

William Blair

San Bernardino County Employees' Retirement Association
Emerging Markets Growth

November 16, 2021

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William Blair Investment Management at a Glance

Sophisticated Global Investor Base

Investment Management

100% active-employee owned

Entrepreneurial investment-led, client focused culture

Long-term expertise across asset classes globally

Holistic, investment-led ESG integration

344 employees (51 partners)

115 investment professionals

\$77.3 billion under management

Core Investment Tenets

Active Management

Alpha-Seeking

Long-Term Focus

Fundamental Orientation

Disciplined Process

Research Intensive



Tenured and Experienced Teams

	Average years in the industry	Average years at William Blair
Portfolio Managers	24	10
Analysts	17	9

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Global Portfolio Strategies

Our single, integrated investment platform is directed toward achieving portfolio objectives across all of our strategies

		Global	International	Emerging Markets
		Global Leaders \$3.4 billion	International Leaders \$9.5 billion	Emerging Markets Leaders \$6.0 billion
Leaders	High quality portfolios of leading companies across the corporate life cycle	Global Leaders Concentrated \$8 million	International Leaders Concentrated \$25 million	Emerging Markets Leaders Concentrated \$88 million
		Global Leaders Sustainability \$110 million	International Leaders ADR \$201 million / \$542 million AUA ¹	
All Cap	Broad exposure across all market caps		International Growth \$14.9 billion (closed) ²	Emerging Markets Growth \$6.7 billion Emerging Markets Ex China Growth \$3 million
Small Cap	Broad exposure to small cap companies		International Small Cap Growth \$3.4 billion (closed) ²	Emerging Markets Small Cap Growth \$2.0 billion (closed) ²
China	Broad exposure to high quality China-domiciled companies			China A-Shares Growth \$447 million China Growth \$3 million

Assets as of September 30, 2021.

¹Assets Under Advisement (AUA) consists of assets managed by third parties in accordance with model portfolios provided by William Blair. William Blair does not have investment discretion or trading authority over these assets.

²Capacity management is an integral component of our investment process.

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William Blair Emerging Markets

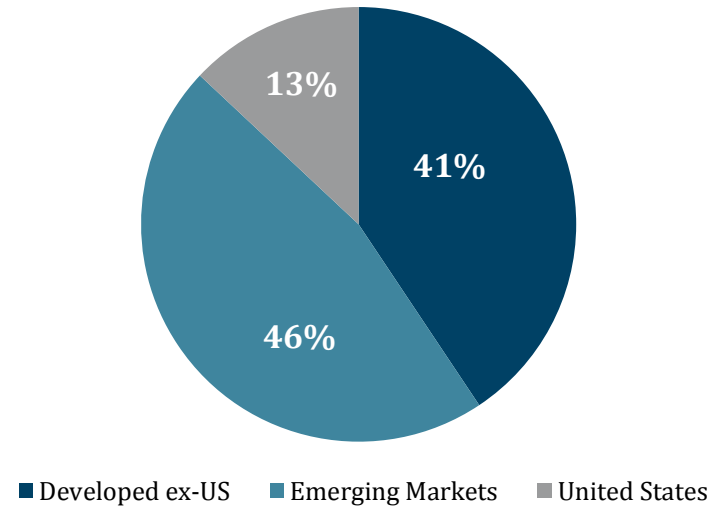
Deep-Rooted Experience

- Managing Emerging Markets strategies since 1996 with the same philosophy and process
- Involved in China A shares since 2012 with research presence in Shanghai
- Currently manage \$14.9 billion in dedicated Emerging Markets strategies and \$19.8 billion in Emerging Markets securities across Global Equity Team's strategies

Emerging Markets Strategies Suite

Strategy	Scope	Benchmark
Emerging Markets Leaders	Portfolio of leading companies in terms of products, services, and execution	MSCI Emerging Markets
Emerging Markets Leaders Concentrated	Concentrated portfolio of leading companies in terms of products, services, and execution	MSCI Emerging Markets
Emerging Markets Growth	Diversified, all-cap portfolio of high quality companies, with constant exposure to small cap	MSCI Emerging Markets IMI
Emerging Markets Small Cap Growth	Diversified portfolio of high quality small cap companies	MSCI Emerging Markets Small Cap
China A-Shares Growth	High quality growth portfolio of China A share companies across market cap spectrum	MSCI China A Onshore
China Growth	High quality growth portfolio of China All Shares companies across the market cap spectrum	MSCI China All Shares

Emerging Markets' Significant Role in Eligibility List¹
 Emerging Markets make up a disproportionate percentage of our quality growth universe



As of September 30, 2021.

¹Based on number of companies in the Global Eligibility List. Eligibility List data source: William Blair and MSCI ACWI IMI Index. Calculated in FactSet. Strategy availability may be limited to certain investment vehicles; not all investment vehicles may be available to all investors. Assets shown in U.S. dollar.

Integrated Investment Platform

One team, one philosophy, one process

Emerging Markets Growth Portfolio Managers



Todd M. McClone, CFA, Partner
Portfolio Manager

29 years industry experience
21 years with William Blair
B.B.A. and B.A., University of
Wisconsin–Madison



Casey Preyss, CFA, Partner
Portfolio Manager

22 years industry experience
21 years with William Blair
M.B.A., University of Chicago
B.S.B.A., The Ohio State University



Vivian Lin Thurston, CFA, Partner
Portfolio Manager

25 years industry experience
7 years with William Blair
M.A. & M.S., University of Illinois
LL.B., Peking University



16

Fundamental Analysts
Conducting bottom-up
research, organized by
global sectors and
market cap



4

Portfolio Specialists
Integrated into the
investment process



10

Portfolio Managers
Across the global
investment platform



4

Strategists
Framing the global
economic environment and
thematic growth drivers



4

Systematic Research Analysts
Providing data analytics and
portfolio management tools



7

Traders
24/7 global coverage

As of October 2021.

Global Investment Team

One team, one philosophy, one process

Portfolio Management¹

Global Leaders

Andy Flynn, CFA, Partner (16/31)
Ken McAtamney, Partner (17/32)
Hugo Scott-Gall, Partner (3/28)³

International Growth

Simon Fennell, Partner (11/29)
Ken McAtamney, Partner (17/32)

International Leaders

Alaina Anderson, CFA, Partner (15/20)
Simon Fennell, Partner (11/29)
Ken McAtamney, Partner (17/32)

International Leaders ADR

Alaina Anderson, CFA, Partner (15/20)

International Small Cap

Simon Fennell, Partner (11/29)
Andy Flynn, CFA, Partner (16/31)
D.J. Neiman, CFA, Partner (20/23)³

Emerging Markets Leaders

Todd McClone, CFA, Partner (21/29)
Jack Murphy, CFA, Partner (17/25)

Emerging Markets Growth

Todd McClone, CFA, Partner (21/29)
Casey Preyss, CFA, Partner (21/22)
Vivian Lin Thurston, CFA, Partner (7/25)

Emerging Markets Small Cap Growth

Todd McClone, CFA, Partner (21/29)
D.J. Neiman, CFA, Partner (20/23)³
Casey Preyss, CFA, Partner (21/22)

China A-Shares Growth

Casey Preyss, CFA, Partner (21/22)
Vivian Lin Thurston, CFA, Partner (7/25)

(Years at William Blair/Years in Industry)

¹Portfolio Management team average 15 years at William Blair and 27 years in the industry. ²Global Fundamental Research Analysts average 11 years at William Blair and 14 years in the industry. ³D.J. Neiman and Hugo Scott-Gall also serve as Co-Directors of Research. ⁴10 years of experience at William Blair from April 2007 to 2016. Rejoined the firm in July 2021. ⁵Blake Pontius is Director of Sustainable Investing for Investment Management. ⁶Traders, excluding Portfolio and Trade Order Management and International Trade Specialists, average 9 years at William Blair and 18 years in the industry. ⁷Terry O'Bryan also serves as the Head of Global Equity Trading. *Italics indicate Associate role.* As of October 2021.

Global Fundamental Research Analysts²

Consumer

Kwesi Smith, CFA (6/17)
William Benton, CFA, CPA, Partner (24/24)
Adam Dettmer, CFA (4/7)
Bryan Shea (12/12)
Evelyn Kong, CFA, CPA (<1/<1)
Emily Stent, CFA (4/6)

Financials

Daniel Hill, CFA (17/17)
Esteban Gonzalez-Rosell (2/12)
Kalpit Shah, CFA (2/6)
Paul O'Toole (1, 4)

Healthcare

Thomas Sternberg, CFA, Partner (17/19)
Camilla Oxhamre Cruse, Ph.D. (7/15)
Richard Reznick, Ph.D. (11/11)
Jonathan Kaufman, CPA (6/6)

Industrials, Energy & Materials

Andrew Siepker, CFA, Partner (16/17)
Anil Daka, CFA (10/13)
Ben Loss, CFA (10/11)
Monika Budyn (8/12)
Michael Patchen, CFA (2/9)

Portfolio Specialists

Ryan Dimas, CFA, CAIA, Partner (22/27)
Romina Graiver, Partner (9/22)
Jeremy Murden, CAIA (11/16)⁴
Emily George (10/11)

Information Technology

Greg Scolaro, CFA, CPA (8/8)
Drew Buckley, CFA, CPA, Partner (13/15)
Jayesh Kannan, CFA (3/8)
Nupur Balin (<1/<1)
Sophie Gao, CFA (<1/9)
Grant Parsons, CPA (2/6)

Real Assets

Alaina Anderson, CFA, Partner (15/20)

China Generalist

Richard Reznick, Ph.D. (11/11)

Strategy Research

Hugo Scott-Gall, Partner (3/28)³
Olga Bitel, Partner (12/19)
Blake Pontius, CFA (16/24)⁵
Rita Spitz, CFA, Partner (35/43)
Alexa Davis (4/6)
Gurvur Grewal (2/7)

Systematic Research

Spiro Voulgaris, Partner (14/31)
Andrew Kominik, CFA (18/22)
Andy Tang, CFA ((5/10)
Andrew Wickman, CFA (7/11)
Scott Akeson (6/6)
Kathy Matos (15/15)

Technologist

Darragh Grogan (13/15)

Trading⁶

Asia/Pacific

Nathan Fisher, CFA (7/18)
Daniel Iannessa (16/18)
Malik Nicholson (8/16)

Europe

Nicola Hynds (14/26)
Simon Johnstone (9/21)
Akos Reitz (2/6)

Americas and FX

Terry O'Bryan, Partner (14/23)⁷

Portfolio & Trade Order Management

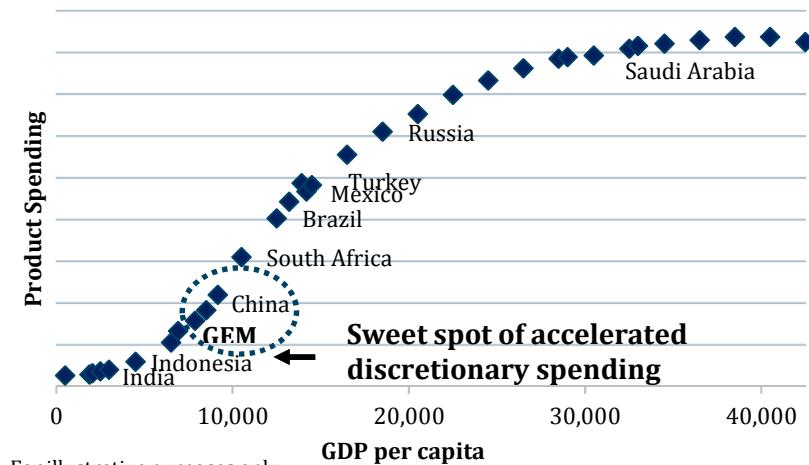
Joe Emanuele (5/6)
Tim Randick (14/14)

International Trade Data Specialists

Michael LaDuke (12/14)

Secular Growth Potential in Emerging Markets

Global Emerging Markets Consumption Spending per Capita

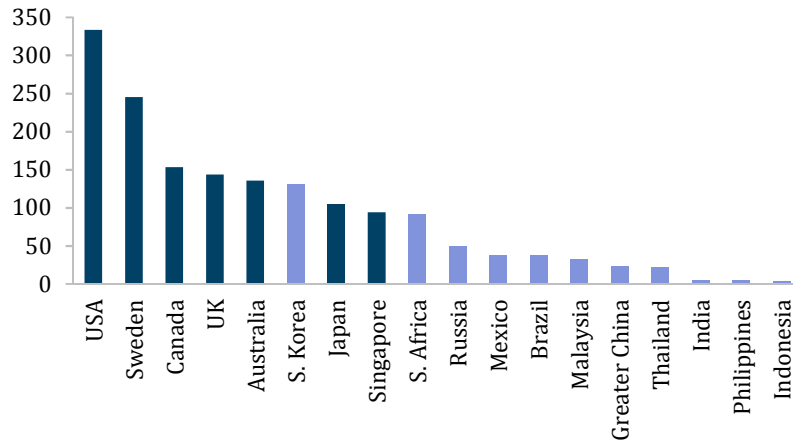


Per Capita Spending on Staple Products
(as % of G7 Capital Spending 2025)

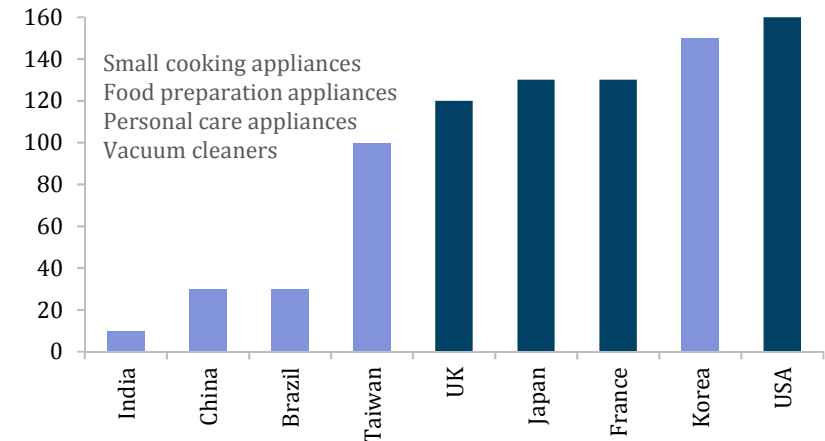
	Brazil	China	Indonesia	India	EM
Instant Coffee	15%	5%	30%	2%	19%
Beer	46%	16%	1%	1%	12%
Carbonated Drinks	40%	6%	3%	1%	12%
Baked Goods	42%	8%	4%	1%	10%
Spirits	14%	3%	0%	3%	9%
Yogurt	29%	14%	1%	1%	9%
Savory Snacks	12%	8%	3%	2%	6%
Chocolate	17%	2%	3%	1%	5%
Consumer Health	12%	10%	5%	1%	5%
Pet Food	21%	1%	0%	0%	3%
Ready Meals	4%	1%	0%	0%	1%

More Mature

Per Capita Spending on Sportswear (\$USD)



Per Capita Spending on Household Appliances (\$USD)

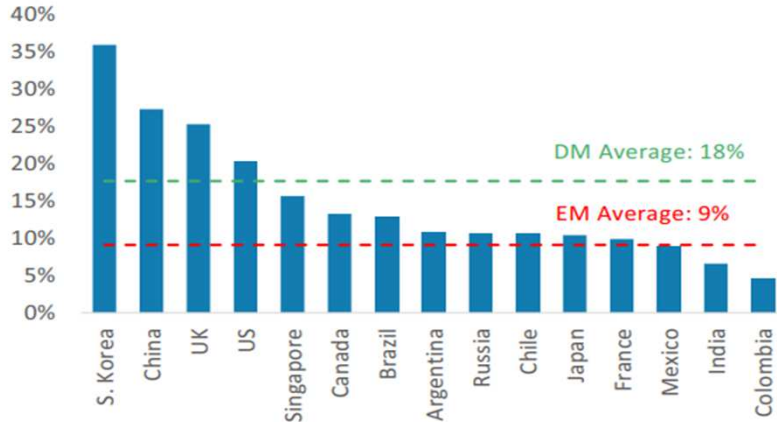


Data as of October 2019.

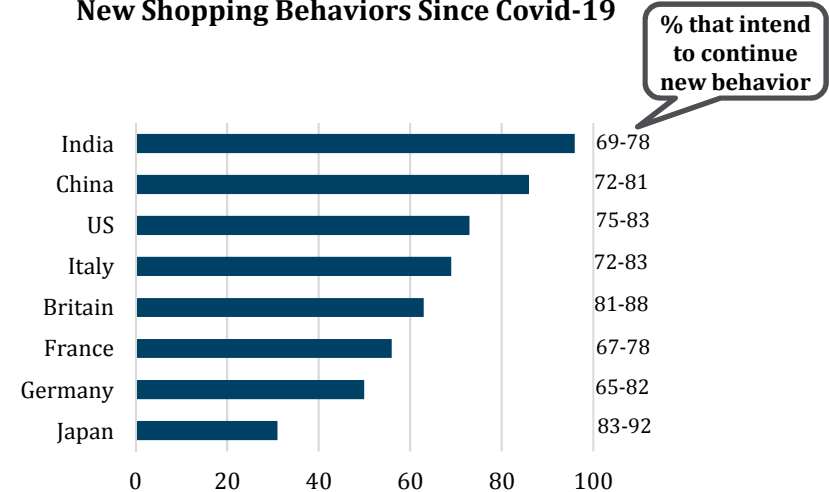
Source: Credit Suisse, Goldman Sachs, Deutsche Bank, CSLA.

E-Commerce: Long Term Growth Opportunity in Emerging Markets

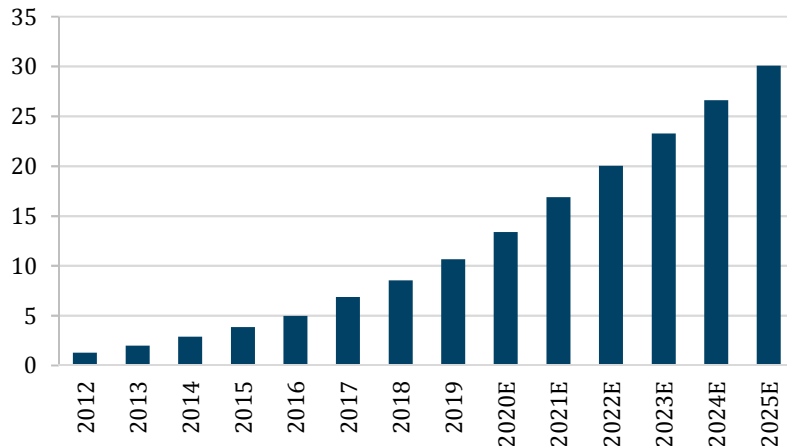
E-Commerce Penetration Across Markets
(2020 % of Retail Sales)



McKinsey Survey: % of Customers who Have Tried New Shopping Behaviors Since Covid-19



China: E-Commerce GMV (RMB tr)



Emerging Markets E-Commerce Champions

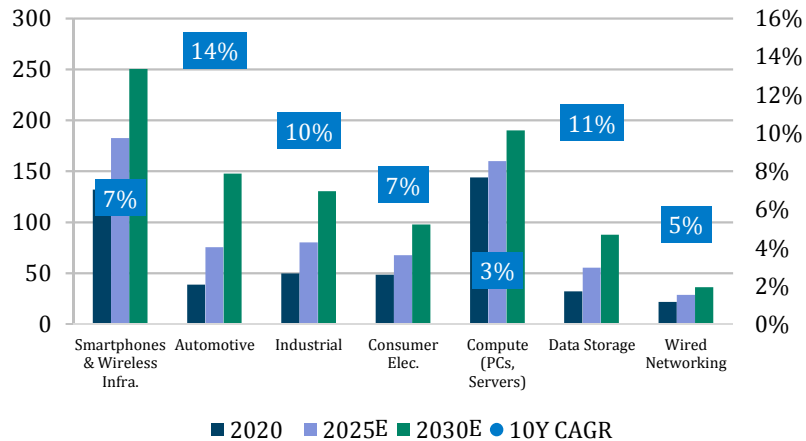


Data as of June 2021.

Source: Bernstein, BofA Merrill Lynch Global Investment Strategy, Morgan Stanley Research, McKinsey. References to specific companies are provided for illustrative purposes only and should not be interpreted as a recommendation to buy or sell any security.

