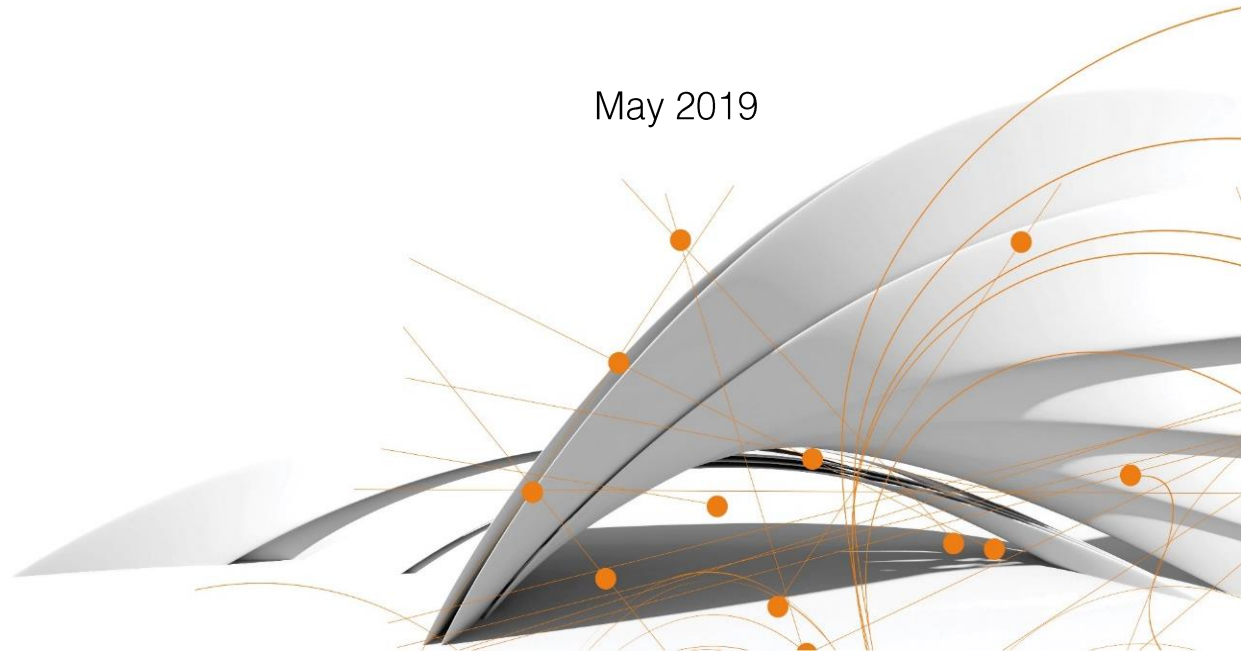


Anti-Benchmark Credit

The Benefits of Diversification in Credit

Our mission: “Provide rational and professional solutions to long term investors in the context of efficient markets”

May 2019





Agenda

- ✧ Introduction to TOBAM
- ✧ Anti-Benchmark® Credit Investment Philosophy and Process
- ✧ Benefits of Diversification in Credit
- ✧ Conclusion

Profile

The company:

Independent and employee-owned

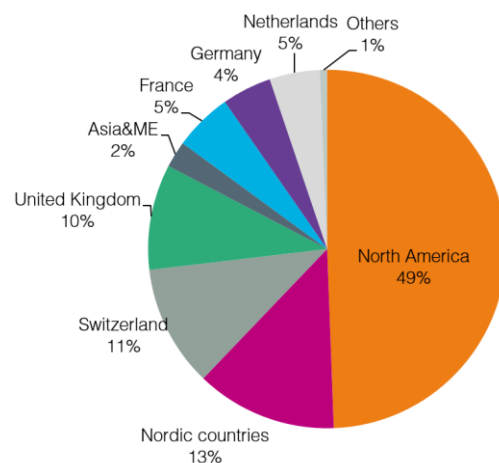
- Created in 2005
- CAD\$13.5 billion under management.
- 53 financial professionals, 19 nationalities.

The founder:

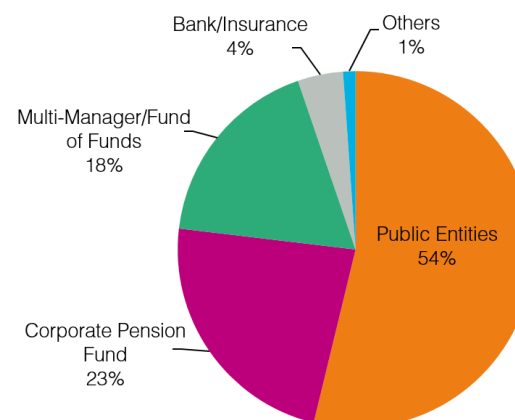
Yves Choueifaty, President & CIO (25 years investment experience), previously:

- CEO of Credit Lyonnais Asset Management (AuM €70bn)
- Graduated in 1992 from ENSAE in Statistics, Actuarial Studies, Finance and Artificial Intelligence

