

**JULEX** CAPITAL

# A superior approach to TAA

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# Friday, Sept 18<sup>th</sup> at 11am Eastern

The general . . . why have confidence in TAA strategies

The specific . . . why and in what ways Julex offers a superior TAA solution

## Often (but not always) how are quant models built?

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- Take 20 years of data
- Develop a set of quantitative rules (when applied to that data) that delivered amazing performance results
- Market the model as the next best thing

## Why don't you trust the model, and your solution is to . . .

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- You don't trust the model
- You've been warned (or burned) too many times . . . to avoid hypothetical backtests
- What's the problem

## Why don't you trust the model, and your solution is to . . .

- You don't trust the model
- You've been warned (or burned) too many times . . . to avoid hypothetical backtests
- What's the problem
- **Going forward, the quantitative rules will fail for one or both of the following reasons**
  - The last 20 years are only representative of the last 20 years . . . and have little to do with other time periods (before or after)
  - The quantitative rules were excessively shaped by idiosyncratic behaviors as opposed to causal factors . . . or in other words, the rules are based on random crap that will never repeat
- **What is your solution**
  - Wait for live performance results to appear over the next 1-, 3-, 5-, and 7-years
  - Then base your decision on these live performance numbers

- If I told you that I had investment manager "A" who returned

## Annualized returns net of fees for large cap stock manager "A"

1 year	3 years	5 years	7 years	10 years	12 years
20.9%	24.3%	27.5%	20.8%	17.8%	19.3%

- If I told you that I had investment manager "B" who returned

### Annualized returns net of fees for large cap stock manager "B"

1 year	3 years	5 years	7 years	10 years	12 years
-0.4%	14.9%	-0.9%	3.5%	4.1%	1.2%

- BUT . . .
- These are the same manager
- And you are all using this manager
  
- It is the U.S. stock market



## Annualized returns net of fees for large cap stock manager "A"

1 year	3 years	5 years	7 years	10 years	12 years
20.9%	24.3%	27.5%	20.8%	17.8%	19.3%

Returns are as of market close on November 30, 1999

## Annualized returns net of fees for large cap stock manager "B"

1 year	3 years	5 years	7 years	10 years	12 years
-0.4%	14.9%	-0.9%	3.5%	4.1%	1.2%

Returns are as of market close on May 31, 2012

- Instead . . . I have two different U.S. stock managers with LONG track records

### Annualized returns net of fees for two U.S. stock managers

	5 years	10 years	15 years	20 years	25 years	35 years
Manager "C"	14.5%	15.2%	9.5%	6.3%	9.7%	11.2%
Manager "D"	7.7%	11.5%	7.3%	6.9%	8.2%	9.2%

Returns are as of market close on August 31, 2020

## Why don't you trust the model, and your solution is to . . .

- You don't trust the model
- You've been warned (or burned) too many times . . . to avoid hypothetical backtests
- What's the problem
- **Going forward, the quantitative rules will fail for one or both of the following reasons**
  - The last 20 years are only representative of the last 20 years . . . and have little to do with other time periods (before or after)
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- **What is your solution**
  - Wait for live performance results to appear over the next 1-, 3-, 5-, and 7-years
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# So what is the solution

