

# City of Fort Pierce

## International Growth

May 17, 2018

Robert J. Duwa, CFA, Partner  
Head of Institutional Client Service

*William Blair*

# Important Disclosures – Institutional International Growth Fund

**Performance cited represents past performance. Past performance does not guarantee future results and current performance may be lower or higher than the data quoted. Returns shown assume reinvestment of dividends and capital gains. Investment returns and principal will fluctuate with market and economic conditions and you may have a gain or loss when you sell shares. Class N shares are available to the general public. Class I and Class J (Institutional Class) shares are available only to investors who meet certain eligibility requirements. For the most current month-end performance information, please call +1 800 742 7272, or visit our Web site at [www.williamblairfunds.com](http://www.williamblairfunds.com).**

The information about the William Blair Fund's holdings contained in this presentation are as of the date specified on the holdings page and are subject to change thereafter. Information about the Fund's holdings should not be considered investment advice. There is no guarantee that the Fund will continue to hold any one particular security or stay invested in any one particular sector. Holdings are subject to change at any time.

This content is for informational and educational purposes only and not intended as investment advice or a recommendation to buy or sell any security. Investment advice and recommendations can be provided only after careful consideration of an investor's objectives, guidelines, and restrictions.

## **Risk**

The Fund's returns will vary, and you could lose money by investing in the Fund. The Fund holds equities which may decline in value due to both real and perceived general market, economic, and industry conditions. International investing involves special risk considerations, including currency fluctuations, lower liquidity, economic and political risk. Investing in emerging markets can increase these risks, including higher volatility and lower liquidity. Investing in smaller and medium capitalization companies involves special risks, including higher volatility and lower liquidity. Small and medium capitalization stocks are also more sensitive to purchase/sale transactions and changes in the issuer's financial condition. Individual securities may not perform as expected or a strategy used by the Adviser may fail to produce its intended result. Diversification does not ensure against loss.

## **Benchmark**

The Morgan Stanley Capital International (MSCI) All Country World Ex-U.S. IMI Index (net) is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets, excluding the United States. This series approximates the minimum possible dividend reinvestment. The Index is unmanaged and does not incur fees or expenses. It is not possible to directly invest in an unmanaged index.

***Please carefully consider the Fund's investment objective, risk considerations, charges, and expenses before investing. This and other information is contained in the Fund's prospectus, which may be obtained by calling +1 800 742 7272. Please read it carefully before you invest or send money.***

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William Blair  
Investment  
Management  
Thought  
Leadership  
Series



## William Blair Investor Day

*October 17-18, 2018*

Join WB experts and outside thought leaders as we explore today's hottest topics

***IN CHICAGO***



## William Blair Global Market Outlook

*December 2018*

Join us in person or via webinar for our 18<sup>th</sup> annual Global Market Outlook

***IN CHICAGO***

[www.williamblair.com/active](http://www.williamblair.com/active)

	What	When	Who	Overview
Events	William Blair Investor Day	10/17 – 10/18	WB Investment Professionals and Outside Speakers	Hear from WB experts and outside thought leaders as we explore today's hottest topics
	NAIC Annual Conference	10/24 – 10/25	Outside Speakers	WB hosts the largest network of diverse-owned private equity firms and hedge funds
	WB Global Market Outlook	December	WB Investment Professionals	Join us in person or via webinar for our annual Global Market Outlook
Webinars	WB China A Webinar (WB-hosted)	May/June	Vivian Lin Thurston	Find out more about this compelling new investment opportunity from our China A experts
	Pension & Investments Webinar	5/2	Todd McClone	Todd McClone joins other experts in a live webinar sharing his views on Emerging Markets
	RIA Webinar	June/July	WB Investment Professionals	Our investment professionals will provide market insights
	WB Mid-Year Outlook/Recap Webinar (WB-hosted)	July	WB Investment Professionals	Mid-year review and outlook
	IPE Webinar	10/9	Brian Singer	Global Macro
Videos	WB MiFID II Leadership Videos	April/May	Stephanie Braming, Bob Duwa, Kristina Blaschek, D.J. Neiman, Terry O'Bryan	Hear our unique perspectives on MiFID II and its impact on clients and asset management firms
	WB Emerging Markets Video Series	June	Todd McClone, Romina Graiver, Casey Preyss	Members of our EM team discuss current trends and opportunities
	WB Summit Video	June	Ken McAtamney, Spiro Voulgaris, Alaina Anderson, Vivian Lin Thurston, Jack Murphy	Learn more about our unique proprietary research platform
	WB DAS Video Series	October	Brian Singer, Tom Clarke	Global Macro
Content	Fundamental Perspectives Paper: The Future of Autos	April/May	D.J. Neiman, Andy Siepkner, Taylor Cope, Bill Benton, William DeAllaume, Anil Daka	Several WB analysts – across sectors – share their views on the future of autos
	Pension & Investments EM Supplement	4/30 issue	Todd McClone	Todd McClone joins other experts in sharing his views on Emerging Markets
	Active Never Rests Microsite Update <a href="http://www.williamblair.com/active">www.williamblair.com/active</a>	June	William Blair Investment Teams and Investment Strategies	Visit our updated microsite to read and hear about our latest thought leadership and perspectives
	Systematic White Paper	June/July	Peter Carl	Learn more about how are Systematic Strategies can complement traditional equity strategies
	Client Focus Brochure: Rising Influence of Women	June/July	Stephanie Braming, Rita Spitz, Kristina Blaschek, Select Clients	Spotlight on the Rising Influence of Women in Society and Investment Management

[www.williamblair.com/active](http://www.williamblair.com/active)

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# Overview

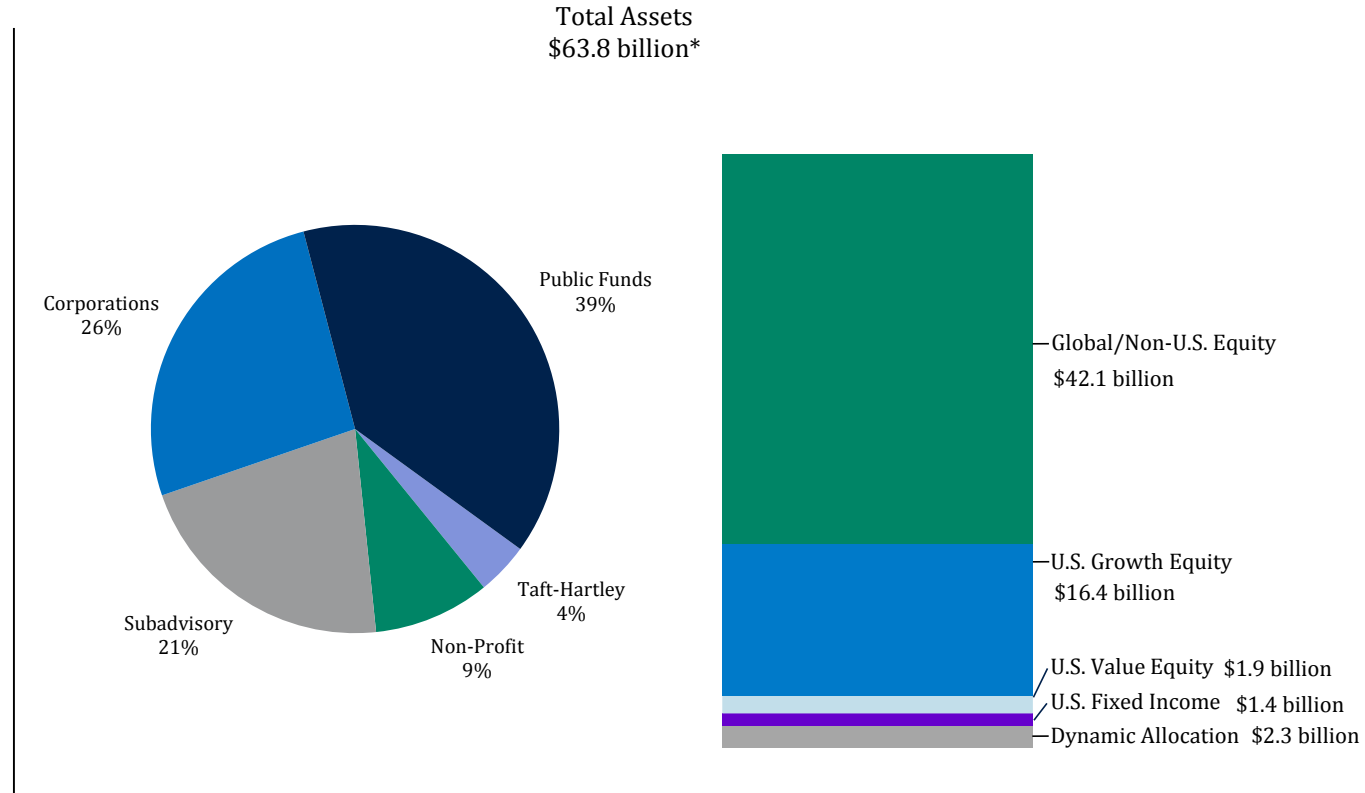
*Photos courtesy of Casey Preyss, Ken McAtamney, Stephanie Braming and Alaina Anderson*



# Overview – Asset Management Capabilities

William Blair has been active in investment management for institutional and individual clients since its founding.

A number of clients who invested with us in our early years remain with us decades later. Our asset base has grown from \$37.7 billion\*\* over the past 10 years.



\*Assets under management chart as of March 31, 2018.

\*\*IM assets under management as of March 31, 2008.

Assets shown in U.S. Dollar.

As used on this page, "William Blair" refers to William Blair Investment Management, LLC and the Investment Management division of William Blair & Company, L.L.C. unless otherwise noted. For more information about William Blair, please see <http://www.williamblair.com/About-William-Blair.aspx>. This material has been distributed for informational purposes only and should not be considered as investment advice or a recommendation of any particular security, strategy or investment product. Strategy availability may be limited to certain investment vehicles; not all investment vehicles may be available to all investors. Unless otherwise noted, all data shown is as of the date of this material.

# Global Portfolio Strategies

The global strategy suite reflects the changing opportunity set and our philosophy of constantly expanding our horizons to capitalize on new opportunities.

- The Focused Leaders strategies comprise high quality leaders across the corporate life cycle in terms of products, services, and execution
- The All Cap strategies reflect broad exposure to high quality companies across the market capitalization spectrum
- The Small Capitalization strategies are designed to capture a broader array of small and micro-cap opportunities with more limited liquidity
- Developed Plus represents our version of EAFE plus with limited emerging markets exposure
- The China A-Shares Growth strategy invests in high quality growth domestic Chinese equities across the market capitalization spectrum

	International	Emerging Markets	Global
<b>Focused Leaders</b>	International Leaders \$5.3 billion	Emerging Markets Leaders \$5.0 billion	Global Leaders \$2.8 billion
<b>All Cap</b>	International Growth (Closed 6/12) \$16.3 billion	Emerging Markets Growth \$6.2 billion	
<b>Small Cap</b>	International Small Cap Growth (Closed 3/11) \$3.4 billion	Emerging Markets Small Cap Growth (Closed 10/13) \$1.7 billion	
<b>EAFE Plus</b>	International Developed Plus \$1.4 billion		
<b>Targeted Opportunities</b>		China A-Shares Growth \$8 million	

Assets as of March 31, 2018. Shown in U.S. Dollar. International Developed Plus includes ADR strategy assets.

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# Global Investment Team

Portfolio Management Team <sup>1</sup>						Portfolio Specialists
Global Leaders	International Growth	International Leaders	Developed Plus	International Small Cap	Emerging Markets Strategies	
<b>Andy Flynn, CFA, Partner</b> 13 yrs. WB/28 yrs. Industry <b>Ken McAtamney, Partner</b> 13 yrs. WB/28 yrs. Industry	<b>Simon Fennell, Partner</b> 7 yrs. WB/25 yrs. Industry <b>Ken McAtamney, Partner</b> 13 yrs. WB/28 yrs. Industry	<b>Simon Fennell, Partner</b> 7 yrs. WB/25 yrs. Industry <b>Ken McAtamney, Partner</b> 13 yrs. WB/28 yrs. Industry	<b>David Merjan, CFA, Partner</b> 19 yrs. WB/30 yrs. Industry <b>Jack Murphy, CFA, Partner</b> 13 yrs. WB/22 yrs. Industry	<b>Simon Fennell, Partner</b> 7 yrs. WB/25 yrs. Industry <b>Andy Flynn, CFA, Partner</b> 13 yrs. WB/28 yrs. Industry	<b>Emerging Markets Growth</b> <b>Todd McClone, CFA, Partner</b> 17 yrs. WB/25 yrs. Industry <b>Casey Preyss, CFA, Partner</b> 17 yrs. WB/18 yrs. Industry <b>Emerging Markets Leaders</b> <b>Todd McClone, CFA, Partner</b> <b>Jack Murphy, CFA, Partner</b> <b>Emerging Small Cap Growth</b> <b>Todd McClone, CFA, Partner</b> <b>Casey Preyss, CFA, Partner</b> <b>China A-Shares Growth</b> <b>Casey Preyss, CFA, Partner</b>	<b>Ryan Dimas, CFA, CAIA</b> 18 yrs. WB/23 yrs. Industry <b>Romina Graiver</b> 6 yrs. WB/19 yrs. Industry <b>Blake Pontius, CFA</b> 12 yrs. WB/20 yrs. Industry
Global Fundamental Research Team <sup>2</sup>						
Strategy Research	Global Sector Research			Systematic Research		
<b>Olga Bitel, Partner</b> 8 yrs. WB/15 yrs. Industry	<b>Consumer</b>	<b>Financials</b>	<b>Healthcare</b>	<b>Spiro Voulgaris, Partner</b> 10 yrs. WB/27 yrs. Industry <b>Andrew Kominik, CFA</b> 15 yrs. WB/15 yrs. Industry <b>Jeffrey Hill</b> 4 yrs. WB/19 yrs. Industry <b>Andrew Wickman, CFA</b> 3 yrs. WB/7 yrs. Industry  <b>Technologist</b> <b>Darragh Grogan</b> 9 yrs. WB/12 yrs. Industry		
	<b>Kwesi Smith, CFA</b> 3 yrs. WB/13 yrs. Industry <b>Dan Su, CFA</b> 4 yrs. WB/11 yrs. Industry <b>Rita Spitz, CFA, Partner</b> 31 yrs. WB/39 yrs. Industry	<b>Joel Gomberg, CFA, Partner</b> 21 yrs. WB/24 yrs. Industry <b>D.J. Neiman, CFA, Partner<sup>3</sup></b> 16 yrs. WB/19 yrs. Industry <b>Daniel Hill, CFA</b> 13 yrs. WB/13 yrs. Industry	<b>Thomas Sternberg, CFA, Partner</b> 13 yrs. WB/15 yrs. Industry <b>Camilla Oxhamre Cruse, Ph.D.</b> 3 yrs. WB/12 yrs. Industry <b>Richard Reznick, Ph.D.</b> 7 yrs. WB/7 yrs. Industry			
	<b>Industrials</b>	<b>Information Technology</b>	<b>Real Assets</b>			
	<b>Andrew Siepker, CFA</b> 12 yrs. WB/13 yrs. Industry <b>Anil Daka, CFA</b> 7 yrs. WB/9 yrs. Industry <b>Taylor Cope, CFA</b> 11 yrs. WB/12 yrs. Industry	<b>William Benton, CFA, CPA, Partner</b> 21 yrs. WB/21 yrs. Industry <b>Drew Buckley, CFA, CPA</b> 9 yrs. WB/11 yrs. Industry	<b>William De Allaupe, CFA</b> 5 yrs. WB/29 yrs. Industry <b>Taylor Cope, CFA</b> 11 yrs. WB/12 yrs. Industry <b>Alaina Anderson, CFA, Partner</b> 12 yrs. WB/17 yrs. Industry			
	<b>Emerging Markets Small Cap Generalists</b>	<b>China Generalists</b>				
	<b>Greg Scolaro, CFA, CPA</b> 4 yrs. WB/4 yrs. Industry	<b>Bryan Shea</b> 9 yrs. WB/9 yrs. Industry	<b>Vivian Lin Thurston, CFA, Partner</b> 3 yrs. WB/23 yrs. Industry			
<b>Research Associates (8)</b>						
Implementation/Trading Team <sup>4</sup>						
Asia/Pacific	Europe	Americas & Fx	Portfolio and Trade Order Management		International Trade Specialists	
<b>Nathan Fisher, CFA</b> 3 yrs. WB/14 yrs. industry <b>Daniel Iannessa</b> 13 yrs. WB/15 yrs. industry <b>Malik Nicholson</b> 4 yrs. WB/12 yrs. Industry	<b>Nicola Hynds</b> 10 yrs. WB/23 yrs. industry <b>Simon Johnstone</b> 5 yrs. WB/17 yrs. industry	<b>Terry O'Bryan, Partner,</b> <b>Head of Global Equity Trading</b> 11 yrs. WB/20 yrs. industry	<b>Monika Budyn</b> 5 yrs. WB/9 yrs. industry <b>Tim Randick</b> 10 yrs. WB/10 yrs. industry		<b>Kristin Gaffud</b> 12 yrs. WB/15 yrs. Industry <b>Michael LaDuke</b> 8 yrs. WB/10 yrs. Industry	

1. Portfolio Management team average 15 years at William Blair and 26 years in the industry. 2. Global Fundamental Research Team, excluding Technologist, average 10 years at William Blair and 16 years in the industry. 3. D.J. Neiman also serves as Director of Research. 4. Traders, excluding Portfolio and Trade Order Management and International Trade Specialists, average 7 years at William Blair and 16 years in the industry. As of April 2018.

# Philosophy and Process

*Photos courtesy of Tommy Sternberg, Casey Preyss, Vivian Thurston and Taylor Cope*



# Investment Philosophy

- We believe that strong corporate performance is the foundation of superior long-term investment returns
- The essence of corporate success lies in building intrinsic strengths in the management of human capital, financial resources, and stakeholder relationships, and delivering quality, innovation, service, and value to customers
- We believe companies that lead in these critical areas have produced better returns on capital, over a longer time horizon, with greater consistency and less risk

There is no guarantee that these investment strategies will work under all market conditions or are suitable for all investors and each investor should evaluate their ability to invest long-term, especially during periods of downturn in the market.

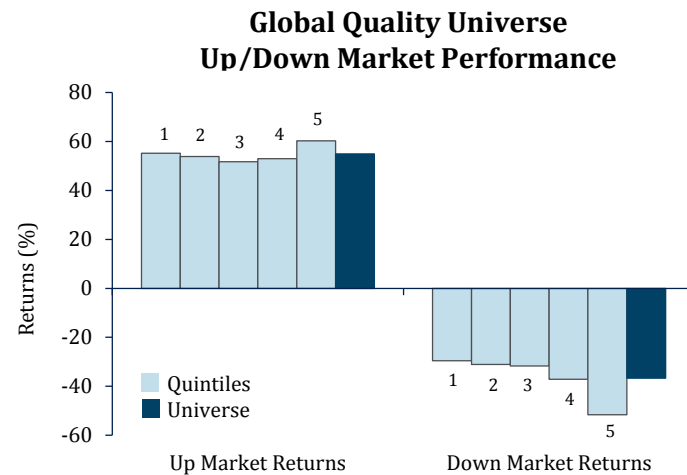
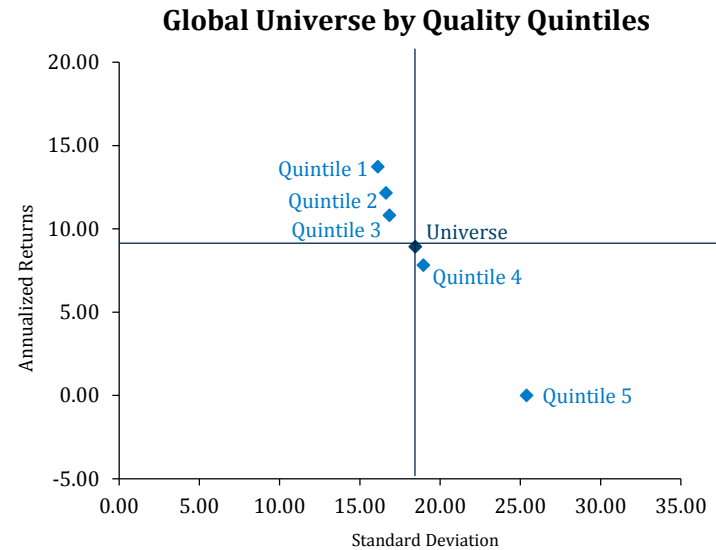
# Investment Philosophy: Organic Value Creation

We seek:

- Organic value creation
- Peer group leadership
- Consistent earnings growth
- High return on capital and assets
- Positive earnings trends over time
- Low leverage

Companies with high quality and sustainable growth characteristics may:

- Perform well in up markets
- Protect in down markets
- Produce attractive, risk-adjusted returns



Data shown for period between July 31, 1997–March 31, 2018. Data source: William Blair Global Universe. Past performance is not indicative of future returns. The above performance information is based on William Blair’s proprietary model and does not in any way relate to the return of the strategy. The strategy may or may not hold the companies included in the Quality quintiles shown. Quality is defined as those companies with good balance sheet metrics, efficiency, and higher returns. Up/down market returns based on MSCI ACWI Index, monthly annualized returns.