AuM by clients geography

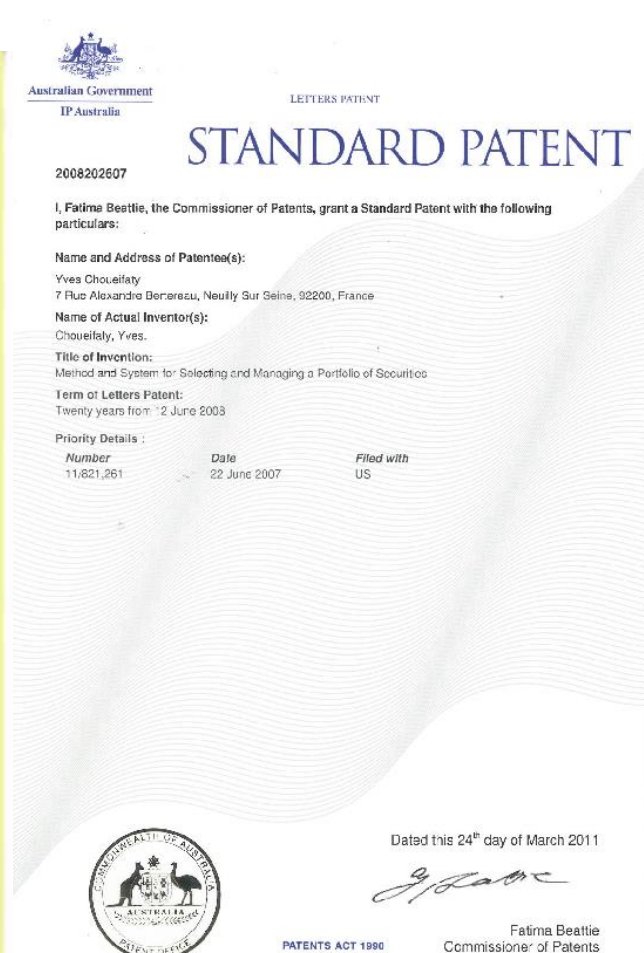
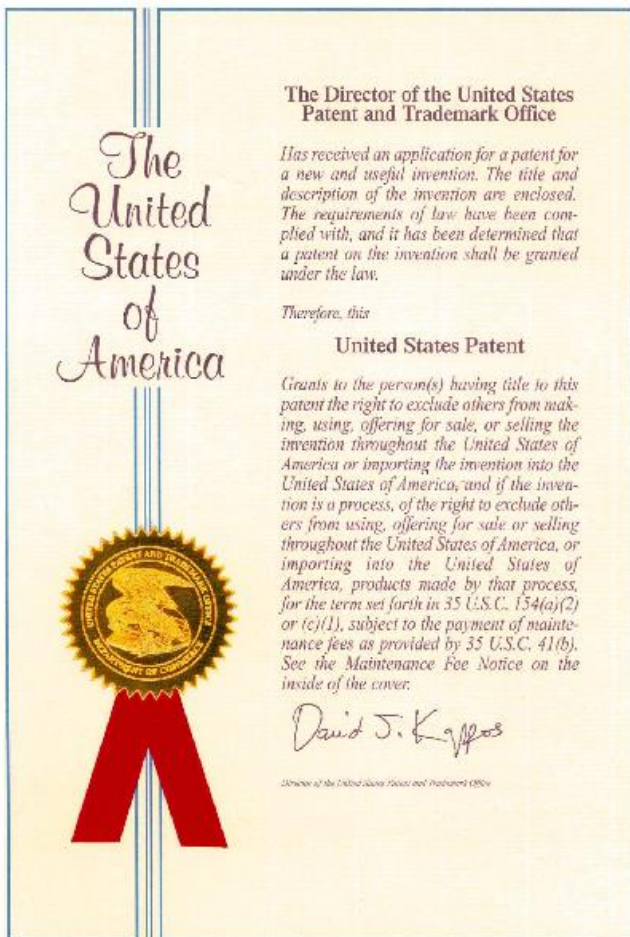


AuM by clients type



Source: TOBAM. Figures as of March 29, 2019

Granted Patents



Awards

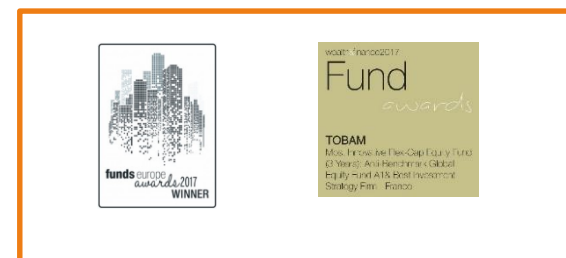
2018

- “European Smart Beta Manager of the Year”
Funds Europe Awards 2018, London



2017

- “European Asset Management Firm of the Year”
Funds Europe Awards 2017, London
- “Best Investment Strategy Firm (France) ” & Most Innovative Flex - Cap Equity Fund: Anti-Benchmark Global
Funds Awards 2017 – London



2016

- “AM Leader of the Year”
Grands Prix de la Gestion d'Actifs 2016 - Paris
- “European Asset Manager of the Year”
Funds Europe Awards 2016 – London



2015

TOBAM awarded twice in 2015 for “pioneering role in the foundation of the alternative/smart beta movement”

- “Equities Manager of the Year”
CIO Industry Innovation Awards 2015
New York
- “CIO of the Year”
Funds Europe Awards 2015
London



TOBAM's Sustainable Approach

Signatory of:



Since its creation, TOBAM has decided that sustainable development would be explicitly core to its values. We aim at protecting the long-term interests of our clients and stakeholders by taking a responsible approach in our investments and in our own corporate practices:

Investing Responsibly

Exclusion Policy

- ✓ *Applied to most AUM since 2007*
- ✓ *Based on the exclusion list of PRI founding member Norges Bank and some other leading institutions*

Responsible Shareholder & Engagement

- ✓ *Proprietary Voting Policy & Engagement with excluded companies*

Carbon Footprint Reduction

- ✓ *A systematic reduction of our relative carbon footprint of at least 20% applied to all TOBAM Equity portfolios vs. their respective benchmarks*

A Responsible Company

Managing TOBAM's Environmental Impact (E)

- ✓ *150% of TOBAM's carbon footprint is offset via reforestation projects*

Promotion of Social Progress (S)



- ✓ *Human Rights NGO's donation mechanism in our EM equity fund*

Responsible & Collaborative Governance (G)

- ✓ *Employee shareholding program & alignment of interest; Sustainability committee to oversee all SRI & CSR topics*

Commitment to Industry Initiatives

- ✓ *For ex, engagement initiative with Dublin Stock Exchange for ESG disclosure by listed companies*



Agenda

- ✧ Introduction to TOBAM
- ✧ Anti-Benchmark[®] Credit Philosophy and Investment Process
- ✧ Benefits of Diversification in Credit
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What is the Maximum Diversification® approach?

Maximum Diversification® : a quantitative investment approach based on a unique principle – building the Most Diversified Portfolio®

In order to maximize diversification, we need a measure:

- **TOBAM founded a metric for diversification: the Diversification Ratio® (DR)**
- The Maximum Diversification® approach: its unique objective is to increase the DR

The **Maximum Diversification® Indices** apply TOBAM's unique investment **philosophy**: outperform the market cap-weighted index with less risk, by increasing diversification

- Long-only, non leveraged and fully invested

The MDP[®] defines and increases diversification



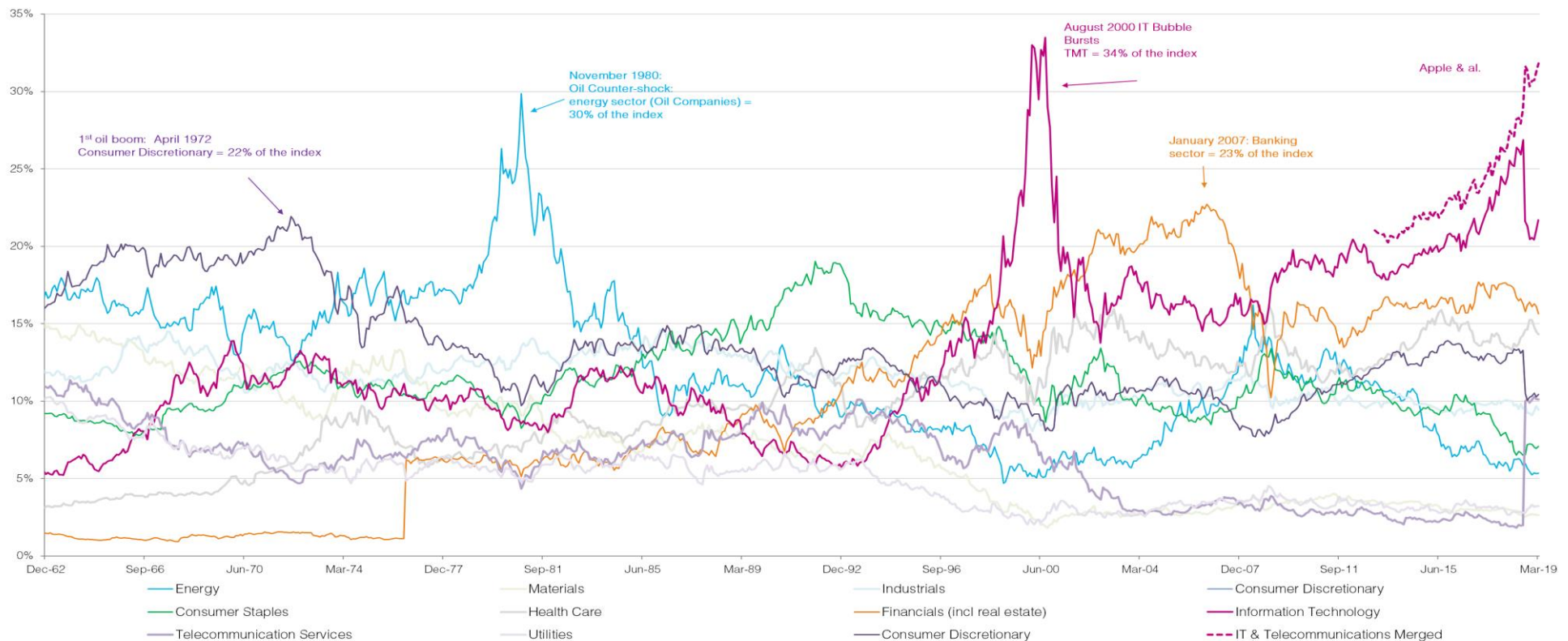
- The MDP[®] aims to deliver broad equity market exposure that provides superior performance with lower risk
- MDP[®] attempts to capture the full market risk premium
- We believe the higher returns result from better capturing the risk premium

Key Risks: The value of your investment and the income from it will vary and your initial investment amount is not guaranteed. Allocations are subject to change.

Cap-weighted indices take on heavy structural biases...