What traps do we need to avoid

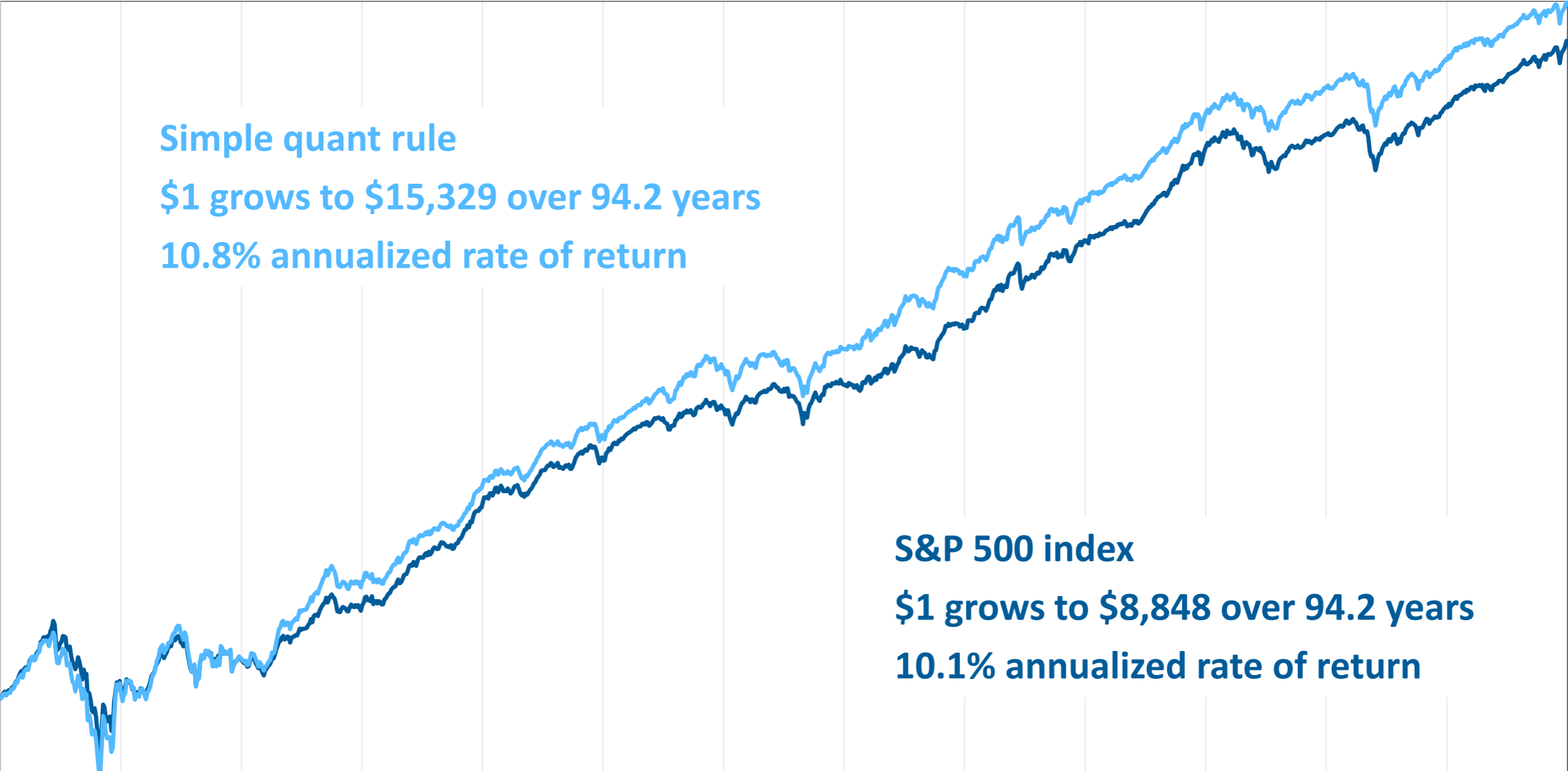
- In determining whether you believe/trust tactical asset allocation . . . you need to avoid basing your decision on
  - The results from a single period, e.g., the last 20 years
  - The wrong investment time period, e.g., a year or two or three
  - Any strategy that has engaged in overfitting (or might of) . . . in other words, based on rules that narrowly optimize an isolated time period (like the last 20 years)
- Let's exam tactical asset allocation, while rigorously avoiding these three perilous traps

# Example of a common quant trap

Used by most investors today

- Annualized return for period Jun 1926 through Sep 2020
  - 10.1% - S&P 500 index
  - 10.8% - for this simple quant rule
  - With extremely nice tracking - correlation of 0.9702 to the S&P

# Commonly used quant rule - continued



1926.5 1933.7 1941.0 1948.2 1955.5 1962.7 1970.0 1977.2 1984.5 1991.7 1999.0 2006.2 2013.5 2020.7



