



Investment Program

PUBLIC EQUITY REBALANCING PLAN EMERGING MARKETS

Joint IC

Summary:

- Target allocation to Emerging Markets Public Equity is 10%. Currently P&F has \$190 mm (5.3%) allocated Northern Trust Passive Emerging Market IMI fund. Federated has \$117 mm (5.5%) allocated to Northern Trust Passive Emerging Markets IMI Fund. *
- Historically, MSCI Emerging Markets IMI index has ranked below median in various market conditions. That provides opportunities for active managers to add value through a market cycle.

Percentiles	Returns - 1 Year (3/2019)	Returns - 3 Years (3/2019)	Returns - 5 Years (3/2019)	Returns - 7 Years (3/2019)	Returns - 10 Years (3/2019)
High	9.96	23.25	12.45	11.95	19.51
10th Percentile	-2.99	14.27	7.00	6.65	13.11
25th Percentile	-5.60	12.30	5.66	5.32	11.82
Median	-7.82	10.69	4.38	3.96	10.56
75th Percentile	-10.03	8.83	3.43	2.92	9.53
90th Percentile	-12.73	7.17	2.33	2.18	8.64
Low	-30.01	-2.25	-2.03	-0.32	5.66
Observations	515	482	421	321	204
MSCI EM IMI Net Index	-7.97	10.08	3.45	2.68	9.12
Rank (%)	53	60	74	82	83

Source: eVestment

- Staff recommends that the plan hire Wellington Emerging Markets Systematic Equity and RWC Emerging Markets Equity, and terminate Comgest GEM Promising Companies product for underperformance concerns. Wellington Emerging Markets Systematic Equity and RWC Emerging Markets Equity provide uncorrelated sources of alpha and diversification to the current portfolio. Adding the two funds to our existing portfolio will provide better risk and return profile for Emerging Markets equity.

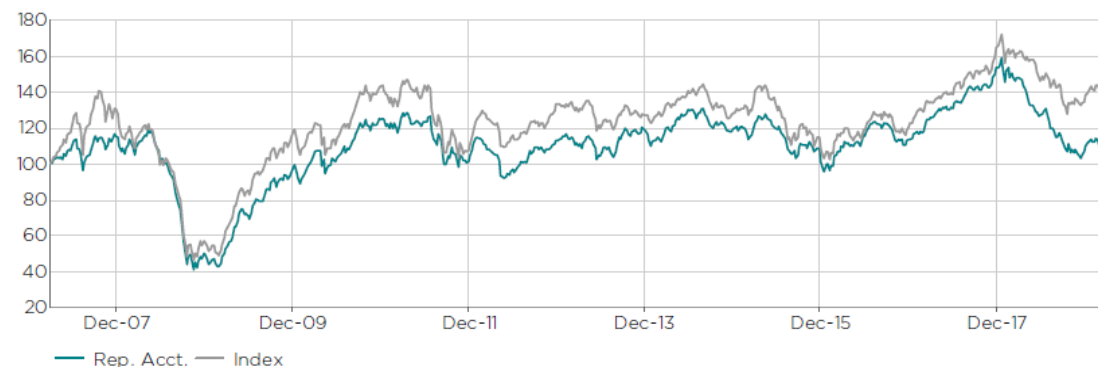
* Based on preliminary AUM data as of April 30, 2019

COMGEST GROWTH GEM PROMISING COMPANIES

PERFORMANCE (NET)*

31-Mar-2019
Currency: USD
Index: MSCI Emerging Markets SMID Cap - Net
Return

CUMULATIVE PERFORMANCE SINCE INCEPTION (%)