Increased Growth Opportunities in Tech Hardware

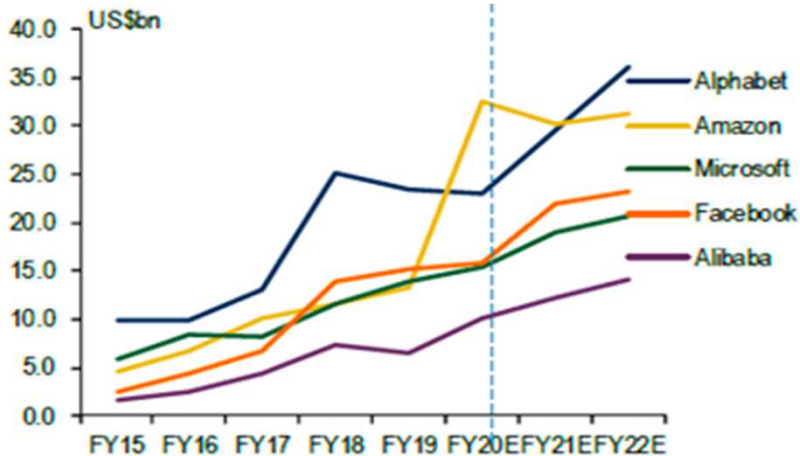
Total Semi Revenue (\$B) by Application



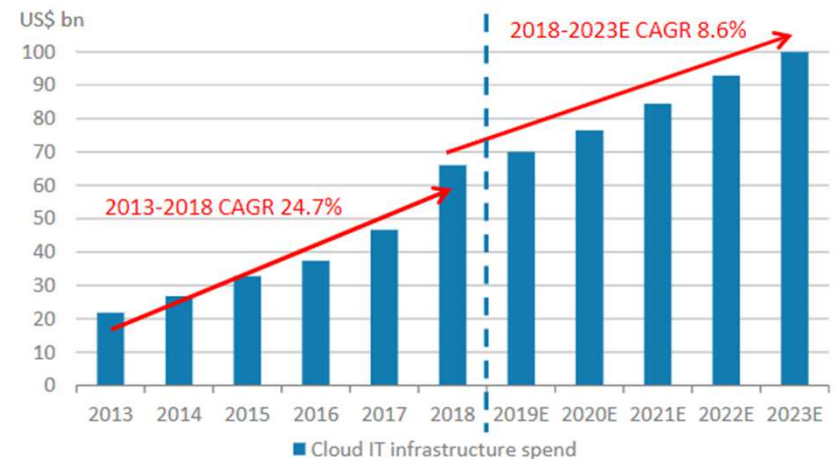
Incremental Average Semiconductor Content Cost



Hyperscale Capex Increase Continues in 2021



Cloud IT Infrastructure Spend

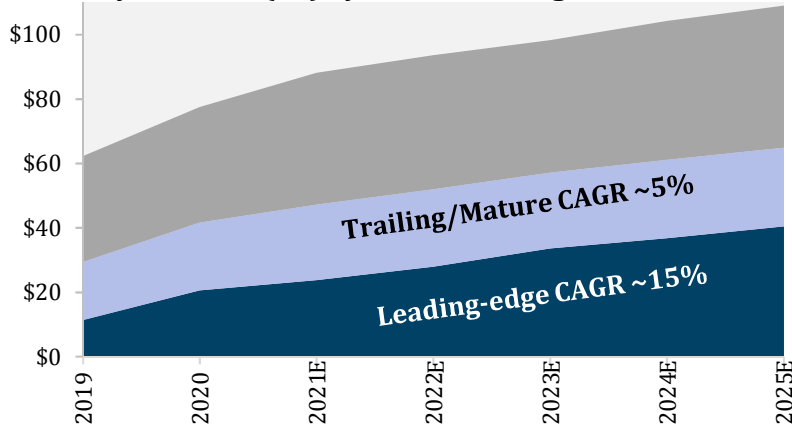


Data as of June 2021.

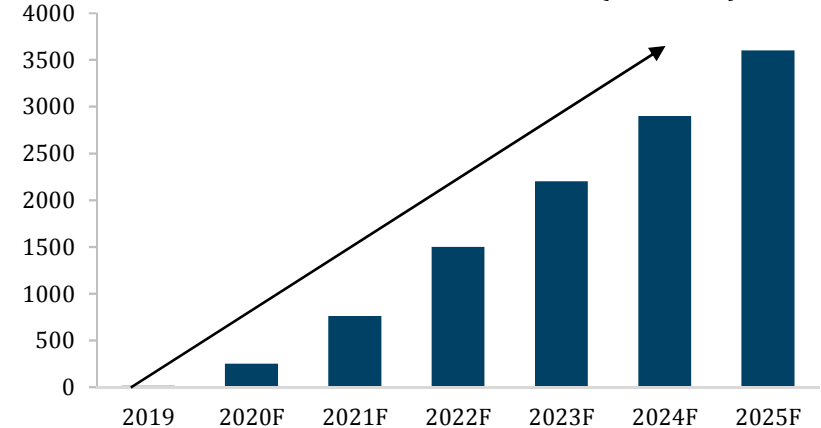
Source: Qorvo, CIMB, BAML, Morgan Stanley. References to specific companies are provided for illustrative purposes only and should not be interpreted as a recommendation to buy or sell any security.

Growth Opportunities Driven by High Performance Computing and 5G

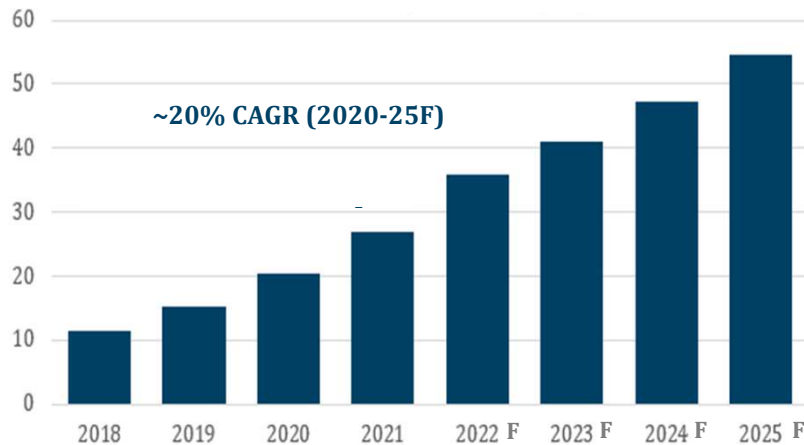
Foundry Revenue (\$B) by Manufacturing Process Technology



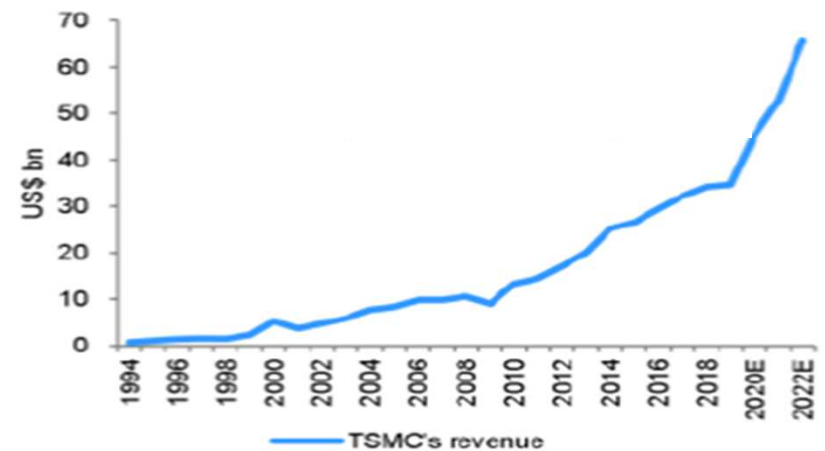
Global 5G Connection Forecast (mn units)



Global AI Chip Market (\$B)



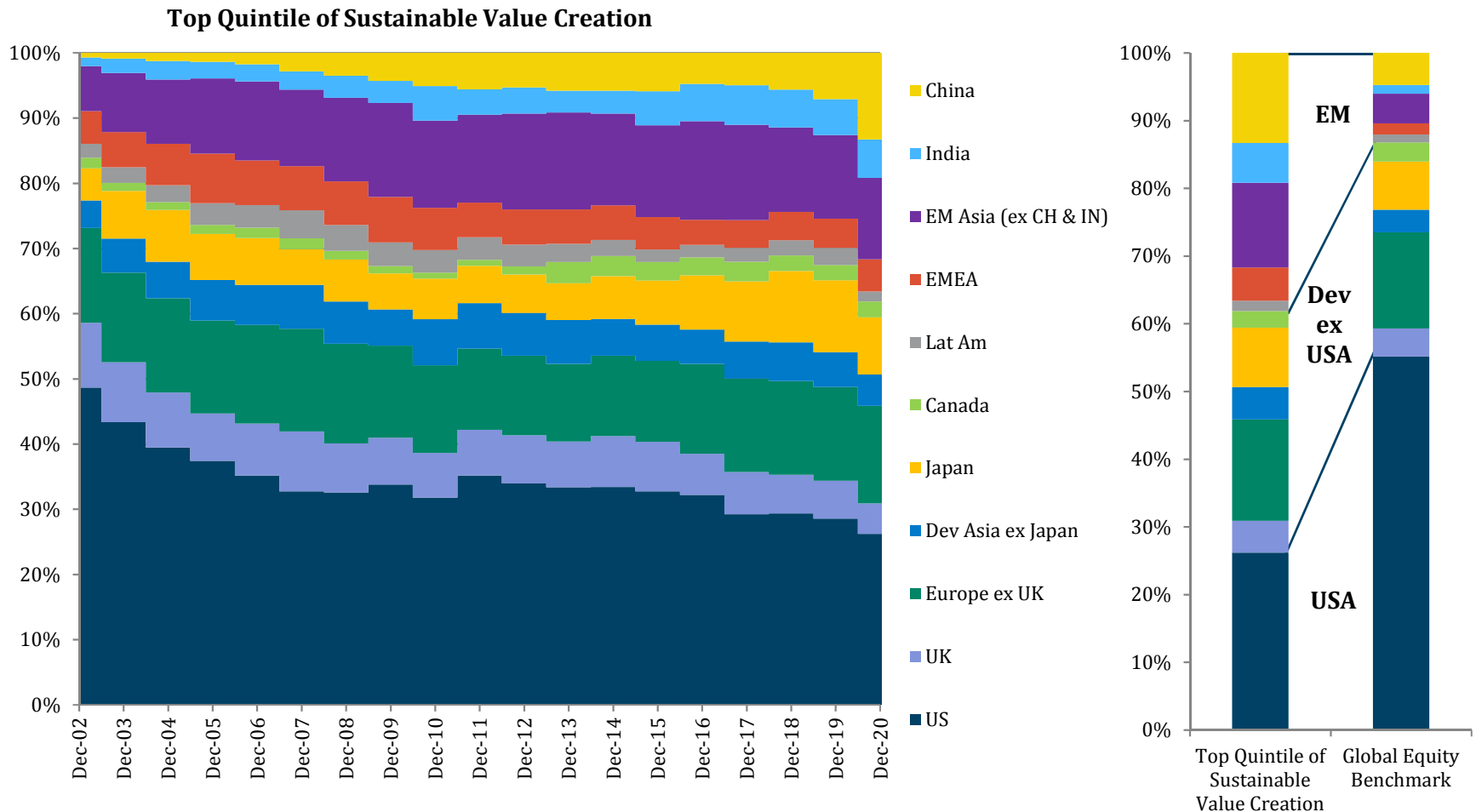
TSMC Revenue Growth



Data as of June 2021.

Source: Cornerstone Macro, Mizuho Securities Equity Research, Gartner, Deloitte, McKinsey, PWC, Macquarie, Infineon. References to specific companies are provided for illustrative purposes only and should not be interpreted as a recommendation to buy or sell any security.

Expanding High Quality Opportunity Set in Emerging Markets

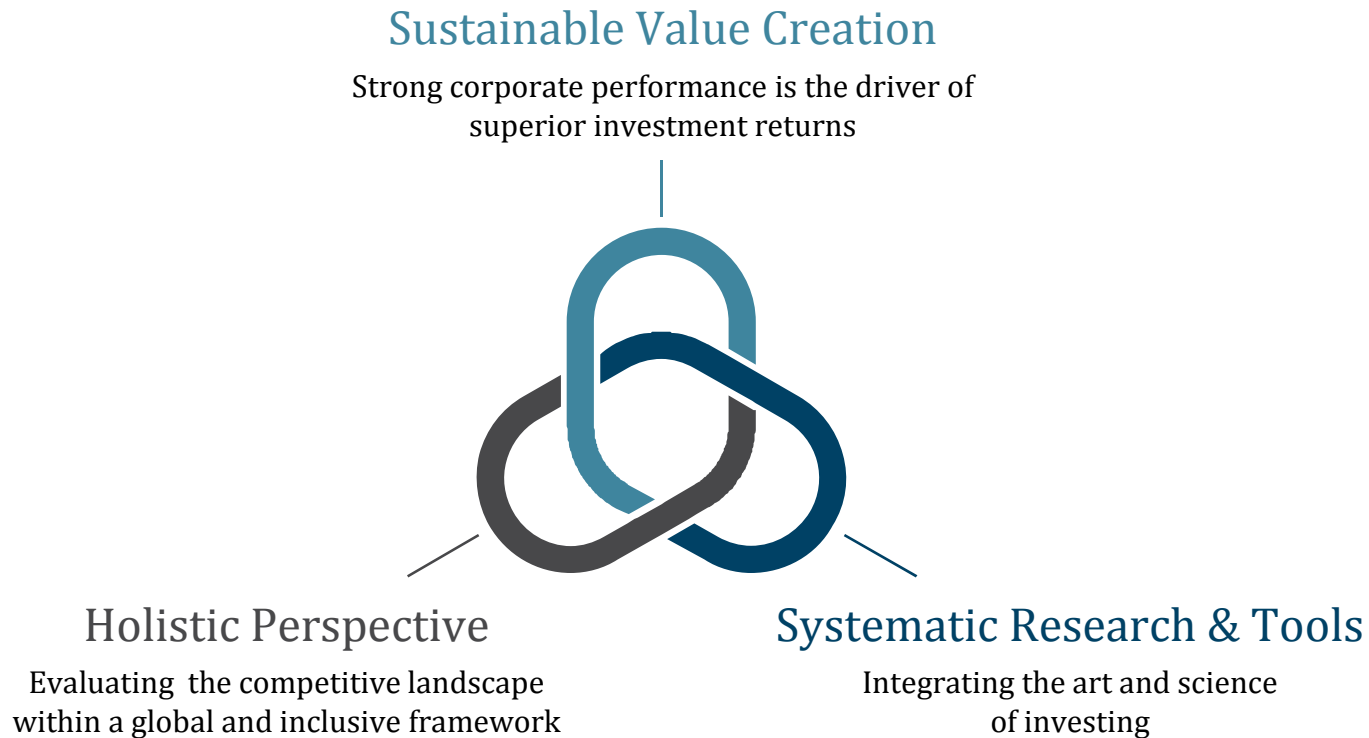


Data as of December 2020.

Source: MSCI ACWI IMI. Top quintile of sustainable value creation is equal weighted. Sustainable value creation is an aggregate measure of corporate returns on capital. Several quantitative financial statement factors are used to measure total corporate profit/cash flow relative to total invested capital, corporate equity profit/cash flow relative to invested equity capital, as well as operating efficiency.

Investment Philosophy

We believe an integrated investment platform directed towards identifying companies with strong corporate performance will drive superior long-term investment returns





Sustainable Value Creation

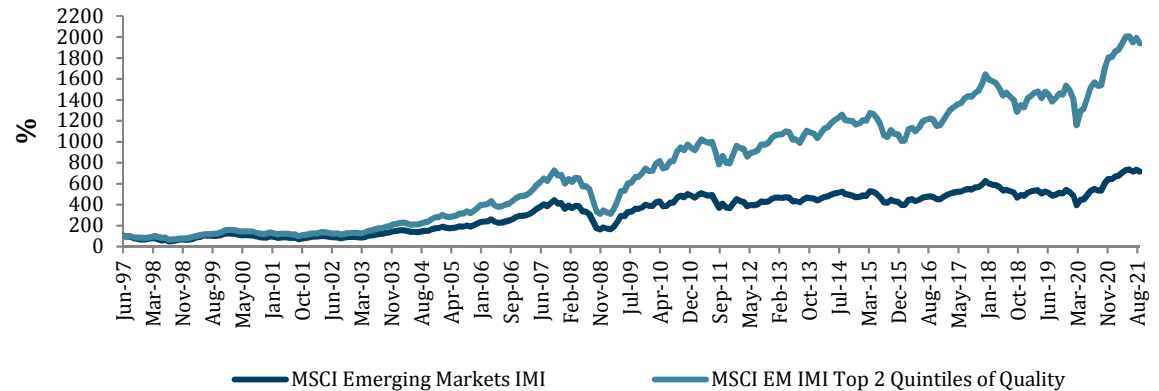
Strong corporate performance is the driver of superior investment returns

Benefits of Quality Investing

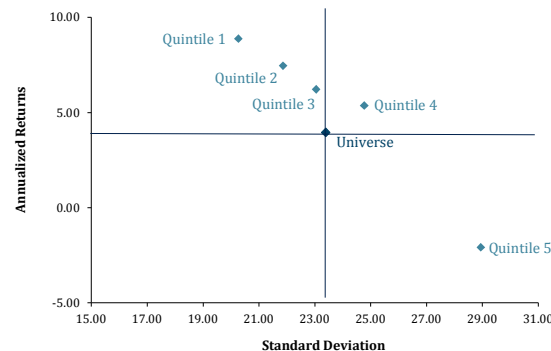
Companies with industry leading returns on capital and sustainable competitive advantages have:

- Produced strong relative returns
- Generated attractive risk/adjusted returns
- Helped protect capital in down markets

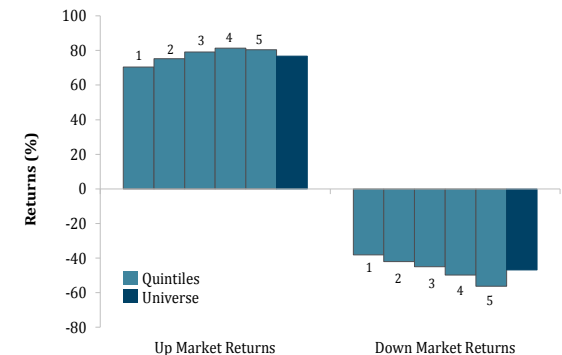
Cumulative Returns of High Quality



Emerging Markets Universe by Quality Quintiles



Emerging Markets Quality Universe Up/Down Market Performance



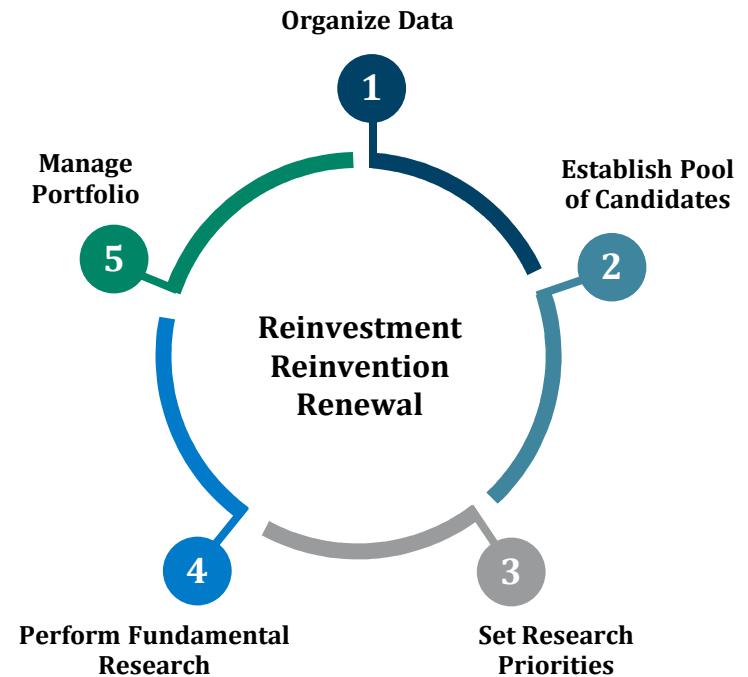
Source: William Blair Emerging Markets Universe. Data shown for period between July 31, 1997 – September 30, 2021 (Quality line chart updated through August 31, 2021). Securities are equally weighted to create hypothetical portfolios based on the criteria shown. The hypothetical portfolios are rebalanced monthly.

Past performance is not indicative of future returns. Hypothetical performance is provided for illustrative purposes only. The above performance information is based on quality scores from William Blair's proprietary model and does not in any way relate to actual results of any account or strategy. The strategy may or may not hold the companies included in the Quality quintiles shown. Hypothetical performance has inherent limitations. Specifically, hypothetical results do not reflect actual trading or the effect of material economic and market factors on the decision-making process. There is no assurance that the models will remain the same in the future. Quality is defined as those companies with good balance sheet metrics, efficiency, and higher returns. Up/down market returns based on MSCI Emerging Markets IMI Index, monthly annualized returns.

Investment Process

Integrated Fundamental, Systematic and Strategy Research Throughout the Investment Process

- 1 Organize Data**
Rank order global universe of equities by fundamental and technical attributes and utilize systematic research to analyze information
- 2 Establish Pool of Candidates**
Create Eligibility List of 2,800- 3,000 companies through quantitative screens and fundamental analysis
- 3 Set Research Priorities**
Establish Research Agenda of 50-75 companies by identifying opportunities and risks through bottom up research, top down strategy, and portfolio objectives
- 4 Perform Fundamental Research**
Analyze sustainable value creation and determine if fundamentals appear poised to change
- 5 Manage Portfolio**
Weigh risk/reward of buy/sell decision to seek desired outcomes



Emerging Markets Growth Portfolio Attributes

As of September 30, 2021

	Emerging Markets Growth	MSCI Emerging Markets IMI Index	Difference
Quality			
WB Quality Model (Percentile)	31	40	
Return on Equity (%)	22.3	16.9	32%
Cash Flow ROIC (%)	23.9	19.4	23%
Debt/Equity (%)	42.2	72.8	-42%
Growth			
WB Growth Model (Percentile)	34	46	
Long-Term Growth (%)	26.7	20.7	29%
5-Year Historic EPS Growth (%)	16.5	10.5	57%
Reinvestment Rate (%)	17.6	12.8	38%
Earnings Trend			
WB Earnings Trend Model (Percentile)	47	55	
EPS Est Rev Breadth (%) ¹	2.3	-0.3	2.6
Valuation			
WB Valuation Model (Percentile)	77	52	
P/E (next 12 months)	25.5	12.7	100%
Dividend Yield (%)	1.0	2.2	-54%

The data shown above is based on the strategy's representative portfolio. The index is comparable to the strategy in terms of investment approach but contains significantly more securities. Calculated by William Blair. Aggregate scores shown above based on William Blair's quantitative model. For individual and composite ranks, 1 is best and 100 is worst. The MSCI Emerging Markets IMI Index is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets. Not intended as investment advice.