## Commonly used quant rule - continued

- **Annualized return for period Jun 1926 through Sep 2020**
  - 10.1% - S&P 500 index
  - 10.8% - for this simple quant rule
  - With extremely nice tracking - correlation of 0.9702 to the S&P
- **Simple quant rule**
  - Allocate 67%/33% LargeCap/SmallCap
- **What trap did the investor fall into?**
  - Looking at the wrong investment time period
- **Annualized return since Sep 1980 (Sep 1980 - Sep 2020)**
  - 11.4% - S&P 500 index
  - 11.0% - for this simple quant rule

# Tactical asset allocation

A sound, robust evaluation

## Step 1 - Identifying why it should work

- Not . . . does it work . . . instead, why should it work
- The logic is not
  - I can predict the future
  - I have a crystal ball
  - I can time the markets
- The logic is
  - Markets trend
  - Winners repeat
  - Losers repeat
  - So build your portfolio by overweighting recent winners and underweighting recent losers

## Step 2 - Is the logic supported by voluminous independent research

# The Journal of Portfolio Management

VOLUME 44, NUMBER 1

[www.ijpm.com](http://www.ijpm.com)

FALL 2017

## A Century of Evidence on Trend-Following Investing

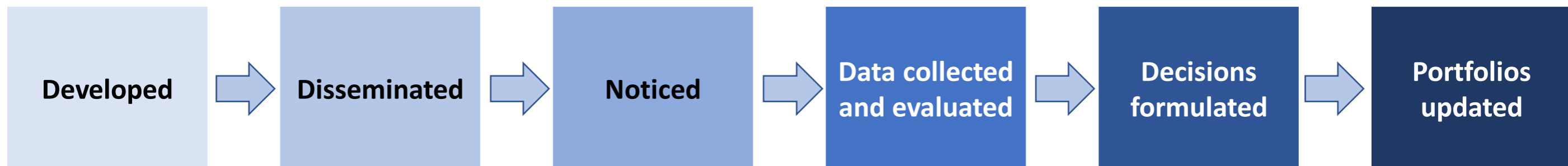
BRIAN HURST, YAO HUA OOI, AND LASSE HEJE PEDERSEN

### CONCLUSION

Trend-following investing has performed well in each decade for more than a century, as far back as we can get reliable return data for several markets. Our analysis provides significant out-of-sample evidence across markets and asset classes beyond the substantial

FALL 2017

- Why markets trend - winners keep winning and losers keep losing
- Investment markets trend because it takes time for new information to first develop, next be disseminated and analyzed, and finally acted upon and consequently, reflected in market prices
- The length of time for this entire process varies considerably from one investor to the next and is therefore spread over many months or more



# Step 4 - Identify the investment time period and comparative benchmarks

<b>Alternative investment time periods</b>	<b>Intended to serve client needs located this far in the future</b>	<b>Comparative performance benchmark</b>
7 ½ years	5 to 10 years	25%/75% stocks/bonds
12 ½ years	10 to 15 years	50%/50% stocks/bonds
17 ½ years	15 to 20 years	75%/25% stocks/bonds
22 ½ years	21 years and greater	100% stocks

## Step 5 - Identifying the data set and quantitative rule

- Monthly returns spanning the time period Jan 1919 through Feb 2020
- **29 asset categories**
  - 7 - U.S. stocks
  - 9 - international stocks
  - 6 - U.S. Treasuries (maturities from 90-days to 30-years)
  - 2 - U.S. investment grade corporate bonds
  - 1 - International government bonds
  - 1 - broad-based diversified commodities
  - 3 - precious metals
- **Quantitative rule**
  - Once each month select the 7 assets that are trending the most strongly and equal weight them



- Quantitative rule

- Once each month select the 7 assets that are trending the most strongly and equal weight them