- As stocks appreciate, the greater their index representation, and conversely so
- The greater the imbalance, the greater the impact of changes in price (volatility)
- Using a biased benchmark as a reference carries heavy (and costly) implicit bets
- These implicit bets evolve dynamically over time

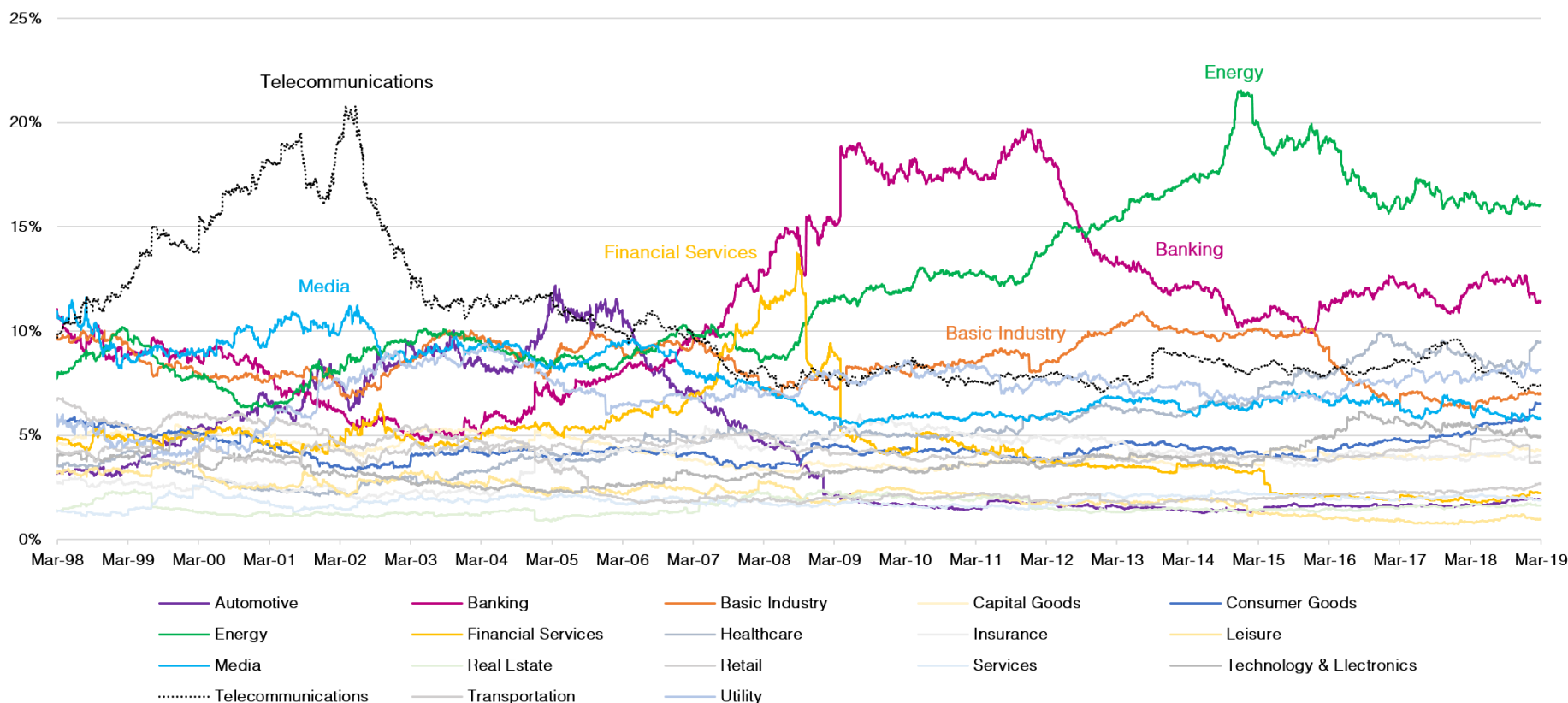
US Equity Market - Sector Weights



What is the problem we are trying to resolve?

Market value-weighted indices tend to take on heavy structural biases...

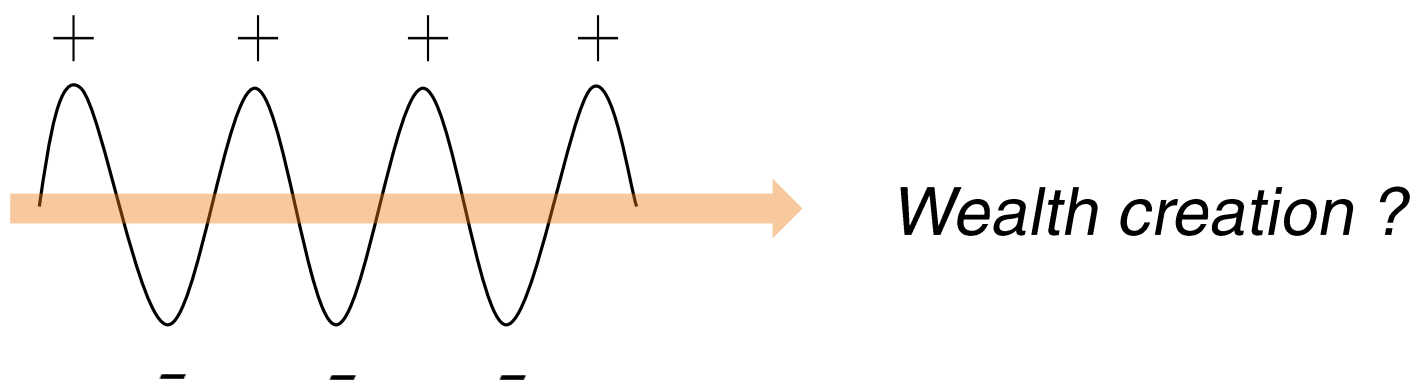
BofA Merrill Lynch US IG & High Yield Corporate Index: Risk-weighted sector weights