Emerging Markets Growth Composition Snapshot

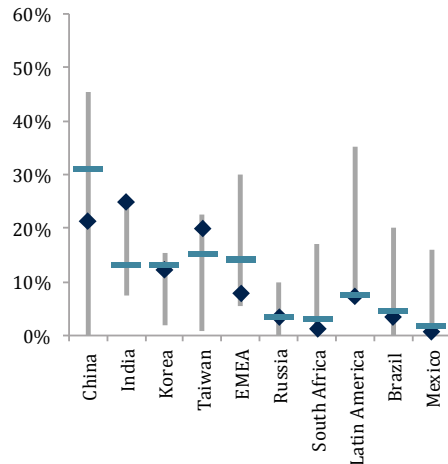
As of September 30, 2021

Top 10 Holdings	Sector	Country	Position Size (%)
Taiwan Semiconductor Manufactu	Information Technology	Taiwan	7.8
Samsung Electronics Co Ltd	Information Technology	South Korea	4.6
Tencent Holdings Ltd	Communication Services	China	3.2
Mediatek Inc	Information Technology	Taiwan	3.0
Reliance Industries Ltd	Energy	India	2.8
Sea Ltd	Communication Services	Thailand	1.9
Silergy Corp	Information Technology	China	1.9
Tata Consultancy Services Ltd	Information Technology	India	1.8
Kakao Corp	Communication Services	South Korea	1.7
Yandex Nv	Communication Services	Russian Federation	1.7

Benchmark	
MSCI Emerging Markets IMI	
Maximum Position Size	7.5% or 1.5x benchmark weight
Active Share	71.3%
Number of Holdings	145
Weighted Avg. Mkt Cap (\$b)	\$87.4

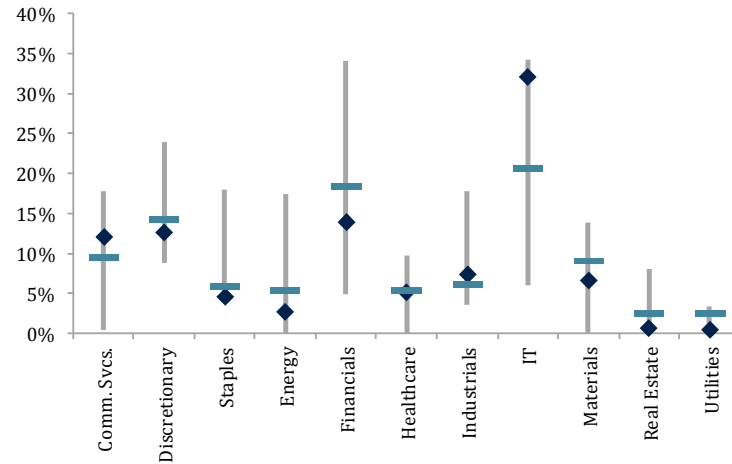
Regions

Exposure to major countries typically ranges from 0.5 to 2x the benchmark weight



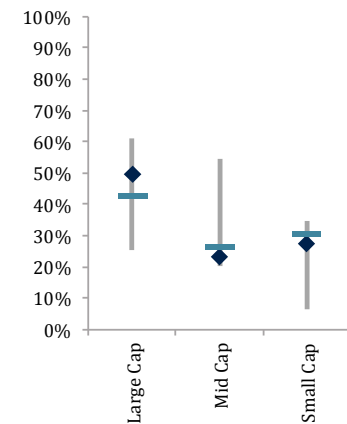
Sectors

Exposure to major sectors typically ranges from 0.5 to 2x the benchmark weight
Maximum weight to any individual sector is 40%



Market Cap

Exposure to small cap exposure typically >10%



◆ Current Portfolio Weight — Current Benchmark Weight ■ Historic Range¹

¹Historic range dates back to 7/1/2005.

Source: William Blair. Individual securities listed in this report are for informational purposes only. Holdings are subject to change at any time. The data shown above is based on the strategy's representative portfolio excluding cash. Small cap is defined as \$0-\$5 billion, mid cap \$5 billion to \$20 billion, and large cap over \$20 billion. The MSCI Emerging Markets Investable Market Index (IMI) Net is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets. This information does not constitute, and should not be construed as, investment advice or recommendations with respect to the securities listed.

Emerging Markets Growth Performance Summary

As of September 30, 2021

	Annualized							
								Strategy Inception (Oct 1 96)
Composite Performance (%)	QTD	YTD	1 Yr	3 Yr	5 Yr	10 Yr	20 Yr	
Emerging Markets Growth (Gross of fees)	-5.05	5.46	24.95	21.34	16.04	11.07	14.82	11.91
MSCI Emerging Markets IMI Index	-7.39	0.71	20.80	9.10	9.28	6.21	11.07	5.35
Relative Performance (Gross of fees)	2.34	4.75	4.15	12.24	6.76	4.86	3.76	6.56

Annual Composite Performance (%)	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Emerging Markets Growth (Gross of fees)	41.85	29.61	-21.05	51.19	2.93	-14.17	5.73	3.83	22.17	-15.89	24.73	79.09	-60.54
MSCI Emerging Markets IMI Index	18.39	17.64	-15.04	36.83	9.90	-13.86	-1.79	-2.20	18.68	-19.49	19.90	82.36	-53.78
Relative Performance (Gross of fees)	23.46	11.97	-6.01	14.36	-6.97	-0.31	7.52	6.03	3.49	3.60	4.83	-3.27	-6.76

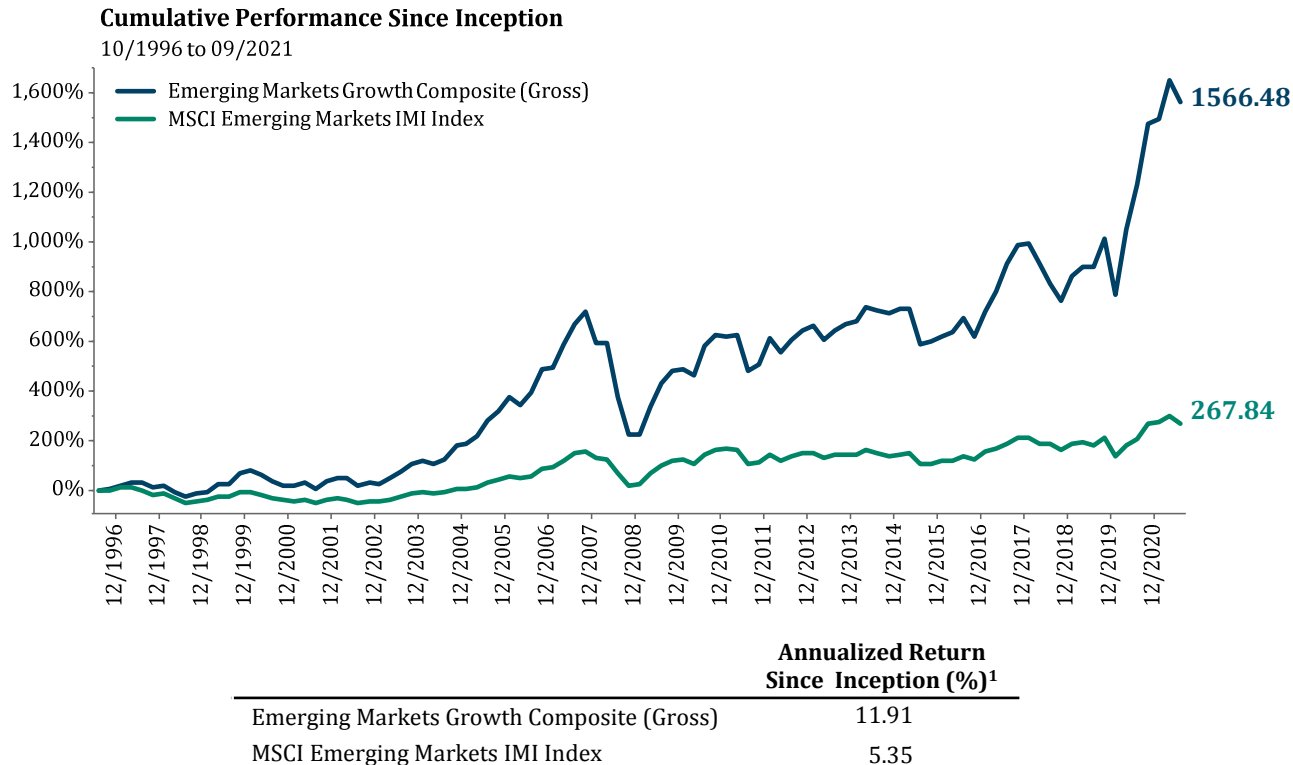
Annual Composite Performance (%)	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996 ¹
Emerging Markets Growth (Gross of fees)	40.26	39.27	49.10	37.93	58.66	-2.70	13.75	-29.81	90.73	-18.90	5.91	1.07
MSCI Emerging Markets IMI Index	39.83	31.70	33.47	26.62	53.97	-6.49	-2.02	-35.31	62.63	-29.67	-19.74	-1.45
Relative Performance (Gross of fees)	0.44	7.57	15.63	11.31	4.69	3.78	15.77	5.50	28.11	10.77	25.65	2.52

¹Partial year performance from October 1 to December 31, 1996.

Past performance is not indicative of future returns. Performance is shown in U.S. dollar unless otherwise noted. Returns for periods greater than one year are annualized. Gross performance results shown do not reflect the deduction of investment management fees, assume the reinvestment of dividends and capital gains, and are net of transaction costs. Performance results will be reduced by the fees incurred in the management of the account. For example, assuming an annual gross return of 8% and an annual management/advisory fee of .40%, the net annualized total return of the portfolio would be 7.58% over a 5-year period. Net investment performance represents the deduction of the highest possible fee. Investment management fees are described in William Blair's Form ADV Part 2A. The benchmark that best reflects the composite's investment strategy is the MSCI Emerging Markets Investable Market Index (IMI) Net, which is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets. International investing involves special risk considerations, including currency fluctuations, lower liquidity, economic, and political risk. Please see GIPS Composite Report in appendix for a complete description of the composite. The Emerging Markets Growth Composite included carve-out portfolios from inception through 2006. The Emerging Markets Growth Composite included carve-out portfolios from inception through 2006.

Long-Term Return Profile

Periods ending September 30, 2021

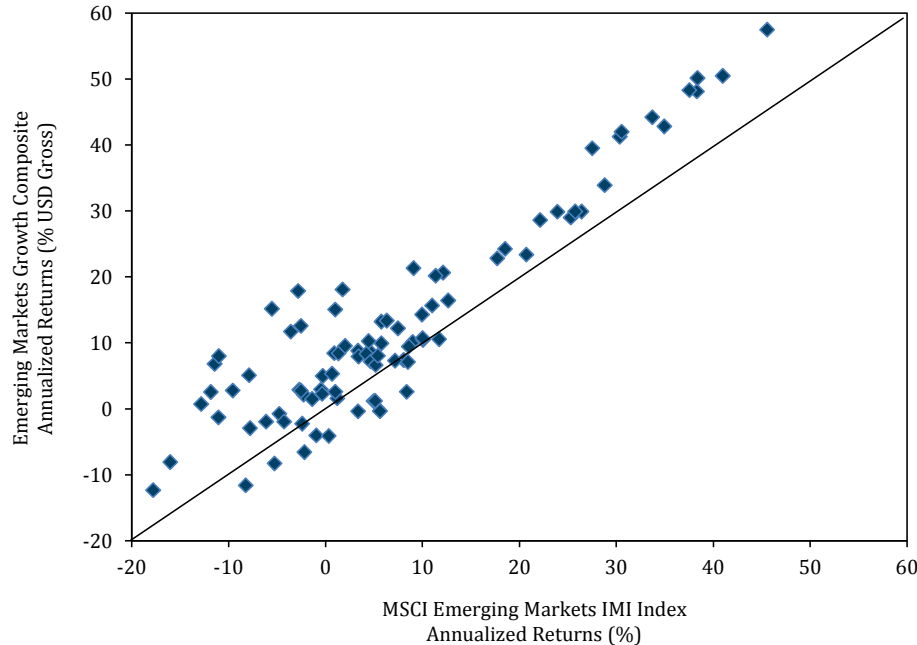


¹Composite inception October 1, 1996.

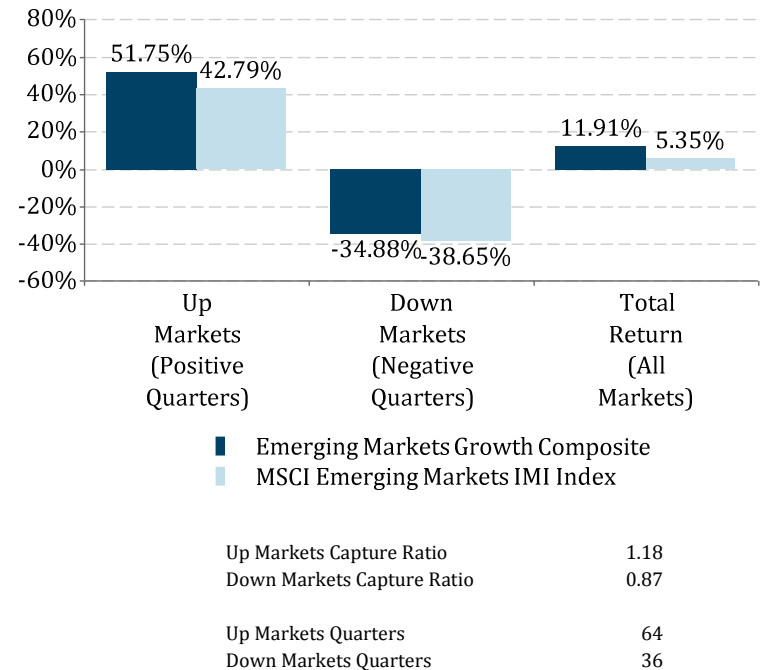
Past performance is not indicative of future returns. Performance is shown in U.S. dollar unless otherwise noted. Composite performance is calculated using monthly data from October 1999 to present. Prior to October 1999, Emerging markets growth composite returns were calculated quarterly using the emerging markets carve out of the International Growth Composite. Past performance is not indicative of future returns. Gross investment performance assumes reinvestment of dividends and capital gains, is gross of investment management fees and net of transaction costs. Performance results will be reduced by the fees incurred in the management of the account. For example, assuming an annual gross return of 8% and an annual management/advisory fee of .40%, the net annualized total return of the portfolio would be 7.58% over a 5-year period. Net investment performance represents the deduction of the account's actual fee. Investment management fees are described in William Blair's Form ADV Part 2A. Returns for periods greater than one year are annualized. International investing involves special risk considerations, including currency fluctuations, lower liquidity, economic and political risk. The benchmark is the Morgan Stanley Capital International (MSCI) Emerging Markets IMI Index which is an unmanaged index that includes only emerging markets. Please see GIPS Composite Report in appendix for a complete description of the composite. The Emerging Markets Growth Composite included carve-out portfolios from inception through 2006.

Emerging Markets Growth Strategy Performance

Rolling 3-Year Annualized Periods Since Inception (Quarterly Data)
Emerging Markets Growth Composite (USD Gross) vs.
MSCI Emerging Markets IMI Index
October 1, 1996 – September 30, 2021



Annualized Up/Down Market Returns (% USD Gross)
10/1996 to 09/2021

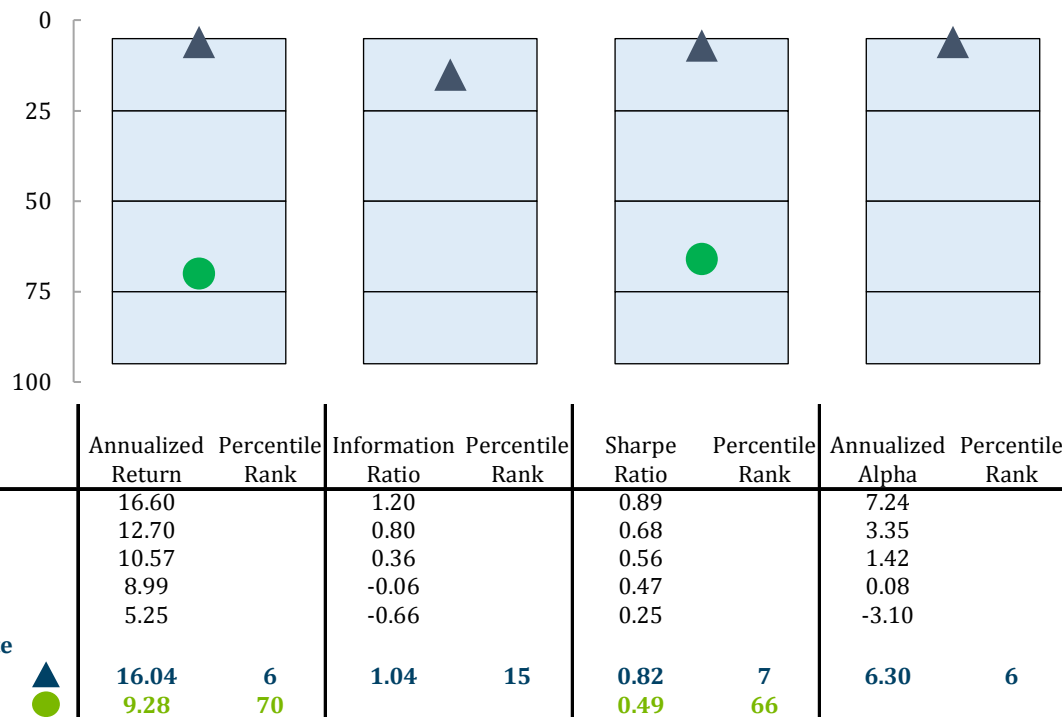


Composite Inception October 1, 1996.

Up/down market returns calculated using quarterly, annualized data.

Past performance is not indicative of future returns. Performance is shown in U.S. dollar unless otherwise noted. Returns for periods greater than one year are annualized. Gross performance results shown do not reflect the deduction of investment management fees, assume the reinvestment of dividends and capital gains, and are net of transaction costs. Performance results will be reduced by the fees incurred in the management of the account. For example, assuming an annual gross return of 8% and an annual management/advisory fee of .40%, the net annualized total return of the portfolio would be 7.58% over a 5-year period. Net investment performance represents the deduction of the highest possible fee. Investment management fees are described in William Blair's Form ADV Part 2A. The benchmark that best reflects the composite's investment strategy is the MSCI Emerging Markets Investable Market Index (IMI) Net, which is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets. International investing involves special risk considerations, including currency fluctuations, lower liquidity, economic, and political risk. Please see GIPS Composite Report in appendix for a complete description of the composite.

Emerging Markets Growth – Five Years Ending September 30, 2021



Number of Managers

174

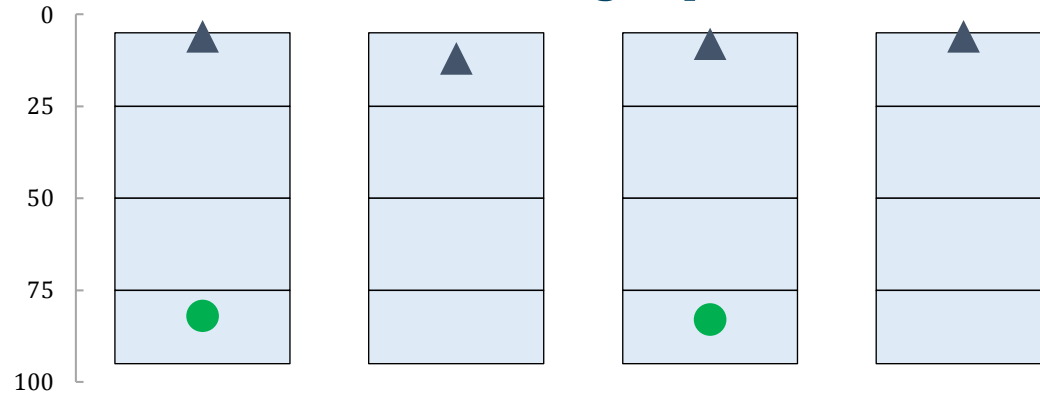
eVestment Alliance Emerging Markets All Cap Equity Universe data generated on October 18, 2021.

Composite inception 10/1/96. Performance shown is calculated in U.S. dollar, gross of fees, unless otherwise noted.

eA Universe Construction Methodology Emerging Markets All Cap Equity – Equity products that invest primarily in small, middle, and/or large capitalization stocks in emerging markets countries. The expected benchmarks for this universe would include the MSCI Emerging Market Free, or IFC Investable. Managers in this category will typically indicate a “Primary Capitalization Emphasis” equal to Small, Mid, or Large Cap and a “Primary Style Emphasis” equal to Growth, Value, or Core. eVestment Alliance standard deviation reflects annualized calculation of monthly returns.

Past performance is not indicative of future returns. Composite performance is calculated using monthly data from October 1999 to present. Prior to October 1999, Emerging markets growth composite returns were calculated quarterly using the emerging markets carve out of the International Growth Composite. Past performance is not indicative of future returns. Gross investment performance assumes reinvestment of dividends and capital gains, is gross of investment management fees and net of transaction costs. Performance results will be reduced by the fees incurred in the management of the account. For example, assuming an annual gross return of 8% and an annual management/advisory fee of .40%, the net annualized total return of the portfolio would be 7.58% over a 5-year period. Net investment performance represents the deduction of the account's actual fee. Investment management fees are described in William Blair's Form ADV Part 2A. Returns for periods greater than one year are annualized. International investing involves special risk considerations, including currency fluctuations, lower liquidity, economic and political risk. The benchmark is the Morgan Stanley Capital International (MSCI) Emerging Markets IMI Index which is an unmanaged index that includes only emerging markets. Please see GIPS Composite Report in appendix for a complete description of the composite. The Emerging Markets Growth Composite included carve-out portfolios from inception through 2006.