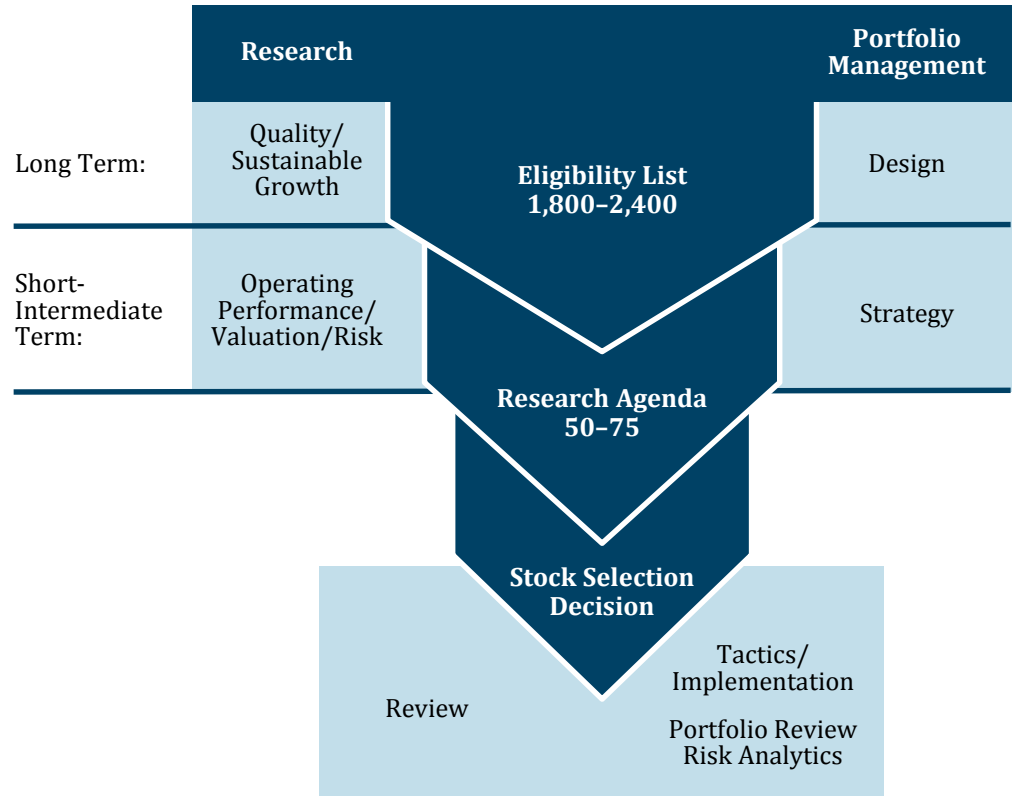
# Investment Process: Integrated and Inclusive

## Integrated

Each element of the process is directed toward portfolio characteristics and performance objectives

## Inclusive

Members of the investment team work in concert toward research conclusions and portfolio decisions



# Portfolio Design: International Growth

March 31, 2018

**Benchmark:**

MSCI ACWI ex-US IMI Index

**Position Size:**

Dependent on market cap, float, trading volume, price volatility, and fundamental risk/reward

**Range:**

0.15-4.00% at initial purchase

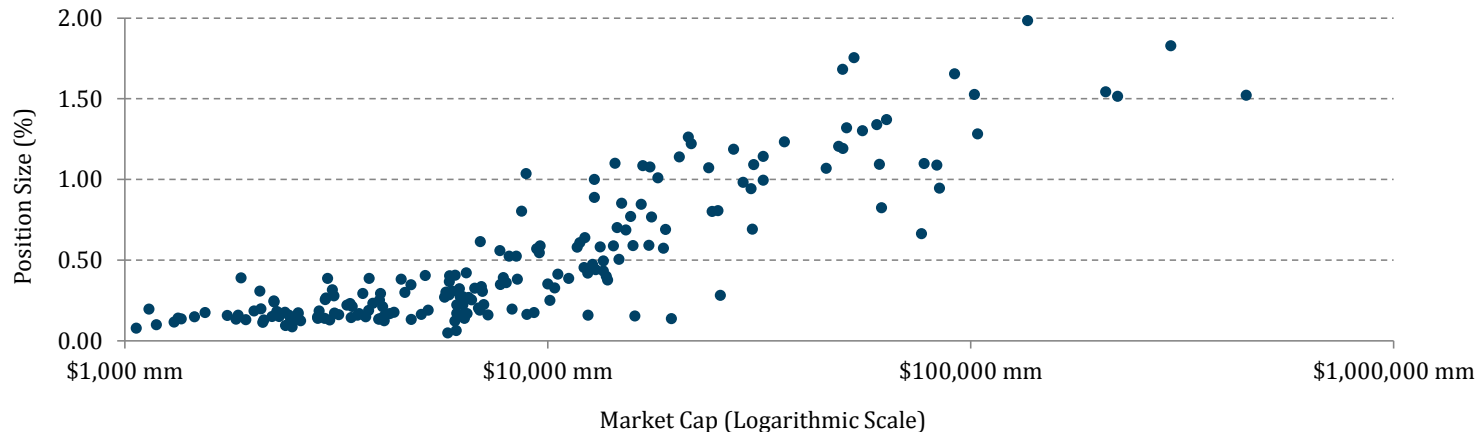
**Number of holdings:**

180-240

Geographic Exposure	
Region	Range
Pacific ex-Japan	0-15%
Japan	5-25%
Europe + ME ex-U.K.	20-50%
United Kingdom	10-30%
Canada	0-15%
Emerging Asia	0-20%
EMEA	0-10%
Latin America	0-15%
Note: Total Emerging Markets	10-35%

Sector Exposure	
Sector	Range
Discretionary	5-25%
Staples	0-20%
Energy	5-20%
Financials	5-35%
Healthcare	5-15%
Industrials	5-25%
IT	0-20%
Materials	0-15%
Real Estate	0-10%
Telecom Services	0-10%
Utilities	0-10%

Capitalization	
Market Cap	Range
Large Cap	20-70%
Mid Cap	25-55%
Small Cap	10-35%



Policy ranges subject to change at any time.

# Fund Characteristics – Institutional International Growth Fund

As of April 30, 2018

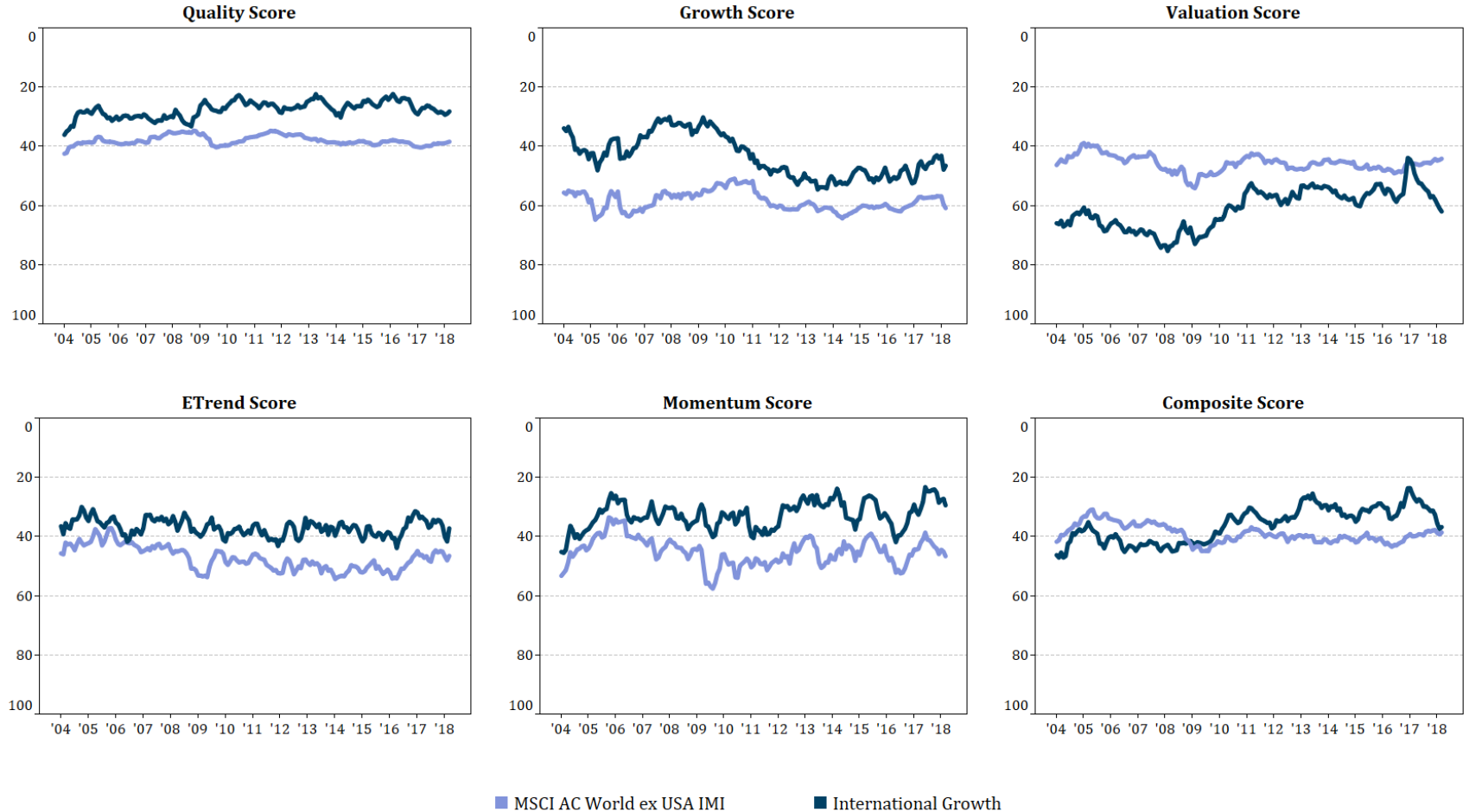
	Institutional International Growth Fund	MSCI AC World ex-US IMI (Net) Index	Difference
<b>Quality</b>			
WB Quality Model (Percentile)	28	38	
Return on Equity (%)	19.6	14.2	37%
Cash Flow ROIC (%)	18.4	14.2	29%
Debt/Equity (%)	68.2	82.9	-18%
<b>Growth</b>			
WB Growth Model (Percentile)	51	59	
Long-Term Growth (%) <sup>1</sup>	16.2	13.1	23%
5-Year Historic EPS Growth (%)	18.0	12.9	39%
Reinvestment Rate (%)	13.9	9.8	41%
<b>Earnings Trend</b>			
WB Earnings Trend Model (Percentile)	38	47	
EPS Est Rev Breadth (%)	1.3	-1.8	3.1
<b>Valuation</b>			
WB Valuation Model (Percentile)	65	45	
P/E (next 12 months)	17.4	14.0	24%
Dividend Yield (%)	1.9	2.9	-34%
<b>Other</b>			
WB Composite Model (Percentile)	38	39	
Float-adj. weighted average market cap (\$m)	43,246	46,339	-7%
Number of Holdings	206	6,183	
Active Share	85.7	--	

1. This measure represents the weighted average of forecasted growth in earnings expected to be experienced by stocks within the portfolio over the next 3-5 years. This projected earnings growth should not be considered an indication of future performance. From a portfolio perspective, the portfolio P/E ratio and EPS Growth Rate are weighted averages of the individual holdings' P/E ratios and EPS Growth Rates.

The index is comparable to the strategy in terms of investment approach but contains significantly more securities. Aggregate scores shown above based on William Blair's quantitative model. For individual and composite ranks, 1 is best and 100 is worst. The benchmark is the Morgan Stanley Capital International (MSCI) All Country World ex-U.S. IMI (Net) Index, which is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets, excluding the United States; however the index contains significantly more securities than the William Blair Portfolio. Not intended as investment advice.

# International Growth Portfolio Characteristics

March 31, 2018



Aggregate scores shown above based on William Blair proprietary quantitative model. For individual and composite ranks, 1 is best and 100 is worst.

# Portfolio Analytics and Performance

*Photos courtesy of Alaina Anderson and D.J. Neiman*



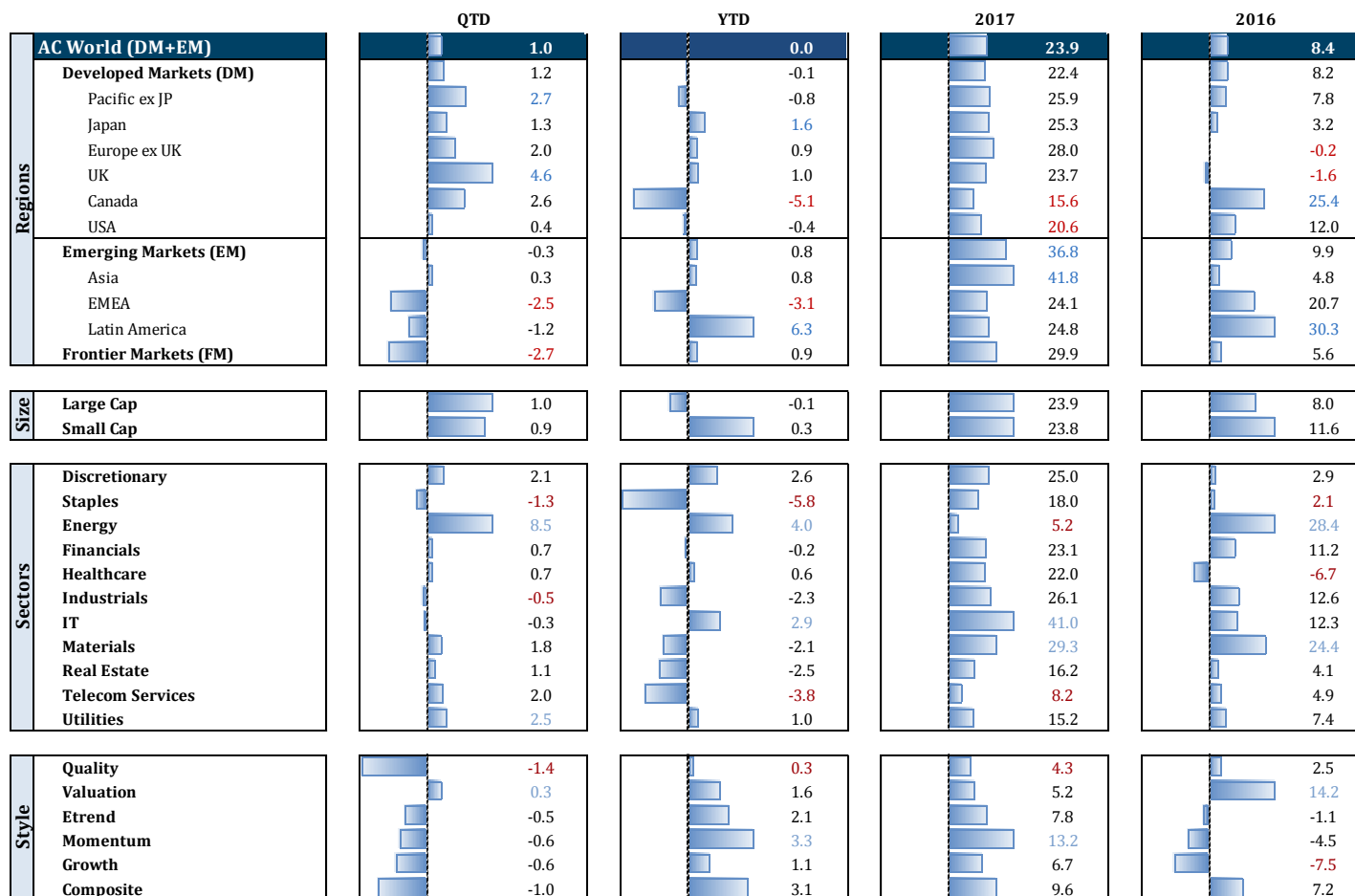
*Barcelona*



*Tokyo*

# Market Performance – Global Markets

April 30, 2018



Regional performance is based on IMI region/country indexes. Sector and style values are based on the MSCI ACWI IMI Index. Size values are based on the MSCI ACWI Index. Style values reflect the Quintile 1 minus Quintile 5 spread of William Blair's proprietary quantitative models. Sectors are based on Global Industry Classification (GICS) sectors. Large Cap and Small Cap based on MSCI Global Investable Market Index Methodology. Data in blue reflects the top 20% (highest) values by region, country, sector, and style. Data in red reflects the bottom 20% (lowest) values by region, country, sector, and style.

Past returns are no guarantee of future performance. A direct investment in an unmanaged index is not possible. The Morgan Stanley Capital International (MSCI) All Country World IMI Index is an unmanaged index that includes developed markets and emerging markets. Calculated in FactSet. All index returns are net of dividends.

# Performance Summary

For periods ending April 30, 2018

The table below shows the Institutional International Growth Fund's performance in comparison to its benchmark, the MSCI AC World ex-US IMI Index (net).