Source: Merrill Lynch, MSCI, Bloomberg, TOBAM. **Key Risks:** The value of your investment and the income from it will vary and your initial investment amount is not guaranteed. Allocations are subject to change. DTS weighted data from January 1998 to March 2019. The index data referenced herein is the property of Merrill Lynch, Pierce, Fenner & Smith Incorporated ("BofAML") and/or its licensors and has been licensed for use by TOBAM. BofAML and its licensors accept no liability in connection with its use

...which can destroy value

- Market benchmarks allocate risk dynamically over time and as such are not truly diversified:



- The market cap-weighted benchmark can also be described as a Dynamic Risk Allocator

Key Risks: The value of your investment and the income from it will vary and your initial investment amount is not guaranteed.

How to measure Diversification?

What is Diversification?

Risk of the combination

<

Combination of the risks

$$\sigma_{(80\% A + 20\% B)} < 80\% \sigma_A + 20\% \sigma_B$$

If A & B, two different assets (not perfectly correlated)

$$\Leftrightarrow \rho_{A,B} \neq 1$$

The Diversification Ratio®

$$DR(P) = \frac{\text{Combination of Risks}}{\text{Risk of the Combination}}$$

$$= \frac{(w_1 \sigma_1 + w_2 \sigma_2 + \dots + w_n \sigma_n)}{\sigma_P}$$

σ_i = Risk of asset i measured by Duration Time Spread (DTS)

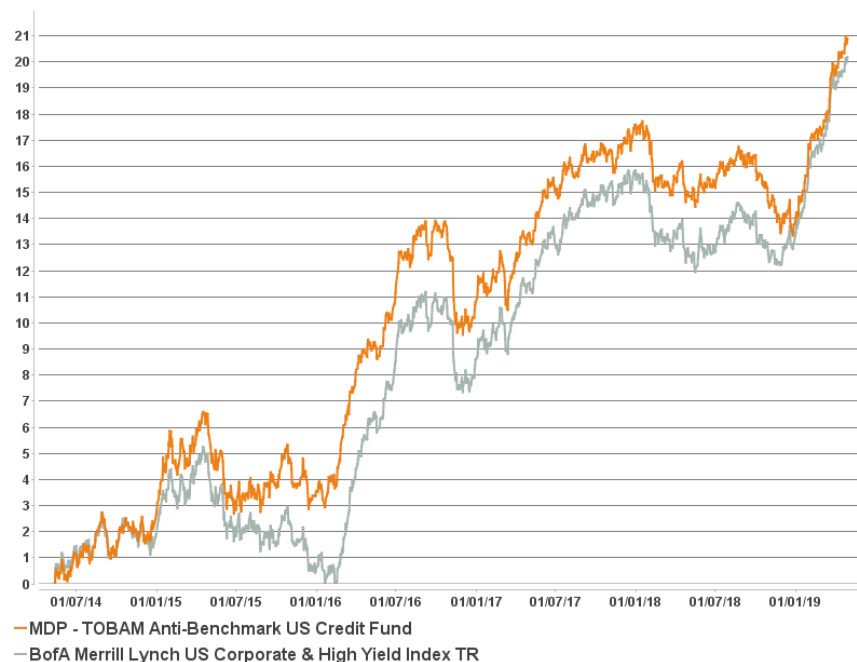
$P = (w_1, w_2, \dots, w_n)$ = The vector of asset weights

ρ = Correlation of issuers estimated on equities

Key Risks: The value of your investment and the income from it will vary and your initial investment amount is not guaranteed.

Historical Performance

Anti-Benchmark® US Credit Strategy Gross Performance
Inception (May 12, 2014) to April 30, 2019



MDP AB US Credit

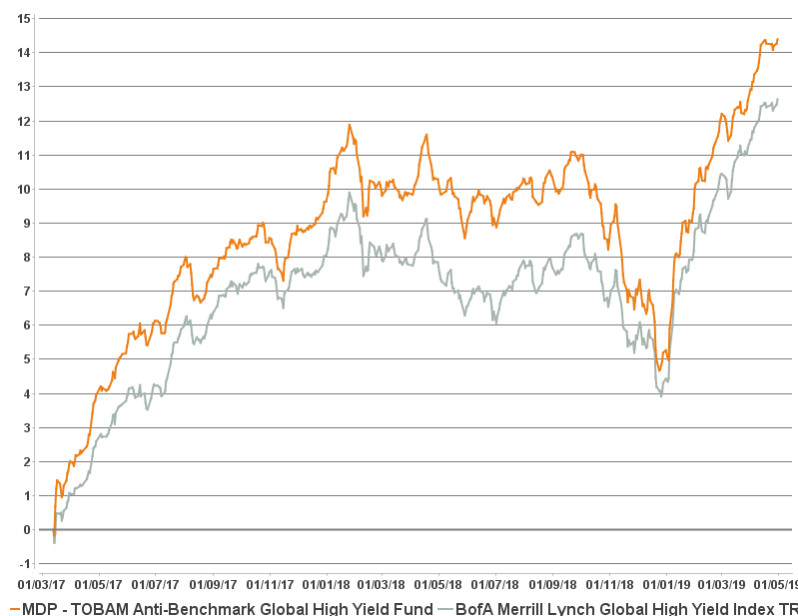
Return: 20.90%
Annualized return: 3.89%
Hist vol: 3.31%
Sharpe ratio: 0.94
Sortino ratio: 1.57