Emerging Markets Growth – Ten Years Ending September 30, 2021



	Annualized Return	Percentile Rank	Information Ratio	Percentile Rank	Sharpe Ratio	Percentile Rank	Annualized Alpha	Percentile Rank
5th Percentile	11.27		1.02		0.68		5.68	
25th Percentile	9.33		0.65		0.52		3.18	
50th Percentile	7.77		0.40		0.43		1.79	
75th Percentile	6.82		0.14		0.37		0.83	
95th Percentile	5.34		-0.18		0.28		-0.63	
Emerging Markets Growth Composite (Gross of fees) ▲	11.07	6	0.87	12	0.62	8	4.98	6
MSCI Emerging Markets IMI Index ●	6.21	82			0.33	83		

Number of Managers

112

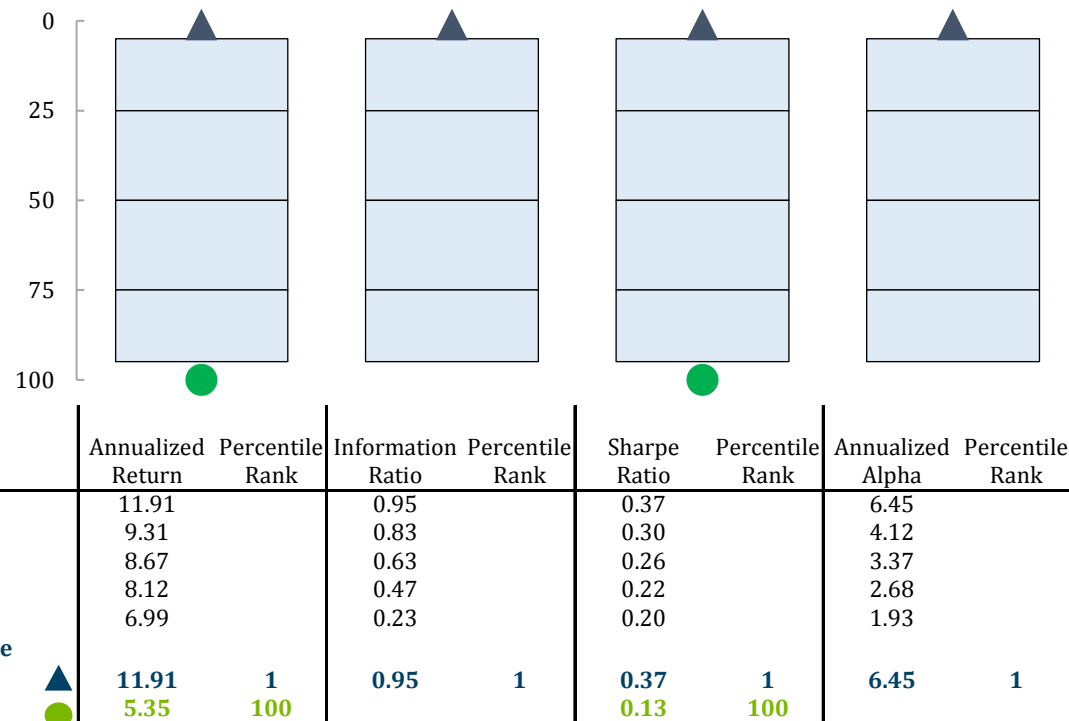
eVestment Alliance Emerging Markets All Cap Equity Universe data generated on October 18, 2021.

Composite inception 10/1/96. Performance shown is calculated in U.S. dollar, gross of fees, unless otherwise noted.

eA Universe Construction Methodology Emerging Markets All Cap Equity – Equity products that invest primarily in small, middle, and/or large capitalization stocks in emerging markets countries. The expected benchmarks for this universe would include the MSCI Emerging Market Free, or IFC Investable. Managers in this category will typically indicate a “Primary Capitalization Emphasis” equal to Small, Mid, or Large Cap and a “Primary Style Emphasis” equal to Growth, Value, or Core. eVestment Alliance standard deviation reflects annualized calculation of monthly returns.

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Emerging Markets Growth – Since Inception To September 30, 2021



Number of Managers

20

eVestment Alliance Emerging Markets All Cap Equity Universe data generated on October 18, 2021.

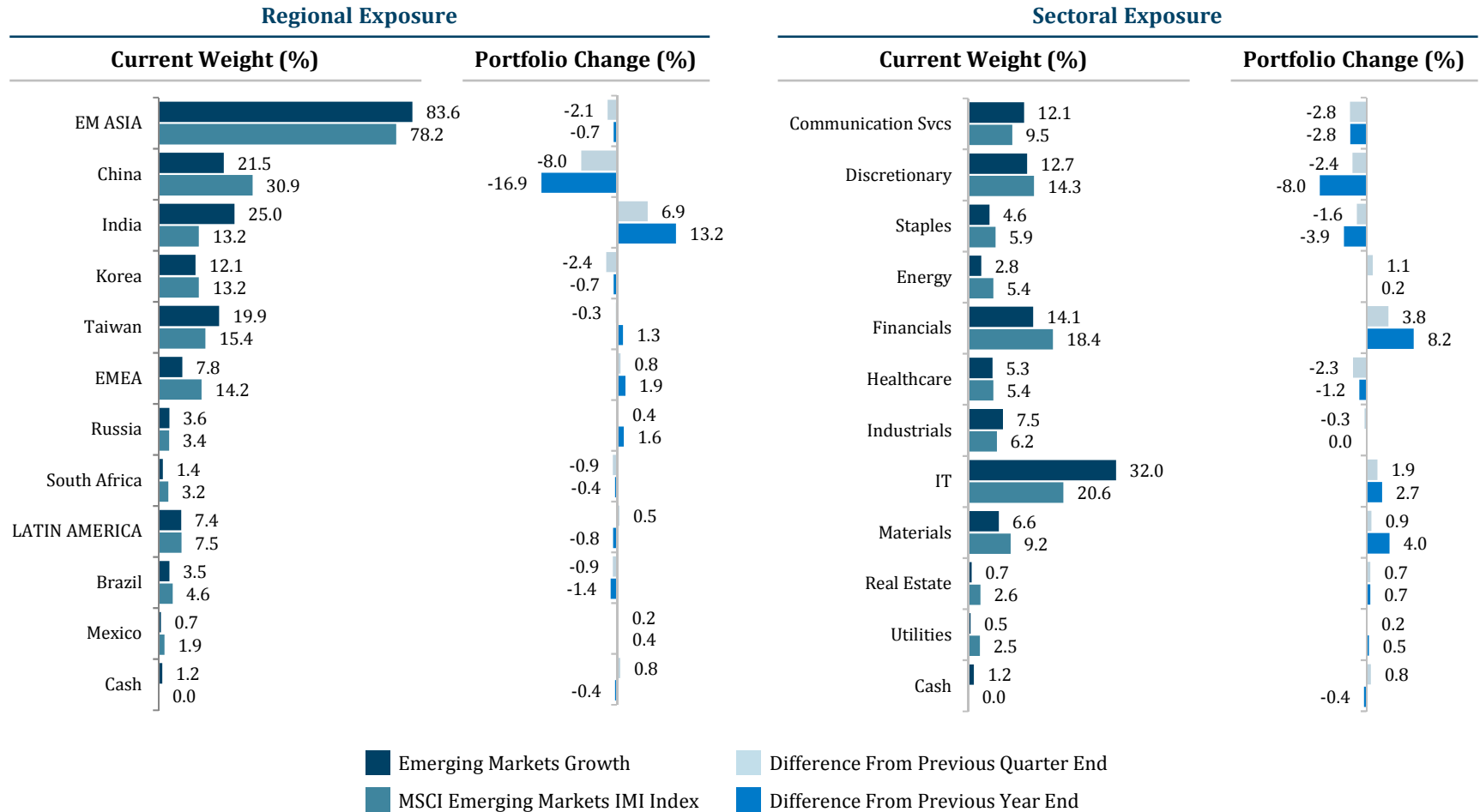
Composite inception 10/1/96. Performance shown is calculated in U.S. dollar, gross of fees, unless otherwise noted.

eA Universe Construction Methodology Emerging Markets All Cap Equity – Equity products that invest primarily in small, middle, and/or large capitalization stocks in emerging markets countries. The expected benchmarks for this universe would include the MSCI Emerging Market Free, or IFC Investable. Managers in this category will typically indicate a “Primary Capitalization Emphasis” equal to Small, Mid, or Large Cap and a “Primary Style Emphasis” equal to Growth, Value, or Core. eVestment Alliance standard deviation reflects annualized calculation of monthly returns.

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Portfolio Positioning – Emerging Markets Growth

As of September 30, 2021

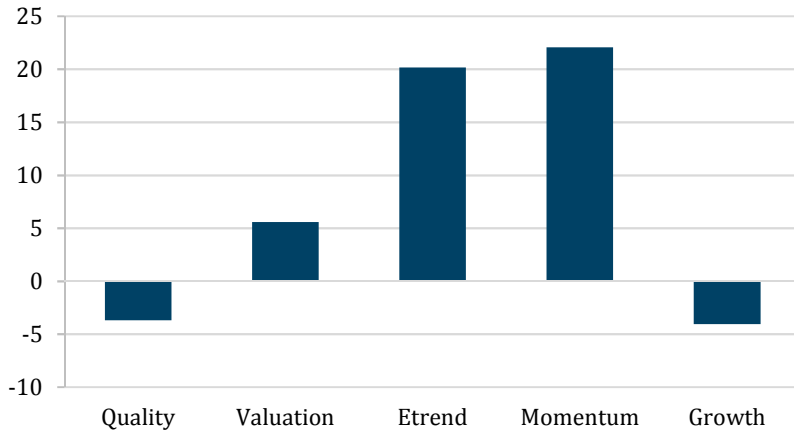


The data shown above is based on the strategy's representative portfolio. Cash incorporates cash equivalents and accruals. Region and sector distribution calculated in Eagle based on Global Industry Classification (GICS) Sectors. The MSCI Emerging Markets IMI Index is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets. Not intended as investment advice.

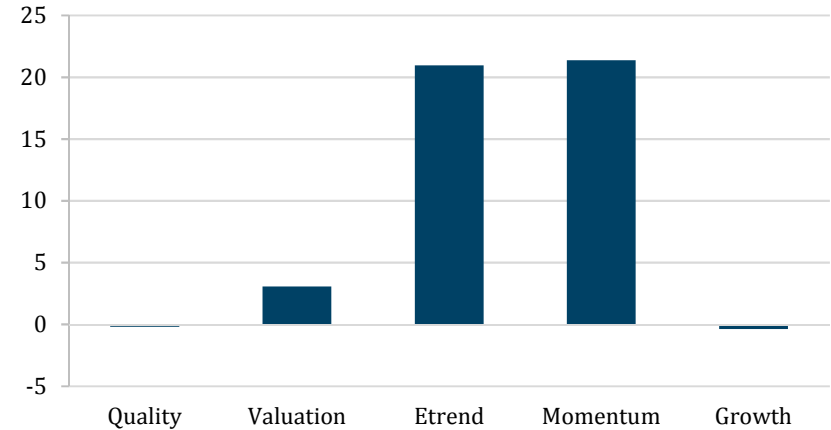
Appendix

Emerging Markets Style Performance

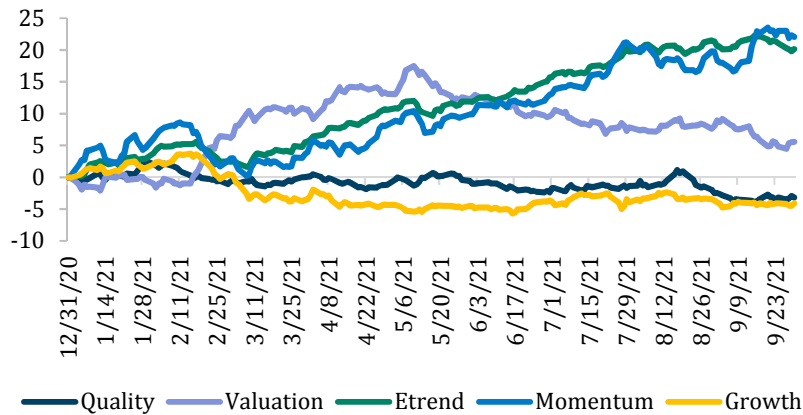
MSCI EM IMI Style Performance (Q1-Q5) YTD



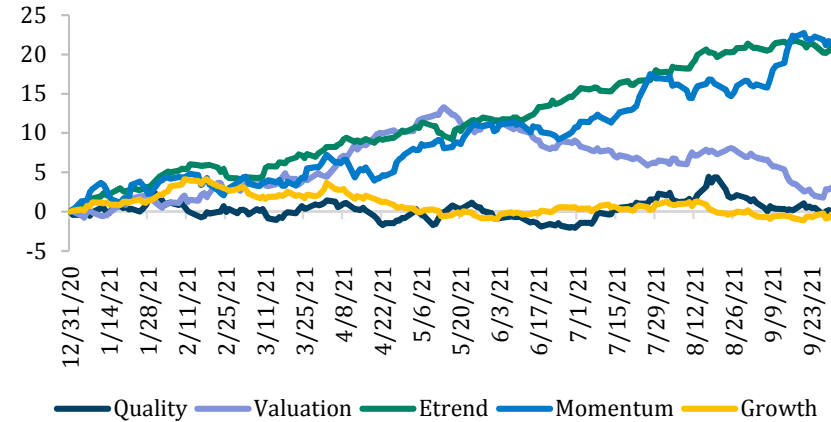
MSCI EM Small Cap Style Performance (Q1-Q5) YTD



MSCI EM IMI Style Performance (Q1-Q5)



MSCI EM Small Cap Style Performance (Q1-Q5)



Data as of September 2021.

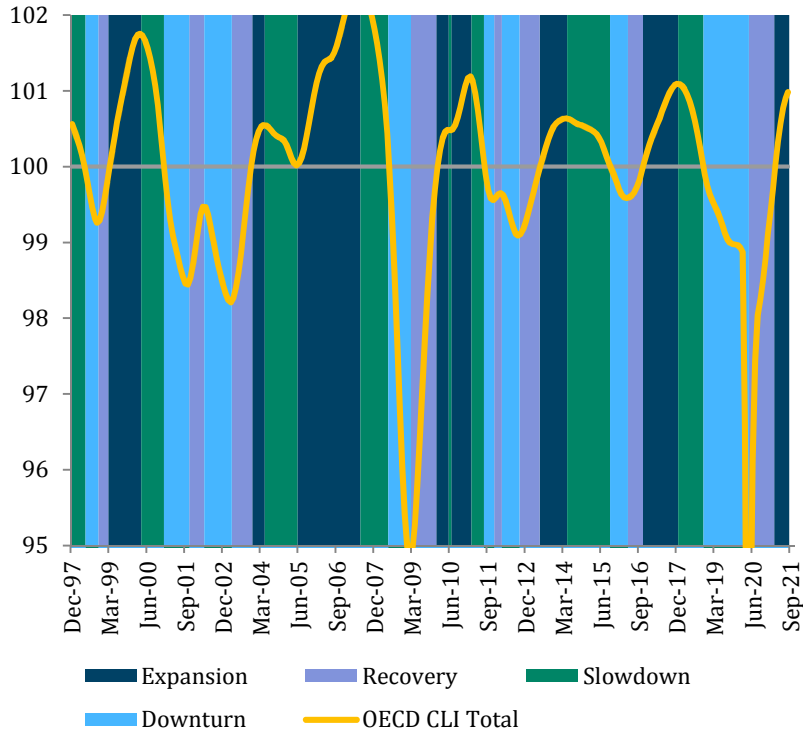
Source: William Blair, MSCI.

Past performance is not indicative of future returns. Fundamental model performance is provided for illustrative purposes only. Information is based on William Blair's proprietary quantitative models and does not in any way relate to actual results of any account or strategy.

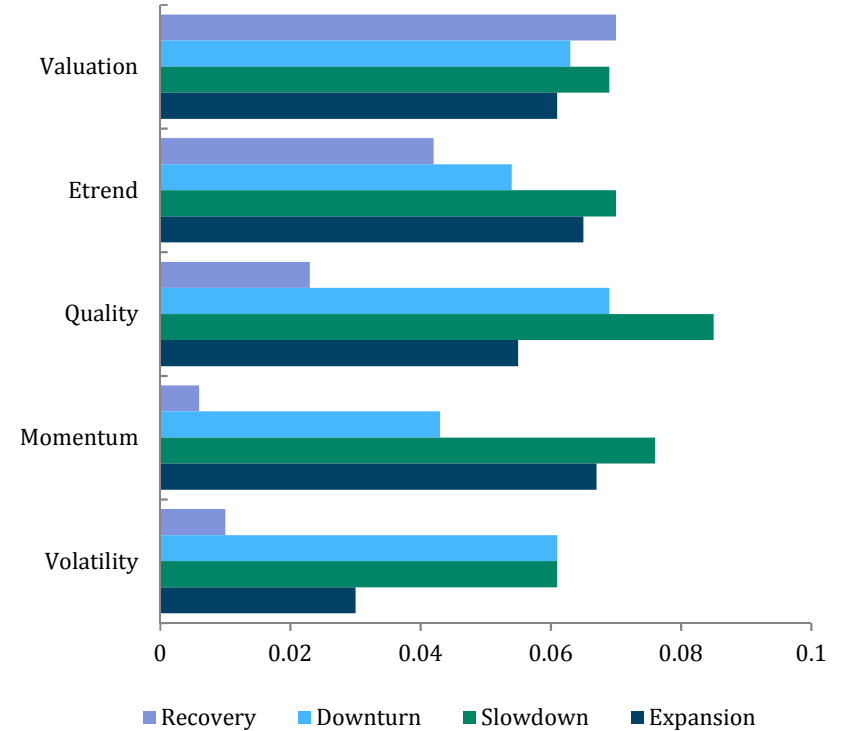
Emerging Markets Now in Economic Expansion, Less Style Headwinds Expected Moving Forward

Exhibit B Page 26

OECD Composite Leading Indicator



MSCI EM IMI Information Coefficient Across Regimes



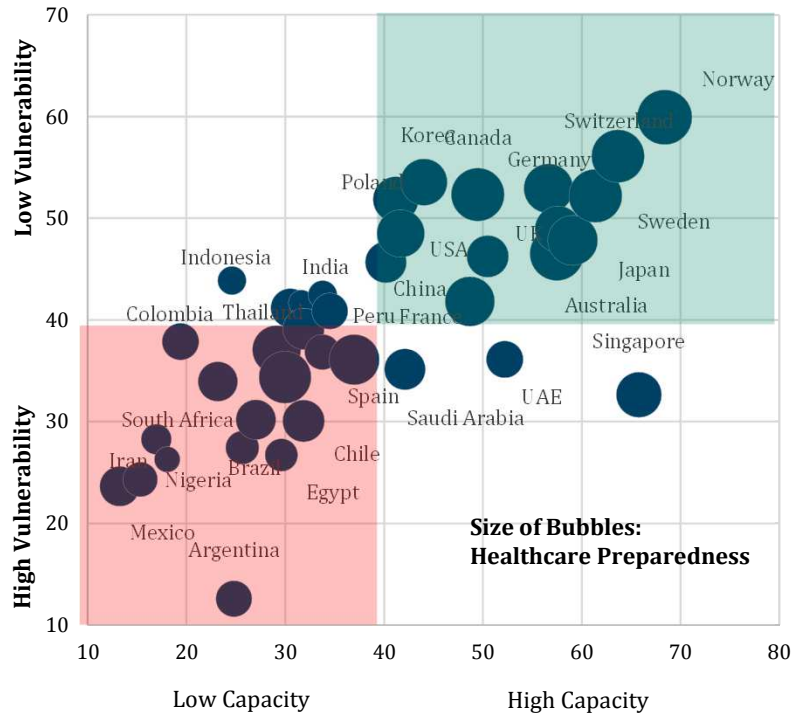
Data as of September 2021.

Source: William Blair, MSCI.

Past performance is not indicative of future returns. Fundamental model performance is provided for illustrative purposes only. Information is based on William Blair's proprietary quantitative models and does not in any way relate to actual results of any account or strategy. Hypothetical and backtested performance have many inherent limitations. Specifically, hypothetical and backtested results do not reflect actual trading, fees or expenses, or the effect of material economic and market factors on the decision-making process. There is no assurance that the models will remain the same in the future. Please refer to the Quantitative Models Definitions and Important Disclosures slides for additional information. Information Coefficient – represents the Spearman ranked correlation between factor score and future performance. A positive IC suggests that a given factor has exhibited predictive power of future performance during the backtest period.

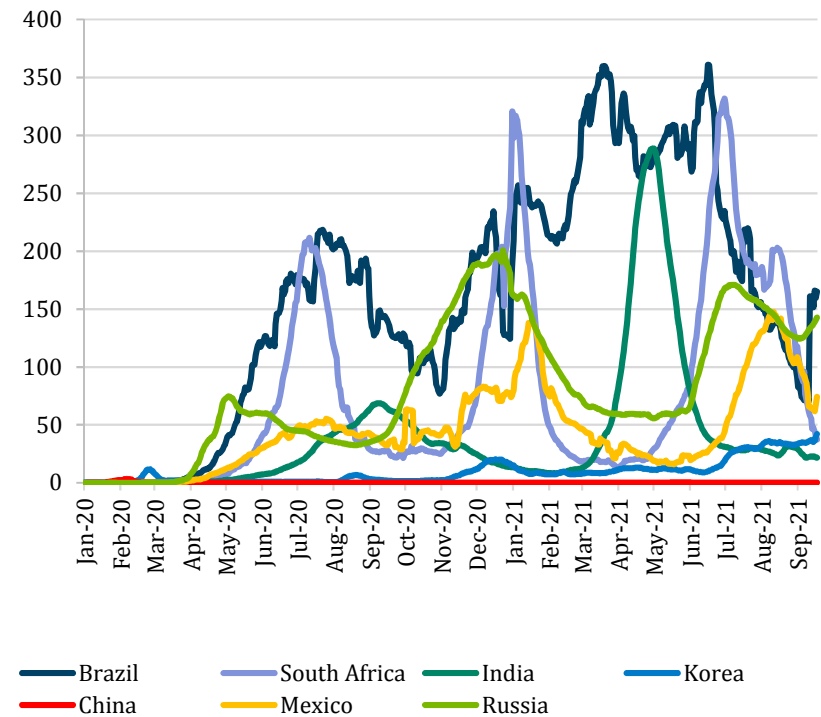
Health Care Preparedness and Covid Trends

Economic Vulnerability, Political Capacity and Healthcare Preparedness



For illustrative purposes only.