Performance (%)	YTD	1 Year	Annualized			
			3 Year	5 Years	10 Years	Since Inception <sup>1</sup>
<b>Institutional International Growth Fund</b>	<b>0.44</b>	<b>17.73</b>	<b>5.07</b>	<b>6.38</b>	<b>3.21</b>	<b>7.99</b>
MSCI AC World ex-US IMI Index (net)	0.45	16.27	5.50	5.83	2.64	7.76

Calendar Year Performance (%)	2017	2016	2015	2014	2013	2012	2011
<b>Institutional Int'l. Growth Fund</b>	<b>29.53</b>	<b>-2.40</b>	<b>0.09</b>	<b>-2.66</b>	<b>18.90</b>	<b>24.11</b>	<b>-13.66</b>
MSCI AC World ex-US IMI Index (net)	27.81	4.41	-4.60	-3.89	15.82	17.04	-14.31

Calendar Year Performance (%)	2010	2009	2008	2007	2006	2005	2004	2003 <sup>1</sup>
<b>Institutional Int'l. Growth Fund</b>	<b>20.10</b>	<b>42.83</b>	<b>-51.99</b>	<b>18.49</b>	<b>23.45</b>	<b>22.76</b>	<b>18.15</b>	<b>11.76</b>
MSCI AC World ex-US IMI Index (net)	12.73	43.60	-45.99	16.13	26.51	17.68	21.93	13.43

1. City of Fort Pierce Inception Date: 10/2/2003.

Institutional International Growth Fund Expense Ratio (no expense cap in place):

Gross

0.98%

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The Morgan Stanley Capital International (MSCI) AC World ex-U.S. IMI Index (net) is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets, excluding the United States. This series approximates the minimum possible dividend reinvestment. An index is unmanaged, does not incur fees or expenses, and cannot be invested in directly

# City of Fort Pierce Retirement and Benefit System Portfolio

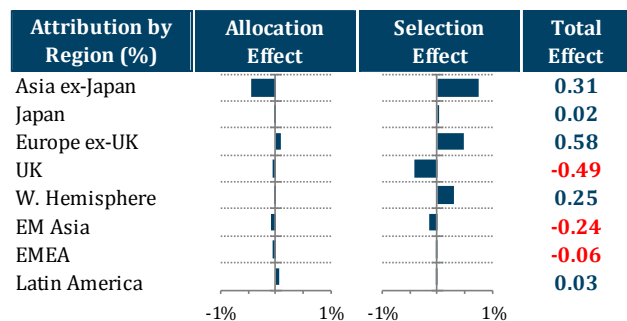
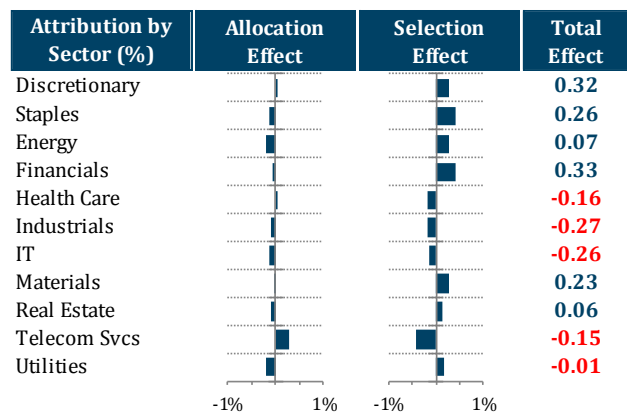
As of April 30, 2018

Original Investment (10/2/2003)	\$10,392,820
+ Contributions	\$0
- Withdrawals	-\$14,727,816
- (Investment Management Fees & Other Expenses <sup>1</sup> )	-\$1,844,476
+ Dividend Income and Capital Gain Distribution	\$9,599,059
+/- Market Appreciation/(Depreciation)	\$11,471,492
<b>Market Value</b>	<b>\$14,891,079</b>

1. The investment management fee and other expenses are estimates.

# Performance Attribution Year-to-Date – Institutional International Growth Fund

As of April 30, 2018



Top Five Contributors (%)			
Security	Sector	Country	Contribution to Relative Return
Kering SA	Discretionary	France	0.24
TOTAL SA	Energy	France	0.20
Itau Unibanco Holding SA	Financials	Brazil	0.19
Nintendo Co Ltd	IT	Japan	0.15
adidas AG	Discretionary	Germany	0.14

Top Five Detractors (%)			
Security	Sector	Country	Contribution to Relative Return
Novo Nordisk A/S	Health Care	Denmark	-0.17
Canadian National Railway Co	Industrials	Canada	-0.15
Mitsubishi UFJ Financial Group	Financials	Japan	-0.14
Micro Focus International PLC	IT	United Kingdom	-0.12
Lonza Group AG	Health Care	Switzerland	-0.11

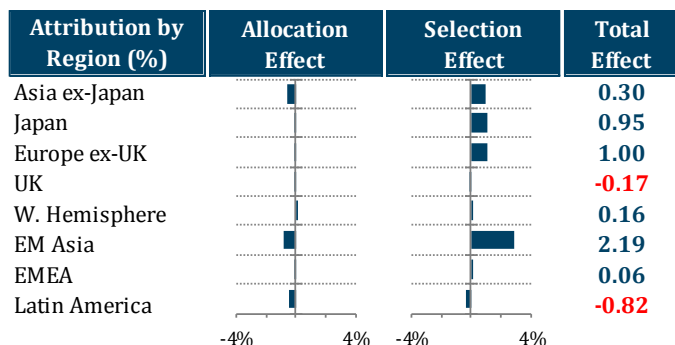
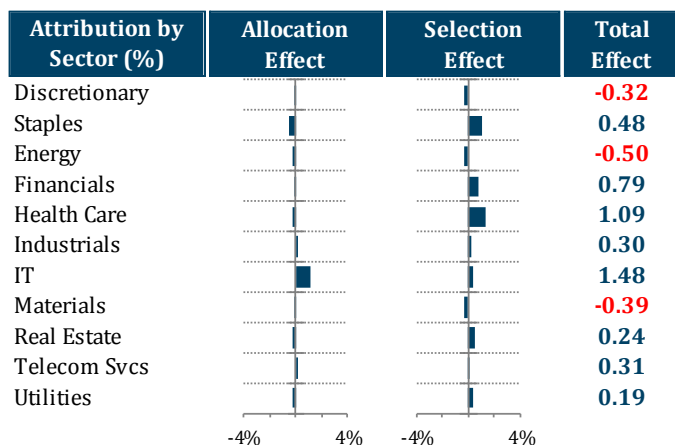
**Performance cited represents past performance. Past performance does not guarantee future results and current performance may be lower or higher than the data quoted. Results shown assume reinvestment of dividends and capital gains. Investment returns and principal will fluctuate with market and economic conditions and you may have again or loss when you sell shares. For the most current month-end performance information, please call 1-800-742-7272, or visit our Web site at [www.williamblairfunds.com](http://www.williamblairfunds.com).**

Attribution by segment is based on estimated returns of equities held within the segments listed. All stocks held during a measurement period, including purchases and sales, are included. Cash is not allocated among segments. Calculations are for attribution analysis only and are not intended to represent simulated performance history. The actual returns may be higher or lower. We calculate attribution using Opturo. Opturo runs transactions-based attribution, taking into account all trading activity. Interaction effect is reallocated into Allocation effect. Sectors based on Global Industry Classification Sectors (GICS). Individual securities listed in this report are for informational purposes only. Holdings are subject to change at any time. This information does not constitute, and should not be construed as, investment advice or recommendations with respect to the securities listed.

International investing involves special risk considerations, including currency fluctuations, lower liquidity, economic and political risk. The benchmark is the Morgan Stanley Capital International (MSCI) All Country World ex-U.S. IMI (Net) Index, which is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets, excluding the United States; however the index contains significantly more securities than the William Blair Portfolio. It is not possible to directly invest in an unmanaged index.

# Performance Attribution 2017 – Institutional International Growth Fund

## As of December 31, 2017



Top Five Contributors (%)			
Security	Sector	Country	Contribution to Relative Return
Ping An Insurance Group Co of	Financials	China	1.02
Alibaba Group Holding Ltd	IT	China	0.38
Lonza Group AG	Health Care	Switzerland	0.32
Amadeus IT Group SA	IT	Spain	0.29
Maruti Suzuki India Ltd	Discretionary	India	0.27

Top Five Detractors (%)			
Security	Sector	Country	Contribution to Relative Return
Petroleo Brasileiro SA	Energy	Brazil	-0.30
Royal Dutch Shell PLC	Energy	Netherlands	-0.22
BNP Paribas SA	Financials	France	-0.22
Subaru Corp	Discretionary	Japan	-0.21
TechnipFMC PLC	Energy	United Kingdom	-0.18

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# International Growth Strategy Performance in Various Environments

## Arithmetic Avg Quarterly Return (%)

		<u>Portfolio (Gross)</u>	<u>Benchmark</u>	
All Quarters (4Q96 - 1Q18)		3.0	1.8	
<i>Quarters in which:</i>	<i>Outperformance</i>			
Index Rose	✓	8.9	7.5	(53/86 Qs)
Index Declined	✓	-6.5	-7.4	(32/86 Qs)
MSCI Growth (Net) Outperformed	✓	4.0	2.0	(44/86 Qs)
MSCI Value(Net) Outperformed	✓	2.0	1.6	(42/86 Qs)
MSCI Small Cap (Net) Outperformed	✓	4.7	3.5	(47/86 Qs)
MSCI EAFE (Net) Outperformed	✓	-1.5	-2.1	(36/86 Qs)
MSCI EM IMI (Net) Outperformed	✓	6.3	4.8	(47/86 Qs)

Consistent outperformance in a variety of market environments. Annualized return (gross) of 10.25% vs. 5.40% for the benchmark since we began managing international equity in house (October 1, 1996).

Composite Inception is December 1, 1992. Data above reflects since inception of the strategy's current management style. At this time, changes were made to the portfolio management team and the way the philosophy was implemented. Actual composite inception precedes this date. This information is supplemental to the composite disclosure slide located in the appendix.

**Past performance is not indicative of future returns.** 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 All Country World Ex US 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 developed and emerging markets, excluding the US. Prior to 1995, the MSCI All Country World Ex US Index preceded the current benchmark as returns are unavailable back to composite inception for the current benchmark. International investing involves special risk considerations, including currency fluctuations, lower liquidity, economic and political risk. Based on data from the William Blair International Growth Fund, which is closed to new investors. Calculations are for attribution analysis only and are not intended to represent simulated performance history. Regional attribution is based on estimated US\$ price-only returns of equities held within regions for the period Q4 1996 to Q3 2003. Beginning Q3 2003, the returns represent the estimated total equity-only returns of securities held within regions. All stocks held during a measurement period, including purchases and sales, are included. Cash is not allocated among regions and all returns are exclusive of cash. A rounding discrepancy may occur when calculating backup data. Please see composite disclosure in appendix for a complete description of the composite.

# International Growth Strategy

## Performance analysis by geography

Oct 1 96 to Mar 31 18	Portfolio (Gross)	Index
<b>United Kingdom</b>		
Cumulative	703.6%	269.5%
Annualized	10.2%	6.3%
<b>Europe + ME ex-UK</b>		
Cumulative	924.0%	313.5%
Annualized	11.4%	6.8%
<b>Japan</b>		
Cumulative	285.3%	55.2%
Annualized	6.5%	2.1%
<b>Pacific ex-Japan</b>		
Cumulative	513.4%	335.7%
Annualized	8.8%	7.1%
<b>Canada</b>		
Cumulative	1083.1%	424.4%
Annualized	12.2%	8.0%

Composite Inception is December 1, 1992. Data above reflects since inception of the strategy's current management style. At this time, changes were made to the portfolio management team and the way the philosophy was implemented. Actual composite inception precedes this date. This information is supplemental to the composite disclosure slide located in the appendix.

**Past performance is not indicative of future returns.** 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 All Country World Ex US 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 developed and emerging markets, excluding the US. Prior to 1995, the MSCI All Country World Ex US Index preceded the current benchmark as returns are unavailable back to composite inception for the current benchmark. International investing involves special risk considerations, including currency fluctuations, lower liquidity, economic and political risk. Based on data from the William Blair International Growth Fund. Calculations are for attribution analysis only and are not intended to represent simulated performance history. All stocks held during the measurement period, including purchases and sales, are included. Cash is not allocated among regions and all returns are exclusive of cash. (1) MSCI UK IMI (net), (2) MSCI Europe ex UK IMI (net), (3) MSCI Japan IMI (net), (4) MSCI Pacific ex-Japan IMI (net), and (5) MSCI Canada IMI (net). This information may be supplied as a supplement to the International Developed Plus composite performance. A rounding discrepancy may occur when calculating backup data. Please see composite disclosure in appendix for a complete description of the composite.

# International Growth Strategy

## Performance analysis by subsector

Oct 1 96 to Mar 31 18	Portfolio	Index
<b>Developed Large/Mid Cap<sup>1</sup></b>		
Cumulative	637.7%	183.2%
Annualized	9.7%	5.0%
<b>Developed Small Cap<sup>2</sup></b>		
Cumulative	1009.6%	290.6%
Annualized	11.8%	6.5%
<b>Emerging Markets<sup>3</sup></b>		
Cumulative	1145.7%	212.5%
Annualized	12.5%	5.4%

Composite Inception is December 1, 1992. Data above reflects since inception of the strategy's current management style. At this time, changes were made to the portfolio management team and the way the philosophy was implemented. Actual composite inception precedes this date. This information is supplemental to the composite disclosure slide located in the appendix.

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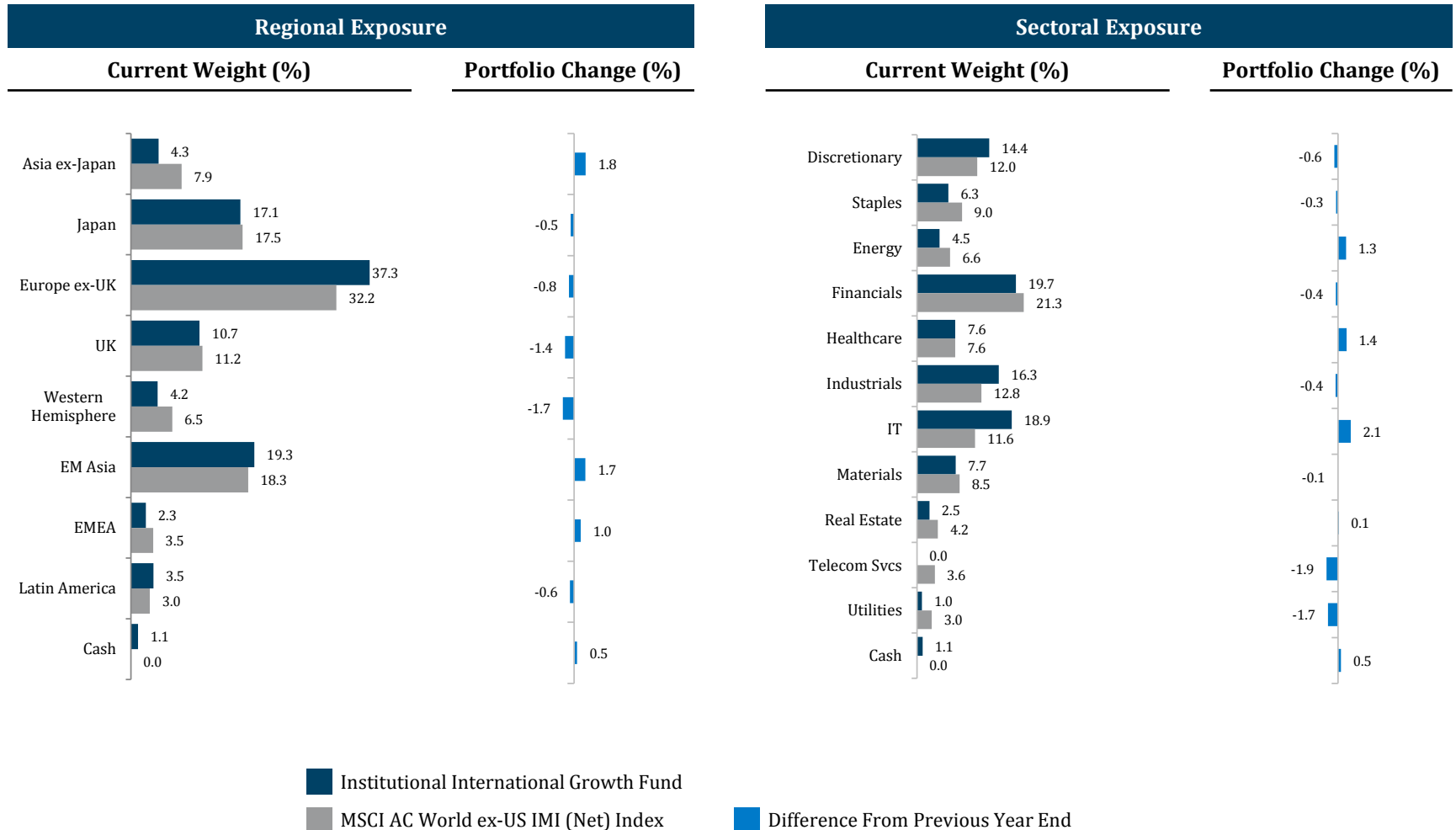
# Positioning and Strategy

*Photos courtesy of Ken McAtamney, Drew Buckley, Joel Gomberg, Andy Flynn and Jack Murphy*



# Fund Characteristics – Institutional International Growth Fund

## As of April 30, 2018



Cash incorporates cash equivalents and accruals. Region and sector distribution calculated in Eagle based on Global Industry Classification (GICS) Sectors. The Morgan Stanley Capital International (MSCI) All Country World ex-U.S. IMI (Net) Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets, excluding the United States; however the index contains significantly more securities than the William Blair Portfolio. Not intended as investment advice.

# Holdings: Institutional International Growth Fund

March 31, 2018

	Portfolio Weight		Portfolio Weight		Portfolio Weight
<b>Pacific Ex Japan</b>	<b>3.18</b>	<b>Japan (continued)</b>		<b>Europe+ME Ex UK (continued)</b>	
<b>Australia</b>	<b>0.35</b>	<b>Japan (continued)</b>		<b>France (continued)</b>	
Aristocrat Leisure Ltd	0.35	Asahi Intecc Co Ltd	0.29	Vinci SA	1.19
<b>Hong Kong</b>	<b>2.78</b>	Tis Inc	0.28	Bnp Paribas	1.09
Aia Group Ltd	1.52	Nomura Research Institute Lt	0.27	Arkema	1.03
Galaxy Entertainment Group L	1.26	Taisei Corp	0.25	Thales SA	0.89
<b>Singapore</b>	<b>0.05</b>	Ulvac Inc	0.25	Michelin (Cgde)	0.81
Venture Corp Ltd	0.05	Renasas Electronics Corp	0.20	Valeo SA	0.77
<b>Japan</b>	<b>18.81</b>	Zenkoku Hoshu Co Ltd	0.20	Dassault Systemes SA	0.76
<b>Japan</b>	<b>18.81</b>	Minebea Mitsumi Inc	0.19	Hermes International	0.57
Keyence Corp	1.34	Tsuruha Holdings Inc	0.19	Orpea	0.30
Nintendo Co Ltd	1.32	Topcon Corp	0.18	Ipsen	0.28
Fanuc Corp	1.20	Nabtesco Corp	0.18	Rubis	0.22
Daikin Industries Ltd	1.18	Sankyu Inc	0.17	Plastic Omnium	0.15
Asahi Group Holdings Ltd	1.14	Start Today Co Ltd	0.16	Nexity	0.14
Mitsubishi Ufj Financial Gro	1.09	Izumi Co Ltd	0.16	<b>Germany</b>	<b>5.53</b>
Komatsu Ltd	1.09	Nichias Corp	0.15	Vonovia Se	1.07
Asahi Kasei Corp	0.84	Japan Lifeline Co Ltd	0.13	Adidas AG	1.07
Sony Corp	0.82	Hoshizaki Corp	0.13	Infineon Technologies AG	0.94
Shiseido Co Ltd	0.80	Suruga Bank Ltd	0.09	Mtu Aero Engines AG	0.80
Nitori Holdings Co Ltd	0.59	<b>Europe+ME Ex UK</b>	<b>37.10</b>	Covestro AG	0.59
Koito Manufacturing Co Ltd	0.56	<b>Belgium</b>	<b>1.22</b>	Wirecard AG	0.38
Kose Corp	0.42	Kbc Group NV	1.22	Kion Group AG	0.25
Otsuka Corp	0.40	<b>Denmark</b>	<b>3.55</b>	Fuchs Petrolub Se -Pref	0.19
Toray Industries Inc	0.40	Novo Nordisk A/S-B	1.65	Carl Zeiss Meditec Ag - Br	0.17
Omron Corp	0.39	Dsv A/S	1.10	Washtec AG	0.08
Pola Orbis Holdings Inc	0.39	Orsted A/S	0.64	<b>Ireland</b>	<b>1.23</b>
Nihon M&A Center Inc	0.38	Genmab A/S	0.16	Smurfit Kappa Group PLC	0.59
Misumi Group Inc	0.35	<b>France</b>	<b>11.42</b>	Icon PLC	0.32
Shimadzu Corp	0.33	Total SA	1.98	Kingspan Group PLC	0.17
Technopro Holdings Inc	0.31	Kering	1.23	Kerry Group Plc-A	0.15

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# Holdings: Institutional International Growth Fund

March 31, 2018

	Portfolio Weight		Portfolio Weight		Portfolio Weight
<b>Europe+ME Ex UK (continued)</b>		<b>Europe+ME Ex UK (continued)</b>		<b>UK (continued)</b>	
<b>Israel</b>	<b>0.30</b>	<b>Sweden (continued)</b>		<b>United Kingdom (continued)</b>	
Frutarom	0.16	Boliden AB	0.55	Melrose Industries PLC	0.27
Wix.Com Ltd	0.14	Alfa Laval AB	0.19	Kindred Group PLC	0.25
<b>Italy</b>	<b>2.26</b>	Intrum Justitia AB	0.15	Intermediate Capital Group	0.25
Ferrari NV	0.50	Fabege AB	0.15	Fevertree Drinks PLC	0.23
Banca Generali Spa	0.39	Husqvarna Ab-B Shs	0.13	Dechra Pharmaceuticals PLC	0.21
Finecobank Spa	0.35	<b>Switzerland</b>	<b>4.06</b>	Jupiter Fund Management	0.18
Recordati Spa	0.23	Glencore PLC	1.09	Renishaw PLC	0.18
Moncler Spa	0.22	Lonza Group Ag-Reg	1.08	Beazley PLC	0.17
Interpump Group Spa	0.18	Partners Group Holding AG	1.00	Easyjet PLC	0.17
Brembo Spa	0.15	Logitech International-Reg	0.27	Halma PLC	0.16
Anima Holding Spa	0.13	Straumann Holding Ag-Reg	0.27	Abcam PLC	0.16
Technogym Spa	0.10	Cembra Money Bank AG	0.14	Greggs PLC	0.16
Anima Holding Spa- Rts	0.01	Dormakaba Holding AG	0.12	Metro Bank PLC	0.15
<b>Luxembourg</b>	<b>0.93</b>	Belimo Holding Ag-Reg	0.09	Synthomer PLC	0.13
Tenaris SA	0.52	<b>UK</b>	<b>9.72</b>	Close Brothers Group PLC	0.13
Eurofins Scientific	0.41	<b>United Kingdom</b>	<b>9.72</b>	Micro Focus International	0.12
<b>Netherlands</b>	<b>1.66</b>	Compass Group PLC	1.14	<b>W Hemisphere</b>	<b>4.04</b>
Wolters Kluwer	0.85	Diageo PLC	0.94	<b>Canada</b>	<b>4.04</b>
Asml Holding NV	0.66	Carnival PLC	0.61	Suncor Energy Inc	1.30
Euronext NV	0.15	3i Group PLC	0.58	Toronto-Dominion Bank	1.28
<b>Norway</b>	<b>0.39</b>	Croda International PLC	0.52	Shopify Inc - Class A	0.45
Norsk Hydro Asa	0.39	Ashtead Group PLC	0.49	Dollarama Inc	0.44
<b>Spain</b>	<b>1.73</b>	Intertek Group PLC	0.41	Constellation Software Inc	0.43
Amadeus It Group SA	0.99	Hiscox Ltd	0.40	Finning International Inc	0.13
Bankinter SA	0.61	Wh Smith PLC	0.39	<b>EM Asia</b>	<b>19.11</b>
Prosegur Comp Seguridad	0.13	Segro PLC	0.38	<b>China</b>	<b>9.63</b>
<b>Sweden</b>	<b>2.84</b>	Victrex PLC	0.31	Tencent Holdings Ltd	1.83
Atlas Copco Ab-A Shs	0.98	Spirax-Sarco Engineering PLC	0.31	Ping An Insurance Group Co-H	1.75
Hexagon Ab-B Shs	0.69	Rentokil Initial PLC	0.31	Alibaba Group Holding-Sp Adr	1.52

