

Under The Manager Microscope: Causeway's Risk Lens

November 10, 2015

Causeway Capital Management LLC 11111 Santa Monica Blvd. 15th Floor Los Angeles, CA 90025 www.causewaycap.com



"I think, perhaps, we need to come up with a new approach to risk management."



About Causeway

- > Independent institutional investment manager
- > Founded in June 2001 and headquartered in Los Angeles, California
- > Focus on global equity strategies

Strategy	Fundamental	QUANTITATIVE
International Value	✓	√
Global Value	✓	√
Emerging Markets	√	✓
International Small Cap	√	✓
Global/International Opportunities	✓	✓
Global Absolute Return	✓	✓

- > 73 employees including 25 investment professionals
- > Approximately \$39 billion assets under management (as of 9/30/15)



Today's Speakers

SARAH KETTERER

- Co-founder and CEO of Causeway
- Fundamental Portfolio Manager

RYAN MYERS

- Quantitative Portfolio Strategist
- Leading the effort to link our clients with the full range of Causeway analytics

SEUNG HAN

- Quantitative Research Associate
- Designing and enhancing Causeway analytics, such as Risk Lens, to provide solutions for clients and their consultants



Discussion Topics

Risk Overview

- Defining risk
- Risks drive returns
- Systematic vs. Idiosyncratic

Modeling Risk

- Returns-based vs. holdings-based
- Multi-factor risk models
- Risks should be intentional and concentrated in areas where managers have skill

Causeway Risk Lens

- Calculates portfolio-level risk predictions
- How is a manager "spending" the fund's risk budget?
- Is the investment manager pursuing a strategy "true to label"?



Defining Risk

- In absolute terms → volatility
- In active terms → tracking error or active risk
- Causeway Risk Lens is an extension of our proprietary risk model which estimates stock and factor contributions to portfolio volatility and tracking error

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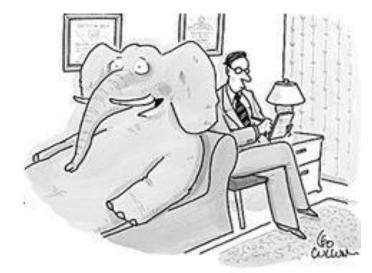


"OK, I'm going to say you're quite risk averse."



Risks Drive Returns

- The largest contributors to risk are likely the primary generators of potential returns
- They simultaneously represent the greatest vulnerabilities of the fund
- Risk is multidimensional
 - Idiosyncratic (company-specific)
 - Systematic (common factors)
- Not all risks are easily observable, especially at the portfolio level



"I'm right there in the room, and no one even acknowledges me."



Holdings-based Approach More Precise Than a Returns-based Approach

 Returns-based analysis requires long history (estimation window size sufficiently larger than the number of factors)



- Because of this, it is inherently backward looking
- This can produce misleading results, particularly for highturnover or style-drifting managers
- A holdings-based approach uses current holdings to estimate risk on a forward-looking basis



Components of the Causeway Risk Lens Model

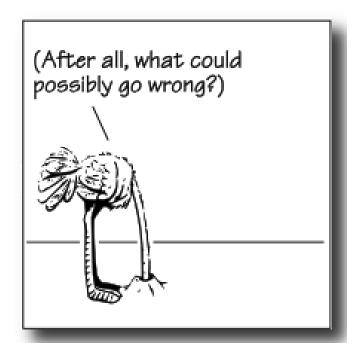
Risk Category	Country	Sector	Currency	Style	Firm-Specific (Idiosyncratic)
What It Seeks to Capture	Market-wide risks	Risks affecting a specific sector	Local currency risks (incremental to country risk)	Risks related to style dependence	Additional risks beyond systematic risks
Examples	Chinese market rout, sanctions against Russia, bilateral trade deals	Oil price collapse, capacity changes, M&A, regulatory actions	Change in inflation expectations, current account deficit relative to FX reserves	Small cap, value, defensive tilt, balance sheet leverage	Earnings surprise, FDA drug approval, new litigation

$$E(R_t) = \beta_t^{C} * C_t + \beta_t^{Sec} * Sec_t + \beta_t^{FX} * FX_t + \beta_t^{Style} * Style_t + \varepsilon_t$$



Which Active Risks to Take?