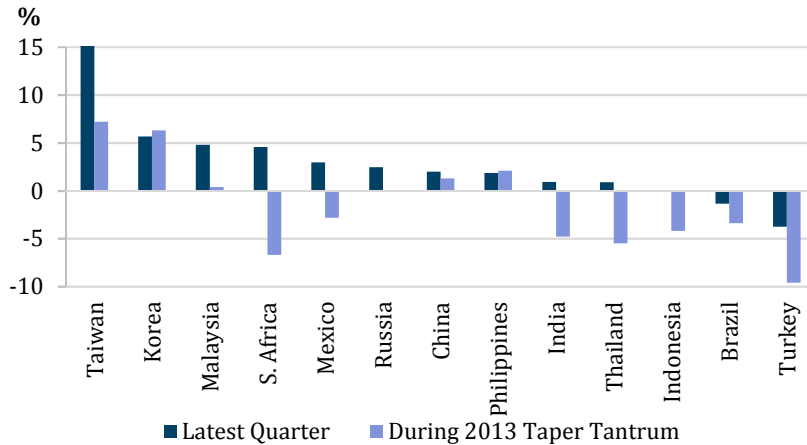
Major EMs: Daily Confirmed COVID-19 Cases per Million People



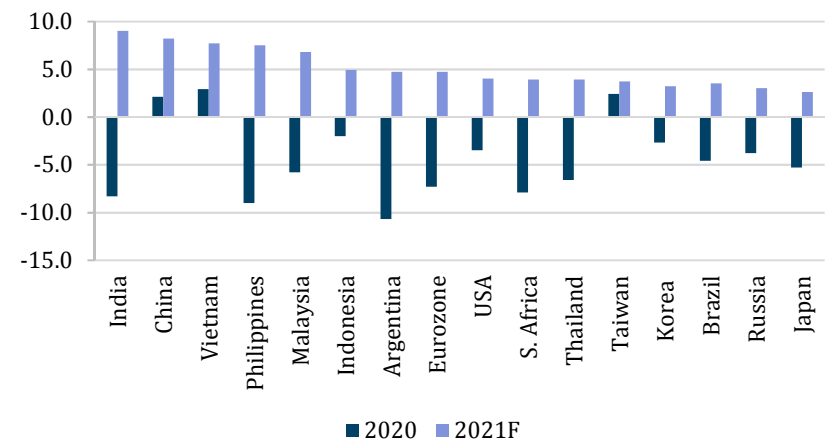
Data as of September 2021.
Source: Eurasia Group.

Emerging Market Countries in Rising Interest Rate Environment

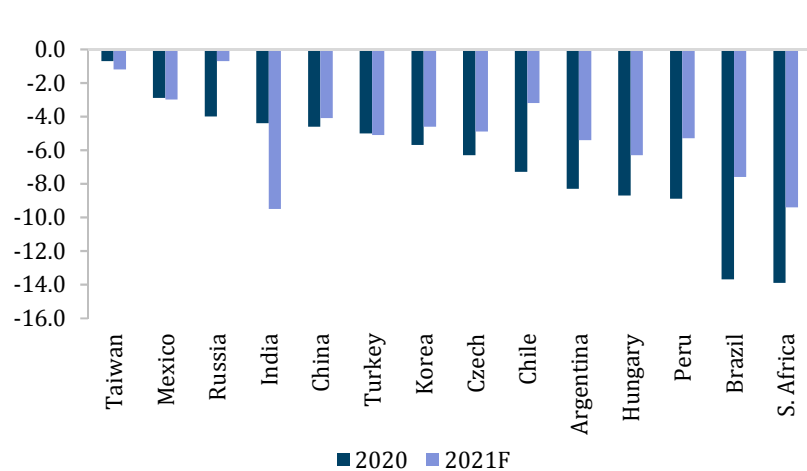
Current Account Balances



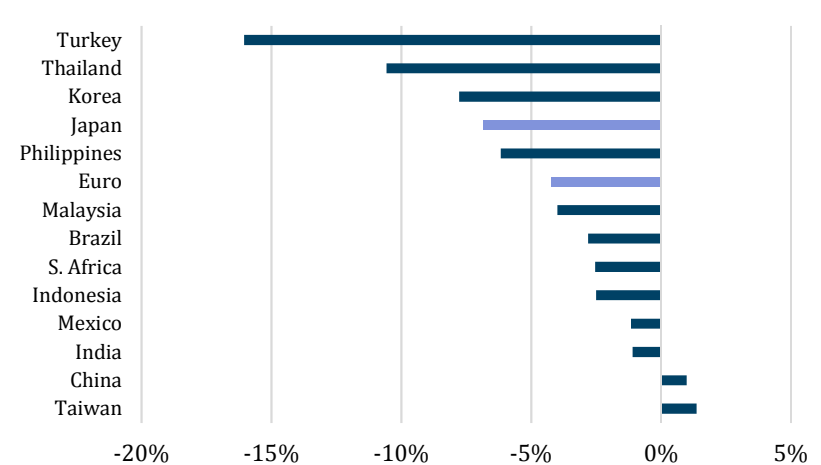
GDP Growth Forecast



Fiscal Balance of General Governments (%)

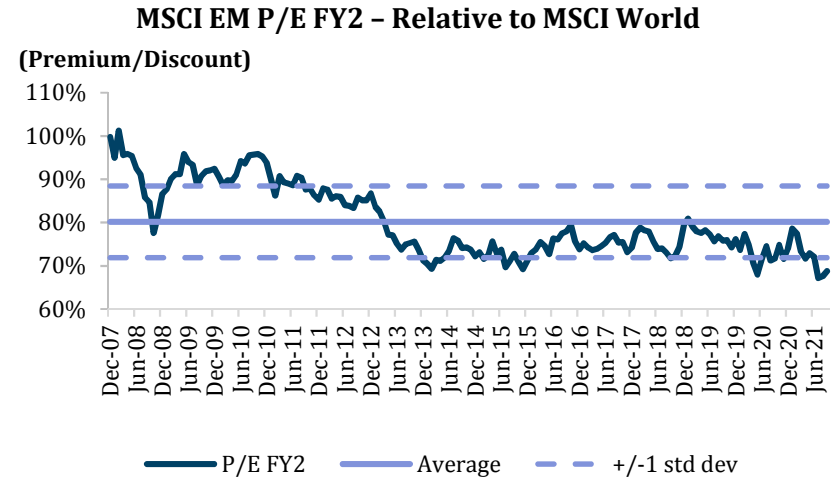
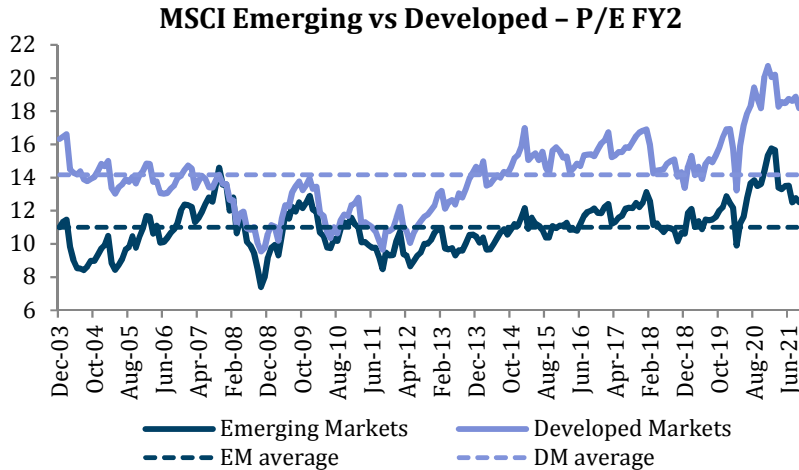


Currency Performance (% change YTD)

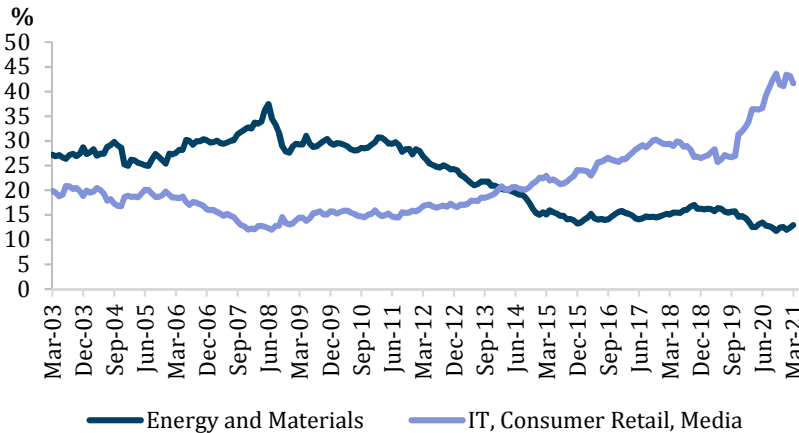


Data as of September 2021.
Source: Bloomberg, Credit Suisse, Rencap.

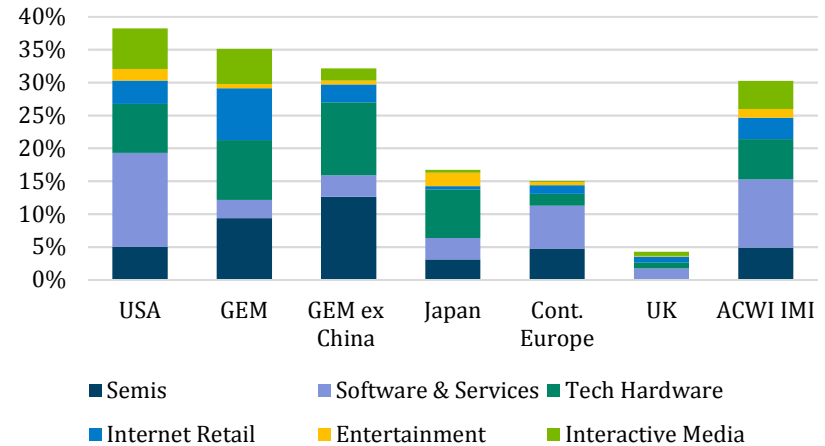
Attractive Valuations Relative to Developed Markets



MSCI Emerging Markets Industry Group Weight Shifts (%)



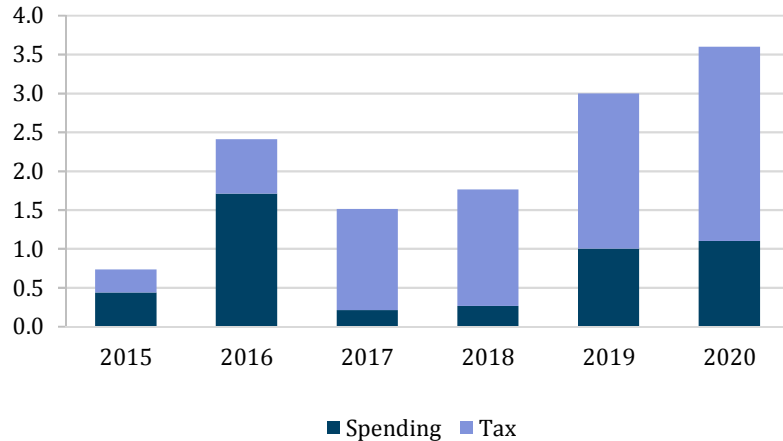
Tech+ Market Share by Region



Data as of September 2021.
Source: MSCI, FactSet, Credit Suisse.

China Furthest Along in Recovery – Moving Into Late Cycle

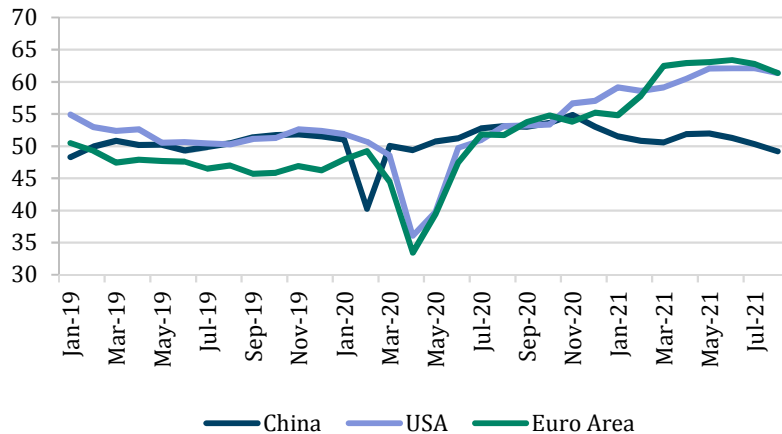
China Fiscal Stimulus as % of GDP



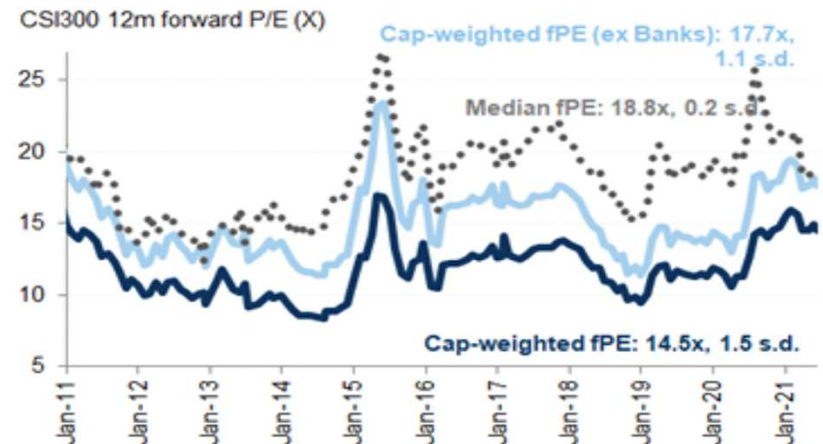
China Total Social Financing (YoY %)



Manufacturing PMIs



12-Month Forward P/E for CSI300, Past 10 Years

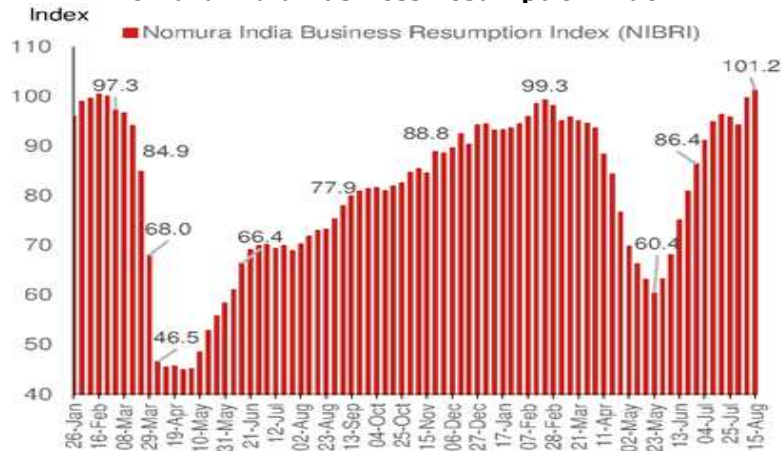


Note: The TSF here refers to the new definition, which includes treasury bonds, ABS and loan.
Data as of September 2021.

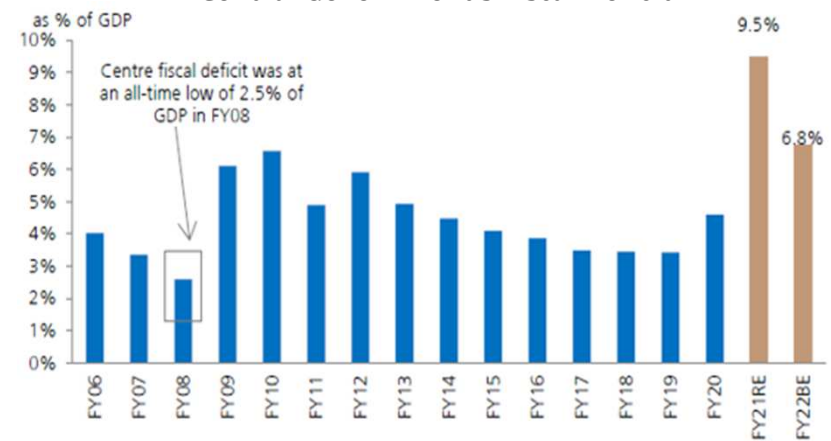
Source: Cornerstone Macro, Bloomberg, FactSet, I/B/E/S, CS. Past performance is not indicative of future results.

India – Robust Recovery

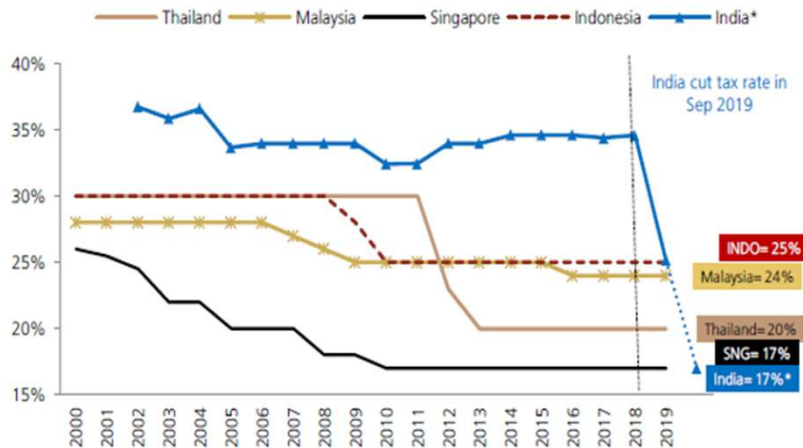
Nomura India Business Resumption Index



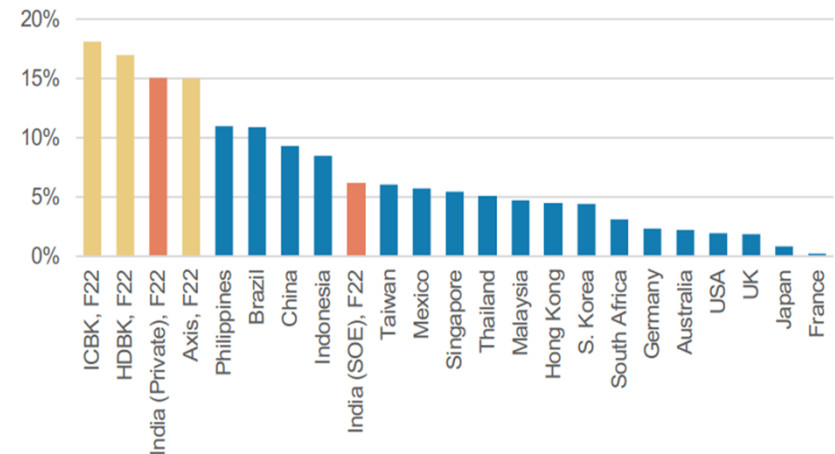
Central Government's Fiscal Deficit



Corporate Tax Rates



Morgan Stanley Estimates 2021/F2022 Loan Growth

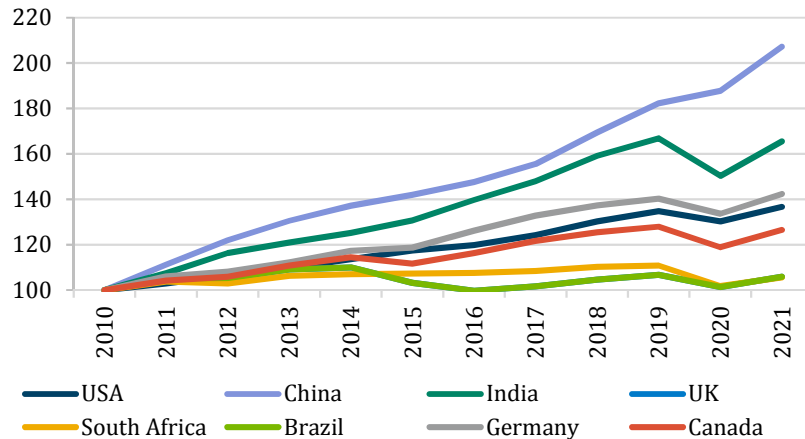


Data as of June 2021.

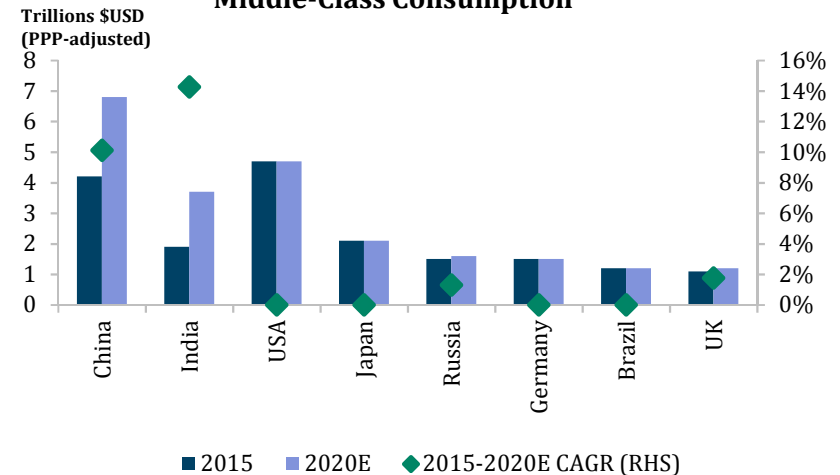
Source: UBS, Morgan Stanley.

