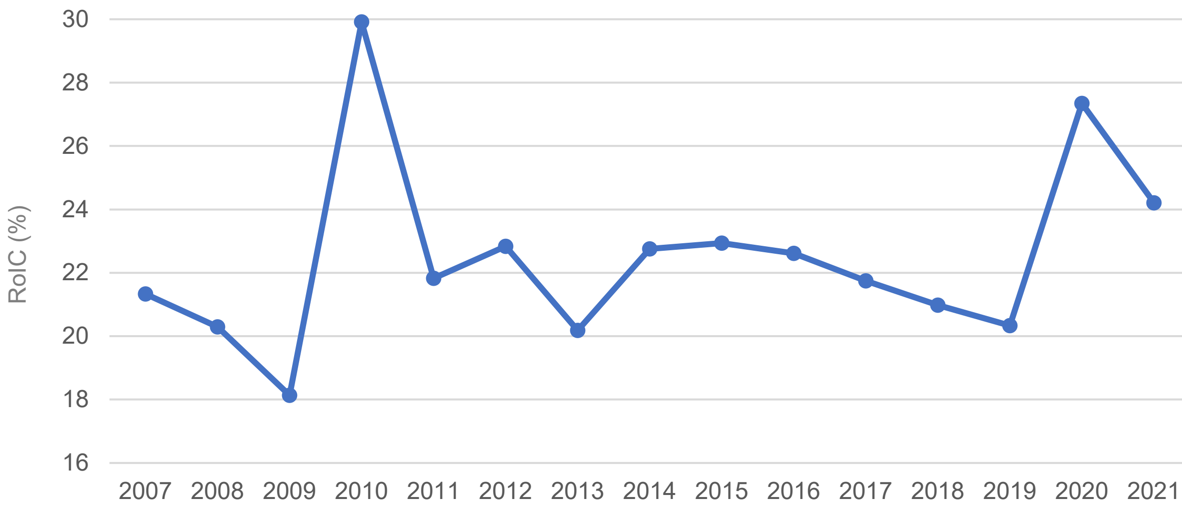


Source: Bernstein Research

Clearly we are in the midst of a capital cycle within semiconductor manufacturing as Taiwan Semiconductor Manufacturing Company (TSMC) is currently investing US$100bn over three years into new factories which will double the total assets on its balance sheet at a rate of twice capex to depreciation in order to meet demand. However, looking at the long-term returns of TSMC tells a different story. The RoIC has been above 20% for every year of the past two decades except once at the depths of the global financial crisis in 2009. Another Global Leaders investment ASML Holding (ASML) exhibits more cyclicality in returns each year but has consistently produced over 20% RoIC per annum over decades. The supply-side competition has been reducing for the last two decades at both companies, as each new generation of leading technology is developed, fewer rivals can produce the chips. No peers have been able to make the leading EUV lithography machines leaving ASML as a monopoly provider for the latest generation of new fabs. TSMC is typically the cheapest producer at each node so it wins market share in downturns as capacity frees up – we think of it as a cyclical share winner who takes market share in a downturn and tries to hold onto most of those gains as demand returns during the next upswing.

Return on Capital Over Time

RoIC for TSMC annually over 15 years from 2007 to 2021



Source: Factset, as of 31 December 2021

Industrial Cyclical Share Winners

Cyclical share winners like TSMC and ASML appear in other sectors too, especially industrials. This category is a slightly different take on the standard capital cycle where incremental share gains typically accrue over time, most poignantly in downturns, rather than straight mean reversion. One example is Old Dominion Freight Line. Another in the U.K. is Howdens Joinery who have been able to supply crucial in-stock inventory during recent supply chain disruption due to control of their own production and therefore have been able to meet their customers' needs as they arise. This engenders loyalty and long-term repeat business as a trusted partner. In Global Leaders our investment in U.S. paint manufacturer Sherwin-Williams is another in this category. Cyclical winners are often already market leaders, and many maintain excess pricing relative to peers through each cycle. They expect to lose some, but not all, of the recently garnered volume in the next upturn to less expensive competitors but customer loyalty to those who enabled security of supply means the superior customer outcome typically pays off in the long run with overall higher share.

Swedish lock maker Assa Abloy has outperformed our investee Allegion in the most recent tightness as earlier investments into working capital enabled them to show better in-stock inventory and take share in the U.S. during recent supply chain disruptions; we are watching closely to see if this will have a lasting impact to Allegion's U.S. business. One trade-off to inventory availability is higher working capital which may be a drag on RoIC. As economies decouple and deglobalise, prior "just-in-time" firms will move to "just-in-case" inventory, so it won't be surprising to see RoICs come down without an offset in either asset turns or profit margins as they carry more robust inventory levels. One investment in Global Leaders that typically takes share in downturns is TJX Companies, owner of TJ Maxx in the retail category who coincidently see inventory turns rise as consumers trade down to their treasure-hunt shopping in a downturn. Everyone likes a bargain, especially when money is tight.