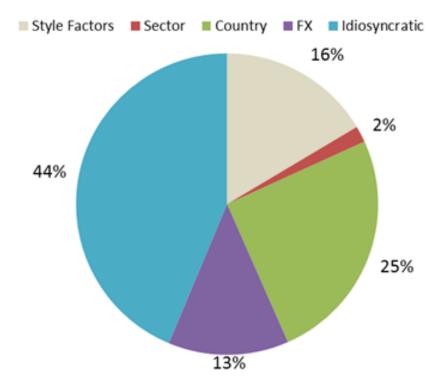
- Which risks do you want your manager to take and which to avoid?
 - Manager aware of risk exposures?
 - o Risks true to label?
 - Consistent with skill set?



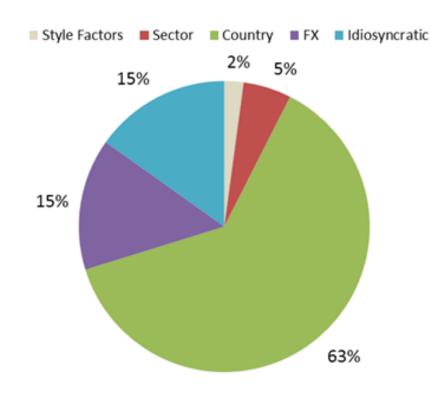


Assessing an Emerging Markets Fund's Active Risk

Components of Total Tracking Error



Fund A – Fairly Balanced

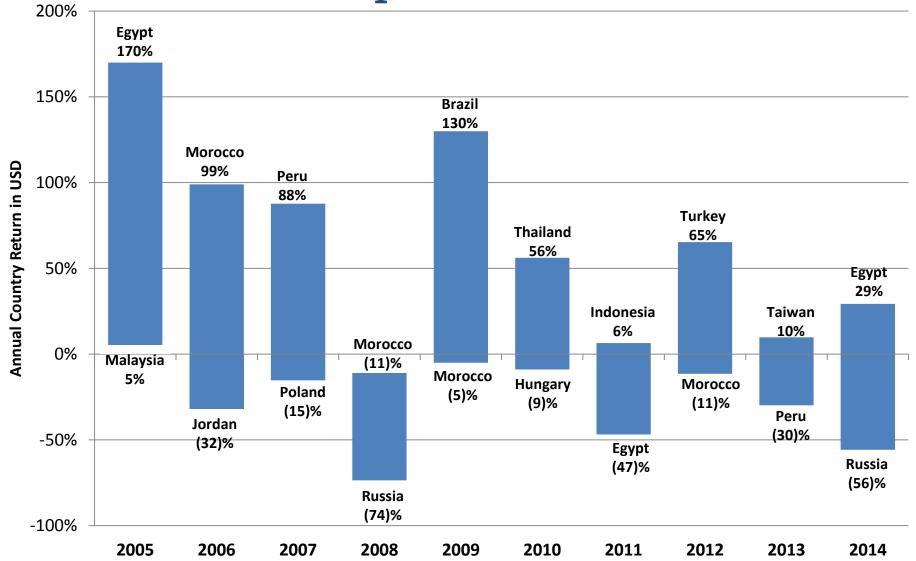


Fund B – Excessive Country Risk?

Note: For illustrative purposes only.



Extreme Active Country Exposures Can Easily Overwhelm Other Alpha Sources



Note: Shaded bar plots the difference between the top and bottom country within the MSCI Emerging Markets Index for each calendar year based on \$US returns. Source: MSCI.



Causeway Risk Lens: Objectives

- Provide a fully transparent view of a fund's current positioning and expose major contributors to risk
- Allow an investor to identify divergences in a manager's stated investment strategy versus the fund's actual current positioning
- Evaluate manager selection scenarios



Causeway Risk Lens: Output Summary

- Fund-Specific Risk Summary Reports
- Predicted Risk Characteristics
 - Volatility, Tracking Error, Beta, Diversification Ratio
- Active Return Correlation Predictions
- Current Portfolio Positioning
 - Contributors to Risk (Total/Active, Systematic/Idiosyncratic)
 - Exposures to Risk Factors (Style, Country, Sector, FX)
 - True Active Share, Overlap Analysis, Concentration of Holdings, Market Cap and Liquidity Profiles
- Predicted Risk Characteristics During Times of Market Distress



Fund Summary Report - Example

CEMIX - Causeway Emerging Markets Fund (Institutional Class)

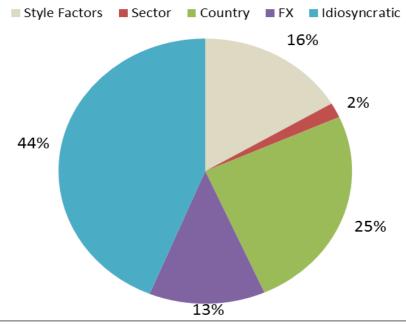
Predicted Volatility: 12.08% 2.79% Predicted Tracking Error: Predicted Beta: 0.97