Emerging Markets Rich Opportunity Set for Quality Growth Investors

GDP Per Person, \$ at PPP (indexed 2010 = 100)



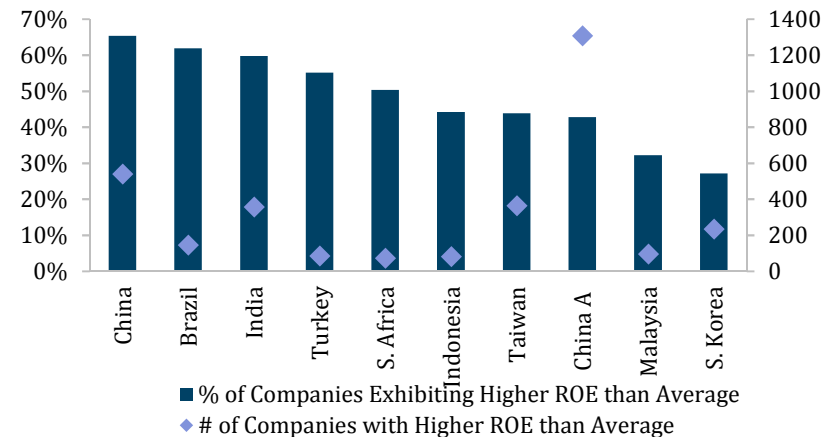
Middle-Class Consumption



Higher Growth Profile¹...



... With Abundant High Quality Opportunities

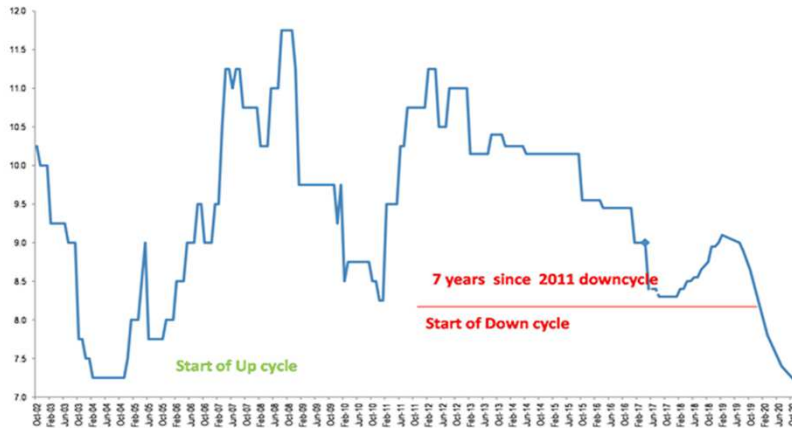


¹Growth is defined as the William Blair long-term growth rate which is based on a combination of realized and forecast growth rates. Data as of September 2021.

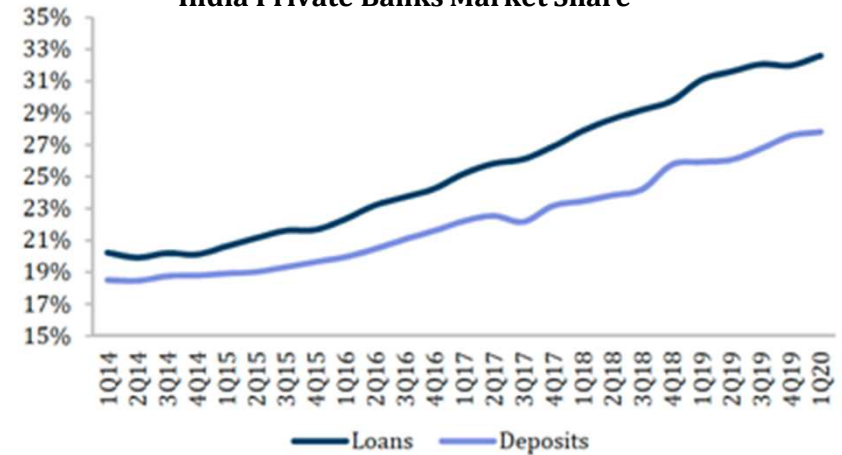
Source: William Blair, Refinitiv, Goldman Sachs, McKinsey. Universe consists of all listed emerging market companies (ex-Financials) with market caps above \$100 million USD.

Improving Trends and Long-Term Growth Opportunity Indian Financials

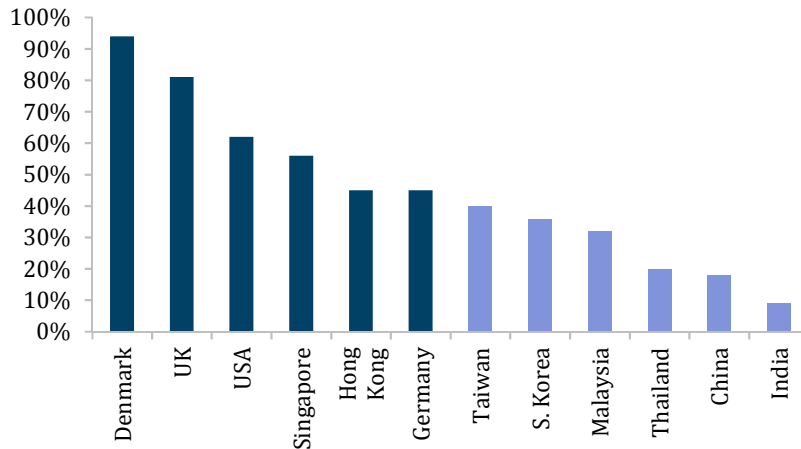
India Home Loan Rate - HDFC



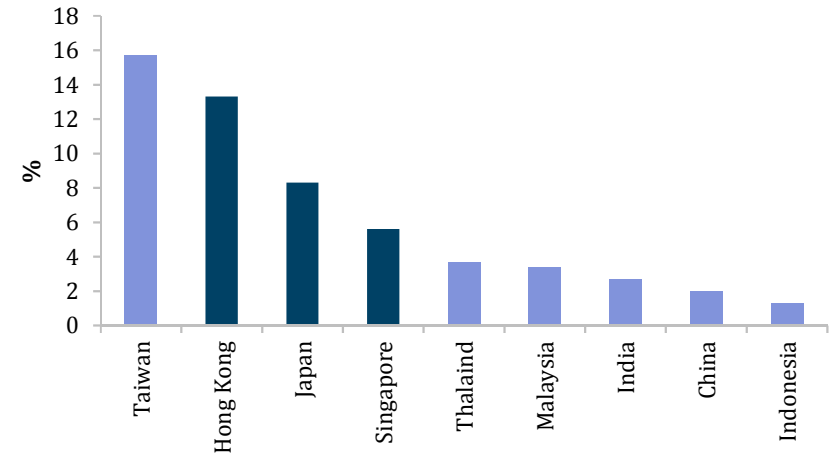
India Private Banks Market Share



Low Mortgage Penetration



Low Life Insurance Penetration

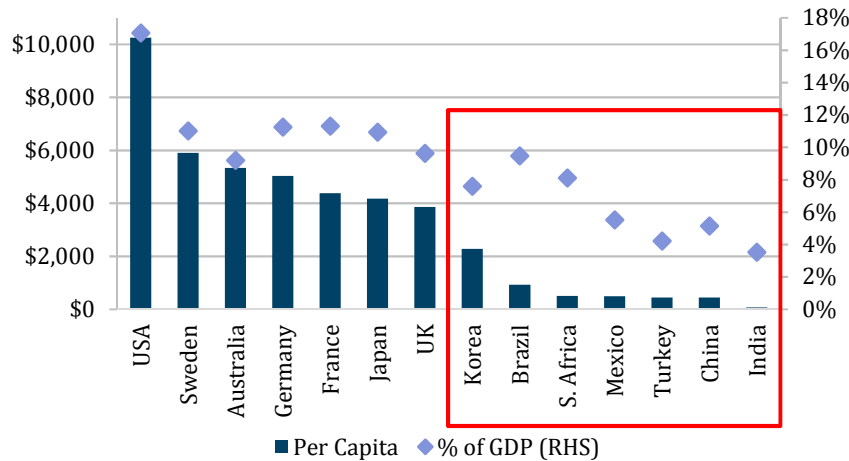


Data as of December 2020.

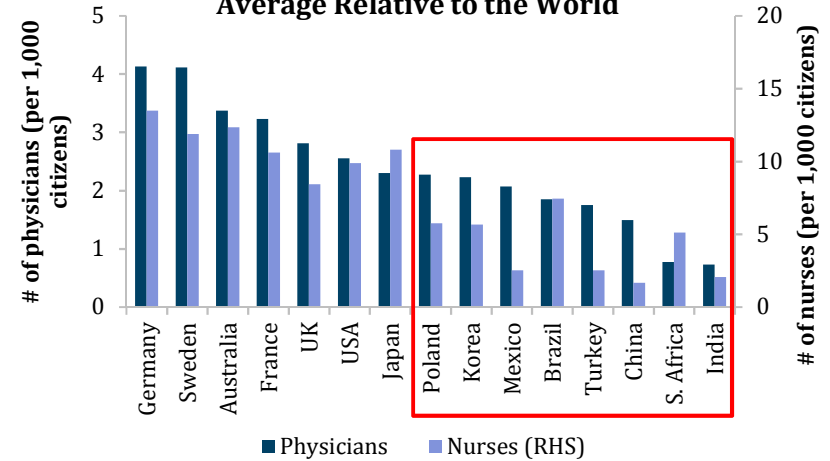
Source: European Mortgage Federation, HDFC, Citi.

Sustainable Growth Drivers in Emerging Markets Health Care

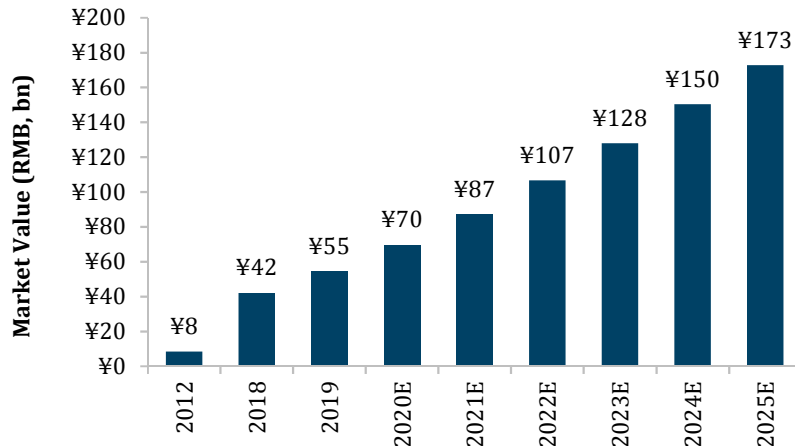
Health Care Expenditure per Capita



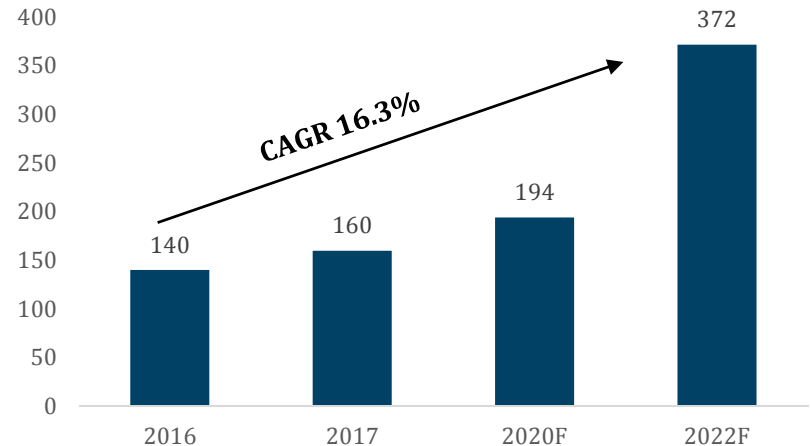
Physicians and Nursing Staff Levels Below-Average Relative to the World



China Contracted Research Organizations Markets



Indian Health Care Market Size (USD \$bn)

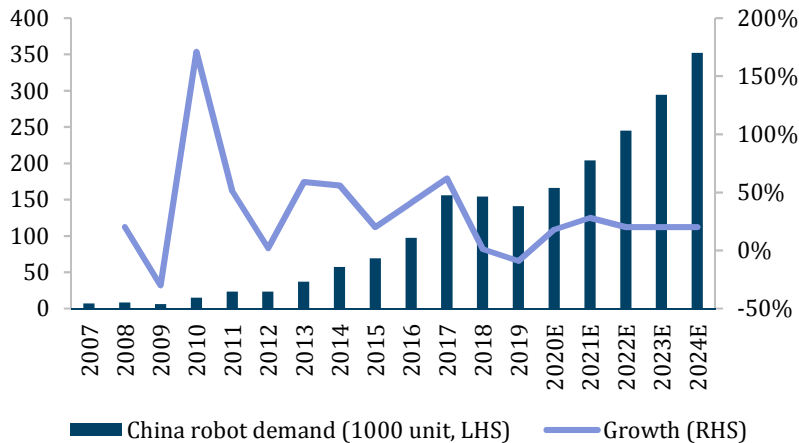


Data as of September 2020.

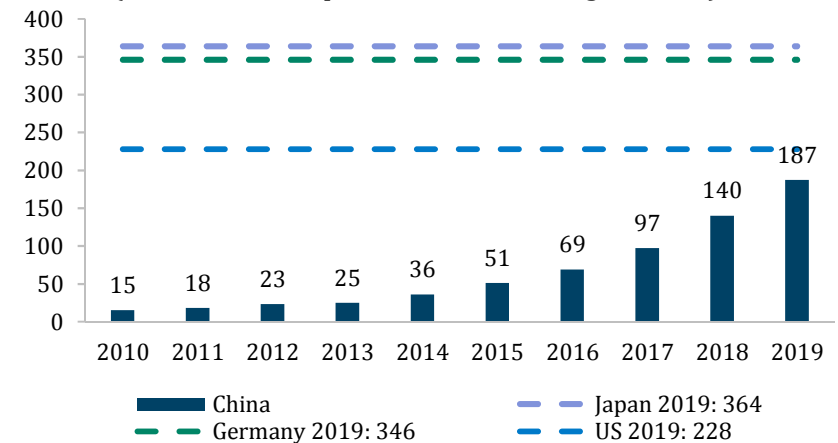
Source: World Health Organization, Nomura, IBEF.

Long-Term Growth in China High End Manufacturing and Green Energy

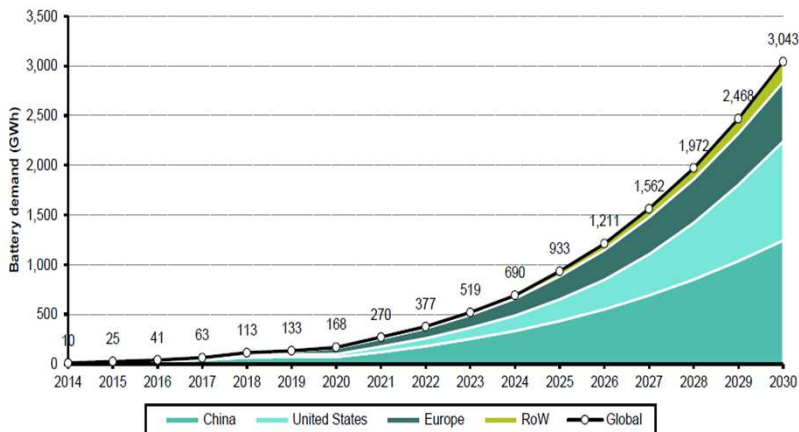
After a Cyclical Downturn in 2018-19, the Chinese Robot Market is Forecasted to Return to ~20% CAGR



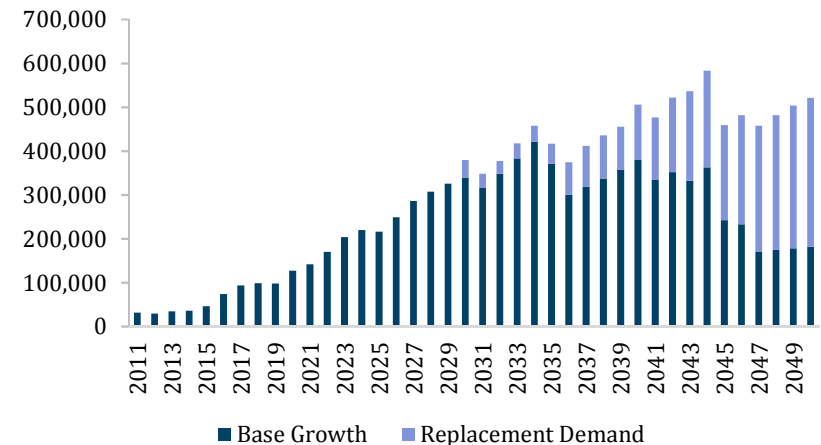
Robot Density in the Manufacturing Industry
(Installed Robots per 10k Manufacturing Workers)



China Remains Largest and Fastest Growing Market for Batteries



China Solar Energy
Base Annual Growth (MW) - (2021-2049F)



Data as of September 2021.

Source: Goldman Sachs Global Investment Research, Gao Hua Securities Research, MIR, Gongkong, Bishop Associates.

Biographies – Global Investment Team

Portfolio Management



Alaina Anderson, CFA
Partner

Alaina Anderson, CFA, partner, is a portfolio manager for the International Leaders and International Leaders ADR strategies, and a global research analyst covering real-estate, utilities, and engineering companies.

Before joining William Blair in 2006, she was a senior analyst in the investments department of the MacArthur Foundation, where she provided research support for internally managed portfolios and was involved in investment manager due diligence, selection, and monitoring for the foundation's U.S., non-U.S., and hedge-fund portfolios. Before joining the MacArthur Foundation, Alaina was an investor relations consultant with Ashton Partners and a financial advisor with UBS Painewebber. She is a fellow of Leadership Greater Chicago, a board member of the North Lawndale Employment Network, and a member of the CFA Institute and the CFA Society Chicago.



Simon Fennell
Partner

Simon Fennell, partner, is a portfolio manager for William Blair's International Growth, International Small Cap Growth, and International Leaders strategies.

He joined William Blair in 2011 as a technology, media, and telecommunications research analyst focusing on idea generation and strategy more broadly. Before joining William Blair, Simon was a managing director in the equities division at Goldman Sachs in London and Boston, responsible for institutional equity research coverage for European and international stocks. Previously, Simon was in the corporate finance group at Lehman Brothers in London and Hong Kong, working in the M&A and debt capital markets groups.



Andrew G. Flynn, CFA
Partner

Andy Flynn, CFA, partner, is a portfolio manager for William Blair's International Small Cap Growth and Global Leaders strategies.

Since joining William Blair in 2005, Andy has served as a U.S. industrials and consumer analyst and a non-U.S. consumer, healthcare, and IT analyst. He was also a portfolio manager for the firm's Global Small Cap Growth strategy. Before joining the firm, Andy was a senior equity analyst and portfolio manager at Northern Trust, where he specialized in mid- and small-capitalization growth companies. Before that, he was a senior equity analyst at Scudder Kemper Investments and a research assistant at Fidelity Investments. Andy is a member of the CFA Institute and the CFA Society Chicago.



Kenneth J. McAtamney
Partner

Ken McAtamney, partner, is the head of the global equity team and a portfolio manager for William Blair's International Growth, Global Leaders, and International Leaders strategies. He is also a member of the Investment Management leadership team.

He was previously co-director of research and a mid-large-cap industrials and healthcare analyst. Before joining William Blair in 2005, Ken was a vice president at Goldman Sachs and Co., where he was responsible for institutional equity research coverage for both international and U.S. equity. Before that, he was a corporate banking officer with NBD Bank.

Education: B.S., Wharton School at the University of Pennsylvania; M.B.A., University of Chicago's Booth School of Business

M.A., University of Edinburgh; M.B.A., Cornell University's Samuel Curtis Johnson Graduate School of Management

B.A., economics, University of Kansas; M.B.A. finance emphasis, University of North Carolina at Chapel Hill

B.A., Michigan State University; M.B.A., Indiana University

Biographies – Global Investment Team

Portfolio Management



Todd M. McClone, CFA
Partner

Todd McClone, CFA, partner, is a portfolio manager for William Blair's emerging markets strategies, including Emerging Markets Leaders, Emerging Markets Growth, Emerging Markets Small Cap Growth, and Emerging Markets ex China Growth.

Before joining the firm in 2000, he was a senior research analyst specializing in international equity for Strong Capital Management. Previously, he was a corporate finance research analyst with Piper Jaffray, where he worked with the corporate banking financials team on a variety of transactions, including initial public offerings, mergers and acquisitions, and subordinated debt offerings. He also issued fairness opinions and conducted private company valuations.



Jack Murphy, CFA
Partner

Jack Murphy, CFA, partner, is a portfolio manager for William Blair's Emerging Markets Leaders strategies.

Previously, he was director of research for the Global Equity team and a research analyst covering mid-large-cap non-U.S. consumer stocks. He joined William Blair in 2005 as a sell-side research analyst focusing on e-commerce and hardline retailers. Previously, he was an equity research analyst covering a broad range of retail companies for Credit Suisse First Boston for nearly six years. Before that, he was an equity research analyst at Lehman Brothers and an equity research associate at Salomon Brothers. Before that, he was a financial analyst for General Electric Capital, having graduated from GE's financial management program.



D.J. Neiman, CFA
Partner

D.J. Neiman, CFA, partner, is a portfolio manager for the International Small Cap Growth and Emerging Markets Small Cap Growth strategies, and Co-Director of Research for the Global Equity team. Prior to becoming a portfolio manager, D.J. was a global research analyst covering small-cap financial stocks.

Before joining Investment Management in 2009, D.J. was an analyst in the firm's sell-side research group, covering the financials sector with a focus on the asset-management and advisory investment-banking industries. Previously, D.J. was a senior accountant with William Blair Funds and a fund analyst at Scudder Kemper Investments. He is a member of the CFA Institute and the CFA Society Chicago.



Casey K. Preyss, CFA
Partner

Casey Preyss, CFA, partner, is a portfolio manager for William Blair's Emerging Markets Growth, Emerging Markets Small Cap Growth, China A-Shares Growth, China Growth, and Emerging Markets ex China Growth strategies.

Since joining William Blair in 2000, he has been a research analyst covering industrials, IT, and resources stocks. Before taking on fundamental research responsibilities for William Blair's global equity team, Casey was a quantitative analyst. Before joining the firm, he was an international equity research sales associate with Thomas White International.

Education: B.B.A. and B.A., University of Wisconsin–Madison

B.A., economics, magna cum laude, Villanova University.