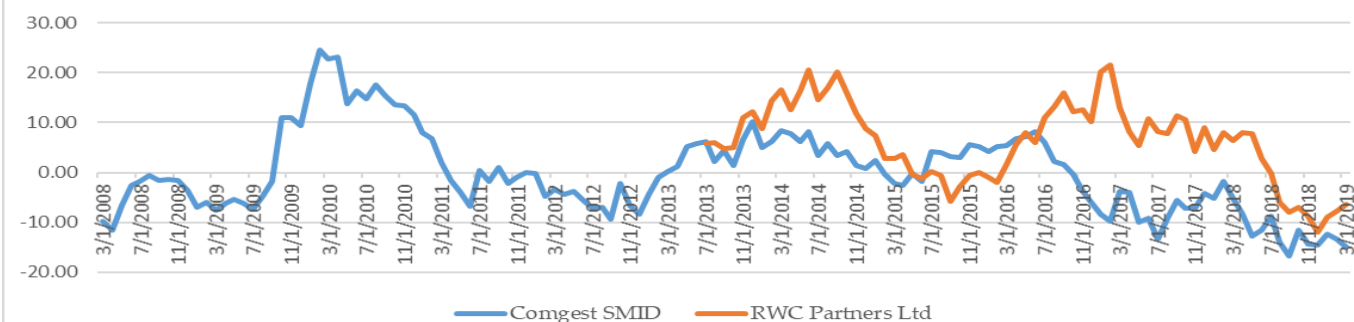


ROLLING PERFORMANCE (%)

	1 Month	QTD	YTD	1 Year	Annualized			Inception 04-Apr-2007
					3 Years	5 Years	10 Years	
Rep. Acct.	-0.00	8.18	8.18	-22.94	1.21	-0.90	8.71	1.17
Index	0.63	7.41	7.41	-10.42	6.90	1.92	9.62	3.18

Source: Comgest

Rolling 12 Month Excess Return Relative to MSCI EM IMI Net Index

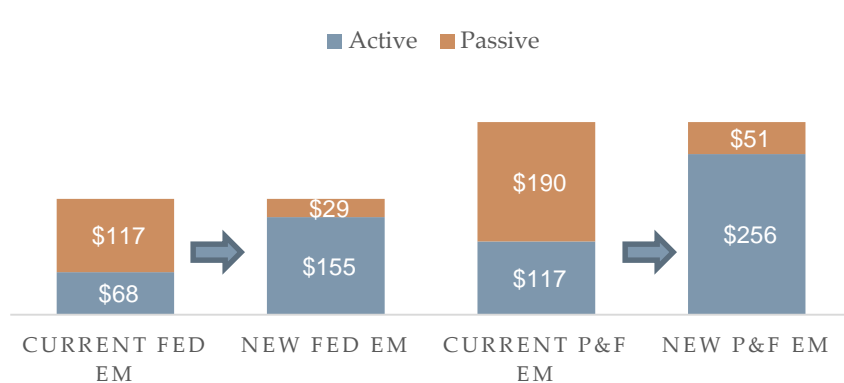


	Comgest	RWC
SI Average	-0.2	6.1
Current Z-Score	-1.8	-1.6
Correlation	41%	

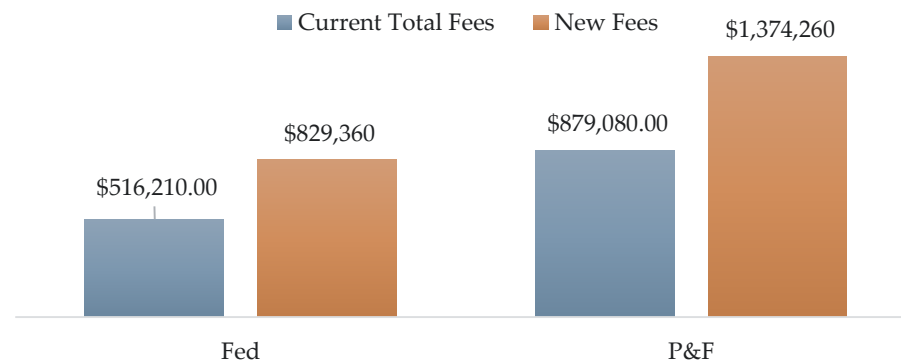
	Current Funded Managers				Proposed Managers	
	DFA	GQG	Comgest	Passive	Wellington	RWC
Current Allocation (Fed)	\$25 mm (13%)	\$29 mm (16%)	\$15 mm (8%)	\$117 mm(63%)	0	0
Proposed Allocation (Fed)	\$40 mm (22%)	\$41 mm (22%)	0%	\$29 mm (16%)	\$50 mm (27%)	\$25 mm (14%)
Current \$ Allocation (P&F)	\$33 mm (11%)	\$50 mm (16%)	\$34 mm (11%)	\$190 mm (62%)	0	0
Proposed \$ Allocation (P&F)	\$68 mm (22%)	\$68 mm (22%)	0%	\$51 mm (17%)	\$80 mm (26%)	\$40 mm (13%)
Investment Approach	Smart Beta	Fundamental	Fundamental	Index	Quantitative Systematic	Fundamental
Style	Value	GARP	SMID Growth	Core	Core/Value	Core/Growth
Portfolio Role	ValueMid Cap	owthDownside Protection	SMID Cap	Passive	CoreHigh IR	Up Market Participation Opportunistic
Base Fee	57 bps	65 bps	60 bps < \$25 mm; 55 bps on the next \$25 mm; and 50 bps for over \$50 mm	9 bps	25 bps	75 bps
Performance Fee	N/A	N/A	20% of excess return vs. MSCI EM SMID Net USD	N/A	30% of (excess return over Index + 0.5%) up to 57 bps and 10% split thereafter	N/A
Fund Structure	Commingled	Commingled	Commingled	Commingled	Commingled	Commingled