Simple quantitative rule				
Alternative investment time periods	Intended to serve client needs located this far in the future	Comparative performance benchmark	Intermediate-term, investment grade, U.S. corporate bonds	The 7 asset classes that are trending most strongly, equal-weighted
7 ½ years	5 to 10 years	25%/75% stocks/bonds	30%	70%
12 ½ years	10 to 15 years	50%/50% stocks/bonds	20%	80%
17 ½ years	15 to 20 years	75%/25% stocks/bonds	10%	90%
22 ½ years	21 years and greater	100% stocks	0%	100%

# The results

Compared over the correct investment time period and to the appropriate benchmark

# Step 6 - time periods of 22 ½ years

Average returns

	Benchmark
Geometric mean return over the entire 101.1 years	10.1%
Median (for investment periods of 22.5 years)	11.7%
Mean (for investment periods of 22.5 years)	11.5%

Performance during 22.5-year investment time windows by percentile outcome

Percentile	Benchmark
99 <sup>th</sup>	5.9%
98 <sup>th</sup>	6.0%
97 <sup>th</sup>	6.2%
96 <sup>th</sup>	6.3%
95 <sup>th</sup>	6.7%
94 <sup>th</sup>	7.0%
93 <sup>rd</sup>	7.1%
92 <sup>nd</sup>	7.4%
91 <sup>st</sup>	7.7%
90 <sup>th</sup>	7.9%

Five **worst** 22.5-year investment periods ever experienced (out of the last 101.1 years)

Benchmark
5.8%
5.8%
5.8%
5.8%
5.8%

# Step 6 - time periods of 22 ½ years, continued

## Average returns

	Benchmark	Quant rule
Geometric mean return over the entire 101.1 years	10.1%	14.2%
Median (for investment periods of 22.5 years)	11.7%	16.2%
Mean (for investment periods of 22.5 years)	11.5%	16.1%

## Performance during 22.5-year investment time windows by percentile outcome

Percentile	Benchmark	Quant rule
99 <sup>th</sup>	5.9%	11.0%
98 <sup>th</sup>	6.0%	11.2%
97 <sup>th</sup>	6.2%	11.3%
96 <sup>th</sup>	6.3%	11.5%
95 <sup>th</sup>	6.7%	11.6%
94 <sup>th</sup>	7.0%	11.9%
93 <sup>rd</sup>	7.1%	12.2%
92 <sup>nd</sup>	7.4%	12.3%
91 <sup>st</sup>	7.7%	12.4%
90 <sup>th</sup>	7.9%	12.4%

## Five **worst** 22.5-year investment periods ever experienced (out of the last 101.1 years)

Benchmark	Quant rule
5.8%	10.3%
5.8%	10.3%
5.8%	10.3%
5.8%	10.6%
5.8%	10.7%

# Step 6 - time periods of 17 ½ years

## Average returns

	Benchmark
Geometric mean return over the entire 101.1 years	8.7%
Median (for investment periods of 17.5 years)	9.4%
Mean (for investment periods of 17.5 years)	9.6%

## Performance during 17.5-year investment time windows by percentile outcome

Percentile	Benchmark
99 <sup>th</sup>	4.7%
98 <sup>th</sup>	4.9%
97 <sup>th</sup>	5.1%
96 <sup>th</sup>	5.3%
95 <sup>th</sup>	5.4%
94 <sup>th</sup>	5.6%
93 <sup>rd</sup>	5.7%
92 <sup>nd</sup>	6.0%
91 <sup>st</sup>	6.3%
90 <sup>th</sup>	6.4%

## Five **worst** 17.5-year investment periods ever experienced (out of the last 101.1 years)

Benchmark
3.4%
3.5%
3.7%
4.0%
4.4%

# Step 6 - time periods of 17 ½ years, continued

## Average returns

	Benchmark	Quant rule
Geometric mean return over the entire 101.1 years	8.7%	13.6%
Median (for investment periods of 17.5 years)	9.4%	14.8%
Mean (for investment periods of 17.5 years)	9.6%	15.1%

