

# Factor Funds Capital Management FFCM Active ETF Developed by Dexter

Pegah Ehsani, Jaskrit Singh, Deon Kim

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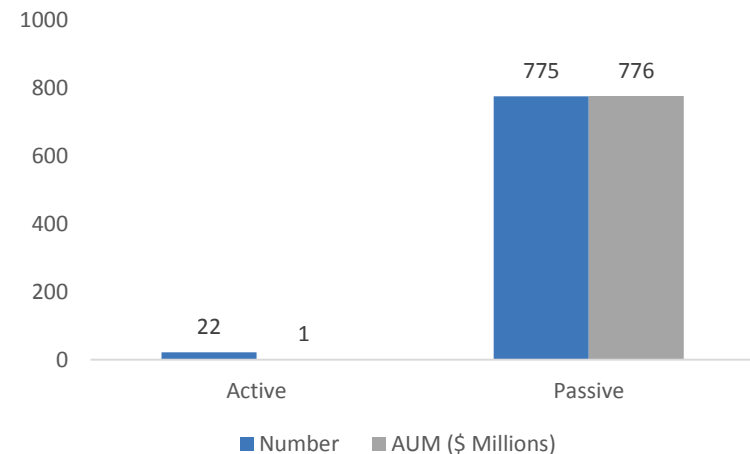
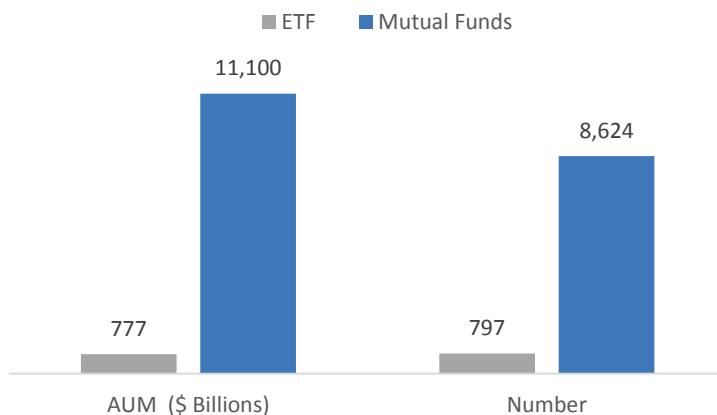
## Agenda

- I. Context
- II. Designing Strategies
- III. Testing the Strategies
- IV. Our Strategy
- V. Target Market & Risk Factors

# Overview

## Context

- ETFs have been increasing in popularity recently, especially with small and retail investors, but the ETF industry is still dwarfed by mutual funds
- Traditional ETFs are passive and offer exposure to global, domestic and sector-specific equity indices
- FFCM, as the name suggests, aims to provide investors exposure to fundamental investment factors
- They are looking into launching new factor-based ETFs called 'QuantShares'
- QuantShares will provide investors exposure to investment factors such as momentum, value, and size



# Strategy Decisions

## Goal

- Team Dexter was hired by FFCM to develop and test an actively managed ETF product that would use fundamental investment factors to maximize information ratio

## Key Variables

- Value (HML) – Stocks with high book-to-market ratios outperform those with lower ratios
- Momentum– Stocks that were winners in the past will continue to outperform
- Size (SMB)– Small size firms tend to outperform larger ones

## Deciding Variable

- Volatility– The dynamic weighting in the strategy will be based on market volatility

## Constraints

- The ETF can hold only long positions in US equity and cannot hold the risk-free asset

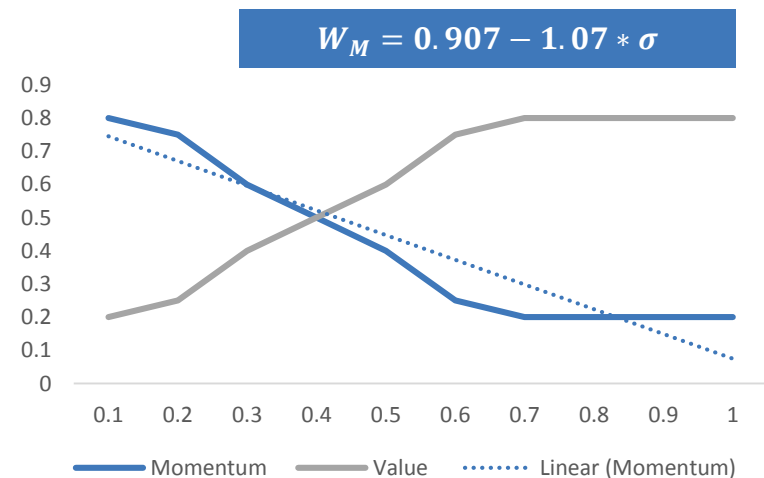
What we learned:

- A study in the Journal of Empirical Finance (Wang & Xu, 2015) shows the predictive power of market volatility in predicting performance of momentum strategies
- Momentum strategy performs poorly during times of high market volatility in 80 years of data
- Within momentum strategies, low volatility months outperformed high volatility months

Intuition:

- During times of low volatility, we expect momentum to outperform value and vice versa
- We decided to invest in two main strategies: value and momentum (includes a size factor too)
- In case of extreme volatility, our ETF will still have a 20% exposure to value (or momentum)

| Volatility | Momentum Weight | Value Weight |
|------------|-----------------|--------------|
| 0.1        | 0.8             | 0.2          |
| 0.2        | 0.75            | 0.25         |
| 0.3        | 0.6             | 0.4          |
| 0.4        | 0.5             | 0.5          |
| 0.5        | 0.4             | 0.6          |
| 0.6        | 0.25            | 0.75         |
| 0.7        | 0.2             | 0.8          |
| 0.8        | 0.2             | 0.8          |
| 0.9        | 0.2             | 0.8          |
| 1          | 0.2             | 0.8          |

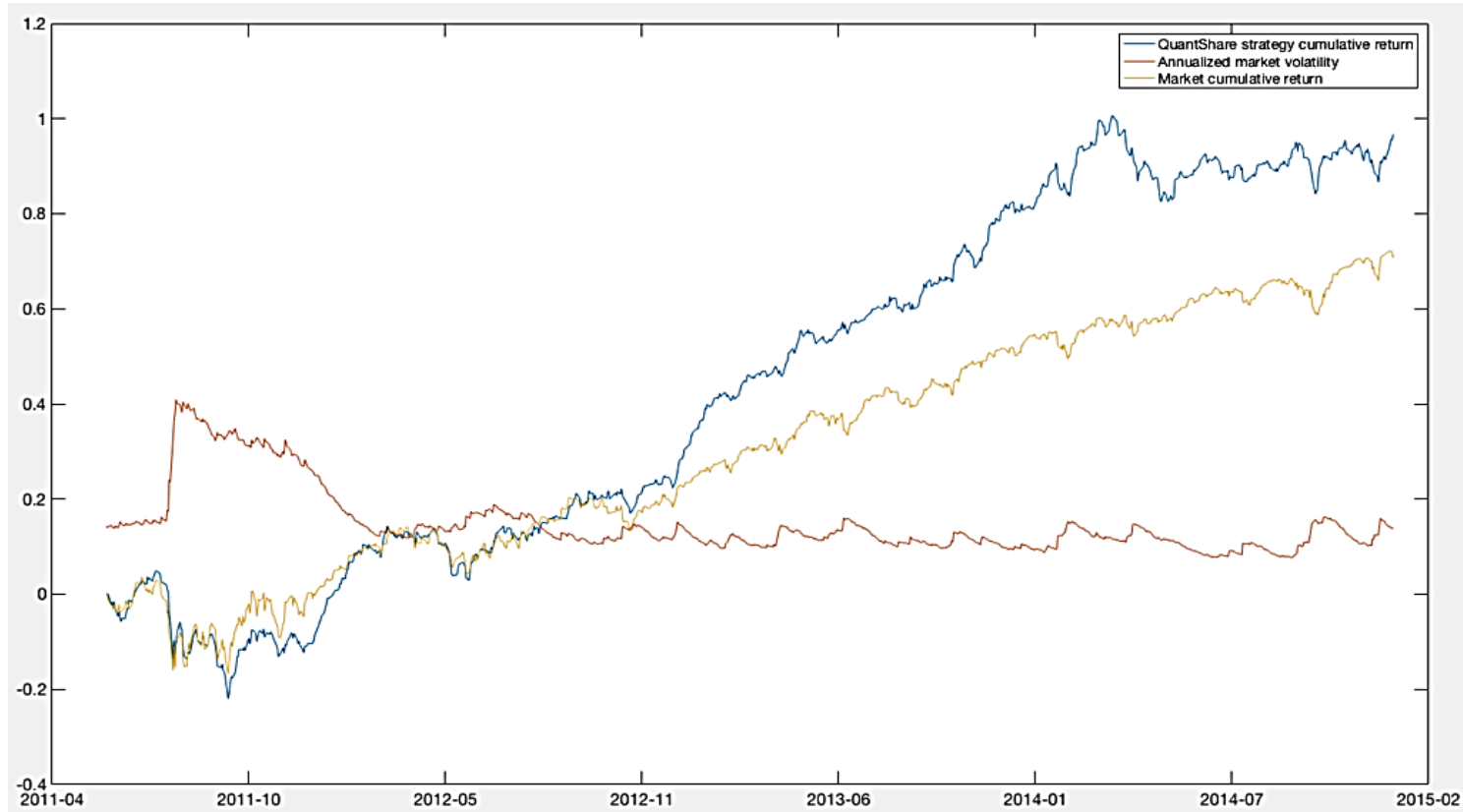


# Testing Strategies

| Strategy # | AHP (days) | Sharpe Ratio | Information Ratio | CAPM Alpha | FF3 Alpha |
|------------|------------|--------------|-------------------|------------|-----------|
| 2          | 10         | 1.70         | 1.42              | 17.60%     | 19.20%    |
| 3          | 15         | 1.37         | 1.07              | 7.46%      | 9.66%     |
| 4          | 87         | 0.99         | 0.24              | 1.23%      | 4.58%     |
| 5          | 18         | 1.29         | 0.92              | 7.95%      | 10.74%    |
| 6          | 12         | 0.62         | -0.53             | -5.49%     | -0.25%    |
| 7          | 16         | 0.79         | -0.21             | -1.76%     | 0.48%     |
| 8          | 17         | 0.87         | -0.05             | -0.39%     | 1.42%     |
| 9          | 14         | 1.42         | 1.06              | 10.27%     | 12.24%    |
| 10         | 13         | 1.27         | 0.83              | 7.95%      | 10.10%    |
| 11         | 28         | 1.46         | 1.43              | 8.16%      | 10.59%    |
| 12         | 16         | 0.70         | -0.45             | -3.67%     | -1.29%    |