	RWC		Wellington		New EM Fund		Current EM Fund	
Total Tracking Error Ex Ante	5.51		2.23		2.15		1.41	
3 Largest Country Active Weight	Taiwan	-6.9%	China	-4.7%	Taiwan	-3.8%	Taiwan	-2.5%
	South Africa	-5.6%	India	-2.7%	India	+2.7%	Korea	-2.0%
	UK	+4.9%	Taiwan	-2.2%	Korea	-1.9%	India	+1.8%
3 Largest Sector Active Weight	Industrials	+8.5%	Financials	+3.2%	Financials	+3.3%	Financials	+2.7%
	Comm. Services	-6.8%	Health Care	-2.3%	IT	-2.9%	IT	-2.1%
	Financials	-6.3%	Consumer Disc.	-2.1%	Comm. Services	-2.9%	Consumer Disc.	-1.4%
3 Largest Style Factor Exposure (Barra)	Dividend Yield	-0.5	Earnings Yield	+0.5	Beta	-0.2	Beta	-0.1
	Liquidity	+0.5	Book-to-Price	+0.3	Book-to-Price	+0.1	Size	+0.1
	Residual Vol.	+0.4	Dividend Yield	+0.3	Earnings Yield	+0.1	Risidual Volatility	-0.1
Historical Excess Return SI	4.7		1.7		1.3		0.0	
Historical Tracking Error SI	7.2		2.1		1.7		1.6	
Historical Information Ratio SI	0.7		0.8		0.8		0.0	
Average Rolling 12M Excess Return	6.1		2.1		1.4		-0.1	
% of Positive 12M Excess Return	75%		77%		81%		41%	

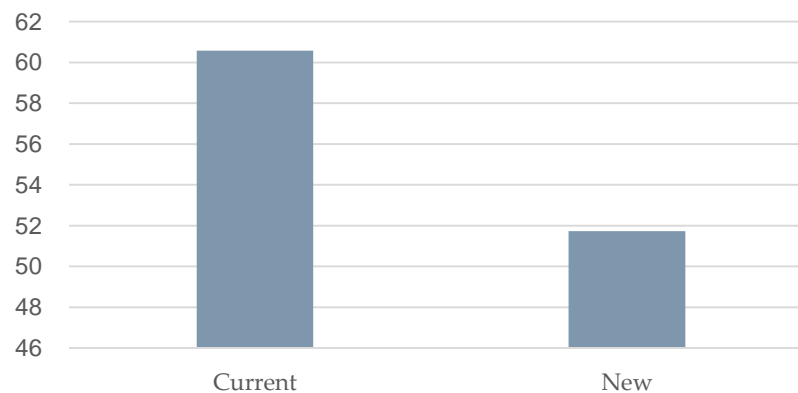
EMERGING MARKETS PORTFOLIO COMPOSITION



TOTAL BASE FEE ESTIMATE



BASE FEE RATE OF ACTIVE STRATEGIES



Based on AUM as of April 30, 2019. The analysis does not include performance fees.

- Federated: Allocate \$50 mm to Wellington EM, and \$25 mm to RWC EM. Increase by \$15 mm to DFA and by \$12 mm to GQG.
- P&F: Allocate \$80 mm to Wellington EM, and \$40 mm to RWC EM. Increase by \$35 mm to DFA and increase by \$18 mm to GQG.
- Terminate Comgest Emerging Markets SMID Cap
- For both plans, source of funding will be from Northern Trust EM IMI passive fund and the terminated manager.
- Both Wellington and RWC are stable organizations with strong investment teams. Wellington utilizes a quantitative approach to produce returns with no clear style tilt and perform in majority of market conditions. RWC provides a different source of alpha from their macro top-down and fundamental bottom-up research. RWC also has the potential of achieving very strong up-capture.
- Comgest has lagged its benchmark since inception. Comgest has a higher correlation with RWC in terms of excess return pattern.
- The new allocation is expected to provide stronger excess return with appropriate tracking error.

