TOBAM*
CORE INVESTMENTS

Diversification DASHBOARD

NOVEMBER 2014

Diversification Ratios®

TOBAM's Diversification Ratio® (DR)[1] 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.

As the table shows, the "broad market" indices leave diversification on the table. In addition to a snapshot of each market's DR^2, the table shows the DR^2 of a well-diversified portfolio, and the fraction of available diversification used by the index.

	DR^2 - Index diversification	DR^2 - Maximum diversification	% diversification used by index
MSCI All Countries	6.18	23.37	26.4%
MSCI World	5.27	21.48	24.5%
MSCI Emerging	6.78	12.14	55.8%
MSCI Canada	4.73	9.64	49.0%
MSCI US	3.28	9.66	33.9%
MSCI Pacific ex-Japan	3.12	8.68	36.0%
MSCI EMU	2.38	5.71	41.6%
MSCI UK	3.74	6.41	58.3%
MSCI Japan	2.00	4.46	44.8%
MSCI Australia	2.52	4.79	52.5%

Source: TOBAM, figures as of October 31, 2014

[1] TOBAM's Diversification Ratio measures a portfolio's or index's diversification. It is supported by original research and is based on a mathematical definition of diversification. TOBAM's "Anti-Benchmark" Most Diversified Portfolio® maximizes this Diversification Ratio. Maximizing diversification within a universe of securities provides a result closer to the true market risk premium from that universe. "Maximum Diversification®" and "MaxDiv®" are registered trademarks of TOBAM.

Maximum Diversification® in US Credit

Having applied the Anti-Benchmark® to equities since 2006, TOBAM has successfully implemented its strategy to bonds for the first time. This represents a significant breakthrough in TOBAM's research and execution capabilities.

TOBAM started to implement the Anti-Benchmark® approach in the US credit space, where volumes and liquidity are significantly better. The amount of fixed rate corporate bonds issued in the US (IG & HY) in 2013 reached close to US$1,500 billion (source: CreditSights).

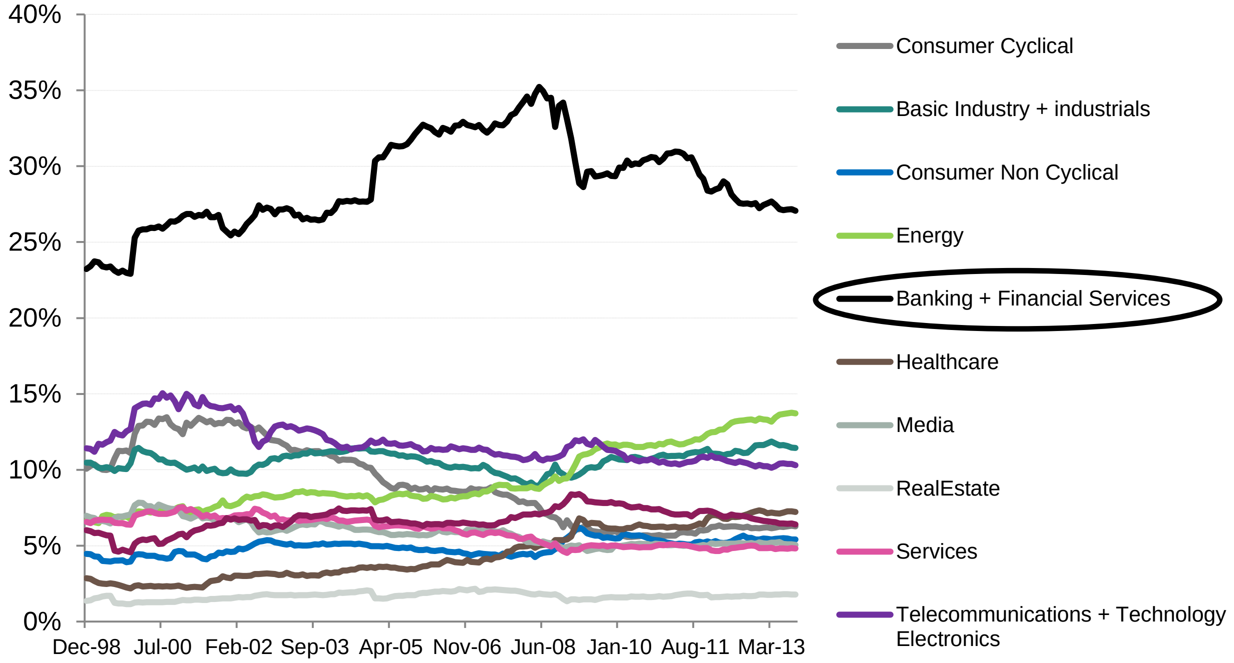
You will find below a short description of the rationale and the results of maximizing diversification in the US Credit investment universe.

1-Fixed income market cap-weighted indices are poorly diversified

The heavy structural biases that plague market-cap weighted equity indices plague issuer-weighted bond indices just the same.
Corporate bond benchmark indices are usually weighted according to the volume of debt issued, leading to heavy concentrations and bias notably towards more indebted issuers.

Looking at Figure 1, we observe that the strategy implemented by the benchmark consists in maximizing the weights of one issuer at the worst moment and implements strong concentrations bets. Banking & Financial services sectors for example picked at more than 35% of the index in the spring of 2008, on the eve of the financial crisis.