| 13         | 7          | 0.89         | 0.54              | 11.70%     | 13.69%    |
| 14         | 21         | 1.15         | 0.66              | 4.27%      | 7.82%     |
| 15         | 12         | 1.71         | 1.49              | 13.01%     | 14.32%    |
| 16         | 14         | 2.32         | 2.47              | 17.97%     | 19.15%    |
| 17         | 30         | 2.33         | 2.49              | 17.01%     | 18.08%    |

We tried 16 different strategies before deciding to go ahead with Strategy 2

# Strategy Results



## Results:

- As seen in the graph above, the strategy shifts to value when volatility spikes, allowing us to track the market closely and minimize losses
- When volatility is stable and low, shift to momentum and realize high alpha

# QuantShares' Value Add



Dexter

## Weighting:

- Smallest 10% within top 10% momentum winners
- Top 10% value stocks

## Performance:

- AHP ~10 days
- 1.7 Sharpe Ratio
- 1.4 Information Ratio
- 0.176 CAPM Alpha
- 0.1918 FF3 Alpha

## Performance:

- 0.65 beta CAPM
- 0.58 beta MRP
- 0.31 beta SMB
- -0.002 beta HML

- Transaction-adjusted returns- Investors want a low cost, high performance, well-diversified ETF
- Consider size, value, volatility, and momentum, through dynamic weighting based on research and intuitive finance fundamentals
- We considered combinations: e.g.- size within momentum, value within momentum
- Even during times of extreme volatility, we diversify by having a minimum 20% exposure to each factor
- Discrete gradient analysis, isolating impactful variables to find optimal strategy



# Target Market & Risks

## Target Market

- Retail investors seeking exposure to fundamental investor factors at a low cost
- Any investors looking to diversify their portfolio using smart beta
- Investors that desire momentum's upside, with the added safety of switching to value in bad times to track the market

## Risks

- While volatility is the most significant factor in forecasting the performance of momentum strategies, other factors such as market state or business cycle also have an effect
- Higher transaction costs from rebalancing portfolio could alter the strategy's profitability
- Overweighing small-caps can increase the risk of the ETF
- Time for value to realize
- Long periods of underperformance can lead to investor impatience

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# Thank you for listening

Have a nice day!



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