TOBAM Maximum Diversification®

Emerging Market Equity Index

Q3 2018 – Performance Review

Key Highlights:

- The Maximum Diversification® Emerging Market Index (MaxDiv®) returned -7.27% year to date vs. the MSCI Emerging Market benchmark return of -7.39%. During Q3 2018, MaxDiv® returned -2.13% vs. the MSCI EM return of -0.95%.

- The first half of 2018 saw a reemergence of volatility in equity markets. However, global equity risk was nominal over Q3. As markets returned closer to their historical average levels of volatility, the MaxDiv® EM reduced volatility by 15.01% with respect to the MSCI EM benchmark year to date.

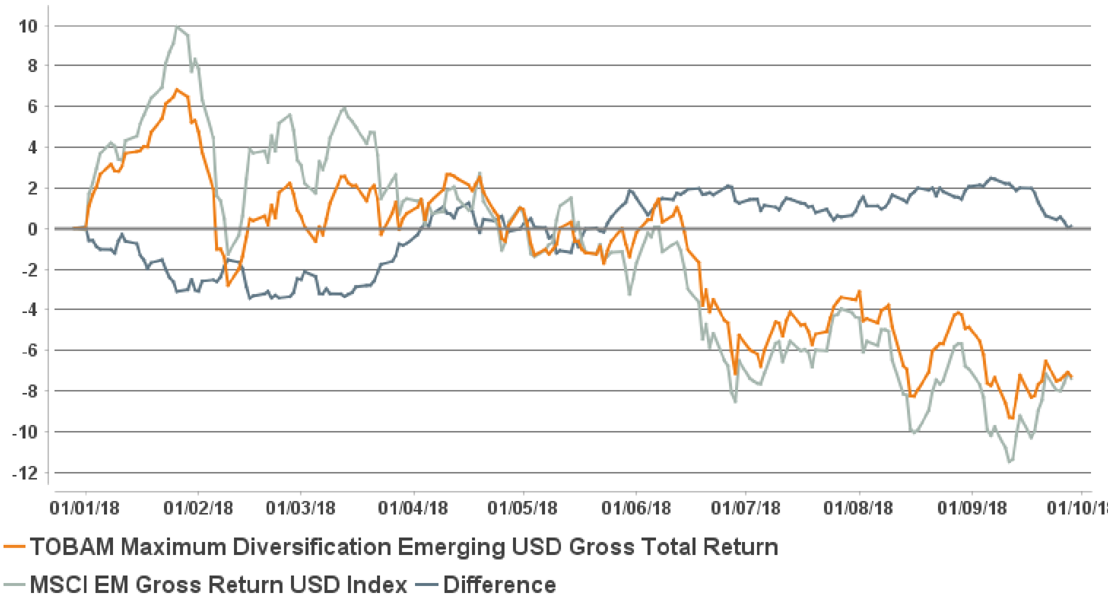
- The MSCI Emerging Markets Index remained biased toward Financials and IT.

- Focusing on Q3 2018 shows that the bets of the benchmark in Financials and Energy sectors were rewarded, which reduced the underperformance of the benchmark year to date.

1. YTD 2018 Performance

The MaxDiv® EM Index returned -7.27% vs. MSCI Emerging Market benchmark return of -7.39% year to date. The MaxDiv® EM Index reduced the volatility of returns by 15.01% vs. the MSCI benchmark.

Figure 1: MSCI EM vs. MaxDiv® EM Performance YTD 2018 (12/29/2017 – 09/28/2018)



TOBAM MaxDiv EM $ GTR:		
Return:	-7.27%	
Hist vol:	12.10%	
MSCI EM GR:		
Return:	-7.39%	
Hist vol:	14.24%	
Excess return:	0.12%	
Vol reduction:	-15.01%	
Tracking error:	5.05%	
Beta:	0.80	r^2 88.23%
Correlation:	93.93%	

Source TOBAM. Returns are gross of fees and stated in USD. Past Performance is not indicative of future results.

The first half of 2018 was characterized by a return of stock market volatility as both realized and implied volatility picked up in February and remained in-line with historical levels. However, global equity risk was nominal over Q3. The S&P 500 returned 10.6% year to date with 7.7% coming from Q3 alone, while the DJ Stoxx 600 was up 1.4%, with Italy and Greece underperforming respectively by -3.5% and -8.5% in Q3. Financial turbulence in Turkey and Argentina was contained and did not spread to other markets. The MSCI EM was down 7.5% over the year, while over the quarter the Turkish Lira lost 25% (37% year-to-date) and the Argentinian Peso 30% (losing more than half its value year-to-date).