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# Holdings: Institutional International Growth Fund

March 31, 2018

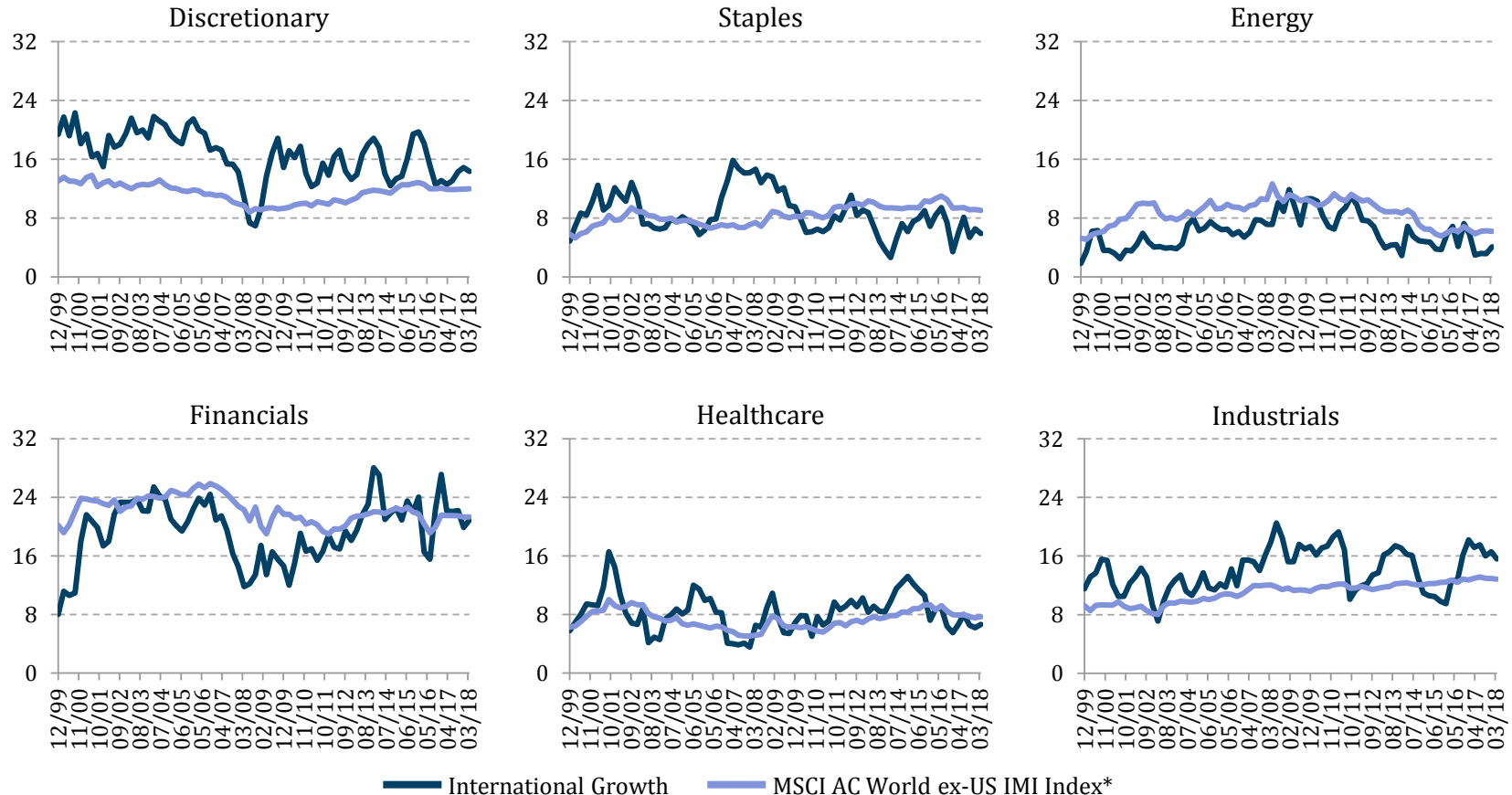
	Portfolio Weight		Portfolio Weight		Portfolio Weight
<b>EM Asia (continued)</b>		<b>EM Asia (continued)</b>		<b>Latin America</b>	<b>3.70</b>
<b>China (continued)</b>		<b>South Korea</b>	<b>1.98</b>	<b>Argentina</b>	<b>0.17</b>
Ind & Comm Bk Of China-H	1.37	Samsung Electronics Co Ltd	1.51	Grupo Financiero Galicia-Adr	0.17
China Overseas Land & Invest	0.58	Samsung Sdi Co Ltd	0.33	<b>Brazil</b>	<b>2.12</b>
China Mengniu Dairy Co	0.57	Hugel Inc	0.14	Itau Unibanco Holding S-Pref	1.69
Cspc Pharmaceutical Group Lt	0.42	<b>Taiwan</b>	<b>2.13</b>	Via Varejo SA	0.20
Anhui Conch Cement Co Ltd-H	0.32	Taiwan Semiconductor-Sp Adr	1.54	M Dias Branco SA	0.18
Weibo Corp-Spon Adr	0.28	Mediatek Inc	0.59	Bb Seguridade Participacoes	0.06
Sina Corp	0.22	<b>Thailand</b>	<b>0.25</b>	<b>Mexico</b>	<b>0.39</b>
Wuxi Biologics Cayman Inc	0.22	Ptt Global Chemical Pcl-For	0.25	Arca Continental Sab De Cv	0.27
Tingyi (Cayman Isln) Hldg Co	0.21	<b>EMEA</b>	<b>2.70</b>	Infraestructura Energetica N	0.12
3sbio Inc	0.18	<b>Georgia</b>	<b>0.16</b>	<b>Peru</b>	<b>1.01</b>
China Lodging Group-Spon Adr	0.16	Bgeo Group PLC	0.16	Credicorp Ltd	1.01
<b>India</b>	<b>4.04</b>	<b>Hungary</b>	<b>0.29</b>	<b>Cash</b>	<b>1.64</b>
Maruti Suzuki India Ltd	0.70	Mol Hungarian Oil And Gas Pl	0.29	<b>Total</b>	<b>100.00</b>
Infosys Ltd	0.69	<b>Russia</b>	<b>0.59</b>		
Hdfc Bank Limited	0.61	Yandex Nv-A	0.48		
Yes Bank Ltd	0.36	Globaltra-Spons Gdr Reg S	0.11		
Indusind Bank Ltd	0.33	<b>South Africa</b>	<b>1.65</b>		
Voltas Ltd	0.26	Firststrand Ltd	0.69		
Britannia Industries Ltd	0.24	Mr Price Group Ltd	0.37		
Motherson Sumi Systems Ltd	0.17	Rmb Holdings Ltd	0.30		
Indiabulls Housing Finance L	0.17	Bid Corp Ltd	0.16		
Makemytrip Ltd	0.14	Bidvest Group Ltd	0.14		
Hindustan Zinc Ltd	0.14				
Adani Ports And Special Econ	0.12				
Bharat Electronics Ltd	0.12				
<b>Indonesia</b>	<b>1.08</b>				
Bank Central Asia Tbk Pt	1.08				

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# Historical International Growth Sector Weightings

March 31, 2018

% of Portfolio



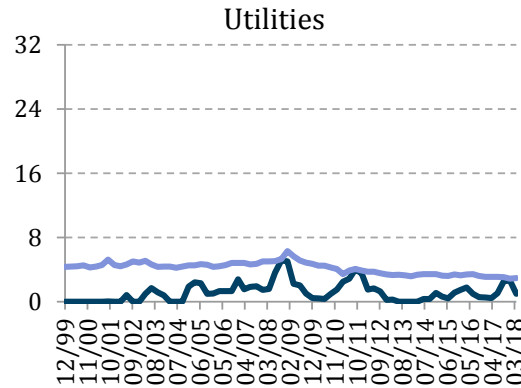
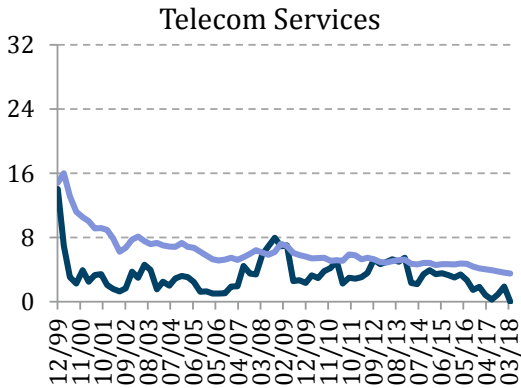
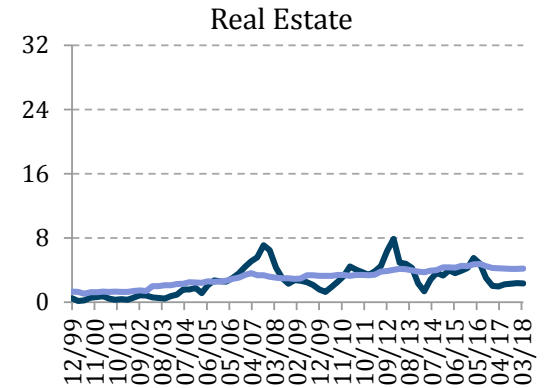
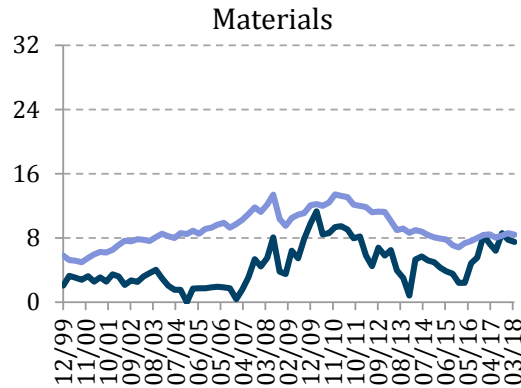
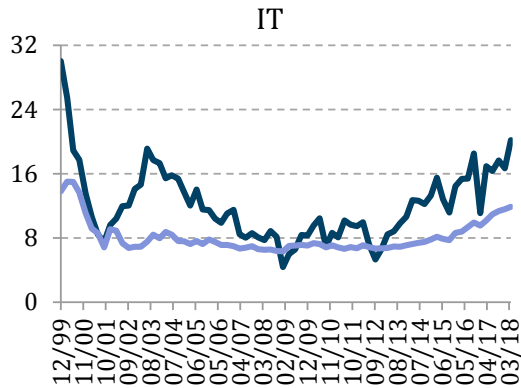
\*Prior to March 31, 2003, benchmark data is taken from the MSCI AC World ex-US Index.

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. Cash incorporates cash equivalents and accruals. Cash is a residual of the stock selection process. Sectors based on GICS (Global Industry Classification Sectors). Calculated in Eagle.

# Historical International Growth Sector Weightings

March 31, 2018

% of Portfolio



— International Growth  
— MSCI AC World ex-US IMI Index\*

\*Prior to March 31, 2003, benchmark data is taken from the MSCI AC World ex-US Index.

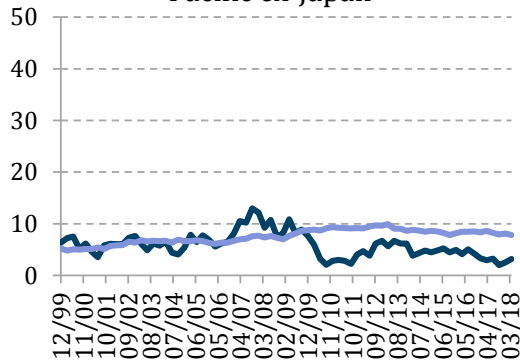
The data shown above is based on the strategy's representative portfolio. The index is comparable to the strategy in terms of investment approach but contains significantly more securities. Cash incorporates cash equivalents and accruals. Cash is a residual of the stock selection process. Sectors based on GICS (Global Industry Classification Sectors). Calculated in Eagle.

# Historical International Growth Regional Weightings

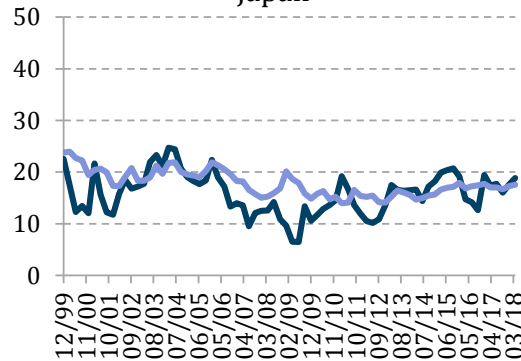
March 31, 2018

## % of Portfolio

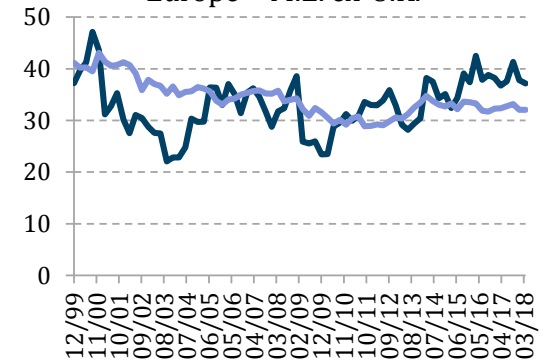
Pacific ex-Japan



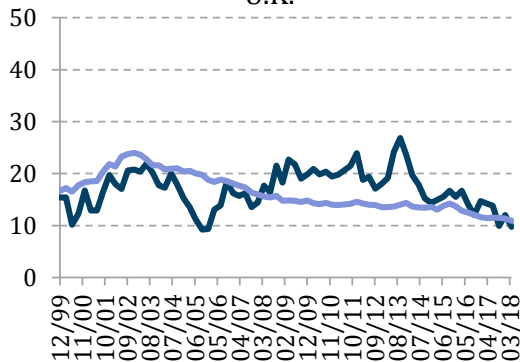
Japan



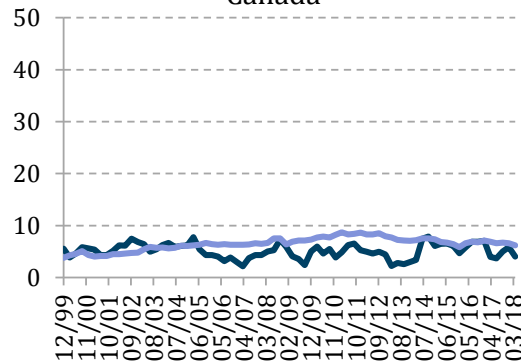
Europe + M.E. ex-U.K.



U.K.



Canada



— International Growth  
— MSCI AC World ex-US IMI Index\*

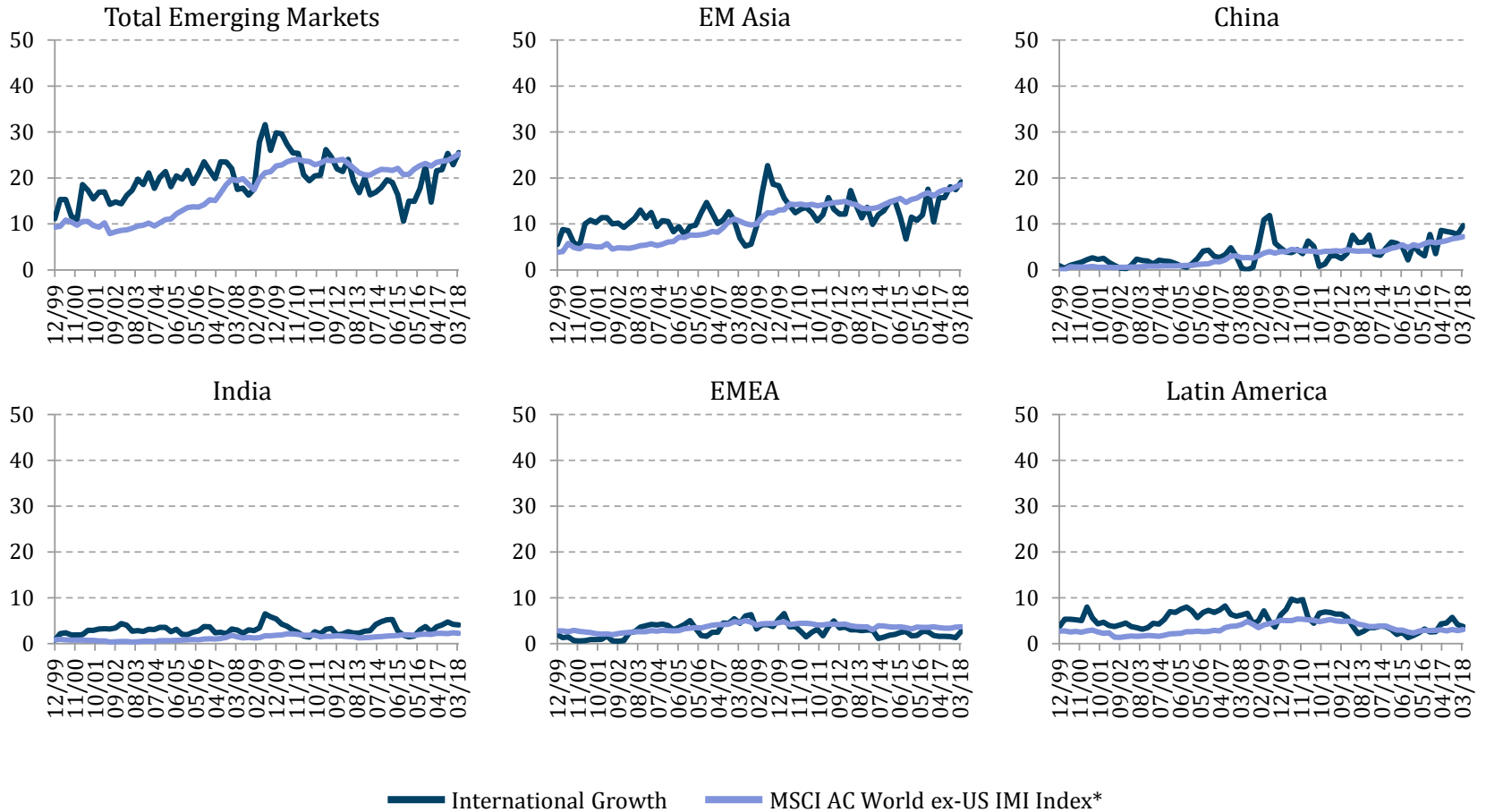
\*Prior to March 31, 2003, benchmark data is taken from the MSCI AC World ex-US Index.

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. Cash incorporates cash equivalents and accruals. Cash is a residual of the stock selection process. Calculated in Eagle.