Energy and Commodities

We have been asked a lot about our lack of investments into energy this year as the sector was the best performing in the first half. Today over 80% of the world's energy still comes from carbon-based sources. We cannot ignore this reality however much we want the renewable transition to proceed rapidly. It is widely predicted that disruption in energy supply during the coming European winter will be quite nasty – that doesn't mean it won't still be a societal shock nor that energy prices won't spike again. U.K. retail energy prices have already doubled into the lows of the mid-summer demand season; Dutch TTF (Title Transfer Facility) natural gas futures prices are up nearly 400% year to date[5]. Europe is suffering from an unbalanced energy mix and lack of supply security, a terrible combination if it is a cold winter and one which is expected to take time and capital to rectify. It's a supply-side problem.

In the period 2010 to 2014 there was a boom in energy capex particularly into U.S. natural gas and shale oil production. More accurate directional and horizontal drilling combined with fracking rapidly increased domestic U.S. energy supply when oil was over $100/barrel. There is a saying in commodities that "there is no cure for high prices like high prices."[6] A subsequent crash in oil prices in late 2014 and 2015 dramatically slowed investment over the next five years. We are now seeing a new capex rush - particularly in Germany - to build alternate sources of supply throughout the energy complex as Europe races to get off Russian oil and gas; interestingly China and India are running the other way. The energy sector is emblematic of a mean reverting capital heavy industry, and we appear to be at the onset of a capital cycle coming into the sector after meaningful capex "discipline" over past five years. Rarely does this bode well for long-term returns.

In our investing time frame of over five years, price typically solves itself – meaning shortages in commodity industries, including energy, result in high prices which attracts new supply to meet this demand. It is somewhat self-regulating over time because the moats are not wide nor do the

[5] https://www.theice.com/products/27996665/Dutch-TTF-Gas-Futures/data?marketId=5419234&span=2
[6] *Capital Returns: Investing Through the Capital Cycle: A Money Manager's Reports 2002-15* by Edward Chancellor

customers appear discerning in a non-differentiated end product. At the end of the day what is the difference to the client of a barrel of oil from Royal Dutch Shell or one from BP? Both barrels are priced off the same benchmark so basically the only difference can be supply security: will it turn up when it is needed?

A bet on permanently higher energy or commodity prices is a bet against human ingenuity and fundamental microeconomics. Whilst cycles are identifiable over time (afterwards!) the need to pinpoint getting in and out is not the sort of long-term compounding investment we want to make. The lack of capital or technology barriers, high prices attracting competition, and lack of product differentiation make commodities and energy very difficult places for us to find a superior customer outcome, a sustainable business advantage (SBA) or a durable 20+% RoIC. Consequently, we have not had a direct energy or straight commodity investment since we launched the strategy, as every investment must pass all our tests. We have invested further down in the energy supply chain over the past seven years successfully (Aspen Technology) and unsuccessfully (Flowserve) when we believed that we have identified companies with a superior customer outcome, SBA and high RoIC. Bertie discusses our investment in Deutsche Boerse who run the European Energy Exchange EEX in our latest CIO series podcast. While we agree that fluctuations in commodity prices could create interesting short-term opportunities over the coming twelve months, we find it unlikely that any will pass our high hurdles on a five-year view.

It is not just Asset Heavy Industries with Capital Cycles

The capital cycle is not restricted to asset intensive industries. In asset light ones such as software, more important choices are based around multi-year investments into intangible assets such as research and development (R&D), advertising, marketing, as discussed in *Software is Eating the World*, our June 2021 letter, not just the obvious capital cycle choices between capex, mergers and acquisitions (M&A), buybacks, dividends and reducing debt. Recent hiring trends in big tech suggest investment cycles are evident here too. Near-term cutbacks risk innovation and long-term growth. In our view under-investing in human capital is just as risky as not having enough factories to meet demand.

In the financial markets we see evidence of cycles in capital flows as market prices rise. Typically the number of IPOs, share buybacks from company management teams, the number and size of M&A deals increase as prices go up, but all typically drop off when prices fall. Contrarianism would suggest M&A and share buybacks should go up as prices get lower, not the other way around. Behavioural economics has a lot to say about these cycles, we will come back to this another time.