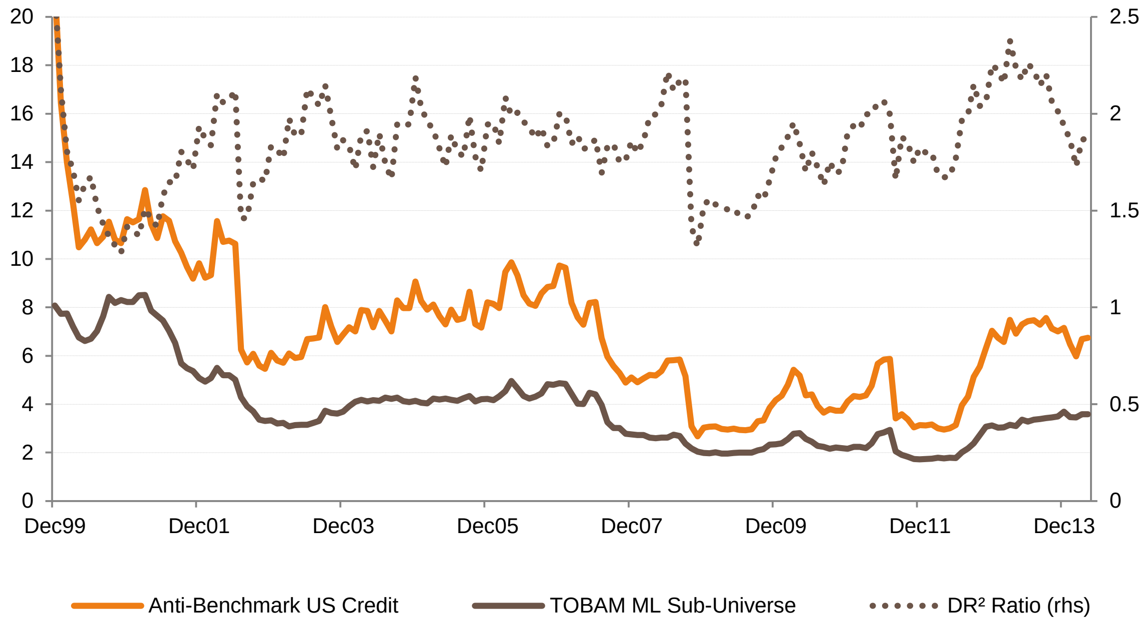
FIGURE 1: SECTOR CONCENTRATION IN THE MERRILL LYNCH US CORPORATE INDEX



2-Maximizing diversification in fixed-income allows a doubling of diversification

The Chart below compares the Diversification Ratio[2] of the Anti-Benchmark® US Credit and the **Merrill Lynch US Corporate Index**.

FIGURE 2
DR²s: MERRILL LYNCH US CORPORATE INDEX vs. ANTI-BENCHMARK US CREDIT



Looking at Figure 2:

1. The market cap-weighted benchmark is structurally capturing only a fraction of the available diversification as measured by the Diversification Ratio[2]. The diversification gap is persistent through time, a phenomenon that we have already proven in the equity field.

2. The ratio of the DR² for both portfolios (rhs), indicates that the benchmark captures only half of the risk factors available in the universe. This result is very consistent with the ratios of DR² observed in equity markets, providing for a very intuitive “out of sample” test of the diversification benefits empirically observed on the equity markets.

3-Results

FIGURE 3: RISK-RETURN FIGURES

ANTI-BENCHMARK® STRATEGIES IN US CREDIT COMPARED TO CAP-WEIGHTED REFRENCE INDICES

USD 31/12/1999 – 30/04/2014	Anti-Benchmark Fixed Income Corporate US	ML US Corporate & HY Index	Difference
Annualized Return	8.71%	6.98%	1.73%
Volatility	5.32%	5.86%	-0.54%
Sharpe Ratio	1.20	0.79	
Tracking Error (Vs ML Corp. Composite All Bonds US)	2.49%		

Source: TOBAM. Back tested results are for information purposes only. They are intended to illustrate how the strategies would have behaved over the period (31/12/1999-30/04/2014). Past performance is not indicative of future results. Returns are gross of fees and stated in USD

Figure 3 illustrates the backtested results of the Anti-Benchmark® US Credit strategy compared to its benchmark. Of note:

- Significant outperformance vs. the benchmark over the period.
- Average credit spread and HY/IG breakdown structurally in line with the benchmark's.
  - ➔ Excess return is representative of the benefits of diversification over time.

TOBAM Anti-Benchmark® US Credit, as well as the research associated with it, represents a unique approach for investors looking for core exposure to the US Credit market while avoiding structural biases.

Launched in May 2014, the Anti-Benchmark® US Credit strategy is available under a UCITS IV format. Short term, early live results are in line with expectations, with inception to date performance slightly in excess of the benchmark as of October 31st 2014.

For more information

TOBAM is an asset management company offering innovative investment capabilities whose aim is to maximize diversification. TOBAM's flagship Anti-Benchmark® strategies, supported by original research and a mathematical definition of diversification, provide clients with diversified core equity exposure, both globally and in domestic markets. The company manages over $6.3 billion (June 2014) via its Anti-Benchmark strategies for institutional clients worldwide. Its team includes 27 financial professionals.

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