## Performance during 17.5-year investment time windows by percentile outcome

Percentile	Benchmark	Quant rule
99 <sup>th</sup>	4.7%	9.5%
98 <sup>th</sup>	4.9%	9.6%
97 <sup>th</sup>	5.1%	9.9%
96 <sup>th</sup>	5.3%	10.5%
95 <sup>th</sup>	5.4%	10.6%
94 <sup>th</sup>	5.6%	10.8%
93 <sup>rd</sup>	5.7%	10.9%
92 <sup>nd</sup>	6.0%	11.0%
91 <sup>st</sup>	6.3%	11.2%
90 <sup>th</sup>	6.4%	11.3%

## Five **worst** 17.5-year investment periods ever experienced (out of the last 101.1 years)

Benchmark	Quant rule
3.4%	9.1%
3.5%	9.3%
3.7%	9.3%
4.0%	9.4%
4.4%	9.4%

# Step 6 - time periods of 12 ½ years

## Average returns

	Benchmark	Quant rule
Geometric mean return over the entire 101.1 years	7.2%	12.9%
Median (for investment periods of 12.5 years)	7.0%	13.5%
Mean (for investment periods of 12.5 years)	7.8%	14.0%

## Performance during 12.5-year investment time windows by percentile outcome

Percentile	Benchmark	Quant rule
99 <sup>th</sup>	2.0%	6.9%
98 <sup>th</sup>	2.9%	7.6%
97 <sup>th</sup>	3.3%	7.9%
96 <sup>th</sup>	3.5%	8.1%
95 <sup>th</sup>	3.7%	8.3%
94 <sup>th</sup>	3.8%	8.6%
93 <sup>rd</sup>	4.0%	8.7%
92 <sup>nd</sup>	4.1%	9.0%
91 <sup>st</sup>	4.3%	9.3%
90 <sup>th</sup>	4.5%	9.5%

## Five **worst** 12.5-year investment periods ever experienced (out of the last 101.1 years)

Benchmark	Quant rule
-0.7%	6.2%
-0.6%	6.3%
0.3%	6.4%
0.5%	6.6%
0.6%	6.6%

1,054 investment time periods of 12 ½ years in length

# Step 6 - time periods of 7 ½ years

## Average returns

	Benchmark	Quant rule
Geometric mean return over the entire 101.1 years	5.6%	12.2%
Median (for investment periods of 7.5 years)	5.5%	12.7%
Mean (for investment periods of 7.5 years)	5.9%	13.0%

## Performance during 7.5-year investment time windows by percentile outcome

Percentile	Benchmark	Quant rule
99 <sup>th</sup>	0.3%	4.8%
98 <sup>th</sup>	0.4%	5.6%
97 <sup>th</sup>	0.7%	6.1%
96 <sup>th</sup>	0.8%	6.6%
95 <sup>th</sup>	0.9%	7.0%
94 <sup>th</sup>	1.4%	7.5%
93 <sup>rd</sup>	1.6%	7.8%
92 <sup>nd</sup>	2.0%	8.0%
91 <sup>st</sup>	2.3%	8.2%
90 <sup>th</sup>	2.5%	8.4%

## Five **worst** 7.5-year investment periods ever experienced (out of the last 101.1 years)

Benchmark	Quant rule
0.0%	3.5%
0.0%	3.9%
0.1%	4.1%
0.1%	4.1%
0.2%	4.5%

1,114 investment time periods of 7 ½ years in length



# Recap

Here is what we showed

- We answered why it should work, i.e., the causality

## Recap - valuating tactical asset allocation properly

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- We showed that academics and practitioners have come to the same conclusion

## Recap - valuating tactical asset allocation properly

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- We explained why things work this way, i.e., what is it about the world that creates and continuously renews this opportunity

## Recap - valuating tactical asset allocation properly

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- We showed that academics and practitioners have come to the same conclusion
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- We identified appropriate investment time periods and associated benchmarks

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- We specified an incredibly simple rule and avoided any and all backfitting, i.e., no looking back when we created the rule