In 2018, under new leadership the Fed entered the last part of its rate hike cycle while the ECB announced it would phase out its Debt Purchase program by year end. This being said after a 50bps re-pricing in January and February, the 10yr US Treasury has remained in the 2.8%-3.15% range for most of the year. In Europe, the 10yr German Bund rate which spiked to above 0.7% earlier in the year dropped to 0.3% due to political risk in Italy and was range bound between 0.3% and 0.5%. The continuation of low long term rates has led the US Treasury yield curve to a slope of approximately 0.25%, its lowest point since the Great Financial crisis. This is perceived by many as an indication of an upcoming economic recession. The strong performance of equities, and subdued implicit volatility levels coupled with a surprisingly benign backdrop in fixed income did not prove to be as supportive for credit as one might have expected. In the US, IG posted -2.16% and US High Yield 1.54% outperforming European High Yield by 1.26% in local currency terms. Overall, high quality credit underperformed lower quality credit as a result of the higher government rates, and heavier primary market activity. EM currency woes weighed on EM based issuers' performance. Corporate fundamentals remained solid with default rates at low levels.

2. Understanding the MaxDiv® Relative Performance

We now analyze the TOBAM MaxDiv® Indices relative performance vs. the MSCI benchmark, by looking at the main benchmark sector bets (Economic sectors / High vs. Low Market Capitalization stocks etc.) and how they performed over the period, since:

- TOBAM MaxDiv® Indices are long-only, fully invested, without leverage.
- By being well diversified, TOBAM MaxDiv® Indices are portfolios whose goal is to have their risk being homogeneously contributed by all the risk factors available in the investment universe. As such, it can be defined as a portfolio with as few bets as possible within its constraints.
- On the contrary, the benchmark is most times not evenly exposed to all the risk factors available in the investment universe. As such, it can be defined as a portfolio with implicit bets.
- The benchmark is "Buy & Hold": when its bets are winning bets, the benchmark concentrates even further.

➔ Thus, relative returns could be explained by looking at the performance of the benchmark largest bets.

TOBAM's Diversification Ratio® (DR) measures to what extent a portfolio is diversified. The DR^2 (square of the Diversification Ratio®) measures the number of effective degrees of freedom to which a portfolio is exposed. The TOBAM Maximum Diversification® approach, aims at maximizing the overall portfolio diversification, and as such will be likely to have more exposure to sectors with a higher DR^2.

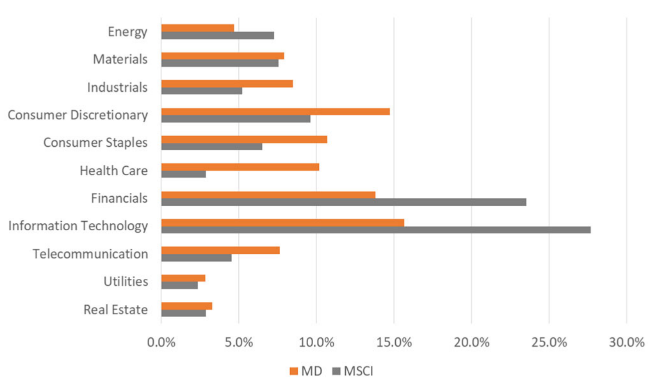
As of the end of the quarter, the DR^2 of the benchmark was 4.31 vs. the MaxDiv Index DR^2 of 9.28. In other words, the MaxDiv Index is 2.15x more diversified than the benchmark.

3. Return attribution by sector YTD 2018

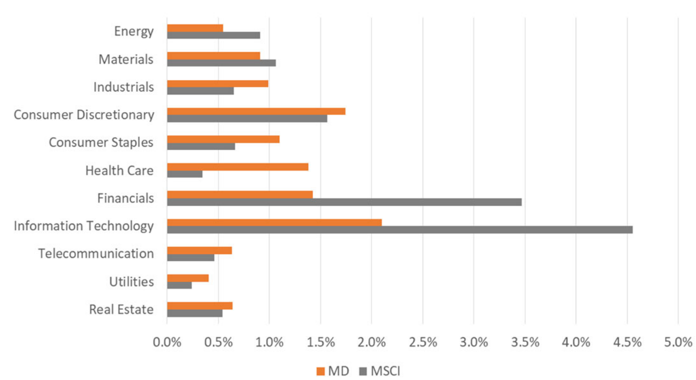
Over the period, the MSCI EM benchmark remained significantly biased toward Financials and IT.