We invested on the wrong side of a capital cycle within insurance with our investment in U.K. specialty insurer Hiscox. Historically low (in some cases negative) interest rates led alternative capital to seek yield and non-correlated returns. It was attracted to the insurance industry and specifically re-insurance under Lloyd's in niche lines such as art, cyber, etc. and drove down returns. Property and casualty insurance is a classic capital cycle industry – when losses are high and returns therefore low, capital exits the industry allowing rate hardening and future better returns. Today we are invested in AIA Group Limited based in Hong Kong which sells life insurance across Asia. Life insurance in Asia and other emerging markets has ups and downs but we believe that the opportunity to increase coverage with societies that have insufficient social security nets and growing populations remains large.

As mentioned throughout we invest using a version of the capital cycle but from a different angle. Interestingly this was explored in *Capital Returns*[7], which states that "long-term investing works because there is less competition." We are looking for investments where the expected capital cycle mean reversion doesn't eventuate and our high RoIC companies compound their excess economic return for longer than theory would suggest. We have long said that supply-side is the biggest risk we face in Global Leaders by which we mean competition can disrupt that special relationship with the customer and destroy our economics. Our moats framework is clearly no guarantee of success but we believe this protection gives durability to potential returns. Our biggest risk lies in getting on the wrong side of a capital cycle, especially one we didn't see coming.

Book Club

We have read a couple of great books in our book club recently. *Human Compatible* on Artificial Intelligence (AI) by leading researcher in the field Stuart Russell[8] delved into the benefits of AI but the difficulties in managing unrestrained intelligence of a higher order than ours. There is also the gnarly issues on ethics and relative competitive risks – will *all* actors globally follow this ethical mindset? Food for thought and one reason our ESG team are engaging with our companies to understand each one's approach and control mechanisms in place. Ethical AI is a highly nuanced subject and is at the top of our engagement priorities.

Dan McCrum's brilliant exposé of the Wirecard fraud[9] and the lengths to which management went in order to undermine his five-year investigation was compelling reading and a great demonstration from the infamous Watergate investigation to "follow the money". Bertie had his own run-in with Wirecard's management when the CEO Marcus Braun openly attacked and disparaged him in front of a room full of fellow investors for his impertinence to ask about cashflow (imagine!). It went in the

[7] *Capital Returns: Investing Through the Capital Cycle: A Money Manager's Reports 2002-15* by Edward Chancellor
[8] *Human Compatible: Artificial Intelligence and the Problem of Control* by Stuart Russell
[9] *Money Men: A Hot Startup, A Billion Dollar Fraud, A Fight for the Truth* by Dan McCrum

"too hard" basket. A lucky escape from a once hot fintech and sobering reminder to stick to our cashflow obsession.

We have our annual offsite coming up soon and look forward to reporting back with any process improvements, marginal gains or creative insights gained. For the first time in three years it will be in person and this makes it an even more valuable team bonding and reflection session. The Global Leaders team is grateful for your trust and support. We hope you had an enjoyable summer and wish you the best for the rest of 2022.

Thanks for reading,

Mick, Bertie and the Global Leaders Team

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Portfolio Manager

Bertie Thomson, CFA
Portfolio Manager

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ROIC is a measure of determining a company's financial performance. It is calculated as NOPAT/IC; where NOPAT (net operating profit after tax) is (EBIT + Operating Leases Due 1-Yr)*(1-Cash Tax Rate) and IC (invested capital) is Total Debt + Total Equity + Total Unfunded Pension + (Operating Leases Due 1-Yr * 8) –Excess Cash. ROIC calculations presented use LFY (last fiscal year) and exclude financial services.

Free cash flow represents the cash a company generates after cash outflows to support operations and maintain its capital assets. Unlike earnings or net income, free cash flow is a measure of profitability that excludes the non-cash expenses of the income statement and includes spending on equipment and assets as well as changes in working capital.

Total return is the amount of value an investor earns from a security over a specific period, typically one year, when all distributions are reinvested.

Price-to-Book (P/B) ratio measures the market's valuation of a company relative to its book value.

Price-to-Earnings (P/E) ratio tells investors how much a company is worth. The P/E ratio is simply the stock price divided by the company's earnings per share for a designated period of time, like the past 12 months.

Weighted Average Cost of Capital (WACC) presents a firm's average after-tax cost of capital from all sources, including common stock, preferred stock, bonds, and other forms of debt. WACC is the average rate a company expects to pay to finance its assets.