Top 5 Risk Policies - Active Risk Impact			
	Active	Contribution	% of Total
Policy	Exposure	to Active Risk	Active Risk
Mexico	-3.0%	0.21%	7.71%
STYLE-Value	47.9%	0.20%	7.33%
South Africa	-2.4%	0.14%	5.20%
STYLE-Momentum	14.4%	0.14%	5.06%
Malaysia	-2.6%	0.12%	4.48%

Most similar to: **DFCEX (0.13)** Least similar to: HIEMX (-0.14) Cash: 1.08%

Top 5 Stocks - Active Risk Impact						
Active Contribution % of Total Stock Exposure to Active Risk Active Risk						
Pegatron Corp	1.8%	0.15%	5.43%			
Korea Elec Power	1.7%	0.13%	4.59%			
Naspers	-1.5%	0.12%	4.37%			
Netease Inc	1.1%	0.10%	3.55%			
Indiabulls Housing	1.0%	0.08%	2.90%			

CEMIX Active Total Tracking Error: 2.79%



Note: See Disclosures for important information.



Top Risk Drivers - Example

Causeway Emerging Mkts			
	Active	Contribution	% of Total
Policy	Exposure	to Active Risk	Active Risk
Mexico	-3.0%	0.21%	7.71%
STYLE-Value	47.9%	0.20%	7.33%
South Africa	-2.4%	0.14%	5.20%
STYLE-Momentum	14.4%	0.14%	5.06%
Malaysia	-2.6%	0.12%	4.48%

DFA Emerging Mkts Core					
Active Contribution % of Total					
Policy	Exposure	to Active Risk	Active Risk		
China	-7.4%	1.24%	55.97%		
STYLE-Size	-42.9%	0.24%	11.04%		
Russia	-2.3%	0.17%	7.58%		
Russian Rouble	-2.4%	0.16%	7.44%		
India	3.7%	0.14%	6.51%		

Lazard Emerging Mkts				
Active Contribution % of Total				
Policy	Exposure	to Active Risk	Active Risk	
China	-8.8%	0.95%	22.30%	
Russian Rouble	4.0%	0.37%	8.60%	
Brazil	4.2%	0.34%	8.00%	
Russia	4.0%	0.33%	7.80%	
Indonesia	3.9%	0.28%	6.58%	

Oppenheimer Developing Mkts			
	Active	Contribution	% of Total
Policy	Exposure	to Active Risk	Active Risk
Korea	-14.4%	1.04%	23.08%
Taiwan	-10.0%	0.65%	14.42%
Consumer Discr.	11.0%	0.39%	8.57%
China	-5.9%	0.38%	8.35%
South Africa	-6.8%	0.33%	7.32%

Fidelity Series Emerging Mkts			
	Active	Contribution	% of Total
Policy	Exposure	to Active Risk	Active Risk
Brazil	-1.7%	0.22%	10.04%
South Africa	-2.6%	0.20%	9.20%
Malaysia	-3.1%	0.17%	7.95%
South African Rand	-2.6%	0.17%	7.88%
Taiwan	-3.4%	0.17%	7.84%

Virtus Emerging Mkts			
	Active	Contribution	% of Total
Policy	Exposure	to Active Risk	Active Risk
China	-15.9%	2.25%	34.75%
India	18.8%	1.31%	20.19%
Indian Rupee	18.8%	0.62%	9.56%
Consumer Staples	26.4%	0.51%	7.84%
Korea	-12.3%	0.38%	5.87%



Which Stocks Are Driving Risk? - Example

Causeway Emerging Mkts			
	Active	Contribution	% of Total
Policy	Exposure	to Active Risk	Active Risk
Pegatron Corp	1.8%	0.15%	5.43%
Korea Elec Power	1.7%	0.13%	4.59%
Naspers	-1.5%	0.12%	4.37%
Netease Inc	1.1%	0.10%	3.55%
Indiabulls Housing	1.0%	0.08%	2.90%

DFA Emerging Mkts Core			
	Active	Contribution	% of Total
Stock	Exposure	to Active Risk	Active Risk
Tencent Hldgs Ltd	-1.4%	0.24%	10.93%
China Mobile Ltd	-1.0%	0.15%	6.79%
China Const Bk	-0.7%	0.10%	4.52%
Ping An Insurance	-0.6%	0.08%	3.75%
China Life Insuran	-0.5%	0.08%	3.40%