Figure 2: MSCI EM vs. MaxDiv® EM – YTD 2018

(i) Sector Allocation (Average over Period)

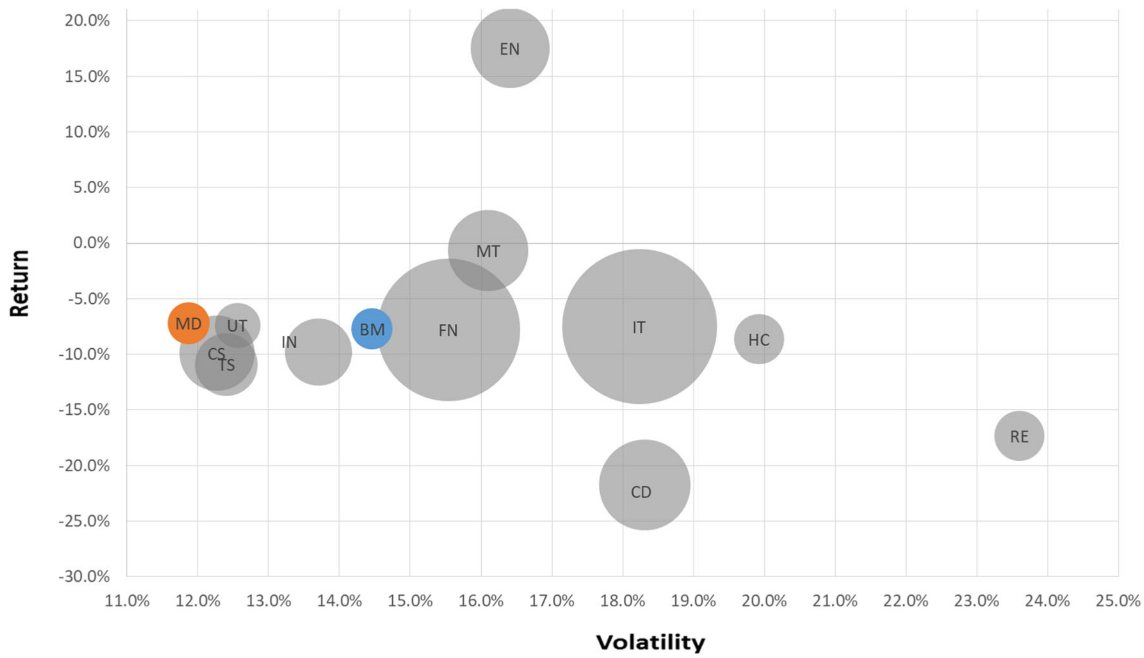


(ii) Sources of Volatility (Ex-Post over Period)



Source: TOBAM, Bloomberg.

Figure 3: Risk/Return Analysis - MSCI EM Universe by sector, YTD 2018



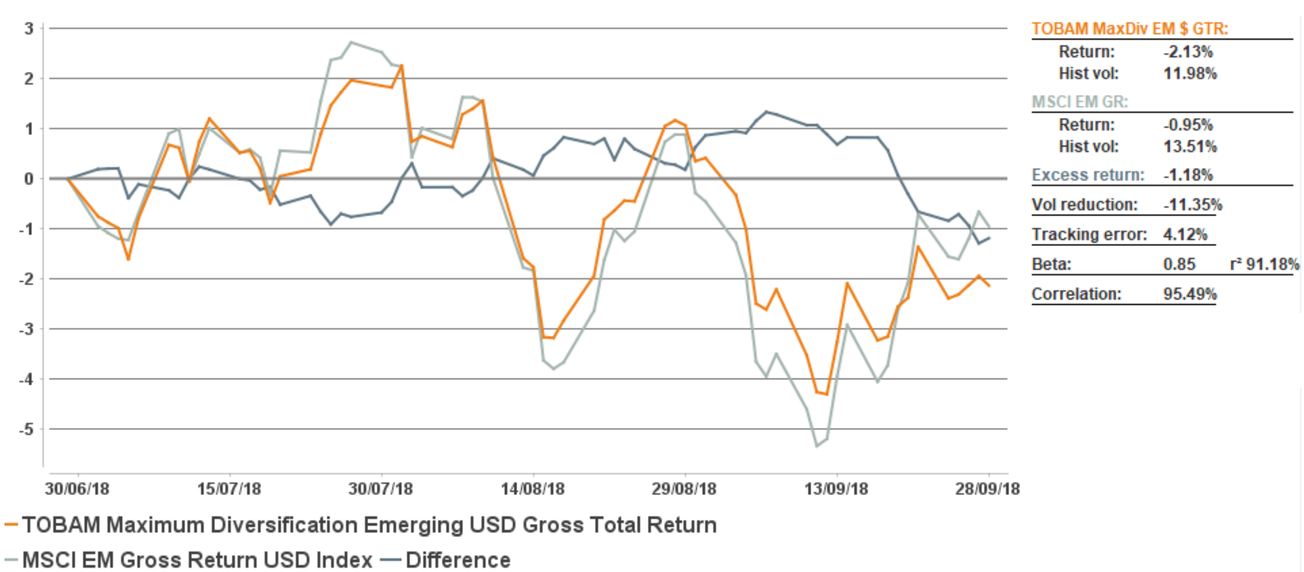
Note: The size of the bubbles is proportional to the weight of each sector in the market cap-weighted index. Source TOBAM, Bloomberg. Returns are stated in USD and are Gross of fees. Past performance is not indicative of future results.