# Historical International Growth Regional Weightings

March 31, 2018

% of Portfolio



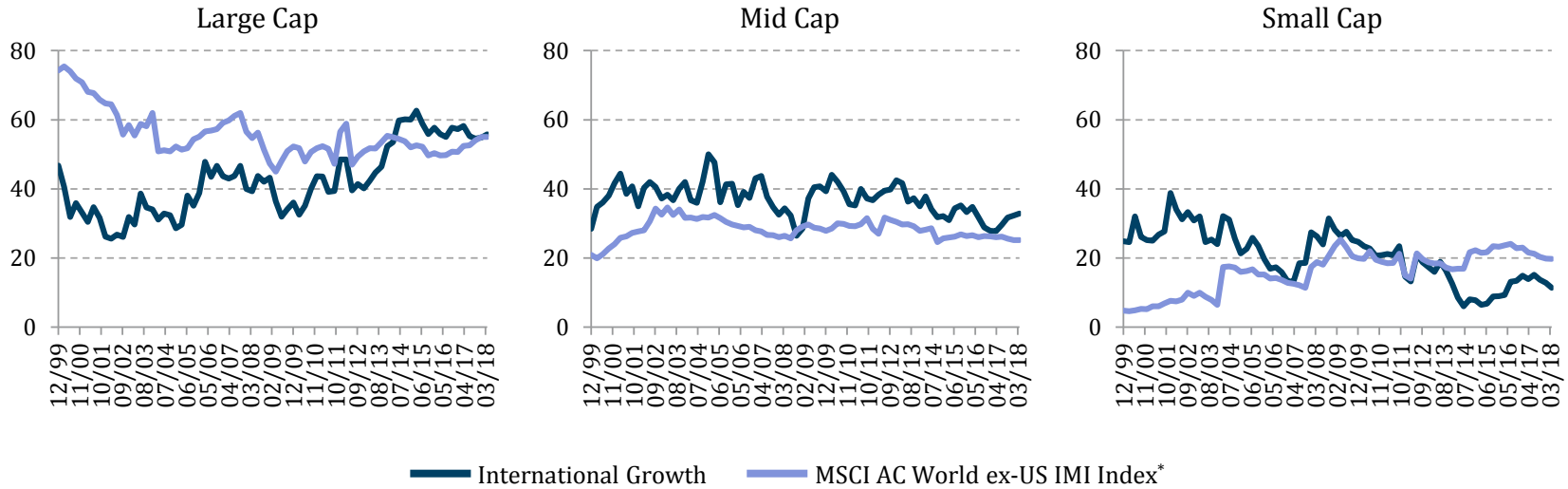
\*Prior to March 31, 2003, benchmark data is taken from the MSCI AC World ex-US Index.

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. Cash incorporates cash equivalents and accruals. Cash is a residual of the stock selection process. Calculated in Eagle.

# Historical International Growth Market Cap Weightings

March 31, 2018

% of Portfolio



\*Prior to March 31, 2003, benchmark data is taken from the MSCI AC World ex-US Index.

Beginning with 3Q 1998, market caps were defined by small, mid, and large caps as \$1.5 billion, \$1.5 billion to \$10 billion, and over \$10 billion, respectively. Beginning with 1Q 2004, these figures were adjusted to \$2 billion, \$2 billion to \$12 billion, and over \$12 billion. Beginning with 4Q 2007, these figures were adjusted to \$3 billion, \$3 billion to \$15 billion, and over \$15 billion. Beginning with 3Q 2014, these figures were adjusted to \$4 billion, \$4 billion to \$15 billion, and over \$15 billion. 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. Cash incorporates cash equivalents and accruals. Cash is a residual of the stock selection process. Calculated in Eagle.

# Market Overview/Strategy

*Photos courtesy of Vivian Thurston and Andrew Siepker*



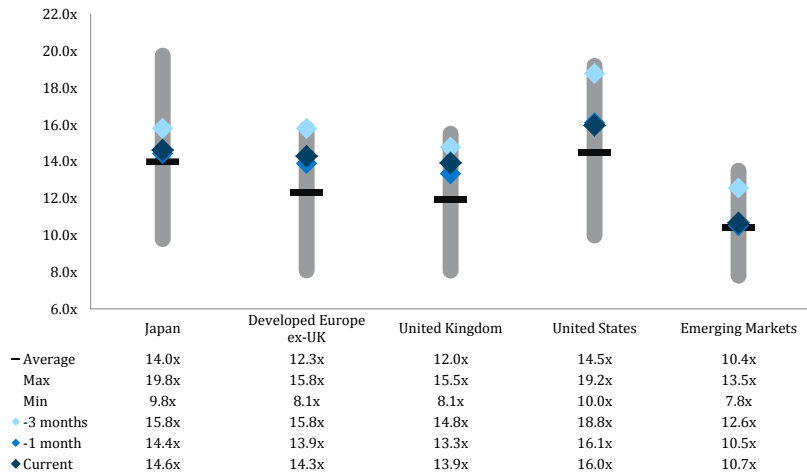
*London*



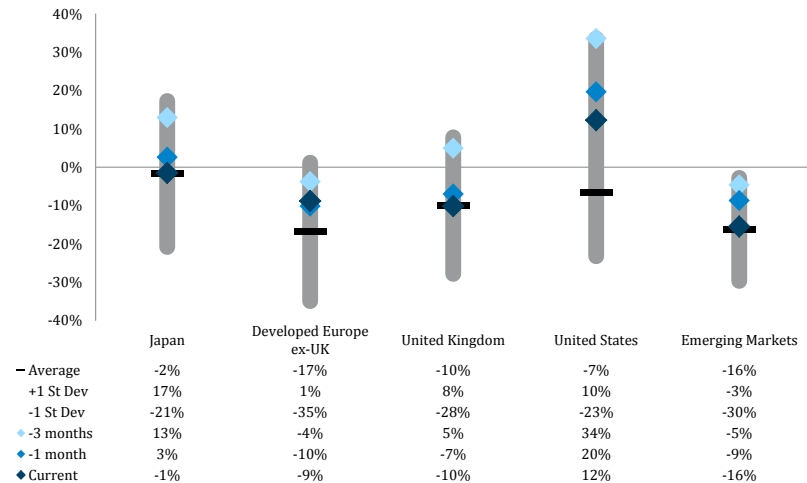
*Mumbai*

# Global Equity Market Environment

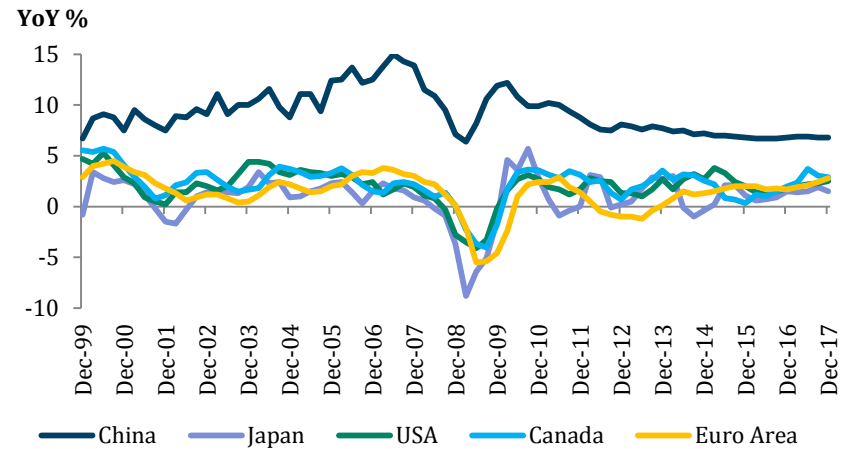
## Regional Valuations FY2 P/E vs 10 Year History



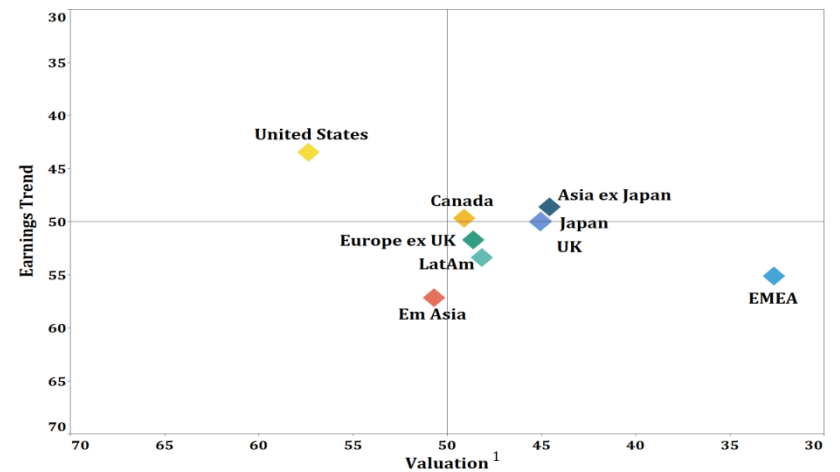
## Regional Earnings Revisions vs 10 Year History



## Real GDP Growth by Region - YoY (%)



## Global Earnings Trend and Valuation Score by Region



<sup>1</sup>Scores based on William Blair Investment Management's proprietary research management & investment process platform. 1 is Best, 100 is Worst. Based on the MSCI AC World IMI. Sectors based on Global Industry Classification Sectors (GICS). Data as of April 2018. Source: Bloomberg, William Blair Quantitative Models, Datastream, FactSet.

# Global Macroeconomic Scorecard

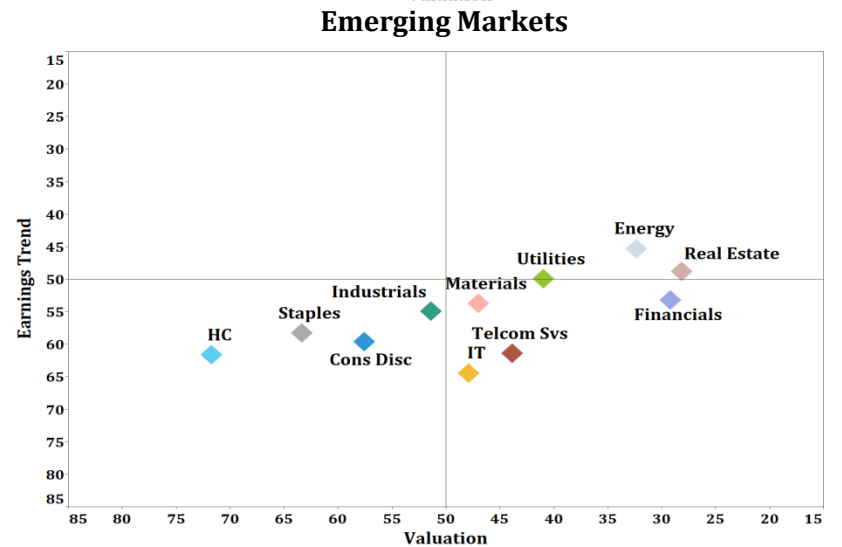
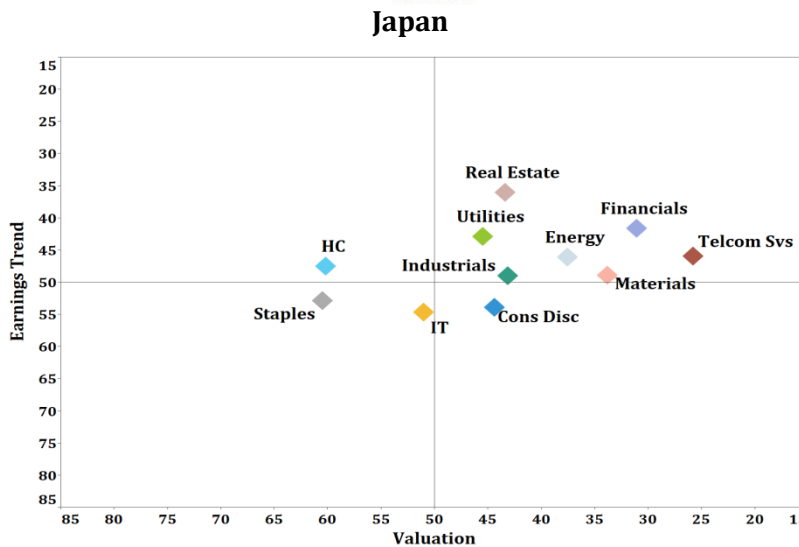
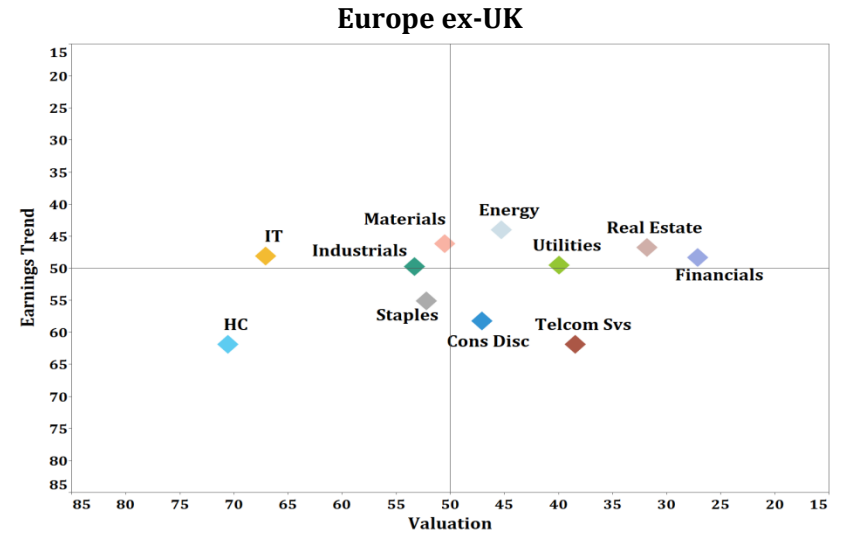
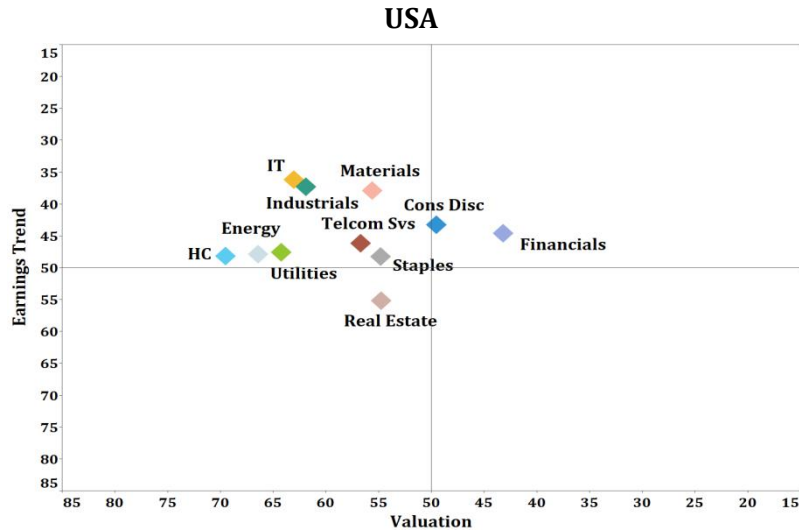
- Growth remains firm, but no longer accelerating
- PMIs in Europe and Japan are at high levels but starting to roll over
- Growth in Emerging Markets is accelerating
- China remains stable
- Continued improvement in Brazil
- Significant deceleration in Mexico
- South African consumer growth improving rapidly

Countries	Supply Side Indicators									Demand Side Indicators					
	IP volume, YoY % change			manufacturing PMIs			m. PMIs: orders - inventories			retail sales volume, YoY % change			autos, mn units, YoY % change		
	latest	1-m Δ	3-m Δ	latest	1-m Δ	3-m Δ	latest	1-m Δ	3-m Δ	latest	1-m Δ	3-m Δ	latest	1-m Δ	3-m Δ
<b>DMs</b>	4.2	0.4	0.8	54.9	-0.8	-1.3	5.5	-0.5	-1.8						
US	3.3	0.3	0.9	55.6	0.3	0.5	5.9	0.1	0.2	2.2	-0.7	-1.0	-1.8	-0.4	-3.5
Euro Area	4.0	-0.2	0.2	56.6	-2.0	-4.0	7.5	-0.6	-3.1	1.8	-0.6	-0.6	5.1	0.0	-0.6
Germany	5.0	-1.1	0.9	58.2	-2.4	-5.1	8.8	-0.6	-4.0	2.1	-0.8	-1.1	6.6	2.2	4.8
UK	1.4	-0.9	-2.0	55.1	0.1	-1.0	6.1	0.0	-2.3	1.4	0.1	0.6	-10.3	0.3	0.6
Japan	2.8	-0.6	-1.1	53.1	-1.0	-1.4	4.6	-1.1	-2.6	1.0	-0.5	0.0	-1.3	1.3	0.1
Korea	-1.4	0.5	-3.5	49.1	-1.2	-0.8	-1.0	-1.4	-2.7	2.7	0.4	-0.9	-7.1	2.0	-15.4
Taiwan	2.1	1.9	-0.2	55.3	-0.7	-1.3	3.9	-0.8	-2.0						
Canada	3.5	-0.6	-0.7	55.7	0.1	1.0	5.0	-0.9	-3.0	3.4	-1.1	-1.9	-0.7	-2.4	-7.8
Australia										0.5	0.0	0.5			
<b>EMs</b>	3.3	-0.4	-0.8	51.3	-0.6	-0.9	2.6	-0.3	-1.4						
Brazil	4.0	-1.0	-0.7	53.4	0.2	1.0	5.3	0.3	-1.8	4.2	-0.7	0.0	13.0	-1.6	-10.3
China	6.7	0.4	0.4	51.0	-0.6	-0.5	1.5	-0.4	-1.3	4.6	-2.0	-3.8	3.3	3.5	0.6
India	7.8	1.9	4.2	51.0	-1.1	-3.7	5.4	-0.2	-3.0				9.0	7.0	5.2
Indonesia	2.1	-2.3	-4.2	50.7	-0.7	1.4	2.7	0.5	1.7	0.5	-1.3	-1.6	1.8	2.9	2.4
Mexico	-0.6	0.2	0.1	52.4	0.8	0.7	0.5	0.4	-0.8	-1.1	0.0	-1.0	-13.4	-2.2	-0.8
Russia	-0.8	0.9	-1.6	50.6	0.4	-1.4				2.6	-0.3	-0.5	20.1	4.7	2.8
S. Africa	2.1	0.1	1.7	51.1	-0.3	2.7				5.2	-0.6	0.3	-5.5	-3.7	-11.4
Thailand				49.1	-1.8	-1.3	0.3	0.1	0.6						
Turkey	11.1	0.5	-1.3	51.8	-3.8	-3.1	6.9	-1.6	-0.8	8.5	1.9	-1.2	-1.5	5.9	-1.1

Improving Growth Weakening Growth

Data as of March 2018.  
Source: Bloomberg, Markit.

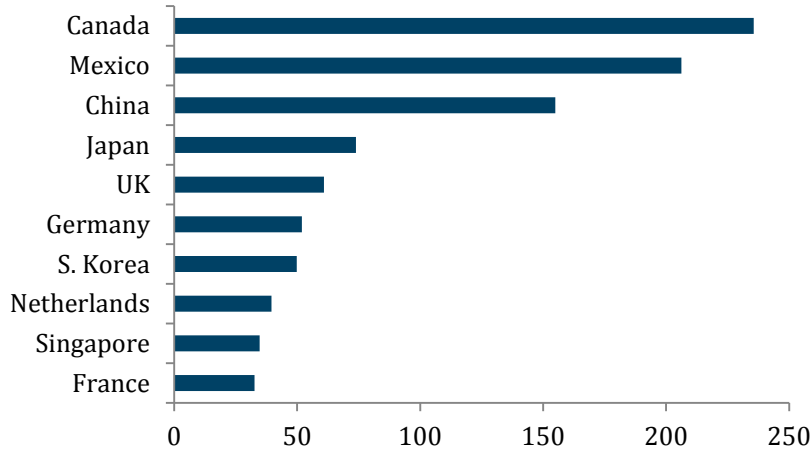
# Strong Earnings Across Developed Markets at Different Valuations



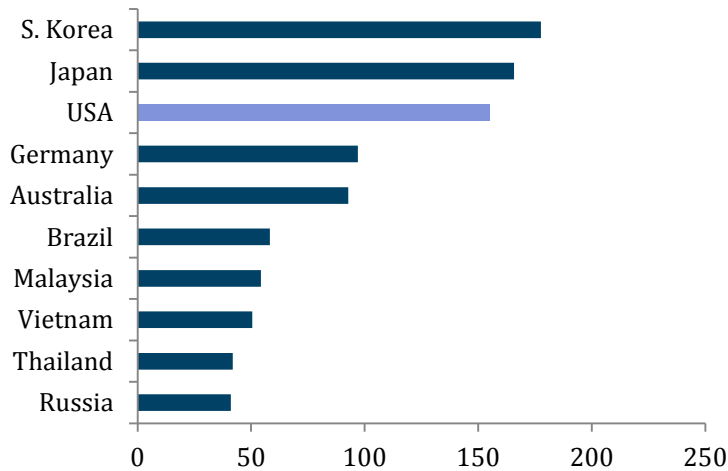
Note: Scores based on William Blair Investment Management's proprietary research management & investment process platform. 1 is Best, 100 is Worst. Based on the MSCI AC World IMI. Sectors based on Global Industry Classification Sectors (GICS). Data as of April 2018. William Blair Quantitative Models, Datastream, FactSet.