B.S., Miami University; M.B.A., with high distinction, University of Michigan's Ross School of Business

B.S.B.A., The Ohio State University; M.B.A., University of Chicago's Booth School of Business

Biographies – Global Investment Team

Portfolio Management



Hugo Scott-Gall
Partner

Hugo Scott-Gall, partner, is a portfolio manager for the Global Leaders strategies and co-director of research for the Global Equity team.

Before joining William Blair in 2018, Hugo was a managing director and head of the thematic research team at Goldman Sachs. In that role, he managed a global team of approximately 15 people who investigated thematic changes, analyzed their effects across industries, and sought to identify long-term structurally advantaged companies. He and his team produced *Fortnightly Thoughts*, a publication offering thematic insights across sectors, and *GS Sustain*, a long-term-focused publication that sought to find best-in-breed companies, with environmental, social, and governance (ESG) analysis forming an integral part of the process. He also oversaw *GS Dataworks*, a team that used alternative data to augment fundamental research. Before his move into thematic research, Hugo was an equity research analyst covering European transportation companies. Before joining Goldman Sachs, he was an equity research analyst at Fidelity Investments.



Vivian Lin Thurston, CFA
Partner

Vivian Lin Thurston, CFA, partner, is a portfolio manager for William Blair's Emerging Markets Growth, China A-Shares Growth, China Growth, and Emerging Markets ex China Growth strategies. Previously, she was a global equity research analyst covering the China A-shares market and large-cap consumer companies.

Before joining William Blair, Vivian was vice president and consumer sector head at Calamos Investments. Before that, she was an executive director and senior investment analyst at UBS Global Asset Management/Brinson Partners, where she was responsible for stock selection and research for consumer sectors in the United States and emerging markets. Vivian also held roles at Mesirow Financial, China Agribusiness Development Trust and Investment Corporation, and Vanke. She is a member of the CFA Institute and the CFA Society Chicago. She is also the founder and chairman of the board of the Chinese Finance Association of America, a 501(c) nonprofit organization.

Education:

LL.B., sociology, Peking University; M.A., sociology and M.S., finance, University of Illinois Urbana-Champaign

Biographies – Global Investment Team

Portfolio Specialists



Ryan Dimas, CFA, CAIA
Partner

Ryan Dimas, CFA, CAIA, partner, is a portfolio specialist for William Blair's global equity strategies.

In this role, Ryan participates in the team's decision-making meetings, conducts portfolio analysis, and is responsible for communicating portfolio structure and outlook to clients, consultants, and prospects. Previously, for 17 years, Ryan led the investment manager research effort for William Blair Select, a team that was responsible for the selection and ongoing evaluation of third-party investment managers. In 2016, Ryan was named chief investment strategist and chair of the asset allocation investment committee for investment counseling, where he worked closely with investment counseling teams on strategic and tactical recommendations that were implemented within portfolios. He is a member of the CFA Society Chicago and a CAIA charterholder.



Romina Graiver
Partner

Romina Graiver, partner, is a portfolio specialist for William Blair's global equity strategies.

In this role, she participates in the team's decision-making meetings, conducts portfolio analysis, and is responsible for communicating portfolio structure and outlook to clients, consultants, and prospects. She is a member of William Blair's ESG leadership team and Global Inclusion Council. Previously at William Blair, she was a senior client relationship manager. Before joining William Blair in 2012, Romina was deputy head of the international equity investment team at BNP Paribas Investment Partners, where she was responsible for product development and investor communication. Before taking on that role, she was a product specialist for model-driven equity investments and a marketing manager. She holds the CFA UK Certificate in ESG Investing.



Jeremy Murden, CAIA

Jeremy Murden, CAIA, is a portfolio specialist for William Blair's global equity strategies.

In this role, Jeremy conducts portfolio analysis, participates in the team's decision-making meetings, and communicates portfolio structure and outlook to clients, consultants, and prospects. Before joining William Blair as a portfolio specialist, Jeremy was a portfolio strategist at Matthews Asia, where he provided macro thought leadership and individual portfolio insights focused on the firm's China and Asia equity strategies. Before joining Matthews Asia, Jeremy spent 10 years as a senior investment manager analyst for William Blair Select, leading external equity manager coverage for the team that was responsible for the selection and ongoing evaluation of third-party investment managers. He started his career in distribution as a product specialist at Claymore Securities, now Guggenheim Funds. He holds the Chartered Alternative Investment Analyst designation.



Emily George

Emily George is a portfolio specialist for William Blair's global equity strategies.

In this role, Emily conducts portfolio analysis and is responsible for communicating portfolio structure and outlook to clients, consultants, and prospects. Before joining the firm in 2011, Emily was a financial planning assistant for a private financial services company in Cleveland, Ohio.

Education: B.A., finance, Arizona State University

B.Sc., international business and M.Sc., economics, University of Pantheon-Sorbonne, Paris, France

B.Sc. in finance honors, DePaul University; M.B.A., University of Chicago Booth School of Business

B.A., political science and economics, College of Wooster

Biographies – Global Investment Team Research



William Benton, CFA, CPA
Partner

William Benton, CFA, CPA, partner, is a global equity research analyst. He covers small-cap consumer companies.

Previously, he covered mid- and large-cap technology, media, and communication services companies. Before joining William Blair Investment Management in 2007, William was a technology research analyst with the firm's sell-side research group for 10 years. In this position, he was twice named "Best on the Street" in The Wall Street Journal's annual analyst survey. Before joining William Blair in 1997, he worked at SBC Warburg, U.S. Cellular, May Company, and Monsanto. He is a member of the CFA Society Chicago and holds the CMA designation.



Drew Buckley, CFA, CPA
Partner

Drew Buckley, CFA, CPA, partner, is a global equity research analyst. He covers small-cap technology, media, and communication services companies.

Before joining William Blair in 2008 as a global research associate focused on technology, media, and telecommunications stocks, he spent two years as a senior associate in Ernst & Young LLP's investment management assurance practice. Drew is a member of the CFA Society Chicago.



Anil Daka, CFA

Anil Daka, CFA, is a global equity research analyst. He covers midcap industrial companies.

Before joining the firm in 2011, Anil was an equity analyst at Morningstar, where he was responsible for equity research coverage in the global industrials sector. He is a member of the CFA Institute and the CFA Society Chicago.



Adam Dettmer, CFA, CPA

Adam Dettmer, CFA, is a global equity research analyst covering small- to mid-cap consumer companies.

Before joining William Blair in 2018, Adam was an equity research associate with Oppenheimer & Co. He also worked in the federal government practice at Deloitte Financial Advisory Services. Adam is a CFA charterholder.

Education: B.S., finance, University of Illinois Urbana-Champaign; M.B.A., Dartmouth College's Amos Tuck School of Business Administration, where he was a Tuck Scholar

B.S., business, University of Colorado–Boulder

B.Tech., metallurgical engineering, Indian Institute of Technology; M.B.A. from the University of North Carolina

B.B.A., summa cum laude, finance and accounting, The College of William and Mary; M.B.A., University of Chicago's Booth School of Business

Biographies – Global Investment Team Research



Esteban Gonzalez Rosell

Esteban Gonzalez Rosell is a global equity research analyst covering financial companies.

Before joining William Blair, Esteban was a portfolio manager, trader, and research analyst for InterCorp Financial Services.



Daniel Hill, CFA

Daniel Hill, CFA, is a global equity research analyst at William Blair Investment Management. He covers small-cap financial companies.

He was previously a global generalist research analyst and an international and global research associate supporting the global financial team under the guidance of research analysts. Daniel joined William Blair in 2005 as an investment accountant. He is a member of the CFA Institute and the CFA Society Chicago.



Jayesh Kannan, CFA

Jayesh Kannan, CFA, is a global equity research analyst. He covers small-cap technology, media, and communication services companies.

Before joining William Blair in 2018, Jayesh was an associate in the institutional equities division at Morgan Stanley in New York City and Singapore. In this role, he focused on emerging market and Asian equities. Jayesh is a member of the CFA Institute and the CFA Society Chicago and has previously contributed to the Financial Times.



Benjamin Loss, CFA

Benjamin Loss, CFA, is a global equity research analyst. He covers energy and materials companies.

Before joining William Blair in 2011 as a global research associate focused on energy and materials, Benjamin was a sell-side research associate at Morgan Keegan. He is a member of the CFA Institute and the CFA Society Chicago.

Education: B.S., Universidad del Pacifico in Peru; M.B.A., Wharton School at the University of Pennsylvania

B.S., finance, University of Nebraska; M.B.A. from Northwestern University's Kellogg Graduate School of Management

B.E., computer engineering, Nanyang Technological University, Singapore, was a Singapore Airlines-Neptune Orient Lines scholar and graduated with first-class honors; M.B.A., Massachusetts Institute of Technology (MIT) Sloan School of Management, graduated as a Martin Trust Community Fellow

B.S., accounting, summa cum laude, University of Maine; M.S., finance, Vanderbilt University

Biographies – Global Investment Team

Research



Camilla Oxhamre Cruse, Ph.D.

Camilla Oxhamre Cruse, Ph.D., is a global equity research analyst covering small- and mid-cap healthcare companies.

Before joining William Blair in 2014, Camilla spent six years at Carnegie Investment Bank, where she was a sell-side research analyst focusing on the Nordic pharma and biotech industry. She has a scientific background. Specifically, Camilla has a PhD in medicine (immunology and infectious diseases) from the Karolinska Institutet in Stockholm, Sweden (known as the “home of the Nobel Prize in Medicine”) and an M.Sc. in biochemistry from Lund University (in Lund, Sweden) and École Nationale Supérieure de Chimie de Montpellier (in Montpellier, France).



Richard Reznick, Ph.D.

Richard Reznick, Ph.D., is a global equity research analyst. In this role, he covers Chinese equities with a focus on small-cap healthcare companies.

Before joining William Blair in 2010 as an equity research associate focused primarily on the biotechnology sector, Richard was a product specialist in Abbott Laboratories’ diagnostics division.



Greg Scolaro, CFA, CPA

Greg Scolaro, CFA, CPA, is a global equity research analyst. He covers large cap technology, media, and communication services companies.

Previously, he covered small-cap emerging markets companies. Before that, he was a research associate covering global technology, media, and telecommunications stocks. Before joining the firm in 2014, Greg was an auditor in the technology sector at KPMG Chicago. He is a member of the CFA Institute and the CFA Society Chicago.



Bryan Shea

Bryan Shea is a global equity research analyst. He covers small-cap consumer companies in emerging markets.

He joined the firm in 2009 as an emerging markets generalist. Previously, he was an associate focusing on global consumer stocks and a sell-side research associate focusing on several subsectors within the consumer sectors. Before joining William Blair, Bryan was an associate at Madison Capital Funding, where he provided a variety of cash-flow-based, leveraged-capital products to private-equity sponsors. Before that, he was an analyst at Lincoln International, where he worked on mergers and acquisitions, issued fairness opinions, and conducted private company valuations.

Education: M.B.A., finance, Hawaii Pacific University; Ph.D., medicine, Karolinska Institute; M.Sc., biochemistry, Lund University

B.S., biology, University of Illinois at Urbana-Champaign; Ph.D., biology, Yale University

B.S. and M.S., accountancy, University of Illinois Urbana-Champaign

B.S., finance, with honors, Indiana University; M.B.A., Northwestern University’s Kellogg School of Management

Biographies – Global Investment Team

Research



Andrew J. Siepker, CFA
Partner

Andrew Siepker, CFA, partner, is a global equity research analyst. He covers large-cap industrial companies.

Previously, he was a research analyst conducting non-U.S. consumer research and worked on William Blair's sell-side as a research associate focused on e-commerce and hardline retailers. Before joining William Blair in 2006, Andy was a financial analyst in a finance training program at First Data Corporation. He is a member of the CFA Institute and the CFA Society Chicago.



Kwesi Smith, CFA

Kwesi Smith, CFA, is a global equity research analyst. He covers large-cap consumer companies.

Before joining the firm in 2015, Kwesi was an equity research analyst for TimesSquare Capital Management for 10 years. In this role, he supported the firm's research efforts across a variety of sectors, including healthcare, technology, media/cable, defense, and consumer, before focusing on healthcare. Before that, Kwesi worked at MetLife Investments as a technology, media/cable, and telecom fixed-income research analyst and provided credit analysis across a variety of fixed-income asset classes, including high yield, private placement, leveraged finance, and investment-grade public corporates. He is on the governing board of 3Arts and Breakthrough. He is also a member of the CFA Institute and the CFA Society Chicago.



Thomas A. Sternberg, CFA
Partner

Tommy Sternberg, CFA, partner, is a global equity research analyst. He covers large-cap healthcare companies.

Previously, he was a research associate focused on the healthcare industry. Before joining William Blair in 2004, Tommy spent two years as an equity analyst in Oak Brook Bank's investment management and trust department. He is a member of the CFA Institute and the CFA Society Chicago.

Education: B.S., finance, with highest distinction, University of Nebraska

B.S., University of Virginia's McIntire School of Commerce

B.S., economics, Duke University; M.B.A., University of Chicago's Booth School of Business

Biographies – Global Investment Team

Systematic Research



Spiro Voulgaris
Partner

Spiro Voulgaris, partner, is a senior quantitative analyst and systematic equity portfolio manager.

He joined William Blair in 2007. Before joining the firm, Spiro was a senior quantitative analyst with Neuberger Berman for five years and subsequently worked alongside the same investment professionals for an additional three years while with Northern Trust. He was also with Lehman Brothers for six years, where he was a strategist and quantitative analyst for its global and U.S. investment strategy teams in London and New York. Before that, Spiro spent three years as a research analyst with the Center for Research in Securities Prices (CRSP).



Andrew Kominik, CFA

Andrew Kominik, CFA, is the liquidity and investment risk manager.

In this role, Andrew identifies, aggregates, and monitors investment-related risks across William Blair Investment Management. He also is a senior quantitative analyst on the systematic research team, where he spearheaded the development of William Blair's proprietary equity risk models and continues to maintain and enhance them. Previously, Andrew was a quantitative portfolio analyst, portfolio construction analyst, and marketing analyst. Before joining William Blair in 2003, he worked in institutional marketing at Columbia Management Group. Andrew is a member of the CFA Institute and the CFA Society Chicago.



Andy Tang, CFA

Andy Tang, CFA, is a quantitative research analyst on the systematic research team.

In this role, he conducts research on quantitative finance and builds tools for portfolio optimization and risk management. Before joining William Blair in 2016, Andy spent five years as a quantitative analyst at Morningstar, where he worked on designing and building the Morningstar global equity risk model and global portfolio optimizer. He also worked on fixed-income pricing and risk analytics and big-data analytics on financial text modeling. He is a member of the CFA Institute and the CFA Society Chicago.



Andrew Wickman, CFA

Andrew Wickman, CFA, is a quantitative research analyst on the systematic research team.

In this role, he develops and programs multifactor quantitative models that are used by fundamental equity analysts and portfolio managers. He also produces research for the team's portfolio strategy thought leaders. Before joining William Blair in 2015, Andrew was a consultant at FactSet Research Systems for four years; in this role, he supported investment management research analysts and portfolio managers. He is a member of the CFA Institute and the CFA Society Chicago.

Education: B.A., economics, University of Chicago; M.B.A., statistics and international finance, University of Chicago's Booth School of Business

B.A., history, Brandeis University; M.B.A., finance and econometrics/statistics, University of Chicago's Booth School of Business

B.A., economics, Donghua University; M.S., finance, Illinois Institute of Technology; M.S., statistics, University of Chicago

B.S., economics, University of Kentucky

Biographies – Global Investment Team

Strategy Research and Technology



Olga Bitel, Partner

Olga Bitel, partner, is a global strategist.

She is responsible for economic research and analysis across all regions and sectors. She distills macroeconomic and geopolitical developments into actionable insights for global equity portfolios within a multifaceted strategic framework. In addition, she provides insights about cyclical turning points and structural trends as inputs into portfolio construction in predominantly bottom-up investment approaches. Before joining William Blair in 2009, Olga was a senior economist at the National Institute of Economic and Social Research in London, United Kingdom, where she produced macroeconomic forecasts for most Asian economies and led thematic research projects for some of the world's best-known international organizations, including the Organization of the Petroleum Exporting Countries and the International Monetary Fund.



Blake Pontius, CFA

Blake Pontius, CFA, is director of sustainable investing.

In this role, he coordinates the firm's integration of environmental, social and governance (ESG) factors in its investment processes and provides ESG research support to the global equity team. Blake also leads the firm's ESG Leadership Team. Previously at William Blair, Blake was a global portfolio specialist and institutional client relationship manager. Before joining William Blair in 2005, Blake worked at UBS Asset Management and Mercer. He is a board member of Easterseals DuPage & Fox Valley, and a member of the CFA Institute and the CFA Society Chicago. In addition, he holds the SASB Fundamentals of Sustainability Accounting (FSA) credential.



Rita Spitz, Partner, CFA

Rita Spitz, CFA, partner, is a global equity research analyst focusing on ESG integration.

She is on William Blair's Global Inclusion Council and the ESG/Impact Investing Working Group. Previously, she was a research analyst covering U.S. and global consumer stocks across the range of market capitalizations. She served as director of research from 2001 to 2008. Rita joined William Blair in 1986 as a sell-side research analyst covering advertising and marketing firms, a role she held for 13 years. She is a member of the CFA Society Chicago, the CFA Institute, and The Economic Club of Chicago. She has also served on the advisory groups of the Financial Accounting Standards Board. She is a trustee of The Joffrey Ballet.



Darragh Grogan

Darragh Grogan is a technologist on the global equity team.

In this role, he works with William Blair's IT development team to implement technological improvements into the investment process. Before joining William Blair in 2008 as a software engineer supporting trading and reconciliation, Darragh was a senior software engineer at Accenture and Fidelity.

Education: B.A., University of Chicago; M.Sc., economics, London School of Economics and Political Science

B.A., economics, with honors, Michigan State University; M.B.A. in finance, with distinction, from DePaul University

B.B.A., finance and Spanish, University of Wisconsin–Madison; M.B.A., University of Chicago's Booth School of Business

B.Com. and a higher diploma in applied science (software development and design), National University of Ireland in Galway; M.S., advanced software engineering, University College Dublin

Biography - Relationship Manager



Wally Fikri, CFA, CPA
Partner

Wally Fikri, CFA, CPA, is a partner at William Blair Investment Management. He works with plan sponsors and investment consultants in the United States and brings asset allocation and risk expertise to bear in understanding their needs and structure. He has served on William Blair's benefits committee and chaired the investment committee overseeing the defined-contribution and defined-benefit plans. Before joining William Blair in 2004, Wally was a partner with Brinson Partners (now UBS Global Asset Management) for nearly 12 years. He managed asset-allocation portfolios, which included actively managed bottom-up strategies across global equities, bonds, and alternative investments. He also worked closely with plan sponsors and consultants and served on the firm's charitable giving committee. Wally began his career in the financial services practice at KPMG Peat Marwick in 1991. Wally is a member of the CFA Institute and CFA Society Chicago, where he was past board member and is currently serving on the board nominating committee. He is a member of the Defined Contribution Institutional Investment Association (DCIIA), a nonprofit association dedicated to enhancing the retirement security of America's workers. He is a past member of the advisory group for Institutional Investor's public funds roundtable as well as a regular volunteer and participant of the National Council of Teacher Retirement Systems (NCTR). He is a past officer and current member of the affiliate committee of the State Association of Country Retirement Systems (SACRS), a nonprofit organization serving the twenty 1937 Act counties in California and their retirees. He is also a member of the governing board of the Civic Leadership Foundation, a 501(c)3 charitable organization working with middle-school children across a number of Chicago Public Schools. Wally earned the right to use the CFA charterholder designation in 1995 and successfully completed all levels of the CPA in 1991 (CPA is inactive). He currently holds his FINRA series 24, 7, and 63 securities licenses.

Education: B.S., accountancy, Northern Illinois University; M.B.A., Northwestern University's Kellogg Graduate School of Management

Glossary – Terms

Active Share: A measure of the percentage of stock holdings in a manager's portfolio that differ from the benchmark index.

Alpha: A measure of a portfolio's return in excess of the market return, after both have been adjusted for risk. It is a mathematical estimate of the amount of return expected from a portfolio above and beyond the market return at any point in time. For example, an alpha of 1.25 indicates that a stock is projected to rise 1.25% in price in a year over the return of the market, or the return when the market return is zero. When an investment price is low relative to its alpha, it is undervalued, and considered a good selection.

Beta: A quantitative measure of the volatility of the portfolio relative to the overall market, represented by a comparable benchmark. A beta above 1 is more volatile than the overall market, while a beta below 1 is less volatile, and could be expected to rise and fall more slowly than the market.

CFROIC (Cash Flow Return on Invested Capital): A measure of how effectively a company generates cash flow based on legacy capital investment.

Convexity: A measure of the sensitivity of a fixed income investment's duration to changes in yield.

Developed Markets: Using the Morgan Stanley Capital International (MSCI) geographic definition, this region includes: United Kingdom, Europe (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Spain, Sweden and Switzerland), Japan, Pacific Asia (Australia, Hong Kong, New Zealand, and Singapore) and the Western Hemisphere (Canada and other Americas).

Debt to Total Capital Ratio: This figure is the percentage of each company's invested capital that consists of debt. Companies with a high Debt to Total Capital level may be considered riskier. From a portfolio perspective, the portfolio Debt to Total Capital Ratio is a weighted average of the individual holdings' Debt to Total Capital Ratio.

Duration: A measure of the price sensitivity of a fixed income investment to a change in interest rates, stated in years.

Emerging Markets: Using MSCI's geographic definition, this region includes: Emerging Markets Asia (China, India, Indonesia, Malaysia, S Korea, Taiwan, and Thailand), Emerging Markets Europe, Mid-East and Africa (Czech Republic, Hungary, Poland, Russia, Turkey, Egypt, Morocco, and S Africa), and Latin America (Argentina, Brazil, Chile, Columbia, Mexico, Peru and Venezuela).