Lazard Emerging Mkts							
	Active	Contribution	% of Total				
Stock	Exposure	to Active Risk	Active Risk				
Tata Consultancy S	2.8%	0.33%	7.66%				
Sberbank Of Russia	1.8%	0.33%	7.65%				
Bco Do Brasil Sa	1.6%	0.28%	6.58%				
Cielo SA	1.9%	0.28%	6.53%				
Axis Bank	2.3%	0.25%	5.80%				

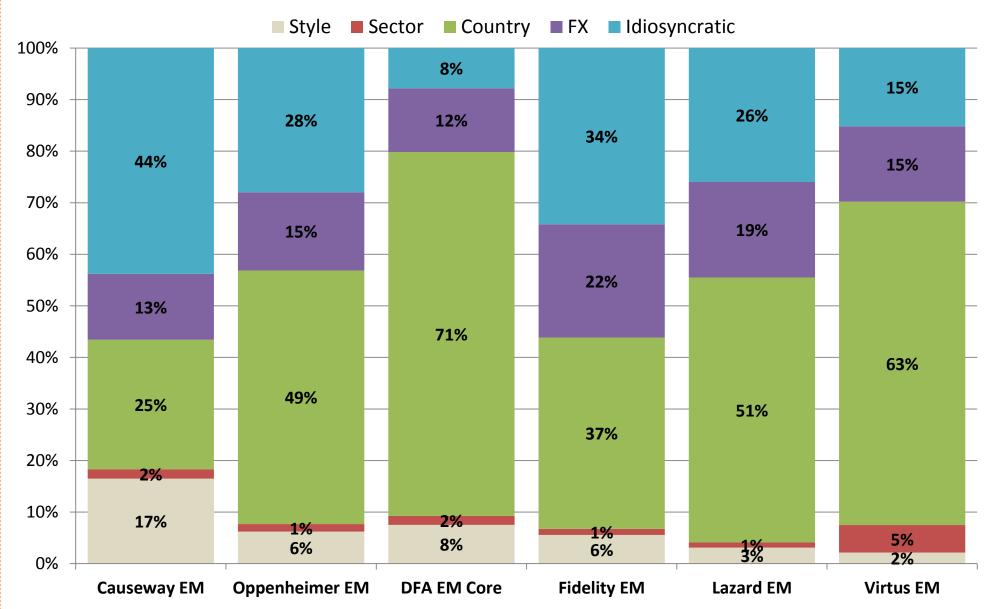
Oppenheimer Developing Mkts							
Active Contribution % of Total							
Policy	Exposure	to Active Risk	Active Risk				
Magnit PJSC	3.0%	0.34%	7.56%				
Samsung Electronic	-3.7%	0.31%	6.84%				
Housing Devel Fin	3.1%	0.30%	6.68%				
Infosys Ltd	2.3%	0.23%	5.10%				
Novatek OAO	2.2%	0.19%	4.28%				

Fidelity Series Emerging Mkts							
	Active Contribution % of Total						
Stock	Exposure	to Active Risk	Active Risk				
AmBev SA	-0.7%	0.10%	4.42%				
China Const Bk	-1.7%	0.09%	4.15%				
MTN Group Ltd	-0.7%	0.07%	3.17%				
Bank Of China Ltd	-1.0%	0.05%	2.34%				
Gazprom PJSC	-0.3%	0.05%	2.13%				

Virtus Emerging Mkts								
	Active Contribution % of Total							
Stock	Exposure	to Active Risk	Active Risk					
HDFC Bank	5.3%	0.72%	11.15%					
Housing Devel Fin	4.3%	0.66%	10.17%					
ITC	3.9%	0.61%	9.36%					
Sun Pharmaceutical	2.4%	0.36%	5.53%					
Brit Amer Tobacco	7.4%	0.28%	4.28%					