ML US IG & HY TR

Return: 20.19%
Annualized return: 3.77%
Hist vol: 3.22%
Sharpe ratio: 0.93
Sortino ratio: 1.54

Excess return: 0.71%
Vol reduction: 2.78%
Excess annual. return: 0.12%
Tracking error: 1.55%

Anti-Benchmark® Global High Yield Strategy Gross Performance
Inception (March 13, 2017) to April 30, 2019



MDP AB Global HY

Return: 14.40%
Annualized return: 6.51%
Hist vol: 3.06%
Sharpe ratio: 1.68
Sortino ratio: 2.94

ML Global HY TR

Return: 12.64%
Annualized return: 5.74%
Hist vol: 2.80%
Sharpe ratio: 1.55
Sortino ratio: 2.65

Excess return: 1.76%
Vol reduction: 9.14%
Excess annual. return: 0.77%
Tracking error: 1.17%

Warning: Past performance is not an indicator or a guarantee of future performance. The value of your investment and income received from it can go down as well as up and you may not get back the full amount invested. Performance details provided are in USD and may include reinvested dividends.

Performance returns and/or charts illustrating performance provided on this page are gross of fees. The clients return will be reduced by the advisory fees and any other expenses it may incur in the management of its account. Advisory fees are described in Part II of the advisors Form ADV. The net performance of AB US Credit over the live period ending April 30, 2019 (including management/advisory, administrative & subscription fee) would be 18.22%.

The net performance of AB Global High Yield over the live period ending April 30, 2019 (including management/advisory, administrative & subscription fee) would be 13.06%. Source: TOBAM, Merrill Lynch, Pierce, Fenner & Smith Incorporated ("BofAML"), used with permission. BofAML permits use of the BofAML indices and related data on an "as is" basis, makes no warranties regarding same, does not guarantee the suitability, quality, accuracy, timeliness, and/or completeness of BofAML indices or any data included in, related to, or derived therefrom, assumes no liability in connection with the use of the foregoing, and does not sponsor, endorse, or recommend TOBAM or any of its products or services.



Agenda

- ✧ Introduction to TOBAM
- ✧ Anti-Benchmark[®] Credit Investment Philosophy and Process
- ✧ Benefits of Diversification in Credit
- ✧ Conclusion

Benefits of Diversification in Credit

The Anti-Benchmark® Credit Strategies provide a way to manage credit exposure in a unique and innovative fashion.

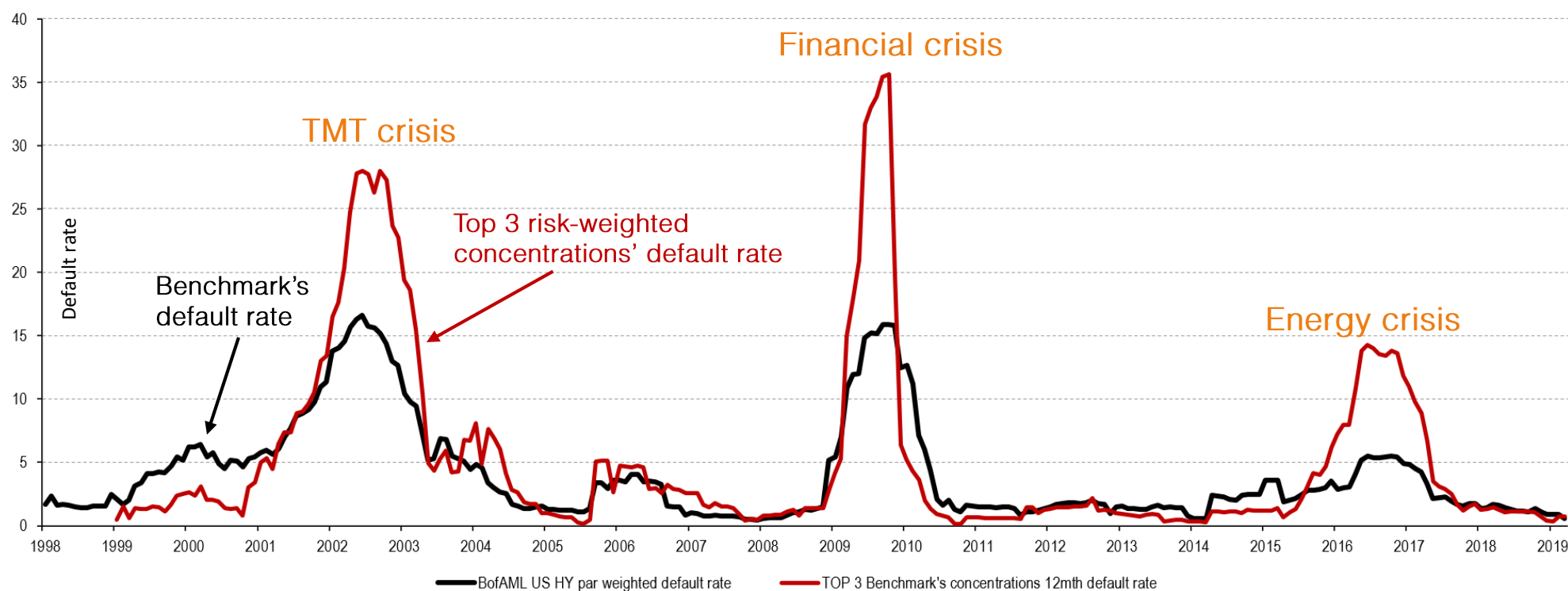
Benefits of greater diversification can be illustrated in several distinctive ways:

1. **Performance:** Greater diversification helps to collect the full risk premium of an asset class
2. **Mitigating default risks:** Diversification is a way to avoid getting caught in a default wave
3. **Diversifying away from the market's bets:** Mitigating concentration risks within a fixed income exposure
4. **Implementing a core exposure:** Lowering sensitivity to market factors as a starting point of tactical allocation

Mitigating Default Risks

A Look at the Benchmark Default Rate

- Default is a **concentrated phenomenon**
- Passive investing tends **to maximize default exposure** at the worst time

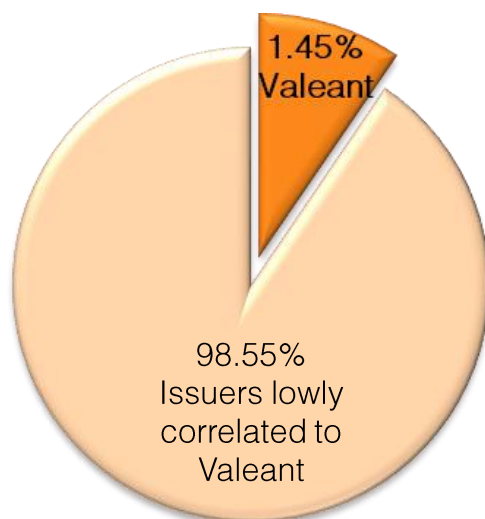


Source: BofA. As of March 2019, TOBAM calculations.. Default rates are computed using Last Twelve Months rolling windows. Concentrations expressed in Duration Times Spread (DTS) weight.

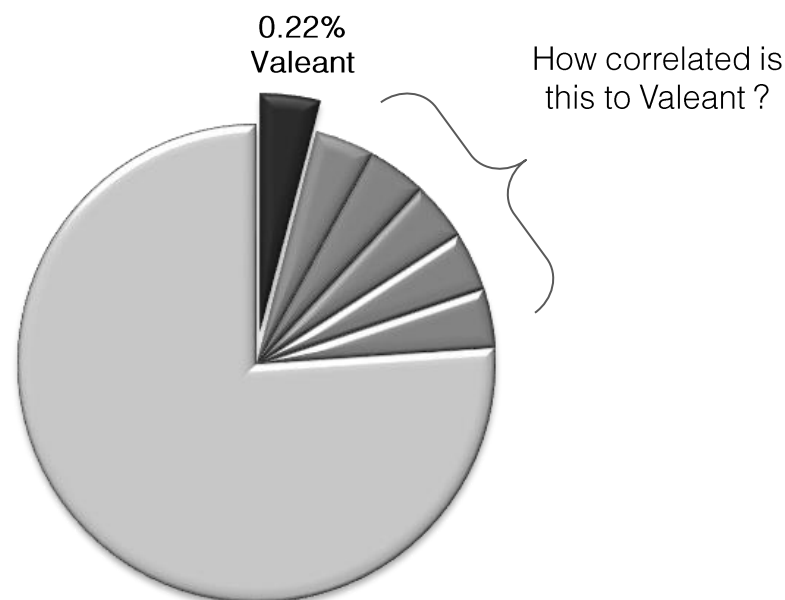


Diversifying away from the market's concentration can provide investors with a way to effectively mitigate default risk.

Example: Diversifying Away from the Market Bets - The Valeant Meltdown Illustration