Appendix



Donald S. Tunnell
MBA, University of Chicago
30 years experience



David J. Elliott, CFA, FRM
BS, University of
Massachusetts, Amherst
29 years experience



Cheryl L. Davis
MBA, Bentley University
21 years experience



Giola Dominedo
SM, Harvard University
13 years experience



Yang Du, PhD
PhD, Northeastern University
8 years experience



David Goddeau, PhD
PhD, Massachusetts Institute
of Technology
36 years experience



Andy D. Gossard
MBA, Massachusetts Institute
of Technology
12 years experience



Josh Graver, PhD
PhD, Princeton University
10 years experience



Christopher R. Grohe, CFA
MBA, Massachusetts Institute
of Technology
23 years experience



Sharon Gu, CFA
MS, Cornell University
8 years experience



Gabby He, CFA
MA, Massachusetts Institute
of Technology
5 years experience



Owen Lamont, PhD
PhD, Massachusetts Institute
of Technology
26 years experience



Michael P. McElroy, CFA
MS, Massachusetts Institute
of Technology
31 years experience



Yasick Nemenov
BA, Williams College
2 years experience



Feng Pan
BA, Duke University
2 years experience



William Rubens, PhD
PhD, Imperial College London
9 years experience



Reza Shabani, PhD
PhD, University of California,
Berkeley
5 years experience



Ryan Stuntz
BS, Massachusetts Institute
of Technology
<1 years experience



Mark A. Yarger, CFA
MBA, Babson College
29 years experience



Wei Xu
MS, Tsinghua University
10 years experience

AREAS OF FOCUS AND RESEARCH

Multi-horizon Return Models

Risk Modeling

Transactions Cost Models

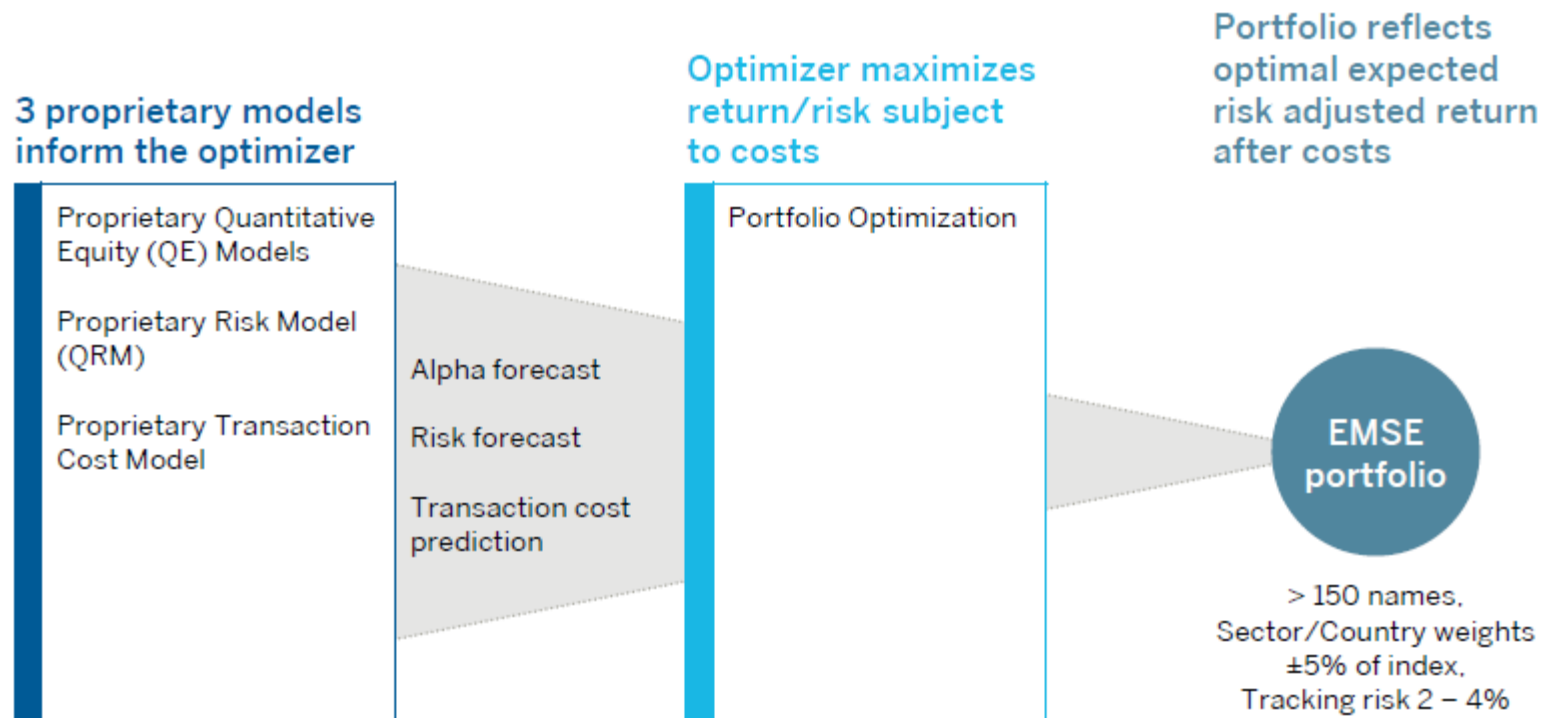
Multi-asset Modeling

Portfolio Management and Oversight

Research Infrastructure

Behavioral Finance

Alternative Data





John M. Malloy, Jr.
*Portfolio Manager of
Emerging Markets
Strategies
Investment Committee*



Patricio Danziger
*Latin America
Investment Committee*



Victor Erch



Thomas Allraum
*Co-Portfolio Manager
Thematic Research
Investment Committee*



Colin Liang
*China
Investment Committee*



Long Hao



Christopher Siow



James Johnstone
*Portfolio Manager of
Frontier Markets
Strategies
Investment Committee*



Jaimin Shah
*Asia (Excluding China)
Investment Committee*



Shivesh Haulkhory



Muchemi Wandimi



Cem Akyurek, Ph.D.
*Economist
Investment Committee*



Marina Bulyguina
ESG



Dan Huang



Ferdinand Campbell



Anil Tewari
*Research