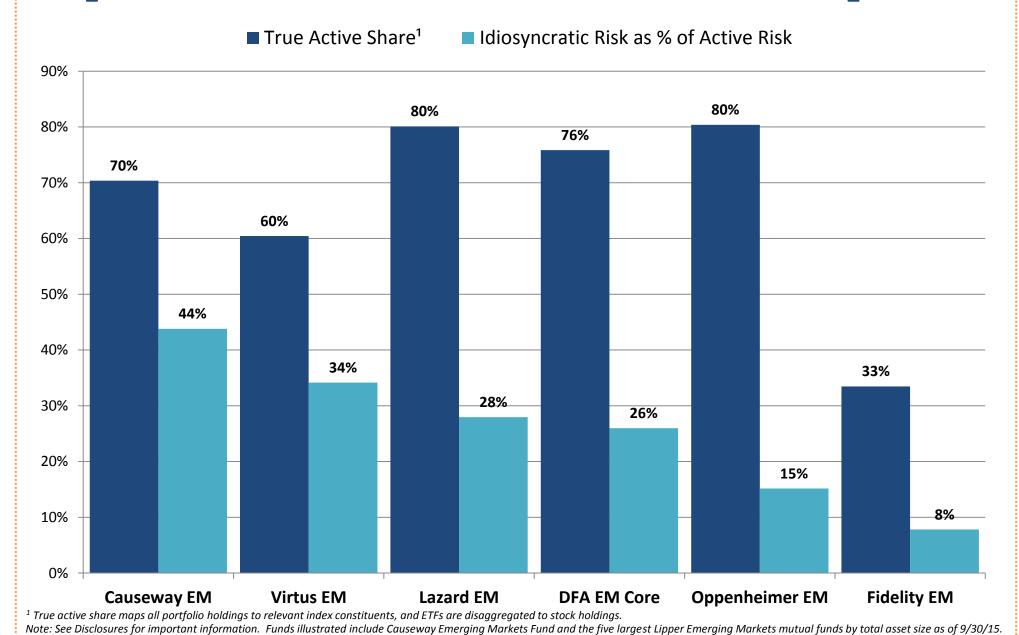


Which Factor Categories Are Driving Risk? - Example





Superior Alternative to Active Share? - Example





Complements or Supplements? - Example

Historical Active Correlation - Last 36 Month								
	Causeway EM	Causeway EM Oppenheimer EM DFA EM Core Fidelity EM Lazard EM						
Causeway EM								
Oppenheimer EM	-0.05							
DFA EM Core	0.52	0.21						
Fidelity EM	0.18	0.54	0.43					
Lazard EM	0.03	0.32	0.14	0.06				
Virtus EM	0.12	0.48	0.41	0.11	0.13			

Overlap Analysis - % Fund Overlap							
	Causeway EM	Causeway EM Oppenheimer EM DFA EM Core Fidelity EM Lazard EM					
Causeway EM							
Oppenheimer EM	9.33						
DFA EM Core	22.72	13.96					
Fidelity EM	22.04	21.68	28.10				
Lazard EM	21.40	12.77	17.75	24.14			
Virtus EM	8.27	26.95	12.96	18.93	20.17		

Predicted Active Return Correlation Matrix (vs. MSCI_EM)								
	Causeway EM	Causeway EM Oppenheimer EM DFA EM Core Fidelity EM Lazard EM						
Causeway EM								
Oppenheimer EM	-0.11							
DFA EM Core	0.13	0.13						
Fidelity EM	0.12	0.21	0.23					
Lazard EM	-0.13	0.16	0.23	-0.15				
Virtus EM	-0.14	0.45	0.59	0.15	0.37			



Significant Active Sector Exposures - Example

	Causeway EM	Oppenheimer EM	DFA EM Core	Fidelity EM	Lazard EM	Virtus EM	MSCI EM Index
Financials	(2.6%)	(4.9%)	(5.0%)	(1.5%)	0.2%	(4.5%)	28.4%
Information Technology	4.6%	(0.5%)	(1.2%)	(0.2%)	3.8%	(2.3%)	18.1%
Consumer Discretionary	(3.2%)	11.0%	2.3%	(1.1%)	(0.6%)	(2.9%)	9.4%
Consumer Staples	(3.2%)	3.3%	(0.1%)	(0.3%)	2.1%	26.4%	8.8%
Energy	2.1%	(4.4%)	(1.8%)	(1.2%)	(0.8%)	(6.7%)	7.5%
Industrials	2.5%	(1.8%)	3.0%	(0.9%)	(2.3%)	(7.5%)	7.5%
Telecom	(2.7%)	(5.6%)	(2.0%)	(0.9%)	4.0%	(2.8%)	7.4%
Materials	(2.6%)	(3.6%)	2.9%	(0.1%)	(2.2%)	(4.7%)	6.6%
Utilities	1.4%	(3.4%)	0.1%	(0.5%)	(3.0%)	(0.4%)	3.4%
Health Care	2.8%	3.3%	0.9%	(0.3%)	(2.9%)	1.6%	2.9%