# US-China Trade in Context

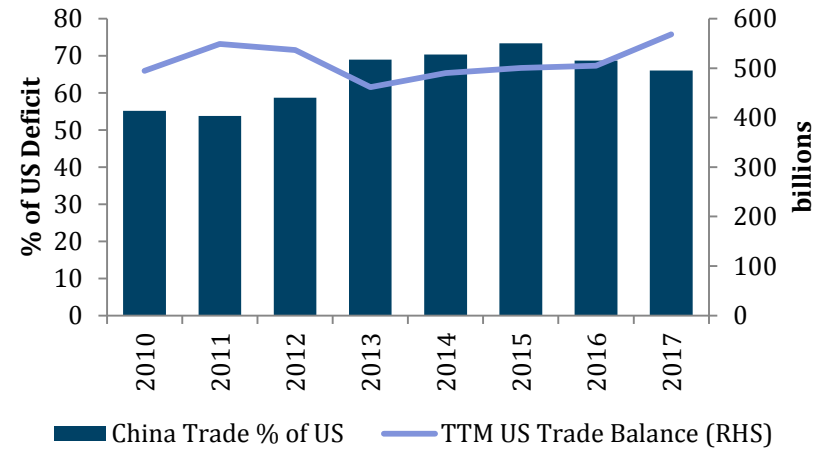
**US Top 10 Export Partners**  
Total Exports - \$1.5 Trillion



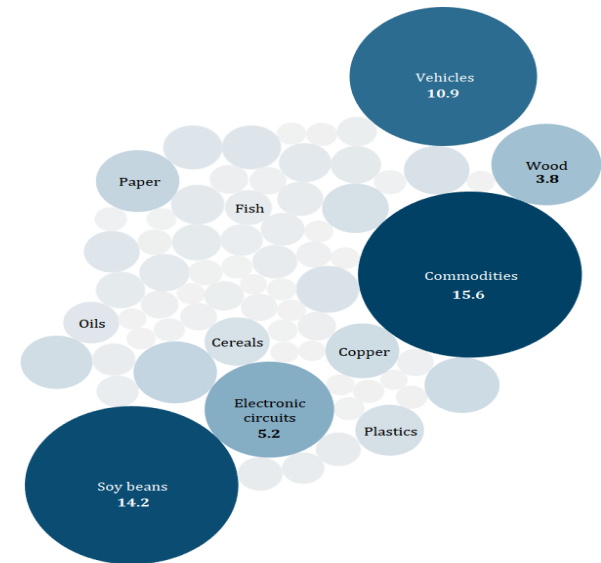
**China Top 10 Import Partners**  
Total Imports - \$1.8 Trillion



**US Trade Deficit**



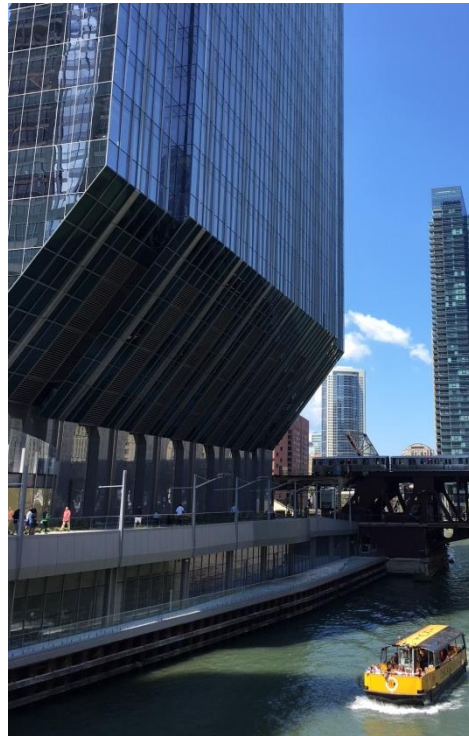
**US Exports to China (bn)**



Data as of February 2018.  
Source: Bloomberg, Observatory of Economic Complexity.

# Appendix

*Photos courtesy of Blake Pontius, Raffaella Lutschg and Tongwei Wu*



*Chicago*



*Sydney*



*Zurich*



# Sample Research Report

## Recommendation Report

ABC Corporation (ABC DC)

Outperform

Vivian Lin Thurston

Date of Recommendation: 4/13/2015

Investment Management Research		Global Quant Scores	
Rating	Outperform	Composite	22
	<i>Leader</i>	Quality	2
Symbol	ABC DC	Valuation	85
Exchange	COPENHAGEN STOCK	Earnings Trend	18
	EXCHANGE	Price Momentum	4
Headquarters	Denmark	Volatility	29
Focus Country	Denmark		
GICS Sector	Consumer Discretionary	[ Scale: 1 = Best   100 = Worst ]	
GICS Industry	Textiles, Apparel & Luxury Goods	Blair LTG Estimate	15.2%

### Investment Conclusion (Last Modified: 10/21/2015)

What is the mix of long term characteristics, current fundamentals and thematic considerations that make the stock attractive? What is the case for sustaining or enhancing fundamental expectations and valuation? Are you currently recommending purchase or anticipating a development that would suggest a better opportunity is likely in the foreseeable future?

### Business Activities and Segment Analysis (Last Modified: 10/21/2015)

Briefly describe the company's primary business units, products or end markets. Frame in terms of clarifying the mix of revenues and profits.

Financial/Trading Data		Estimate Summary		
Price (DKK)	760.00	<b>GAAP</b>	<b>Street</b>	<b>Author</b>
Market Cap (\$ mm)	95,514	LTG (DKK)	21.7	25.0
Mkt Cap Float Adj (\$ mm)	80,890.6	EPS FYA(DKK)	24.70	9.32
YTD % Change	52.8	FY1	34.09	15.97
Shares Outstanding (mm)	122.3	FY2	46.91	20.53
Dividend Yield (%)	1.2	FY3	55.25	23.10
3mo ADT Value (\$ m)	378.80	P/E FYA	30.8	28.7
IM Holdings (USD)		FY1	22.3	16.8
		FY2	16.2	13.0
		FY3	13.8	11.6
		REV FYA(DKK)	11,942	6,652
		FY1	16,160	8,780
		FY2	18,909	9,936
		FY3	21,415	10,927

All report statistics are as of most recent close.

FYA Reported: 12/31/2014

Author Date: 11/25/2013

For illustrative purposes only.

# Sample Research Report

## Recommendation Report

ABC Corporation (ABC DC)

Outperform

Vivian Lin Thurston

Date of Recommendation: 4/13/2015

### Investment Analysis

**Qualitative Assessment: Management / Business Model (Last Modified: 10/21/2015)**

*Quality Model : 2*

Evaluate the company relative to peers, competitors and general corporate standards - How strong is management and how durable is the business model? 1) Rate management on execution, control, strategy, continuity, culture and values, and stakeholder commitment. 2) Assess the strengths of the business model. Does the company have a sustainable competitive advantage? Proprietary products? Dominant or improving market share? Best-in-class cost structure? Unique asset base? 3) Review the company's financial performance - margins, returns, cash flow and balance sheet strength.

**Decomposition of Long Term Growth Outlook (Last Modified: 10/21/2015)**

*Blair LTG Estimate (%) : 15.2*

What is the likely range of earnings growth over the next 3-5 years? What is the composition of growth in terms of organic vs. acquired, price vs. volume, revenue vs. margin expansion? Are growth projections realistic or biased? Are there any issues that argue for a different growth metric other than EPS?

**Current Fundamental Performance / Expectations (Last Modified: 10/21/2015)**

*ETrend Model : 18*

Assess current growth trends in the context of valuation and long term expectations. What is the direction of forecasts? Are operating and reporting earnings in line? How predictable are near term earnings? If current and expected growth is below the long term nor, what are the prospects for improvement?

**Valuation (Last Modified: 10/21/2015)**

*Valuation Model : 85*

Assess valuation relative to market expectations considering future growth, incremental returns, historic and comparable norms. What are the valuation variables (cyclicality, risk)? What is or may be changing to drive a re-rating- growth potential, profitability, risk, competition, management?

**Governance / Environmental / Social Considerations (Last Modified: 10/21/2015)**

*GMI Global: B GMI Home: C GMI Sector: B*

*MSCI IVA Rating: AA Goldman Sachs ESG Rating: -*

Highlight any overall conclusions or concerns.

**Governance Considerations (Last Modified: 10/21/2015)**

*GMI Global: B GMI Home: C GMI Sector: B*

The key focus is on transparency, oversight, shareholder value creation, accounting policies. Does the company practice good governance? How are executives compensated? Is it in line with shareholder interests and executive performance? Are there concerns about alignment of interests between management and outside shareholders (particularly when the company is closely held)? Is the board focused on shareholder interests and is it accountable? Is there an independent audit function and, if so, has it found significant issues? Does it report on these issues for shareholders? How conservative/aggressive are accounting practices?

**Environmental Considerations (Last Modified: 10/21/2015)**

*GMI Global: A GMI Home: B GMI Sector: B*

The key focus is on resource management, product innovation, renewable energy/water use, reporting. Is this relevant? What is the company's environment reporting / disclosure? Does it use resources effectively and minimize impact of operations? Have there been any past environmental issues? Any areas of concern?

**Social Considerations (Last Modified: 10/21/2015)**

*GMI Global: C GMI Home: C GMI Sector: C*

For illustrative purposes only.

# Sample Research Report

## Recommendation Report

ABC Corporation (ABC DC)

Outperform

Vivian Lin Thurston

Date of Recommendation: 4/13/2015

The key focus is on human rights at the company and the supply chain, labor/management relations, product/workplace safety and community relations. What is the relationship between labor and management? Are there any other areas of concern here, including the company's history and policy supporting human rights, workplace safety, product safety, community relations, resource use, or specific political risks?

### Accounting / Disclosure / Transparency (Last Modified: 10/21/2015)

How does the company rate on these issues? Any concerns about corporate structure, shareholder rights, compensation, hidden risks, information flow, board of directors?

### Thematic Issues / Risks (Last Modified: 10/21/2015)

What market trends or sector issues are reflected in the company's risk/reward picture? What exogenous developments might affect the fundamentals or valuation?

### Key Metrics / Events / Catalysts (Last Modified: 10/21/2015)

Any identifiable milestones, events or conditions that may provide feedback on the stock's prospects?

### Contact With Management (Last Modified: 10/21/2015)

Highlight any recent interactions with management. How well do we know this management team?

For illustrative purposes only.

# Sample Research Report

## Quant Model Factors

Focus Country	Denmark	Eligibility List	Yes
GICS Sector	Consumer Discretionary	Research Agenda	No
GICS Industry	Textiles, Apparel & Luxury Goods	IM Hldgs (USD) (as of)	
GICS Industry Group	Consumer Durables & Apparel	Market Cap (USD mm)	95,514.00

ABC Corporation (ABC DC)

Outperform

Vivian Lin Thurston

4/13/2015

Composite Model	Value	Percentile	Ind Rel
COMPOSITE MODEL SCORE	-	22	-
Quality Model	Value	Percentile	Ind Rel
QUALITY MODEL SCORE	-	2	1
<i>Sustainable Value Creation</i>	-	1	1
Cash Flow ROIC	47.2	3	2
Cash Flow ROIC 3 Year Avg	44.3	3	2
ROE LTM (Financials Only)	-	-	-
Productivity Factor (ex. Financials, Ind Rel)	-	2	2
Oper ROA 5 yr Avg (%)	31.3	2	4
ROE 5yr Avg (%)	44.1	3	2
FCF Margin 3 Year Avg (ex Financials, Ind Grp Rel)	25.0	3	4
Gross Profit / Assets (ex Financials, Ind Grp Rel)	84.3	5	5
EVA Margin (Ind Grp Rel)	22.7	2	2
<i>Earnings Quality</i>	-	49	33
Balance Sheet Accruals Component	52	46	32
Cash Flow Accruals	6.9	62	42
NTM EPS Standard Error 3 Year Average	2.2	31	21
<i>Financial Strength</i>	-	21	16
Altman Z-Score (Ind Grp Rel)	6.8	4	2
Merton Distance to Default (Ind Grp Rel - Higher is better)	12.2	25	11
Net Debt / EBITDA (ex Financials, Ind Grp Rel)	.1	49	38
<i>Banks Only</i>	-	-	-
Tangible Equity to Assets	-	-	-
NPL to Loans	-	-	-
Cost Income Ratio	-	-	-
Risk Adjusted Income	-	-	-
Loans to Deposits	-	-	-
Tier 1 Factor	-	-	-
Pretax Income plus Loan Loss Reserves/Market Cap	-	-	-
1 Year Change in Loan Loss Reserves/Assets	-	-	-

Valuation	Value	Percentile	Ind Rel
VALUATION MODEL SCORE	-	85	71
<i>Earnings / Cash Flow Based Factors</i>	-	85	70
Free Cash Flow Yield (ex Financials)	3.4	50	40
Enterprise Value / EBITDA (ex Financials)	18.8	86	74
Dividend Yield	1.2	80	68
Cash Flow Yield Rel to 3 yr Avg (ex Financials)	70.2	80	63
Price / NTM Earnings	17.0	56	51
<i>Asset-Based Factors</i>	-	100	99
Enterprise Value / Sales (Ind Rel, ex Financials)	6.9	93	94
Price to Tangible Book	108.6	100	98
Enterprise Value / Invested Capital	12.8	99	97
<i>Model-Based Factors</i>	-	52	38
EVA PRVIt	60	39	30
StarMine Intrinsic Value (IV) Model	1.0	71	53
StarMine Ind Rel Valuation	-	75	74
AFG Percent to Target Current	92.1	11	5
Earnings Trend Model	Value	Percentile	Ind Rel
EARNINGS TREND MODEL SCORE	-	18	9
<i>Earnings Revisions</i>	-	15	9
StarMine ARM	80	21	13
3M EPS FY1 Revisions / Book Value per Share 3M Ago	.7	9	6
3M EPS FY2 Revisions / Book Value per Share 3M Ago	.2	17	11
EPS Est Rev Breadth 1 month (%)	.0	38	26
<i>Momentum</i>	-	47	32
EVA Momentum	7.4	9	1
Quality Momentum (6M Change in Percentile)	-1	61	44
FY0 - FY5 Growth Momentum (6M Change in Growth Rate)	2.1	19	13
3M Change in 3M Revision (FY1 and FY2 Avg)	-2.4	92	90
<i>Earnings Surprise</i>	-	42	35
Standardized Unexpected Earnings (SUE)	.3	46	38
StarMine Predicted Surprise	.5	31	14

For illustrative purposes only.

# Sample Research Report

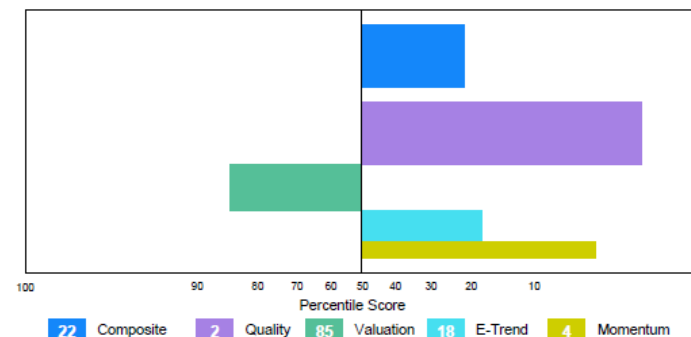
Quant Model Factors				ABC Corporation (ABC DC)	
Focus Country	Denmark	Eligibility List	Yes	Outperform	
GICS Sector	Consumer Discretionary	Research Agenda	No	Vivian Lin Thurston	
GICS Industry	Textiles, Apparel & Luxury Goods	IM Hldgs (USD) (as of )		4/13/2015	
GICS Industry Group	Consumer Durables & Apparel	Market Cap (USD mm)	95,514.00		

Momentum Model	Value	Percentile	Ind Rel
<b>MOMENTUM MODEL SCORE</b>	-	4	5
12 Month Volatility Adjusted Return	39.4	5	7
6 Month Sharpe Ratio	1.6	4	6
Industry Group Percentage of 1 Year Range	.5	34	32
6 Month Region - Sector Volatility Adjusted Return	-6.7	49	36
9 Month Sharpe Ratio	2.0	4	6

Growth Model (%)	Value	Percentile	Ind Rel
<b>Blair LTG Estimate</b>	15.2	-	-
Historical Growth	19.0	-	-
6 Year Avg Trend Growth (FY-2 to FY+3)	19.6	-	-
10 Year Avg Trend Growth (FY-6 to FY +3)	8.3	-	-
FY0 to FY+5 Expected Growth Trend	15.9	-	-
FY+1 to FY+5 Expected Growth Trend	12.2	-	-
<i>IBES Consensus LTG Estimate (for display only)</i>	21.7	-	-

Volatility Model	Value	Percentile	Ind Rel
<b>VOLATILITY MODEL SCORE</b>	-	29	-
ROE Range/Avg	-	41	-
Operating Margin Range/Avg	-	16	-
CF ROIC Range/Avg	-	35	-
EPS FY1 Coefficient of Variation	-	23	-
EPS FY2 Coefficient of Variation	-	55	-
EPS FY1 Dispersion	-	51	-
EPS FY2 Dispersion	-	26	-

Model History (GICS Industry)	Short Term	Long Term
Composite	☆☆☆☆☆☆	☆☆☆☆☆☆
Quality	☆☆	☆☆☆☆☆☆
Valuation	☆☆	☆☆
Earnings Trend	☆☆☆☆☆☆	☆☆☆☆
Momentum	☆☆☆☆	☆☆☆☆
Growth	☆☆☆☆	☆☆



For illustrative purposes only.