AB US Credit



Benchmark

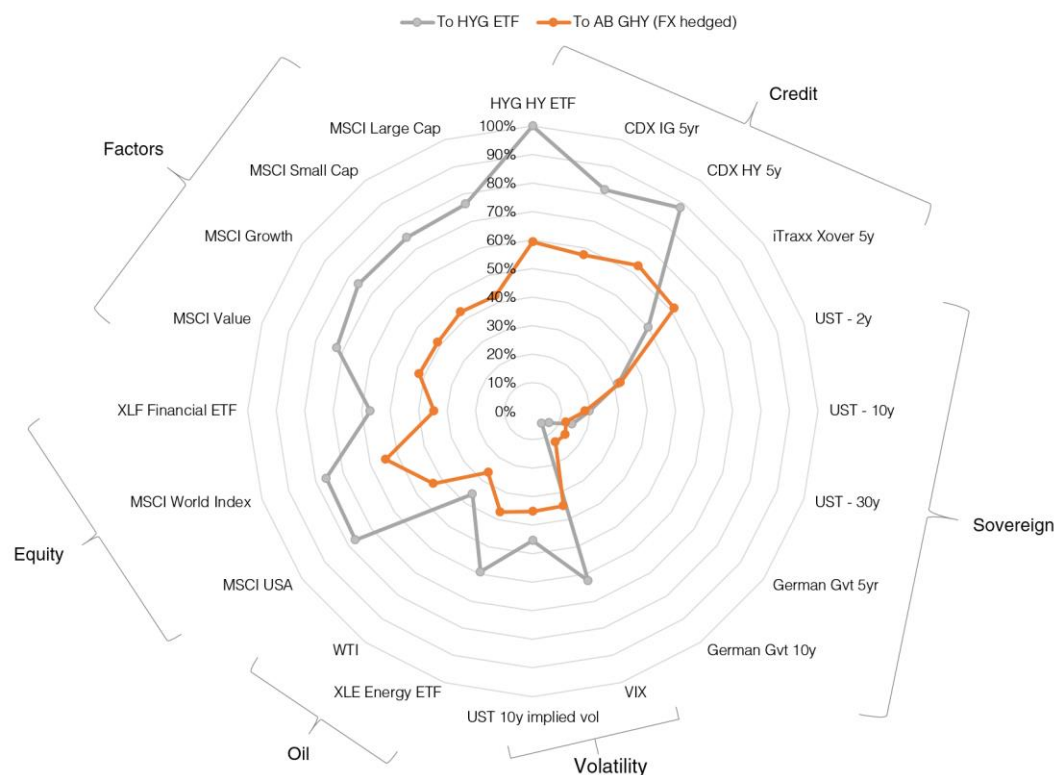
The Anti-Benchmark® is the combination of a Holding and its “Anti-Holding” which protects it against its own mistakes: it reduces the stock specific risk

Implementing a Core Exposure (1)

The Case of AB Global High Yield

Because Anti-Benchmark[®] credit strategies tend to exhibit **lower sensitivity to market indicators** than passive investment products...

Back tested and Live Correlation to market indicators
Dec 28, 2008 – Dec 28, 2018



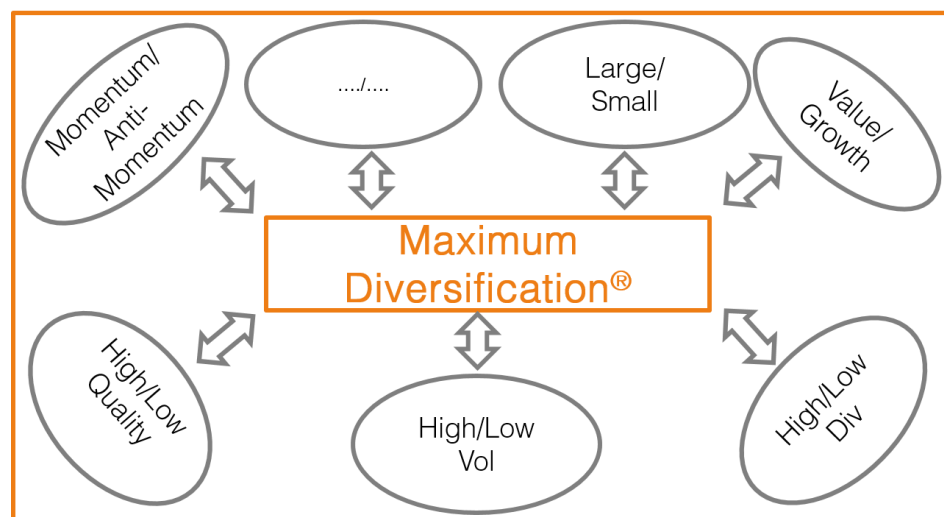
Source: TOBAM, CBOE, ICE-BoA, MSCI, Bloomberg, HIS-Markit, Blackrock.

Correlations reflect back tested data from September 28, 2008 to March 13, 2017, plus live data for the TOBAM AB Global High Yield (AB) from March 13, 2017 to December 28, 2018. Back tested results are for information purposes only. They are intended to illustrate how the Strategy may have behaved had it been launched prior to March 13, 2017.

Key Risks: The value of your investment and the income from it will vary and your initial investment amount is not guaranteed. Allocations are subject to change.

Implementing a Core Exposure (2) A Framework

...very diversified strategies are an **ideal candidate to be used as a core investment**, to be combined with conviction/ tactical bets (satellites).



➡ Rational Answer: Core / Satellite approach with the **AB** as Core

Key Risks: The value of your investment and the income from it will vary and your initial investment amount is not guaranteed. Allocations are subject to change.



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Conclusion

The Anti-Benchmark[®] Credit strategies aim at enhancing performance compared to market value weighted benchmarks through greater diversification

- ✓ TOBAM's investment process and philosophy
- ✓ The rigor of a quantitative approach
- ✓ The fundamental expertise of dedicated portfolio managers



A way to extract the whole credit risk premium over a market cycle

About TOBAM

TOBAM is an asset management company offering innovative investment capabilities designed to increase diversification. Its mission is to provide rational and professional solutions to long term investors in the context of efficient markets.

The Maximum Diversification® approach, TOBAM's flagship investment process founded in 2006, is supported by original, patented research and a mathematical definition of diversification and provides clients with diversified core exposure, in both the equity and fixed income markets.

In line with its mission statement and commitment to diversification, TOBAM also launched a separate activity on cryptocurrencies in 2017.

TOBAM currently manages US\$10.2 billion (at March 29, 2019). TOBAM's team is composed of 53 professionals.

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