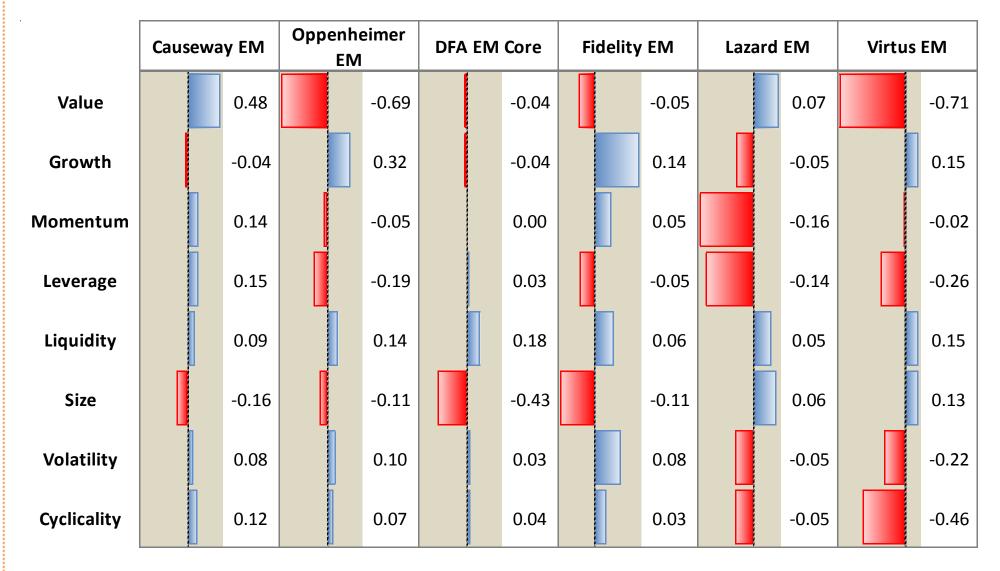


Significant Active Country Exposures - Example

	Causeway EM	Oppenheimer EM	DFA EM Core	Fidelity EM	Lazard EM	Virtus EM	MSCI EM Index
China	0.7%	(5.9%)	(7.4%)	(1.5%)	(8.8%)	(15.9%)	23.4%
Korea	2.6%	(14.4%)	0.2%	0.8%	(0.4%)	(12.3%)	15.5%
Taiwan	3.1%	(10.0%)	2.3%	(3.4%)	(6.8%)	(8.9%)	12.5%
India	0.2%	8.6%	3.7%	2.3%	2.3%	18.8%	8.9%
South Africa	(2.4%)	(6.8%)	0.3%	(2.6%)	1.2%	(3.1%)	7.8%
Brazil	(1.1%)	0.5%	0.8%	(1.7%)	4.2%	3.5%	6.1%
Mexico	(3.0%)	1.9%	0.5%	0.9%	(2.3%)	1.9%	4.8%
Russia	0.3%	3.0%	(2.3%)	(0.1%)	4.0%	(3.6%)	3.8%
Malaysia	(2.6%)	(1.5%)	0.8%	(3.1%)	(2.4%)	(0.8%)	3.1%
Thailand	1.2%	(1.4%)	0.6%	(0.4%)	0.8%	3.1%	2.2%
Indonesia	(1.6%)	(0.3%)	0.3%	(1.0%)	3.9%	2.4%	2.1%
United Kingdom	(0.1%)	2.6%	0.1%	0.1%	(0.1%)	12.4%	0.1%
Hong Kong	0.0%	8.4%	0.0%	0.9%	0.6%	6.3%	-