EPS Estimate Revision Breadth: A 1-month factor representing the trend in the direction of estimate changes. Range from -100% to +100%, it is calculated as the number of positive revisions minus the number of negative revisions divided by the total number of estimates.

EPS (Earnings Per Share) Growth Rate (Projected): This measure represents the weighted average of forecasted growth in earnings expected to be experienced by the stocks within the portfolio over the next year. From a portfolio perspective, the portfolio EPS Growth Rate is a weighted average of the individual holdings' EPS Growth Rate.

EPS Growth Rate (5-Year Historic): The weighted average earnings per share growth for stocks within the portfolio over the past 5 years.

EV/EBITDA (Enterprise Value/Earnings Before Interest, Taxes and Depreciation-Amortization): The EV/EBITDA ratio is useful for global comparisons because it ignores the distorting effects of individual countries' taxation policies. It's used to find attractive takeover candidates. Enterprise value is a better measure than market cap for takeovers because it takes into account the debt which the acquirer will have to assume. Therefore, a company with a low EV/EBITDA ratio can be viewed as a good takeover candidate.

EV/IC: (Enterprise Value/Invested Capital) Ratio: Enterprise Value (EV), which is market capitalization minus cash plus debt divided by Invested Capital (IC), which is the sum of common stock, preferred stock and long-term debt. This number will get you a simple multiple. If it is below 1.0, then it means that the company is selling below book value and theoretically below its liquidation value.

Frontier Markets: Less advanced capital markets in the developing world.

FX: In finance, an exchange rate is the rate at which one currency will be exchanged for another. It is also regarded as the value of one country's currency in relation to another currency.

Information Ratio: A measure of risk-adjusted return. The annualized excess return of the portfolio relative to a respective benchmark, divided by the annualized tracking error relative to that same benchmark. The higher the measure, the higher the risk-adjusted return.

Integrated: Constructs a portfolio of the top 20% of stocks based on William Blair's multi-factor composite model, which uses Earnings Trend, Momentum, Quality, and Valuation factors. The portfolio is rebalanced on a monthly basis and weights stocks based on relative market capitalization.

Net Debt to EBITDA: A measure of leverage calculated by taking interest bearing liabilities minus cash divided by earnings before interest, taxes, depreciation, and amortization.

Option-Adjusted Spread (OAS): A measure of the spread of a fixed income investment's yield relative to a benchmark, adjusted to take into account an embedded option.

PBVn (Price/Book Value) Ratio: The PBV Ratio measures the value of a company's common stock relative to its shareholder's equity. A price-to-book multiple above one means that the price of the company's common stock is higher than its common shareholder's equity. A price-to-book multiple below one means that the price of the company's common stock are less than its break-up value, and the shares may be undervalued.

PCF (Price/CashFlow): Some analysts favor the price/cash flow over the price-earnings (PE) ratio as a measure of a company's value. Cash flow is a measure of a company's financial health. It equals cash receipts minus cash payments over a given period of time.

P/E (Price/Earnings) Ratio: This is the most common measure of how expensive a stock is. Simply, it is the cost an investor in a given stock must pay per dollar of current annual earnings. A high P/E generally indicates that the market is paying more to obtain the stock because it has confidence in the company's ability to increase its earnings. Conversely, a low P/E often indicates that the market has less confidence that the company's earnings will increase rapidly or steadily, and therefore will not pay as much for its stock.

Price to Book: A stock's capitalization divided by its book value. This ratio compares the market's valuation of a company to the value of that company as indicated on its financial statements.

R-squared: A measurement of how closely the portfolio's performance correlates with the performance of its benchmark, such as the MSC AC World Free ex US Index. In other words, it is a measurement of what portion of a portfolio's performance can be explained by the performance of the overall market or index. Ranges from 0 to 1, where 0 indicates no correlation and 1 indicates perfect correlation.

Recovery Rate: The extent to which principal and interest on defaulted debt can be recovered, expressed as a percentage of face value.

Risk (Standard Deviation): A measure of the portfolio's risk. A higher standard deviation represents a greater dispersion of returns, and thus a greater amount of risk. The annualized standard deviation is calculated using monthly returns.

Silo: Constructs portfolios using the top 20% of stocks based on each of the four sub-models used to construct William Blair's composite model, then averages the returns coming from each of the four portfolios. The portfolios are rebalanced on a monthly basis and weights stocks based on relative market capitalization. (The Equal Weighted strategy equally weights the returns coming from each of the sub-portfolios; the Optimized approach weights Quality 5%, Valuation 60%, Earnings Treng 5%, and Momentum 30%. The optimization was based on a Monte-Carlo simulation that sought an optimal weighting of each sub-portfolios to achieve the highest return).

Sortino Ratio: A modification of the Sharpe ratio that differentiates harmful volatility from general volatility by taking into account the standard deviation of negative asset returns, called downside deviation. The Sortino ratio subtracts the risk-free rate of return from the portfolio's return, and then divides that by the downside deviation. A large Sortino ratio indicates there is a low probability of a large loss.

Sharpe-Ratio: A risk-adjusted measure calculated using standard deviation and excess return (Portfolio return – Risk Free Rate) to determine reward per unit of risk. The higher the Sharpe ratio, the better the portfolio's historic risk-adjusted performance.

Spread Duration: A measure of the price sensitivity of a fixed income investment to a change in credit spreads.

Tracking Error: Tracking Error measures the extent to which a portfolio tracks its benchmark. The tracking error of an index portfolio should be lower than that of an active portfolio. The tracking error will always be greater than zero if the portfolio is anything other than a replication of the benchmark.

Trailing 1-Year Turnover: This figure reflects the portfolio's trading activity by calculating the amount of the portfolio's holdings bought or sold over the prior year, expressed as a percentage of the portfolio's average market value. Turnover figures may be related to the amount of trading costs experienced by the portfolio.

Weighted Average Market Capitalization: Market capitalization refers to the total market value of each company's outstanding shares. The Weighted Average Market Capitalization for a portfolio is calculated as the average market capitalization of the stocks within the portfolio, weighted by the amount of each stock owned.

Weighted Median Market Capitalization: This calculation represents the median market capitalization of the stocks in the portfolio, weighted by the amount of each stock owned.

Yield to Maturity: A representation of the rate of return anticipated on a bond if held until its maturity.

Yield to Worst: A representation of the lowest potential yield that an investor would receive on a bond if the issuer does not default.

Glossary – Indices

Bloomberg Barclays U.S. Aggregate Bond Index: A broad-based benchmark that measures the investment grade, U.S. dollar-denominated, fixed-rate taxable bond market, including Treasuries, government-related and corporate securities, mortgage-backed securities (agency fixed-rate and hybrid ARM pass-throughs), asset-backed securities and commercial mortgage backed securities.

Bloomberg Barclays Intermediate Govt./Credit Index: A fixed-rate government and corporate bonds rated investment grade or higher.

Bloomberg Barclay's Multiverse Index: Provides a broad-based measure of the global fixed-income bond market. The index represents the union of the Global Aggregate Index and the Global High-Yield Index and captures investment grade and high yield securities in all eligible currencies. Standalone indices such as the Euro Floating-Rate ABS Index and the Chinese Aggregate Index are excluded. The Multiverse Index family includes a wide range of standard and customized sub-indices by sector, quality, maturity, and country.

Bloomberg Barclays U.S. Intermediate Aggregate Bond Index: A broad-based benchmark that measures the investment grade, U.S. dollar-denominated, fixed-rate taxable bond market, including Treasuries, government-related and corporate securities, mortgage-backed securities (agency fixed-rate and hybrid ARM pass-throughs), asset-backed securities and commercial mortgage backed securities with maturities between one and 10 years.

ICE BofAML 1-Year U.S. Treasury Note Index: An unmanaged index comprised of a single U.S. Treasury Bill issued at the beginning of each month and held for a full month. Each month the index is rebalanced and the issue selected is the outstanding U.S. Treasury Note that matures closest to, but not beyond one year from the rebalancing date.

ICE BofAML 3-Month Treasury Bill Index: An unmanaged market index of U.S. Treasury securities maturing in 90 days that assumes reinvestment of all income.

J.P. Morgan Cash Index: Measures the total return of a rolling investment in a notional fixed income instrument with a maturity of three months. The deposit rates used in the calculation of the JP Morgan Cash Index are LIBOR or similar local reference rates.

Merrill Lynch 1-Year U.S. Treasury Note Index: Comprised of a single U.S. Treasury Bill issued at the beginning of each month and held for a full month. Each month the index is rebalanced and the issue selected is the outstanding U.S. Treasury Note that matures closest to, but not beyond one year from the rebalancing date.

Merrill Lynch 3-Month Treasury Bill Index: An unmanaged index market index of U.S. Treasury securities maturing in 90 days that assumes reinvestment of all income.

MSCI (Morgan Stanley Capital International): MSCI indices are the most widely used benchmarks by global portfolio managers. MSCI offers international investors performance benchmarks for 51 national stock markets as well as regional, sector, industry group, and industry aggregations.

MSCI China A Onshore Index: A free-float weighted equity index, designed to measure performance of China A share securities listed on either the Shanghai or Shenzhen Stock Exchanges.

MSCI All Country World ex-US EAFE Index: An unmanaged index that includes developed and emerging markets outside the United States.

MSCI All Country World ex-US Small Cap Index: A free float-adjusted market capitalization index designed to measure global developed and emerging market small capitalization equity performance, excluding the U.S.

MSCI EAFE Index: A free float-adjusted market capitalization index which captures large and mid cap representation across Developed Markets countries around the world, excluding the U.S. and Canada.

MSCI EAFE IMI Index: A free float-adjusted market capitalization index which captures large, mid and small cap representation across Developed Markets countries around the world, excluding the U.S. and Canada.

MSCI EAFE Growth Index: A free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets, excluding the U.S. & Canada.

MSCI All Country World ex-US Index: An unmanaged index that includes developed and emerging markets, excluding the U.S.

MSCI All Country World ex-US Growth Index: A free float-adjusted market capitalization index that is designed to provide a broad measure of equity-market performance throughout the world, excluding the U.S. It includes those MSCI All Country World ex-US securities with higher price-to-book ratios and higher forecasted growth rates.

MSCI All Country World ex-US IMI Index: A free float-adjusted market capitalization index that is designed to measure equity market performance in the global developed and emerging markets, excluding the U.S.

MSCI All Country World IMI Index: A free float-adjusted market capitalization index that is designed to measure equity market performance in the global developed and emerging markets.

MSCI All Country World ex-US IMI Growth Index: A free float-adjusted market capitalization index that is designed to measure equity market performance in the global developed and emerging markets, excluding the U.S. It includes those MSCI All Country World ex-US IMI Index securities with higher price-to-book ratios and higher forecasted growth rates.

MSCI World ex-US Growth Index: A free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets, excluding the U.S., with higher price-to-book ratios and higher forecasted growth rates.

MSCI World ex-US Index: A free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets, excluding the U.S.

MSCI Emerging Markets Index: A free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets.

MSCI Emerging Markets IMI Index: A free float-adjusted market capitalization index which captures large, mid and small cap equity market performance in the global emerging markets.

MSCI Emerging Markets ex-China IMI Index: A free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets excluding China.

MSCI Emerging Markets Small Cap Index: A free float-adjusted market capitalization index that is designed to measure equity market performance of small cap companies in emerging markets.

MSCI Emerging Markets Large Cap Index: A free float-adjusted market capitalization index that is designed to measure equity market performance of large cap companies in emerging markets.

MSCI World ex-US Small Cap Index: An unmanaged index that includes non-US developed markets.

Russell 1000 Index: Measures the performance of the 1000 largest companies in the Russell 3000 Index, which represents approximately 90% of the total market capitalization of the U.S. market.

Russell 1000 Growth Index: Measures the performance of those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.

Russell 1000 Value Index: Measures the performance of the large cap value segment of the U.S. equity universe. It includes those Russell 1000 companies with lower price-to-book ratios and lower forecasted growth values.

Russell 2000 Index: Measures the performance of the 2000 smallest companies in the Russell 3000 index, which represents approximately 8% of the total market capitalization of the Russell 3000 index.

Russell 2000 Growth Index: Measures the performance of those Russell 2000 companies with higher price to book ratios and higher forecasted growth values.

Russell 2000 Value Index: Measures the performance of those Russell 2000 companies with lower price-to-book ratios and lower forecasted growth values.

Russell 2500 Index: Measures the performance of the 2500 smallest companies in the Russell 3000 Index.

Russell 2500 Growth Index: Measures the performance of those Russell 2500 companies with higher price-to book ratios and higher forecasted growth values.

Russell 2500 Value Index: Measures the performance of those Russell 2500 companies with lower price-to book ratios and lower forecasted growth values.

Russell 3000 Index: Measures the performance of the 3000 largest U.S. companies based on total market capitalization, which represents approximately 98% of the investable U.S. equity market.

Russell 3000 Growth Index: Measures the performance of those Russell 3000 companies with higher price-to-book ratios and higher forecasted growth values.

Russell Midcap Index: Measures the performance of the 800 smallest companies in the Russell 1000 Index, which represent approximately 27% of the total market capitalization of the Russell 1000 companies.

Russell Midcap Growth Index: Measures the performance of those Russell Midcap companies with higher price-to-book ratios and higher forecasted growth values.

Russell Midcap Value Index: Measures the performance of the mid-cap value segment of the U.S. equity universe. It includes those Russell Midcap Index companies with lower price-to-book ratios and lower forecasted growth values.

S&P 500 Index: The Standard & Poor's 500 Index (S&P 500) is an index of 500 stocks chosen for market size, liquidity and industry grouping, among other factors. The S&P 500 is designed to be a leading indicator of U.S. equities and is meant to reflect the risk/return characteristics of the large cap universe. Companies included in the index are selected by the S&P Index Committee, a team of analysts and economists at Standard & Poor's. The S&P 500 is a market value weighted index—each stock's weight is proportionate to its market value.

A direct investment in an unmanaged index is not possible.

Emerging Markets Growth Performance Summary

Performance for periods ending September 30, 2021

Composite Performance (%)	Qtr	YTD	1 Yr	Annualized				Strategy Inception
				3 Yr	5 Yr	10 Yr	20 Yr	(Oct 1 96)
Emerging Markets Growth (Gross of fees)	-5.05	5.46	24.95	21.34	16.04	11.07	14.82	11.91
Emerging Markets Growth (Net of fees)	-5.29	4.67	23.71	20.13	14.88	9.96	13.63	10.74
MSCI Emerging Markets IMI Index	-7.39	0.71	20.80	9.10	9.28	6.21	11.07	5.35
Relative Performance (Gross of fees)	2.34	4.75	4.15	12.24	6.76	4.86	3.76	6.56

Annual Composite Performance (%)	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Emerging Markets Growth (Gross of fees)	41.85	29.61	-21.05	51.19	2.93	-14.17	5.73	3.83	22.17	-15.89	24.73	79.09	-60.54
Emerging Markets Growth (Net of fees)	40.44	28.32	-21.84	49.69	1.90	-15.02	4.68	2.80	20.95	-16.73	23.40	77.13	-61.01
MSCI Emerging Markets IMI Index	18.39	17.64	-15.04	36.83	9.90	-13.86	-1.79	-2.20	18.68	-19.49	19.90	82.36	-53.78
Annual Composite Performance (%)	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996 ¹	
Emerging Markets Growth (Gross of fees)	40.26	39.27	49.10	37.93	58.66	-2.70	13.75	-29.81	90.73	-18.90	5.91	1.07	
Emerging Markets Growth (Net of fees)	38.77	37.79	47.53	36.46	57.00	-3.77	12.52	-30.60	88.76	-19.80	4.76	0.79	
MSCI Emerging Markets IMI Index	39.83	31.70	33.47	26.62	53.97	-6.49	-2.02	-35.31	62.63	-29.67	-19.74	-1.45	

¹Partial year performance from October 1 to December 31, 1996.

Past performance is not indicative of future returns. Performance is shown in U.S. dollar unless otherwise noted. Net investment performance represents the deduction of the highest possible fee. Actual client net returns may be higher or lower depending on fees charged to your account and the amount invested.

Returns for periods greater than one year are annualized. Gross performance results shown do not reflect the deduction of investment management fees, assume the reinvestment of dividends and capital gains, and are net of transaction costs. Performance results will be reduced by the fees incurred in the management of the account. For example, assuming an annual gross return of 8% and an annual management/advisory fee of .40%, the net annualized total return of the portfolio would be 7.58% over a 5-year period. Net investment performance represents the deduction of the highest possible fee. Investment management fees are described in William Blair's Form ADV Part 2A. The benchmark that best reflects the composite's investment strategy is the MSCI Emerging Markets Investable Market Index (IMI) Net, which is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets. International investing involves special risk considerations, including currency fluctuations, lower liquidity, economic, and political risk. Please see GIPS Composite Report in appendix for a complete description of the composite. The Emerging Markets Growth Composite included carve-out portfolios from inception through 2006.

Composite Presentation Report

Emerging Markets Growth

Calendar Year	Composite Gross Return (%)	Composite Net Return (%)	MSCI Emerging Mkts IMI (net) Return (%)	Composite 3-Yr Std Dev (%)	Benchmark 3-Yr Std Dev (%)	Number of Portfolios	Dispersion (%)	Composite Assets End of Period \$(mm)	Total Firm Assets \$(mm)
2011	-15.89	-16.73	-19.49	23.83	26.04	13	0.11	3,788.28	41,191.28
2012	22.17	20.95	18.68	19.95	21.49	13	0.22	5,276.65	49,610.61
2013	3.83	2.80	-2.20	17.55	19.03	13	1.01	5,271.28	62,018.81
2014	5.73	4.68	-1.79	14.03	14.78	13	0.58	5,276.88	63,060.05
2015	-14.17	-15.02	-13.86	13.57	13.84	12	0.21	4,103.22	64,777.78
2016	2.93	1.90	9.90	15.01	15.72	13	0.20	4,369.80	64,872.51
2017	51.19	49.69	36.83	14.88	15.11	12	0.34	6,004.52	73,549.85
2018	-21.05	-21.84	-15.04	15.35	14.43	11	0.39	3,961.08	48,880.26
2019	29.61	28.32	17.64	14.11	13.94	13	0.77	4,923.42	58,446.29
2020	41.85	40.44	18.39	20.89	19.86	13	1.87	5,883.80	69,739.61

Disclosures:

William Blair Investment Management claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. William Blair Investment Management has been independently verified for the periods January 1, 1993 through December 31, 2020. A firm that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the firm's policies and procedures related to composite and pooled fund maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on a firm-wide basis. The Emerging Markets Growth Composite has had a performance examination for the periods from composite inception through December 31, 2020. The verification and performance examination reports are available upon request.

For purposes of compliance with GIPS, the Firm is defined as all portfolios managed by William Blair Investment Management, a distinct operating unit within William Blair. William Blair Investment Management currently operates as William Blair Investment Management, LLC, an investment adviser registered with the United States Securities and Exchange Commission ("SEC") which is a separate legal entity that is distinct from William Blair & Company, L.L.C. Registration with the SEC does not imply a certain level of skill or training. The Emerging Markets Growth strategy invests in a broad range of well managed, quality growth companies based in emerging markets. A portfolio manager change occurred effective 5/1/2015 and 3/1/2018. The investment strategy was not materially altered by the personnel change.

The benchmark that best reflects the composite's investment strategy is the MSCI Emerging Markets Investable Market Index (net), which is a free float-adjusted market capitalization index that is designed to measure equity market performance, net of withholding taxes, in the global emerging markets.

Portfolios must have an initial market value greater than or equal to \$1 million to be included in the composite. New portfolios are added to the composite at the beginning of the month following the first full calendar month under management. Portfolios that change investment strategies are transferred between composites in the first full monthly reporting period the portfolio is managed under the new style. Portfolios will be excluded from the composite the first month immediately following the last complete month of authorized management by the Firm. Portfolios are removed from this composite, in the event of a significant cash flow, for the month during which the flow occurs. Portfolios are typically added back into the composite the following month. A portfolio is determined to have a significant cash flow if the accumulated net external flows of cash and/or securities during a month total more than 25% of the beginning of month portfolio market value. Additional information regarding the treatment of significant cash flows is available upon request. Performance includes the reinvestment of dividends and other earnings. Portfolio and composite returns are calculated daily. Valuations and returns are denominated in U.S. Dollars. Accrual accounting is used for dividends. The dividend accruals included in portfolio valuations are net of applicable withholding taxes. Pending withholding tax reclaims are not accrued for in the portfolio valuations. Composite dispersion measures represent the consistency of a firm's composite performance with respect to the individual portfolio returns within a composite. The dispersion of annual returns is measured by the asset-weighted standard deviation of the gross returns in the composite. Dispersion includes only those portfolios that have been included in the composite for the entire year. The three-year annualized standard deviation measures the variability of the gross composite returns and the benchmark returns over the preceding 36-month period. This statistic is not presented until there are 36 months of performance available. Performance results are stated gross of management fees and net of a model investment management fee for the strategy. The model fee is the maximum separate account management fee as of the time the composite return was calculated, applied by dividing that annual fee by the count of the annual calculation periods for the composite and then subtracting that quotient from the periodic gross composite returns. Actual fees may vary depending on, among other things, the applicable fee schedule and portfolio size. The current separate account management fee schedule is as follows:

Up to \$20,000,000: 1.00%,
 Next \$30,000,000: 0.80%,
 Next \$50,000,000: 0.70%,
 Next \$50,000,000: 0.65%,
 Next \$50,000,000: 0.60%,
 Next \$200,000,000: 0.40%,
 Over \$400,000,000: 0.35%.

The strategy is available via one or more pooled funds, which may have alternate fee schedules. The highest pooled fund management fee is 1.9%. The highest pooled fund expense ratio is 2.2%. The Emerging Markets Growth Composite was created in March 2005. The composite performance inception date is October 1, 1996.

A complete list and description of firm composites and pooled funds is available upon request. Additional information regarding policies for valuing portfolios, calculating performance and preparing compliant presentations is also available upon request. Past performance is not indicative of future results.