# Sample Research Report

ESG Factors				ABC Corporation (ABC DC)	
Focus Country	Denmark	Eligibility List		Yes	Outperform
GICS Sector	Consumer Discretionary	Research Agenda		No	Vivian Lin Thurston
GICS Industry	Textiles, Apparel & Luxury Goods	IM Hldgs (USD) (as of)			4/13/2015
GICS Industry Group	Consumer Durables & Apparel	Market Cap (USD mm)	95,514.00		

ESG Overview				
	Global	Home	Sector	Impact
GMI Global ESG Score	B	C	B	
GMI Global ESG Score (Previous)	B	C	B	
MSCI IVA Rating	AA	-	-	
Goldman Sachs ESG Rating	-			
QUALITY MODEL SCORE	2			

Governance				
	Global	Home	Sector	Impact
Governance	B	C	B	84.4%

Governance - Board				
	Global	Home	Sector	Impact
Governance Board	B	C	B	31.2%
Audit Committee Industry Expert				
Comp Committee Independence				
Auditor Fees				
Risk Management Expertise				

Governance - Pay				
	Global	Home	Sector	Impact
Governance Pay	C	C	C	21.9%
Performance Targets				
CEO Equity Policy				
Clawbacks				
CEO Pay Perks & Other Comp				

Governance - Ownership / Control				
	Global	Home	Sector	Impact
Governance Shareholder	B	C	B	12.5%
Indexed Company				
Shareholder Action by Written Consent				
Cumulative Voting				

Governance - Accounting				
	Global	Home	Sector	Impact
Accounting	C	C	C	18.0%
Asset-Liability Valuation				

Environmental				
	Global	Home	Sector	Impact
Environmental	A	B	B	0.0%
High Environmental Impact Company				

Social				
	Global	Home	Sector	Impact
Social	C	C	C	15.6%
High Social Impact Company				
Pay Linked to Sustainability				

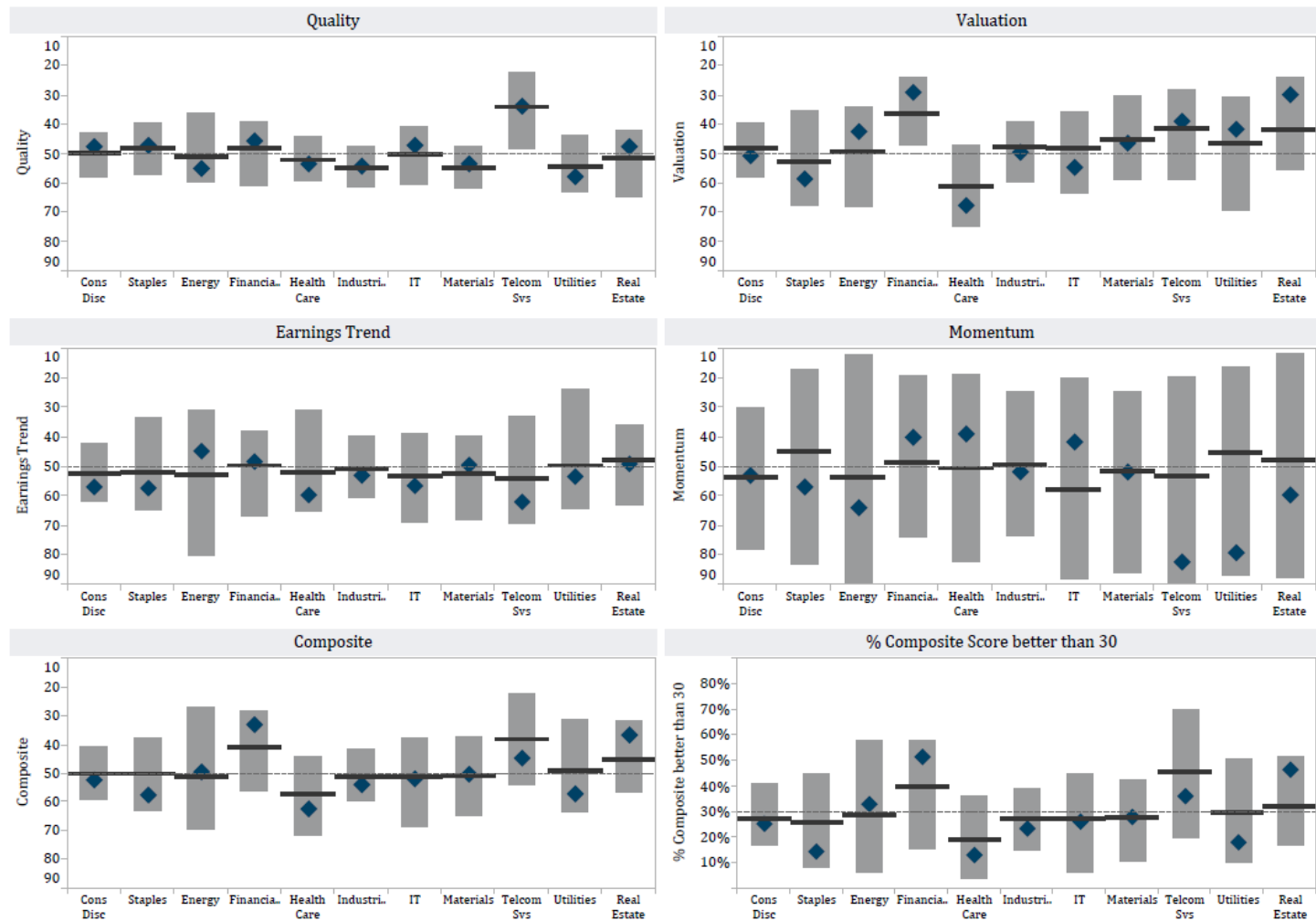
Sustainability Board Oversight  
 Sustainability Reporting Framework  
 UN Global Compact  
 Workplace Safety Reporting



For illustrative purposes only. For GMI ratings, 100 is best.

# Strategy

## MSCI AC World ex-US IMI: All Cap by Sector (Averages)

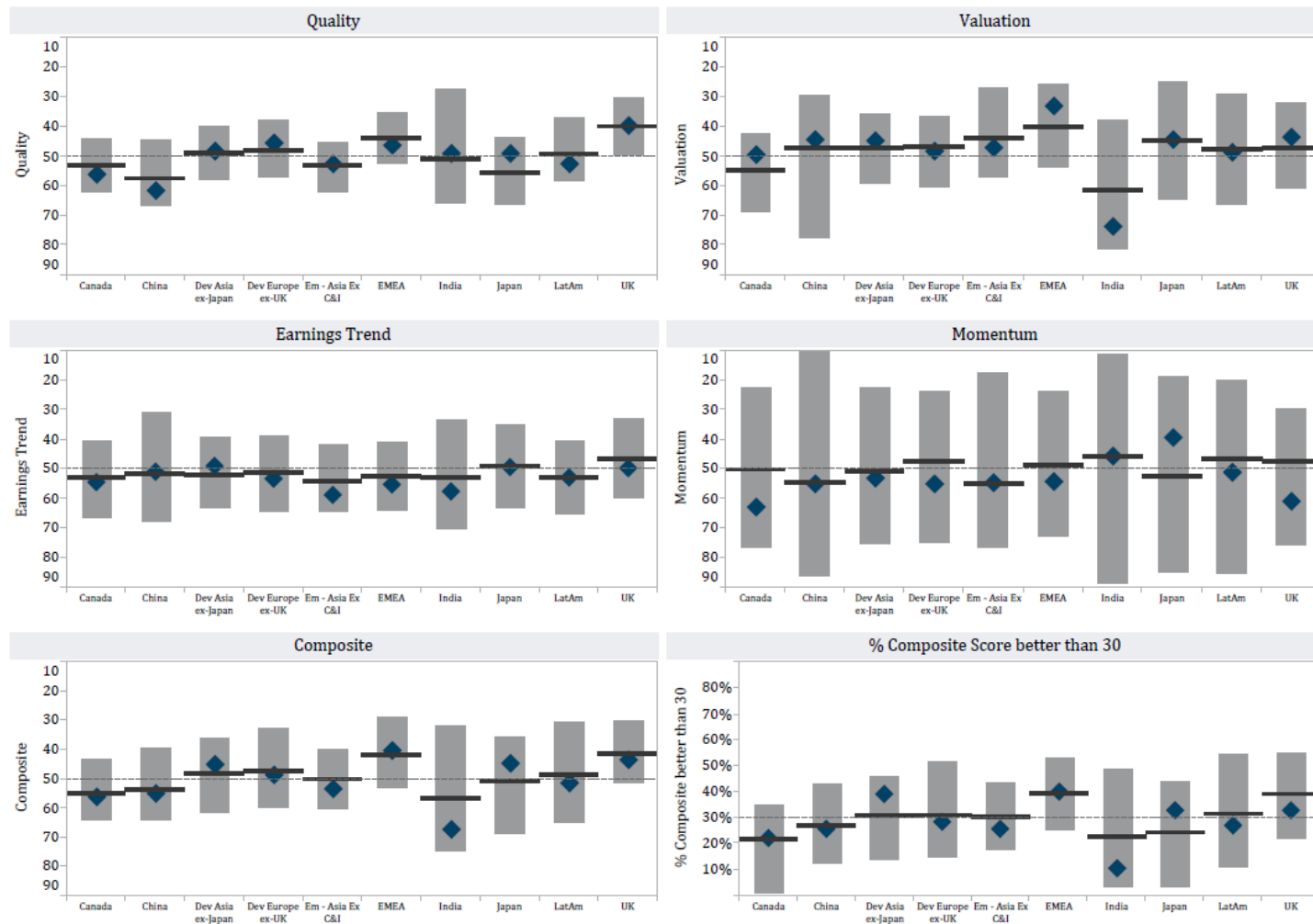


Source: Summit - William Blair's proprietary research management & investment process platform.

As of March 31, 2018. Grey bar: 10-year range of monthly scores; Black line: 10-year average; Blue diamond: Current score. Scores shown above based on William Blair's proprietary quantitative model. For individual and composite ranks, 1 is best and 100 is worst. Sectors are based on Global Industry Classification (GICS) sectors. A direct investment in an unmanaged index is not possible.

# Strategy

## MSCI AC World ex-US IMI: All Cap by Region (Averages)



Source: Summit - William Blair's proprietary research management & investment process platform.

As of March 31, 2018. Grey bar: 10-year range of monthly scores; Black line: 10-year average; Blue diamond: Current score. Scores shown above based on William Blair's proprietary quantitative model. For individual and composite ranks, 1 is best and 100 is worst. Regional performance is based on IMI region/country indexes. A direct investment in an unmanaged index is not possible.

# Biographies – Global Equity Team

## Portfolio Management:

### **Simon Fennell, Partner**

Simon Fennell is a Portfolio Manager for the International Growth, International Small Cap Growth and International Leaders strategies. He joined William Blair in 2011 as a TMT Research Analyst focusing on idea generation and strategy more broadly. Prior to joining William Blair, Simon was a Managing Director in the Equities division at Goldman Sachs in London and Boston, where he was 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. Education: M.A., University of Edinburgh; M.B.A., Johnson Graduate School of Management, Cornell University.

### **Andrew G. Flynn, CFA, Partner**

Andy Flynn is a Portfolio Manager for the 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 as well as a non-U.S. Consumer, Healthcare and IT analyst. He was also a Portfolio Manager for the Global Small Cap Growth Strategy. Before joining the firm, Andy was a Senior Equity Analyst and Portfolio Manager at Northern Trust, specializing in mid and small capitalization growth companies. Prior to that he worked as a Senior Equity Analyst at Scudder Kemper Investments and began his career at Fidelity Investments as a Research Assistant. Andy is a member of the CFA Institute and the CFA Society of Chicago. Education: B.A., Economics, University of Kansas; M.B.A., Finance emphasis, University of North Carolina at Chapel Hill.

### **Kenneth J. McAtamney, Partner**

Ken McAtamney is a portfolio manager for the International Growth, Global Leaders, and International Leaders strategies. He joined William Blair in 2005 and previously served as co-director of research, as well as mid-large cap industrials and healthcare analyst. Before joining William Blair, Ken was a vice president for Goldman Sachs and Co., responsible for institutional equity research coverage for both international and domestic equity. Before that, he was a corporate banking officer with NBD Bank. Education: B.A., Michigan State University; M.B.A., Indiana University.

### **Todd M. McClone, CFA, Partner**

Todd McClone is a Portfolio Manager for the Emerging Markets strategies. Prior to joining William Blair 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. At Piper Jaffray, he worked with the corporate banking financials team on a variety of transactions including initial public offerings, mergers and acquisitions and subordinated debt offerings as well as issued fairness opinions and conducted private company valuations. Education: B.B.A. and B.A., University of Wisconsin – Madison.

### **David Merjan, CFA, Partner**

David Merjan is a Portfolio Manager for the International Developed Plus and International ADR strategies. Prior to joining William Blair in 1998, David was with Hughes Electronics in Los Angeles in various capacities, including the Corporate Treasury department where he focused on international mergers and acquisitions and managed corporate currency and interest rate portfolios, Dave also managed an international equity fund in the pension management subsidiary of Hughes. David is a member of the CFA Institute. Education: B.A., Dickinson College; M.I.M., American Graduate School of International Management.

### **Jack Murphy, CFA, Partner**

Jack Murphy is a Portfolio Manager for the Emerging Markets Leaders and International Developed Plus strategies. Jack was previously the Director of Research for the Global Equity team and a Research Analyst covering mid-large cap non-U.S. Consumer stocks. He joined the firm in 2005 as a Research Analyst within William Blair's sell-side research department focusing on e-commerce and hardline retailers. Previously, Jack worked at Credit Suisse First Boston for nearly six years as an equity research analyst, covering a broad range of retail companies. Before CSFB, he worked as an equity research analyst at Lehman Brothers and as an equity research associate at Salomon Brothers. Prior to sell-side research, he worked as a financial analyst for General Electric Capital, having graduated from GE's Financial Management Program. Education: B.A., Economics, magna cum laude, Villanova University.

### **Casey K. Preyss, CFA, Partner**

Casey Preyss is a Portfolio Manager for the Emerging Markets Growth, Emerging Markets Small Cap Growth and China A-Shares Growth strategies. Since joining William Blair in 2000, Casey has been a research analyst covering Industrials, IT and Resources and has also served as Portfolio Manager for the China A-Share strategy. Prior to his fundamental research responsibilities Casey was a Quantitative Analyst with the team. Prior to joining the firm, Casey was with Thomas White International, where he was an International Equity Research Sales Associate. Education: B.S.B.A., The Ohio State University; M.B.A., University of Chicago Booth School of Business.

# Biographies – Global Equity Team

## **Ryan Dimas, CFA, CAIA**

Ryan Dimas is a Portfolio Specialist on the Global Equity team. He 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. For 17 years, Ryan led the investment manager research effort for William Blair Select, a team which 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 of Chicago and is a CFA and CAIA charterholder. Education: B.A., Finance, Arizona State University.

## **Romina Graiver**

Romina Graiver is a Portfolio Specialist on the Global Equity team. Romina 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. Romina joined William Blair in 2012 as a Senior Client Relationship Manager and Product Specialist. Prior to joining William Blair, Romina worked at BNP Paribas Investment Partners as Deputy-Head of the International Equity Investment team, in charge of product development and investors communication. Prior to that role, she was a Product Specialist for Model-driven Equity Investments and a Marketing Manager. Education: B.Sc., International Business; M.Sc., Economics, University of Pantheon-Sorbonne, Paris, France.

## **Blake S. Pontius, CFA**

Blake Pontius is a Portfolio Specialist on the Global Equity team. Blake 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, he was a Client Relationship Manager responsible for the firm's institutional non-U.S. strategy clients. Prior to joining William Blair in 2005, Blake was with UBS Global Asset Management in consultant relations and a Senior Analyst at Mercer. He is a member of the CFA Institute and the CFA Society of Chicago. Education: B.A., Economics, with honors, Michigan State University; M.B.A., Finance, with distinction, DePaul University.

# Biographies – Global Equity Team

## Research:

### **D.J. Neiman, CFA, Partner**

D.J. Neiman is a global research analyst covering small-cap financials stocks and director of research for the Global Equity team. Before transitioning to the firm's investment management group in 2009, he was an analyst in the 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 of Chicago. Education: B.S., Miami University; MBA, high distinction, University of Michigan Ross School of Business.

### **Alaina Anderson, CFA, Partner**

Alaina Anderson is a global equity research analyst covering the Real Assets universe including Real Estate, Utilities and Construction & Engineering. 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 Leadership Greater Chicago Fellow and a member of the CFA Society of Chicago. Education: B.S., University of Pennsylvania Wharton School; MBA, University of Chicago Booth School of Business.

### **William W. Benton, CFA, CPA, Partner**

William Benton is a global research analyst covering mid- and large-cap technology, media, and telecommunications (TMT) stocks. Before joining William Blair's investment management group in 2007, William was a technology sector 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 of Chicago and holds the CMA and CPA designations. Education: B.S., finance, University of Illinois Urbana-Champaign; MBA, Dartmouth College (Tuck Scholar), Amos Tuck School of Business Administration.

### **Drew Buckley, CFA, CPA**

Drew Buckley is a global research analyst covering small-cap technology, media, and telecommunications (TMT) stocks. Before joining William Blair in 2008 as a global research associate focused on TMT industries, he spent two years at Ernst & Young LLP in New York, where he served as a senior associate in the firm's investment management assurance practice. Drew is a member of the CFA Society of Chicago and holds the certified public accountant designation. Education: B.S., Business, University of Colorado–Boulder.

### **Taylor Cope, CFA**

Taylor Cope is a global research analyst covering small-cap industrial and resources stocks. Before joining the firm in 2007 as a research associate, Taylor was a research analyst at Giuliani Capital Advisors in Chicago, where he was responsible for new opportunity generation, deal support, and industry intelligence in the global retail, consumer, and financial sectors. He is a member of the CFA Institute and the CFA Society of Chicago. Education: M.A. (honors), University of St. Andrews, Scotland.

### **Anil Daka, CFA**

Anil Daka is a global research analyst covering mid-cap industrial stocks. Before joining the firm in 2011 as an associate analyst, Anil was an equity analyst at Morningstar Inc., 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 of Chicago. Education: Bachelor of Technology, metallurgical engineering, Indian Institute of Technology; MBA, University of North Carolina.

### **William De Allaume, CFA**

William De Allaume is a global research analyst covering mid- and large-cap resources stocks. Before joining William Blair, he was managing director and sector head at UBS Global Asset Management, where he was responsible for the energy, materials, utility, and transportation sectors. He also worked in asset consulting at Bankers Trust Company before graduate school. He is a member of the CFA Society of Chicago. Education: B.S., Montclair State University; MBA, analytic finance, and M.A., international relations, University of Chicago.

# Biographies – Global Equity Team

## **Joel Gomberg, CFA, Partner**

Joel Gomberg is a global research analyst covering mid- and large-cap financials stocks. He joined the firm in 1997 as an equity analyst following the finance industry, including commercial banks, global investment banks, exchanges, retail brokers, and commercial property service companies, and was group head of the financials sector. In this role, Joel was included in The Wall Street Journal's annual analyst survey, "Best on the Street," three times. Previously, he was an equity analyst at Duff & Phelps and Howe Barnes Investments, where he covered specialty finance and bank stocks. He also worked at Northern Trust Company, primarily in commercial banking and credit policy. Education: B.S., University of Illinois at Urbana-Champaign; MBA, University of Chicago Booth School of Business.

## **Daniel Hill, CFA**

Daniel Hill is a global research analyst covering the financials sector. He was previously a global generalist research analyst. Before this role, he served as an international and global research associate supporting the global financial team under the guidance of research analysts. He joined William Blair in 2005 as an investment accountant. Dan is a member of the CFA Institute and the CFA Society of Chicago. Education: B.S., finance, University of Nebraska; MBA, Northwestern University's Kellogg Graduate School of Management.

## **Camilla Oxhamre Cruse, Ph.D.**

Camilla Oxhamre Cruse is a global research analyst covering small-cap healthcare stocks. Camilla joined William Blair's Global Investment Management team in 2014 as a healthcare research associate. Before joining William Blair, 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 with a Ph.D. in Medicine and a M.Sc. in biochemistry. Education: MBA in Finance, Hawai'i Pacific University, Ph.D. in Medicine, Karolinska Institute, M.Sc., Biochemistry, Lund University.

## **Richard Reznick, Ph.D.**

Richard Reznick is a global research analyst covering equities within China with a focus on small-cap healthcare stocks. He joined William Blair in 2010 as an equity research associated focusing primarily on the biotechnology sector. Previously, he was a product specialist in Abbott Laboratories' diagnostics division. Education: B.S., biology, University of Illinois at Urbana-Champaign; Ph.D., biology, Yale University.

## **Greg Scolaro, CFA, CPA**

Greg Scolaro is an emerging markets small-cap analyst. He joined William Blair in 2014 as a research associate covering global technology, media, and telecommunications (TMT) stocks. Before joining the firm, he was an auditor in the technology sector at KPMG Chicago. He is a member of the CFA Institute and the CFA Society of Chicago. Education: B.S. and M.S., accountancy, University of Illinois Urbana-Champaign.

## **Bryan Shea**

Bryan Shea is an emerging markets small-cap analyst. He joined William Blair in 2009 and most recently was an associate analyst focusing on global consumer stocks. Previously, he worked on William Blair's sell-side as a 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 joining MCF, he was an analyst at Lincoln International, where he worked on mergers and acquisitions, issued fairness opinions, and conducted private company valuations. Education: B.S., finance, with honors, Indiana University; MBA, Northwestern University's Kellogg School of Management.

## **Andrew J. Siepker, CFA**

Andrew Siepker is a global research analyst covering large-cap industrial stocks. He joined William Blair in 2006, and prior to his current role, was a research analyst conducting non-U.S. consumer research. Previously, he worked on William Blair's sell-side as a research associate focused on e-commerce and hardline retailers. Before joining William Blair, Andy was a financial analyst in a finance training program at First Data Corporation. He is a member of the CFA Society of Chicago. Education: B.S. in finance, highest distinction, University of Nebraska.

# Biographies – Global Equity Team

## **Kwesi Smith, CFA**

Kwesi Smith is a global research analyst covering large-cap consumer stocks. Before joining William Blair, he spent 10 years as an equity research analyst at TimesSquare Capital Management. There, Kwesi supported research efforts across a variety of sectors, including healthcare, technology, media/cable, defense, and consumer before become a healthcare specialist. Before joining TimesSquare, he worked at MetLife Investments as a technology, media/cable, and telecommunications 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 a member of the CFA Institute. Education: B.S., University of Virginia McIntire School of Commerce.

## **Rita Spitz, CFA, Partner**

Rita Spitz is a global research analyst covering small-cap consumer stocks. Previously, she was a research analyst covering U.S. large- and mid-cap consumer stocks, and she served as director of research from 2001 to 2008. After joining William Blair in 1986, Rita was a research analyst for the firm's sell-side, covering advertising and marketing firms, for 13 years. She is a member of the CFA Society of Chicago, the CFA Institute, and The Economic Club of Chicago. She has served on the advisory groups of several financial accounting standards boards since 2002, and is currently on the board of the Transition Resource Group for Revenue Recognition. She also is a trustee of The Joffrey Ballet. Education: B.B.A., finance and Spanish, University of Wisconsin-Madison; MBA, University of Chicago Booth School of Business.