As seen in the Risk/Return analysis above, the IT and Financial sectors performed in line with the benchmark YTD. The Energy sector has been the only sector that has posted a positive return year to date.

4. Understanding the MaxDiv® EM Relative Performance – Q3 2018

The MaxDiv® EM Index returned -2.13% during Q3 2018 vs. the MSCI EM benchmark return of -0.95%. The MaxDiv® Index reduced the volatility of returns by 11.35% vs. the MSCI benchmark.

Figure 4: MaxDiv® EM vs. MSCI EM Performance Q3 2018 (06/29/2018 – 09/28/2018)



Source TOBAM. Returns are gross of fees and stated in USD. Past Performance is not indicative of future results.

From December 29, 2017 until June 29, 2018 the MaxDiv® EM outperformed the MSCI EM. During the third quarter however the MaxDiv® EM underperformed the MSCI EM index by - 1.18%. The two below Figures 5 and 6 focus on this quarter:

Figure 5: Return Attribution by sector, MaxDiv® EM vs. MSCI EM, Q3 2018

Sector - 29/06/2018 to 28/09/2018	Total Effect	Allocation Effect	Combined Effect	Portfolio Weight	Benchmark Weight	Benchmark Return
Energy	-0.45%	-0.36%	-0.10%	5.06%	7.54%	14.56%
Materials	-0.28%	0.00%	-0.28%	7.66%	7.73%	4.35%
Industrials	-0.06%	0.11%	-0.17%	8.33%	5.28%	2.77%
Consumer Discretionary	0.24%	-0.50%	0.73%	14.80%	9.33%	-9.99%
Consumer Staples	-0.51%	-0.08%	-0.43%	10.85%	6.62%	-2.81%
Health Care	0.13%	-0.56%	0.69%	10.69%	3.08%	-8.12%
Financials	-0.74%	-0.23%	-0.51%	13.96%	23.10%	1.42%
Information Technology	0.12%	0.45%	-0.33%	14.92%	27.44%	-4.55%
Telecommunication	0.15%	0.09%	0.06%	7.71%	4.49%	1.78%
Utilities	-0.11%	-0.01%	-0.10%	3.24%	2.43%	-2.24%
Real Estate	0.14%	0.03%	0.11%	2.71%	2.96%	-5.46%
Total	**-1.38%**	**-1.06%**	**-0.33%**	**99.94%**	**100.00%**	**-1.00%**

Source TOBAM. Returns are gross of fees and stated in USD. Unattributed return: 20bps. Combined effect is the sum of the selection and interaction effects. Past performance is not indicative of future results.

Figure 6: Risk/Return Analysis - MSCI EM Universe by sector, Q3 2018

Note: The size of the bubbles is proportional to the weight of each sector in the market cap-weighted index. Source TOBAM, Bloomberg. Returns are stated in USD and are Gross of fees. Past performance is not indicative of future results.

As shown above in Figures 5 and 6, the IT sector – the largest bet of the benchmark - underperformed the benchmark during Q3 2018. However this underperformance was offest by the outperformance of Financial and Energy sectors. These two bets of the benchmark were rewarded and allowed the benchmark to narrow the year to date underperformance vs.the MaxDiv® index.

5. Analyzing the Benchmark Concentrations using Correlations

Figure 7 below analyzes the MSCI EM concentrations by using correlations. The benchmark has significantly higher correlations to sectors such as FN, IT and EN but also to factors such as Large Size, High Momentum and Growth. The higher correlations can be interpreted as a benchmark bias in terms of correlations.

Figure 7: Sector & Factor correlations, MSCI EM vs. MaxDiv® EM, YTD 2018.

For more information

TOBAM is an asset management company offering innovative investment capabilities whose aim is to maximize diversification. TOBAM's Maximum Diversification® approach, supported by original, patented research and a mathematical definition of diversification, provides clients with diversified core exposure, in both the equity and fixed income markets. The company manages $10.4 billion (September 2018) via its Anti-Benchmark® strategies in Equities and Fixed Income. Its team includes 54 investment professionals.

Contacts:

Paris
49-53, Avenue des Champs-Elysées
75008 Paris
France

Dublin
Hong Kong
New York

Client Service
clientservice@tobam.fr

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