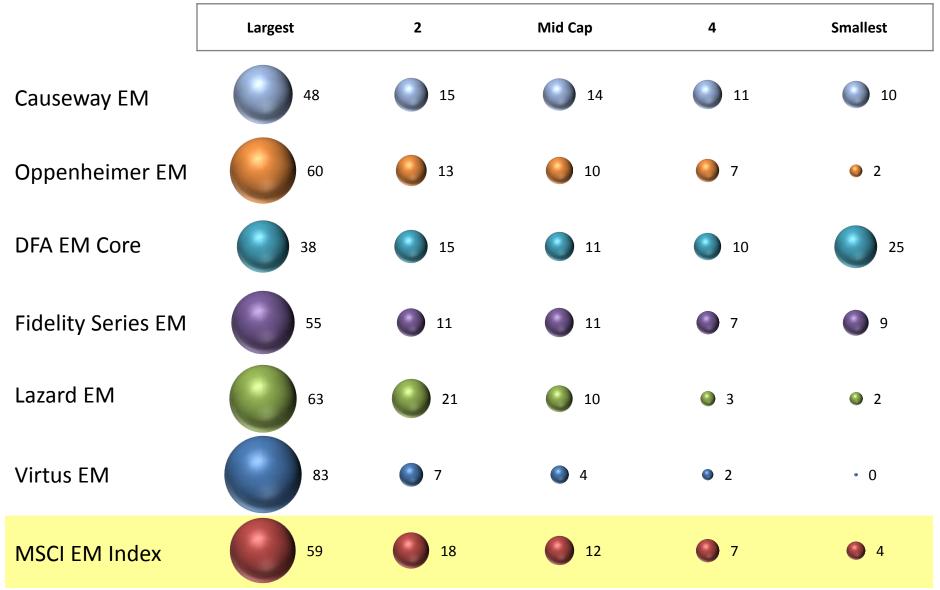
Active Style Exposures - Example





Market Cap Concentrations - Example

Size Quintile





Risk Lens: Extreme Risk Model



- Many risk factor return correlations move towards unity (1.0) during episodes of financial market distress
- In other words, diversification benefits can degrade when they are needed most
- To address this, we built an Extreme Risk Model:
 - Covariances/variances re-estimated across only the bottom 20% of 12-week rolling time periods since 1995
 - Discrepancies will reveal portfolio vulnerabilities during severe market environments



Summary

Risk Overview

Since risks drive returns, a better understanding of risk will yield a superior potential return stream

Modeling Risk

A holdings-based, multi-factor approach to risk modeling can better capture prospective risk characteristics than a returns-based approach

Causeway Risk Lens

Causeway's proprietary **Risk Lens** uses portfolio holdings to seek to illuminate current portfolio exposures, forecast risk correlations, and disaggregate fund risks at the portfolio level



Risk Lens: What we need from you

Option 1:

- List of Funds (Tickers) Up to 12 Funds per Report
- Benchmark

Option 2:

- Holdings information of portfolios of anonymized managers (Sedol/Weights) - Up to 12
- Benchmark

To request a Risk Lens, please contact:

- Kevin Moutes (moutes@causewaycap.com) Marketing
- Teddy Levitt (<u>levitt@causewaycap.com</u>) Client Services



Disclosures

The risk comparisons are calculated by Causeway's model as of the date of this presentation, November 10, 2015, and are subject to change. Results may vary with each use and over time. There is no guarantee that any forecasts made will come to pass.

Universe of Investments. Using Causeway Emerging Markets Fund and the five largest Lipper Emerging Markets mutual funds by total asset size as of 9/30/15, Causeway has applied its proprietary risk model to the latest publicly disclosed fund holdings in FactSet LionShares and/or Bloomberg (whichever has more complete and current data for the relevant fund). Holdings weights are calculated using share counts as of the holdings dates provided below and current prices.

Ticker	Fund Name	Holdings Date
CEMIX	Causeway Emerging Markets Fund Insti Cl	06/30/2015
ODVYX	Oppenheimer Developing Markets Fund Class Y	05/31/2015
DFCEX	DFA Emerging Markets Core Equity Portfolio	07/31/2015
FEMFX	Fidelity Series Emerging Markets Fund Cl F	08/31/2015
LZEMX	Lazard Emerging Markets Equity Portfolio Institutional Shares	07/31/2015
HIEMX	Virtus Emerging Markets Opportunities Fd Cl I Shs	06/30/2015

The holdings of funds with high turnover ratios may differ significantly from the holdings in FactSet LionShares or Bloomberg, and certain funds may report holdings more frequently than other funds. Thus, current fund characteristics may vary meaningfully from those used in the analysis. Analyzing funds with different objectives, risk and return characteristics, and categories may highlight differences that should not be relied upon. Moreover, analyzing funds using data from different periods may highlight differences that should not be relied upon.

Ticker	Risk Model coverage (% of portfolio NAV)	
CEMIX	100.0%	
ODVYX	98.1%	
DFCEX	99.3%	
FEMFX	97.7%	
LZEMX	100.0%	
HIEMX	99.6%	

Risk Model. Causeway's risk model analyzes multiple factors for each fund holding (excluding certain ETFs, fixed income, and commodities and other derivatives) to calculate the fund's style exposures, forecast the fund's correlation of returns and excess returns with other funds, forecast the fund's volatility, and forecast the fund's beta. The model also calculates a fund's "active share" and compares it to other funds.

Style Analysis. The universe is all equity securities globally with average daily trading volume over the prior 90 days above \$500,000. Every security in the universe is scored on each of 8 style dimensions. These standardized scores range from +3 to -3, with a score of 0 being equal to the weighted average score across the universe, +3 being most representative of the style, and –3 being least representative of the style exposures are the weighted average of the style scores of all fund holdings. Value, LT growth, leverage, liquidity, and size style scores are calculated relative to country. Momentum, volatility, and cyclicality style scores are calculated on a global basis. Active style exposures measure the difference between the fund style exposures and the benchmark style exposures.