## **Thomas A. Sternberg, CFA, Partner**

Tommy Sternberg is a global research analyst covering large-cap healthcare stocks. He joined William Blair in 2004 as a research associate in William Blair's Investment Management group, where he focused on the healthcare industry. Previously, Tommy spent two years at Oak Brook Bank, where he served as an equity analyst in the firm's investment management and trust department. He is a member of the CFA Institute and the CFA Society of Chicago. Education: B.S., economics, Duke University; MBA, University of Chicago Booth School of Business.

## **Dan Su, CFA**

Dan Su is a global research analyst covering mid-cap consumer stocks. She joined William Blair in 2013. Previously, Dan was a senior equity analyst at Morningstar, where she covered global apparel and internet service companies. Before Morningstar, she held various positions in corporate strategy for media and technology companies in China and Singapore. She is a member of the CFA Institute and the CFA Society of Chicago. Education: B.A., Beijing Foreign Studies University; MBA, University of Chicago Booth School of Business.

## **Vivian Lin Thurston, CFA, Partner**

Vivian Lin Thurston is a global research analyst covering equities within China, and was previously a global research analyst covering large-cap consumer stocks. Prior to joining William Blair, she 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 of Chicago. She is also the founder and Chairman of the Board of the Chinese Finance Association of America, a 501 (C) non-profit organization. Education: B.A., Sociology, Peking University; M.A., Sociology, and M.S., Finance, University of Illinois at Urbana-Champaign.

## **Technology:**

### **Darragh Grogan**

Darragh Grogan is a Technologist on the Global Equity team. He joined William Blair in 2008 as a software engineer providing support for trading and reconciliation. He is responsible for working with the IT development team to implement technological improvements into the investment process. Previously, Darragh worked as a senior software engineer at Accenture and Fidelity. Education: Bachelor of Commerce, National University of Ireland, Galway. Higher Diploma in Applied Science – Software Development and Design, National University of Ireland, Galway. Master of Science – Advanced Software Engineering, University College Dublin.

# Biographies

## Systematic Research:

### **Spiro Voulgaris, Partner**

Spiro Voulgaris is a Senior Quantitative Analyst leading the Systematic Research team. He is also a portfolio manager on the Systematic Investment team. He joined William Blair in 2007. Prior to 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 their global and U.S. Investment Strategy teams in London and New York. Prior to that, Spiro spent three years as a research analyst with the Center for Research in Securities Prices (CRSP). Education: B.A., Economics, University of Chicago; M.B.A., with a concentration in Statistics and International Finance, University of Chicago Booth School of Business.

### **Andrew Kominik, CFA**

Andrew Kominik is a Quantitative Portfolio Analyst on the Systematic Research team. He primarily supports equity management teams in the use of internal and external quantitative models to evaluate portfolio risk and performance. Andrew also develops and programs multifactor quantitative models that are used by the fundamental equity analysts and portfolio managers. He joined William Blair in 2003 and previously served as a marketing analyst and portfolio construction analyst. He is a member of the CFA Institute and the CFA Society of Chicago. Education: B.A., History, Brandeis University; M.B.A., with concentrations in Econometrics & Statistics and Finance, University of Chicago Booth School of Business.

### **Jeffrey Hill**

Jeffrey Hill is a Senior Quantitative Business Analyst on the Systematic Research team. He joined William Blair in 2014. Jeff provides business and technical support across all needs for the team with a focus on portfolio attribution. Prior to joining William Blair he spent 15 years at UBS Global Asset Management within the Global Investment Services team. During this time he managed an international development team that focused on building bespoke risk management, portfolio rebalancing and asset allocation solutions. The UBS role also required Jeff to function as the bridge between the technical, investment, and sales teams as the tools were built and used both within UBS and for external clients. Education: Bachelor of Science in Industrial Technology, Illinois State University.

### **Andrew Wickman, CFA**

Andrew Wickman is a Quantitative Research Associate on the Systematic Research team. He develops and programs multifactor quantitative models that are used by the fundamental equity analysts and portfolio managers, in addition to supporting the strategic thought leadership of the team. Prior to joining William Blair in 2015, he was a consultant at FactSet Research Systems for four years supporting investment management research analysts and portfolio managers. He is a member of the CFA Institute and the CFA Society of Chicago. Education: B.S., Economics, University of Kentucky.

## Strategy Research:

### **Olga Bitel, Partner**

Olga Bitel joined William Blair in 2009. As Investment Management's 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, International and Emerging Markets equities portfolios within a multifaceted strategic framework. Additionally, she provides insight on cyclical turning points and structural trends as inputs into portfolio construction in predominantly bottom-up investment approaches. Olga represents the firm with current and prospective clients in one-on-one settings, via conference calls, and written communications. With her contributions to the William Blair blog "Investing Insights," she is frequently quoted in the media. She is a frequent speaker at major global investment conferences with influential colleagues in the industry, heads of state, and global political figures. Prior to joining William Blair, 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 OPEC, the IMF among others. Education: B.A., University of Chicago; M.Sc. economics, London School of Economics and Political Science.

# Biographies – Client Service Team

## **Robert J. Duwa, CFA, Partner**

Robert Duwa is head of institutional client relationship management. Previously, he was a Portfolio Specialist on the Global Equity team. Bob joined William Blair in 2010 as a Senior Client Relationship Manager responsible for institutional clients. Previously, he was a Senior Consultant and Practice Leader with DeMarche Associates, Inc. for 11 years, where he was responsible for the strategic investment direction for institutional clients. At DeMarche, he was also president and founder of Discretionary Management Services, a registered investment advisor providing OCIO services. Prior to DeMarche, Bob worked in institutional investment management for Boatmen's Trust Company. He is a member of the CFA Society of Chicago. Education: B.A., finance, Loras College.

## **Douglas J. Kryscio, CFA, Partner**

Doug Kryscio is a senior client relationship manager. Before joining William Blair in 2011, he was a partner and Midwest and Great Lakes market business leader with Mercer Investment Counseling for 11 years. While at Mercer, Doug was also a senior analyst, associate, and principal. Before joining Mercer, he was a portfolio manager for First Chicago. He is a member of the CFA Institute and the CFA Society of Chicago. Education: B.B.A., finance, with department honors, University of Kentucky; M.B.A., finance, with distinction, DePaul University. Distinctions: Phi Kappa Phi and Delta Mu Delta National Honor Society.

## **Stephen J. Weeks, Partner**

Steve Weeks is a senior client relationship manager. Before joining William Blair in 2015, Steve was senior vice president of marketing, consultant relations, and client services at Columbus Circle Investors (CCI). Prior to joining CCI in April 2005, Steve was a director and senior investment specialist for Principal Global Investors and one of the founding partners of GlobeFlex Capital, L.P., where he was responsible for institutional marketing and client service. He is a current board advisor to the National Conference on Public Employee Retirement Systems (NCPERS). Education: B.S., finance, University of Arizona.

## **Julie Stevens, CFA**

Julie Stevens joined William Blair in 2000 as a member of Investment Management's Operations team. She is the Head of Client Services. She has been a member of the Client Services team since May of 2004. Previously, she spent three years at Bank One as a Financial Analyst for the Asset Liability Management Department. She is a member of the CFA Institute and the CFA Society of Chicago. Education: B.S., Indiana University; M.B.A., University of Chicago Booth School of Business.

## **James Dominguez**

James Dominguez is a client relationship manager. Before joining William Blair in 2016, he served as a Vice President and Relationship Manager for Northern Trust Asset Management working with Public Pension plans and Taft-Hartley plans. While at Northern Trust, James also served as an Associate Relationship Manager within the Institutional Sales and Client Service group and as a Senior Investment Manager Liaison within Investment Operations. Prior to Northern Trust, James was the managing director of a national employment and training organization where he oversaw the service delivery of five workforce programs for the City of Chicago's Mayor's Office of Workforce Development. Education: B.A., psychology, Roosevelt University; M.B.A., financial analysis, DePaul University's Kellstadt Graduate School of Business.

## **Cliff Kalish, CFA**

Cliff Kalish is a client relationship manager. Before joining William Blair in 2011, Cliff was a client relationship manager at Calamos Investments for six years. Before that, Cliff was a research analyst at Ellwood Associates for five years. Cliff is a member of the CFA Institute and the CFA Society of Chicago. Education: B.S., consumer economics with an option in finance, University of Illinois at Urbana-Champaign.

## **Dana Denizman**

Dana Denizman joined William Blair in 1999 as a member of the Small Cap Growth Team. Currently, she is a Senior Client Services Associate, responsible for both international and domestic accounts, and has been a member of the Client Services Team since May 2004. Previously, she spent four years at PaineWebber in various positions, including Registered Sales Assistant, Branch Office Administrator and in the Management Development Program. Prior to that, Dana spent four years at American Century as a Client Service Representative. Education: B.A., University of Iowa.

# Biographies – Client Service Team

## **Matt Brady**

Matt Brady joined William Blair in May 2015. He is a member of the Client Services Team as a Client Service Associate. He is responsible for both international and domestic accounts. Previously, Matt was an Analyst on the Product Development & Management Team for BMO Global Asset Management. Education: BBA, Finance and Risk Management, University of Wisconsin-Madison.

## **Luke Hepler**

Luke Hepler joined William Blair in 2015 as a member of Investment Management Institutional Client Service. He is a Client Service Associate, responsible for both international and domestic accounts. Previously, Luke was a Research Analyst at Ellwood Associates. Education: B.S., Finance, Northern Michigan University.

## **Jennifer Pinner**

Jennifer Pinner joined William Blair in 2014 as a member of Investment Management Institutional Client Service. She is a Senior Client Service Associate, responsible for both international and domestic accounts. Previously, she spent eight years at Northern Trust in various positions, including Senior Consultant and Senior Account Manager for the Corporate and Institutional Services team. Education: B.S., DePaul University; M.B.A., Saint Xavier University Graham School of Management.

## **Thomas Riesenber**

Tom Riesenber is a Senior Client Service Associate responsible for both international and domestic accounts. He joined Investment Management in November 2014. Previously, Tom was an International Accounting Analyst at William Blair for three years. Prior to that, Tom was a Financial Reporting Analyst at the Northern Trust Company for four years. Education: B.S.B.A. in Finance, Creighton University.

# 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.

**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 more risky. From a portfolio perspective, the portfolio Debt to Total Capital Ratio is a weighted average of the individual holdings' Debt to Total Capital Ratio.

**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 (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.

**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.

**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.

**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.

**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.

**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 Trend 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.

**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.

# 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 Bond Index (formerly the Lehman 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 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 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.

## Quantitative Models – Definitions

Factor	Examples
<b>Quality</b>	
<b>The William Blair Quality Model</b> attempts to put into quantitative terms one of the cornerstones of the firm’s investment philosophy: identifying high quality companies. The score combines measurements of sustainable value creation, earnings quality, and financial strength.	Cash Flow ROIC Cash Flow Accruals Net Debt/EBITDA
<b>Valuation</b>	
<b>The William Blair Valuation Model</b> combines varying metrics used to characterize the relationship between the stock’s trading price and its intrinsic value. By going beyond using only one or two measures, the model attempts to build a more holistic version of a stock’s worth vis-a-vis the market. The score combines measurements of earnings/cash flow based, asset-based, and model-based factors.	Free Cash Flow Yield Price/NTM Earnings Enterprise Value/Sales EVA Dimensions PRVit score
<b>Earnings Trend</b>	
<b>The William Blair Earnings Trend Model</b> captures information about short- and medium-term changes in analyst estimates in an attempt to anticipate future estimate changes and stock performance. The score combines measurements of earnings revisions, momentum, and earnings surprise.	3 Month EPS Revisions EVA Momentum Standardized Unexpected Earnings (SUE)
<b>Momentum</b>	
<b>The William Blair Momentum Model</b> combines information about short- and medium-term performance trends for each stock in order to identify stocks that may be able to persist in outperformance over the near term.	12 Month Volatility Adjusted Return 6 Month Sharpe Ratio
<b>Growth</b>	
<b>The William Blair Growth Model</b> builds a long-term growth estimate based on a combination of realized and forecast growth rates. The inputs and results of this model are not limited to earnings, but instead cast a broader net to include measures of a firm’s overall growth. In addition to providing a Growth Model score, the growth rate generated by the model is used as an input into other models.	Historical & Expected Growth 6 & 10 Year Average Trend Growth
<b>Volatility</b>	
<b>The William Blair Volatility Model</b> captures the variability in short- and long-term fundamental returns which include ROE, Margins, and EPS.	ROE Range/Average Coefficient of Variation & Dispersion of EPS
<b>Composite</b>	
<b>The William Blair Composite Model</b> produces an aggregate score from the Quality, Valuation, Earnings Trend, and Momentum models using a proprietary weighting mix.	

William Blair proprietary quantitative model.

# Important Disclosures

**Intended for informational purposes only.**

**Performance cited represents past performance. Past Performance does not guarantee future results.**

Investment returns and principal will fluctuate with market and economic conditions and you may have a gain or loss when you sell shares. Current performance may be lower or higher than the data quoted. International investing involves special risk considerations, including currency fluctuations, lower liquidity, economic and political risk. Investing in emerging markets can increase these risks. Investing in smaller companies involves special risks, including higher volatility and lower liquidity. Equities may decline in value due to both real and perceived general market, economic, and industry conditions. Investing in foreign denominated and/or domiciled securities may involve heightened risk due to currency fluctuations, and economic and political risks, which may be enhanced in emerging markets.

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# Composite Presentation Report

## International Growth

Calendar Year	Composite Gross Return (%)	Composite Net Return (%)	MSCI AC ex US IMI (net) -Linked Return (%)	Composite 3-Yr Std Dev (%)	Benchmark 3-Yr Std Dev (%)	Number of Portfolios	Dispersion (%)	Composite Assets End of Period \$(mm)	Percentage of Total Firm Assets (%)
2008	-52.27	-52.73	-45.99	23.75	21.13	24	0.65	6,906.24	26.37
2009	46.32	45.01	43.60	26.53	25.52	23	0.73	9,739.15	26.58
2010	21.19	20.22	12.73	27.77	27.57	40	0.77	14,599.87	33.04
2011	-13.05	-13.74	-14.31	20.43	22.79	41	0.52	11,567.14	28.08
2012	23.94	22.95	17.04	18.02	19.29	41	0.58	14,265.48	28.75
2013	21.14	20.17	15.82	15.41	16.24	40	0.27	16,962.01	27.35
2014	-1.40	-2.18	-3.89	12.03	12.78	38	0.23	15,481.25	24.55
2015	0.46	-0.34	-4.60	10.94	11.95	36	0.29	15,242.21	23.53
2016	-1.40	-2.18	4.41	11.22	12.38	40	0.30	14,279.91	22.01
2017	30.95	29.90	27.81	11.01	11.77	38	0.34	16,350.96	22.23

### 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, 2016. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The International Growth Composite has been examined for the periods presented through December 31, 2016. 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 ("WBIM"), a distinct operating unit within William Blair. WBIM currently operates as William Blair Investment Management, LLC, an investment adviser registered with the United States Securities and Exchange Commission ("SEC"). Registration with the SEC does not imply a certain level of skill or training. WBIM primarily manages assets for institutional investors. Through 2017, WBIM included an additional sub unit, named IM Counseling, which primarily managed assets for private wealth investors, under an affiliated registered investment adviser.

The International Growth strategy invests in a broad range of companies based in developed and emerging markets outside of the United States. Companies have had and are expected to maintain superior growth, profitability and quality relative to local markets. The strategy will occasionally include the use of forward currency contracts to hedge some of the foreign currency exposure which accompanies investment in foreign currency-denominated securities.

The benchmark that best reflects the composite's investment strategy is the MSCI All Country World Ex US 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 developed and emerging markets, excluding the US. Prior to 1995, the MSCI All Country World Ex US Index preceded the current benchmark as returns are unavailable back to composite inception for the current benchmark.

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. Prior to July 2007, new portfolios were added to the composite at the beginning of the quarter following two full calendar months under management. 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.

Portfolio and composite returns are calculated daily. Prior to January 2009, portfolio returns were calculated monthly using a time-weighted monthly linked return formula with adjustments for cash flows and composites were calculated monthly by weighting portfolio returns based on beginning of month market value. 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 composite 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 and net of max investment advisory fees. The management fee schedule is as follows:

Up to \$20,000,000: 0.80%  
 Next \$50,000,000: 0.50%  
 Next \$50,000,000: 0.45%  
 Next \$50,000,000: 0.40%  
 Over \$200,000,000: 0.30%  
 The maximum fee is 0.80%.

The International Growth Composite was created in October 2001. From creation through July 2014, the composite was named International Growth All Cap Growth. Prior to July 2002, the only account in the composite was a mutual fund. The composite performance inception date is December 1, 1992.

A complete list and description of firm composites 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.

# International Growth Strategy

## Performance for periods ending March 31, 2018

Composite Performance (% USD)	Qtr	1 Yr	Annualized				
			3 Yr	5 Yr	10 Yr	Since Oct 1 96*	Strategy Inception (Dec 1 92)
<b>International Growth (Gross)</b>	<b>0.37</b>	<b>22.63</b>	<b>7.33</b>	<b>8.14</b>	<b>4.68</b>	<b>10.25</b>	<b>10.81</b>
<b>International Growth (Net)</b>	<b>0.17</b>	<b>21.66</b>	<b>6.48</b>	<b>7.28</b>	<b>3.83</b>	<b>9.31</b>	<b>9.86</b>
MSCI AC World ex-US IMI Index	-1.06	17.10	6.75	6.24	3.06	5.40	6.62
Relative Performance (Gross)	1.43	5.53	0.59	1.89	1.62	4.85	4.19

Annual Composite Performance (% USD)	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004
<b>International Growth (Gross)</b>	<b>30.95</b>	<b>-1.40</b>	<b>0.46</b>	<b>-1.40</b>	<b>21.14</b>	<b>23.94</b>	<b>-13.05</b>	<b>21.19</b>	<b>46.32</b>	<b>-52.27</b>	<b>19.73</b>	<b>25.04</b>	<b>23.07</b>	<b>20.12</b>
<b>International Growth (Net)</b>	<b>29.90</b>	<b>-2.18</b>	<b>-0.34</b>	<b>-2.18</b>	<b>20.17</b>	<b>22.95</b>	<b>-13.74</b>	<b>20.22</b>	<b>45.01</b>	<b>-52.73</b>	<b>18.68</b>	<b>23.95</b>	<b>21.99</b>	<b>19.07</b>
MSCI AC World ex-US IMI Index	27.81	4.41	-4.60	-3.89	15.82	17.04	-14.31	12.73	43.60	-45.99	16.13	26.51	17.68	21.93

Annual Composite Performance (% USD)	2003	2003	2002	2001	2000	1999	1998	1997	1995	1994	1993	1992**
<b>International Growth (Gross)</b>	<b>44.10</b>	<b>-13.79</b>	<b>-12.99</b>	<b>-6.23</b>	<b>100.28</b>	<b>12.92</b>	<b>9.97</b>	<b>11.85</b>	<b>8.78</b>	<b>1.52</b>	<b>35.80</b>	<b>1.46</b>
<b>International Growth (Net)</b>	<b>42.85</b>	<b>-14.57</b>	<b>-13.77</b>	<b>-7.07</b>	<b>98.59</b>	<b>11.92</b>	<b>9.00</b>	<b>10.86</b>	<b>7.82</b>	<b>0.62</b>	<b>34.62</b>	<b>1.39</b>
MSCI AC World ex-US IMI Index	42.34	-12.94	-19.83	-19.44	37.72	11.97	-3.30	5.12	7.48	6.63	34.90	0.83

\*Reflects the inception of the strategy's current management style. At this time, changes were made to the portfolio management team and the way the philosophy was implemented. Actual composite inception precedes this date. This information is supplemental to the composite disclosure slide located in the appendix.

\*\*Partial year performance from December 1 to December 31, 1992.

**Past performance is not indicative of future returns.** 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 All Country World Ex US 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 developed and emerging markets, excluding the US. Prior to 1995, the MSCI All Country World Ex US Index preceded the current benchmark as returns are unavailable back to composite inception for the current benchmark. International investing involves special risk considerations, including currency fluctuations, lower liquidity, economic and political risk. Please see composite disclosure in appendix for a complete description of the composite.