Investment Committee*



Christopher DiSalvatore



Jessica Lim

The investment team's process combines **top-down** and **bottom-up** fundamental inputs, enabling the team to select the countries, sectors, themes and companies they believe present the **strongest return prospects**

Macro Framework

TOP-DOWN

- Conduct macroeconomic and geopolitical analysis to identify opportunities, risks, themes and currency forecasts

Investment Idea Generation

THEMATIC

- Global approach to discover growth areas across countries and sectors
- Highlight synergies and historical parallels

BOTTOM-UP

- Monitor universe of stocks based on regional or sector coverage
- Identify securities that classify as "growth at a reasonable price"

Opportunistic Implementation

FLEXIBLE

- Unconstrained by index mandated countries and securities
- Manage risk by focussing on liquidity, position sizes and overall portfolio concentrations

Firm Name	Strategy	Comments
Acadian Asset Management LLC	Emerging Markets Equity	Quantitative, core/value
AGF Investments	AGF Emerging Markets Equity	New team, fundamental, core/quality
Arrowstreet Capital, Limited Partnership	Emerging Markets	Quantitative
Artisan	Developing World	New team, fundamental, benchmark agnostic
Ashmore Group plc	Ashmore EM Active Equity Strategy	Top-down
Aubrey Capital Management Limited	Global Emerging Markets Strategy	Fundamental bottom-up stock picker, high tracking error
Axiom Investors	Axiom Emerging Markets Equity Strategy	Fundamental, core/growth
Baillie Gifford & Co	Emerging Markets All Cap	Fundamental, high growth
Barrow, Hanley, Mewhinney & Strauss, LLC	Emerging Markets Equity	Fundamental, value
BlackRock	Emerging Markets Alpha Advantage	Quantitative, academic research based, core
Driehaus Capital Management LLC	Driehaus Emerging Markets Growth	Fundamental, growth
Lazard Asset Management LLC	Emerging Markets Equity	Fundamental, relative value
LSV Asset Management	Emerging Markets Value Equity	Quantitative, value
Metis Global Partners, LLC	Emerging Markets Equity	Quantitative, deep value
Numeric Investors LLC	Emerging Markets Core	Product closed
Putnam Investments	Putnam Emerging Markets Equity	Fundamental, growth
TT International	TT Emerging Markets Equity	Top-down & bottom-up fundamental
William Blair Investment Management, LLC	Emerging Markets Growth	Fundamental, quality growth