Disclosures

Predicted Active Return Correlation Analysis. Fund return correlations are predicted based on each fund's aggregate exposures to the factors in the risk model ("systematic sources of risk"). These include style, country, sector, and currency exposures. "Idiosyncratic risk" refers to sources of risk not specified by the factors in the risk model. A covariance matrix of the funds' historical returns to these risk factors is then used to generate the correlation forecasts. Correlations range from –1 to +1. A score of 0 means the funds have no correlation, a score of 1 means the funds are exactly correlated, and a score of –1 means the funds are exactly oppositely correlated. Predictions of excess return correlations represent relative-to-index return correlations based on these systematic sources of risk. "Causeway Risk Lens for Funds" uses data from the past 156 weeks to identify historical relationships between risk factors. "Extreme Risk Model" data is based on the 20% worst trailing 12-week periods during periods beginning January 1, 1995, as measured by the performance of the MSCI World Index.

Active Correlation. Active correlations are based on each fund's actual returns, as reported by FactSet, measured over the 36-month period ended September 30th, 2015. Past performance or past correlations are not a guarantee of future results. Correlation Spread is the difference between Predicted Active Return and Active Correlation. A positive number signifies that the analysis forecasts correlations greater than have been realized while a negative number signifies that the analysis forecasts correlations lower than have been realized. These results may differ if a different period was used.

Predicted Volatility. Predicted fund level volatility (or annualized standard deviation of returns) is derived from holdings-based fund-level risk exposures, the historical covariance matrix of the risk factor returns, and idiosyncratic risk estimates.

Predicted Beta. Beta is a measurement of sensitivity to the benchmark index. Forecast beta is derived from holdings-based fund-level risk exposures, the historical covariance matrix of the risk factor returns, and idiosyncratic risk estimates.

Predicted Tracking Error. Predicted fund level tracking error measures dispersion from the benchmark index. It is derived from holdings-based fund-level and benchmark-level risk exposures, the historical covariance matrix of the risk factor returns, and idiosyncratic risk estimates.

Diversification Ratio. Diversification ratio is calculated by dividing the weighted average of the holdings' predicted volatilities by predicted fund-level volatility.

Active Share. "Active share" is the proportion of stock holdings in a fund that are different from the holdings in its benchmark index. A fund with an active share score of 0 has identical holdings with the index; a fund with a score of 100 has no overlapping holdings with the index.

Risk Contribution by Category. Risk contribution measures the marginal contribution to risk, as calculated by holdings-based fund-level risk exposures, and the historical covariance matrix of the risk factor returns, across 8 style dimensions, 10 sectors, different countries and currencies, as well as idiosyncratic risk. Risk contribution is measured for the fund's holdings (fund "Ptfl") and also its "active" risk contribution relative to the benchmark index.

Concentration of Holdings. Concentration of Holdings measures the maximum single position in the fund, and Top 5 Holdings and Top 10 Holdings measure such number of holdings, in each case, as of the holdings date.



Disclosures

Weighted Average Market Cap. Weighted average market cap measures the market capitalization of holdings based on data from FactSet, with quintiles differentiated as indicated by benchmark. Average 60 day trading volume (\$mm) measures trading volume in the holding's securities on the principal market on which it trades over the 60-day period ended September 30th, 2015, and may not reflect future trading volumes.

Top 5 Risk Policies – Active Risk Impact. Each active systemic risk is ranked from highest to lowest, and the five highest are reported. TCAR represents risk contribution by category. The % of Total equals TCAR divided by predicted tracking error.

Regional Exposures. Regions are defined using MSCI Regional Classifications.

IMPORTANT: The projections or other information generated by "Causeway Risk Lens for Funds" investment analysis tool regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results and are not guarantees of future results.

"Causeway Risk Lens for Funds" must be preceded or accompanied by the current prospectuses for the Causeway Emerging Markets Fund or other Causeway Fund included in any presentation. Please read the prospectus carefully before you invest or send money. To obtain additional information, including charges, expenses, investment objectives or risk factors, call us at 310-231-6100 or visit us online at www.causewayfunds.com.

Mutual fund investing involves risk, including possible loss of principal. In addition to the normal risks associated with equity investing, international investing may involve risk of capital loss from unfavorable fluctuations in currency values, from differences in generally accepted accounting principles or from social, economic or political instability in other nations. Emerging markets involve heightened risks related to the same factors as well as increased volatility and lower trading volume. Current and future holdings are subject to risk.

The MSCI Emerging Markets Index is a free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets. The Index is gross of withholding taxes, assumes reinvestment of dividends and capital gains, and assumes no management, custody, transaction or other expenses. It is not possible to invest directly in an index.

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