Brown Advisory Global Leaders Strategy Composite

Year	Composite Total Gross Returns (%)	Composite Total Net Returns (%)	Benchmark Returns (%)	Composite 3-Yr Annualized Standard Deviation (%)	Benchmark 3-Yr Annualized Standard Deviation (%)	Portfolios in Composite at End of Year	Composite Dispersion (%)	Composite Assets ($USD Millions)*	GIPS Firm Assets ($USD Millions)*
2021	17.6	17.0	18.4	17.2	16.8	Five or fewer	N/A	4,207	79,715
2020	21.0	20.2	16.0	16.9	18.1	Five or fewer	N/A	2,428	59,683
2019	35.1	34.2	26.5	11.6	11.2	Five or fewer	N/A	731	42,426
2018	-2.2	-2.8	-9.6	11.0	10.5	Five or fewer	N/A	303	30,529
2017	35.1	34.0	24.0	N/A	N/A	Five or fewer	N/A	77	33,155
2016	-0.6	-1.4	8.0	N/A	N/A	Five or fewer	N/A	38	30,417
2015**	1.2	0.7	-4.4	N/A	N/A	Five or fewer	N/A	24	43,746

**Return is for period May 1, 2015 through December 31, 2015

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1. *For the purpose of complying with the GIPS standards, the firm is defined as Brown Advisory Institutional, the Institutional and Balanced Institutional asset management divisions of Brown Advisory. As of July 1, 2016, the firm was redefined to exclude the Brown Advisory Private Client division, due to an evolution of the three distinct business lines.

2. The Global Leaders Composite (the Composite) aims to achieve capital appreciation by investing primarily in global equities. The strategy will invest in equity securities of companies that the portfolio manager believes are leaders within their industry or country, as demonstrated by an ability to deliver high relative return on invested capital over time. The minimum account market value required for Composite inclusion is $1.5 million.

3. The Composite creation date is August 26, 2015. The Composite inception date is May 1, 2015.

4. The benchmark is the FTSE All-World Net Index. This index is a free float market cap weighted index representing the performance of the large & mid cap stocks from the FTSE Global Equity Index Series. The Index covers Developed & Emerging Markets. Base Value 100 as at December 31, 1986. "FTSE®", "Russell®", "MTS®", "FTSE TMX®" and "FTSE Russell" and other service marks and trademarks related to the FTSE or Russell indexes are trademarks of the London

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5. As of January 1, 2019, the Composite benchmark was changed from Russell Global Large-Cap Net Index to the FTSE All-World Net Index. The change was applied retroactively from the Composite inception date. The Russell Global Large-Cap Net Index was decommissioned as of December 31, 2018 and is no longer published.

6. Composite dispersion is an equal-weighted standard deviation of portfolio gross returns calculated for the accounts in the Composite for the entire calendar year period. The composite dispersion is not applicable (N/A) for periods where there were five or fewer accounts in the Composite for the entire period.

7. Gross-of-fees performance returns are presented before management fees but after all trading commissions, and gross of foreign withholding taxes (if applicable). Net-of-fee performance returns reflect the deduction of actual management fees and all trading commissions. Other expenses can reduce returns to investors. The standard management fee schedule is as follows: 0.80% on the first $50 million; 0.55% on the next $50 million; 0.45% on the next $50 million; and 0.40% on the balance over $150 million. Further information regarding investment advisory fees is described in Part II A of the firm’s form ADV. Actual fees paid by accounts in the Composite may differ from the current fee schedule.

8. The investment management fee for the Investor Shares of the Brown Advisory Global Leaders Fund (the Fund), which is included in the Composite, is 0.65%, and represents the highest fee charged excluding Advisor Shares. The total expense ratio for the Investor Shares of the Fund as of the most recent fiscal year end (June 30, 2021) was 0.91%. Further information regarding investment management fees and expenses is described in the fund prospectus and annual report.

9. The investment management fee for the Dollar Class B Acc Shares of the Brown Advisory Global Leaders Fund (the UCITS), which is included in the composite, is 0.75%. The total expense ratio for the Dollar Class B Acc Shares of the UCITS as of the most recent fiscal year end (October 31, 2021) was 0.88%. Further information regarding investment management fees and expenses is described in the fund prospectus and annual report.

10. The three-year annualized ex-post standard deviation measures the variability of the Composite (using gross returns) and the benchmark for the 36-month period ended on December 31. The 3 year annualized standard deviation is not presented as of December 31, 2015, December 31, 2016 and December 31, 2017 because 36 month returns for the Composite were not available (N/A) and the Composite did not exist.

11. Valuations and performance returns are computed and stated in U.S. Dollars. All returns reflect the reinvestment of income and other earnings.

12. A complete list of composite descriptions and broad distribution and limited distribution pooled funds is available upon request.

13. Policies for valuing investments, calculating performance, and preparing GIPS Reports are available upon request.

14. Past performance is not indicative of future results.

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