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- We explained why things work this way, i.e., what is it about the world that creates and continuously renews this opportunity
- We identified appropriate investment time periods and associated benchmarks
- We specified an incredibly simple rule and avoided any and all backfitting, i.e., no looking back when we created the rule
- Proved it worked in all periods, not just some

# Step 7

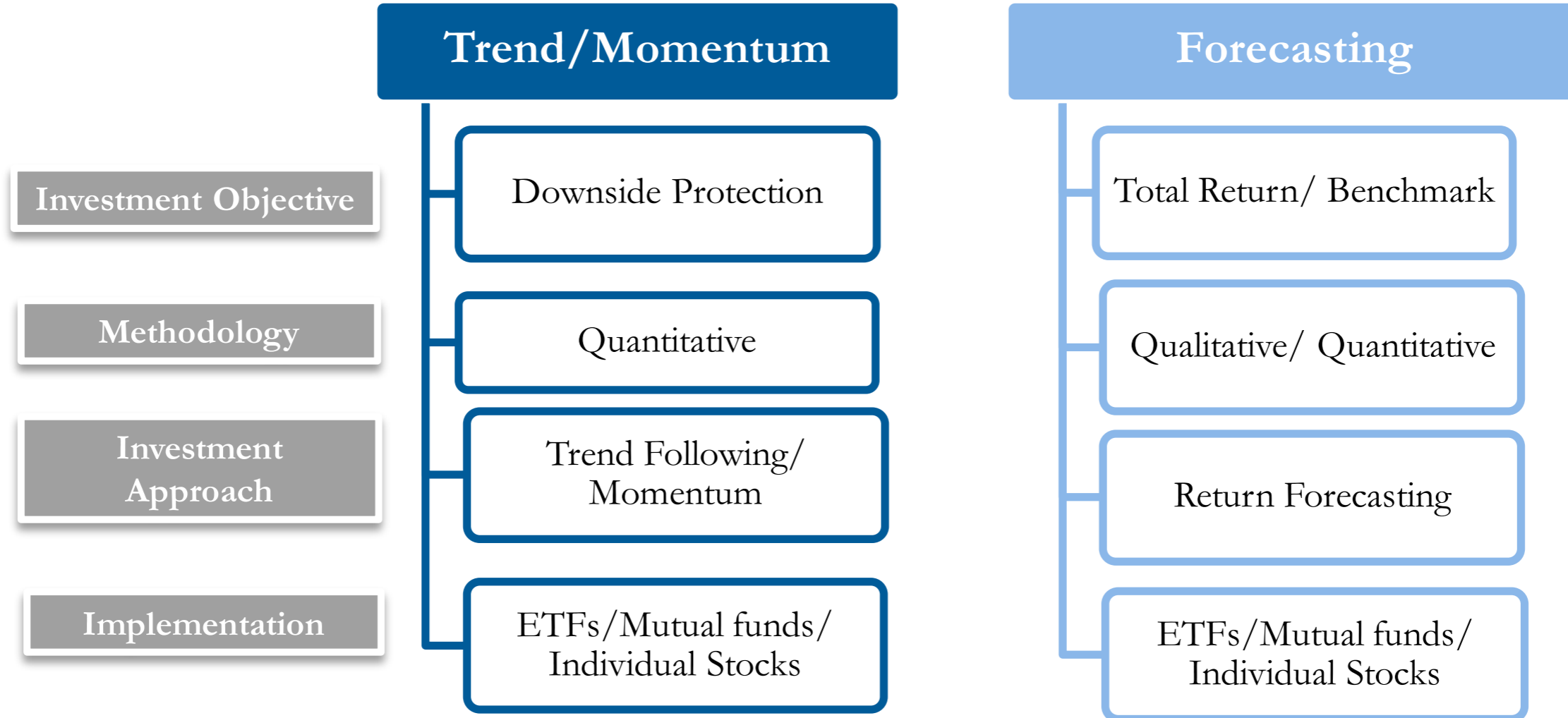
Develop the forward-looking, optimized quant rule

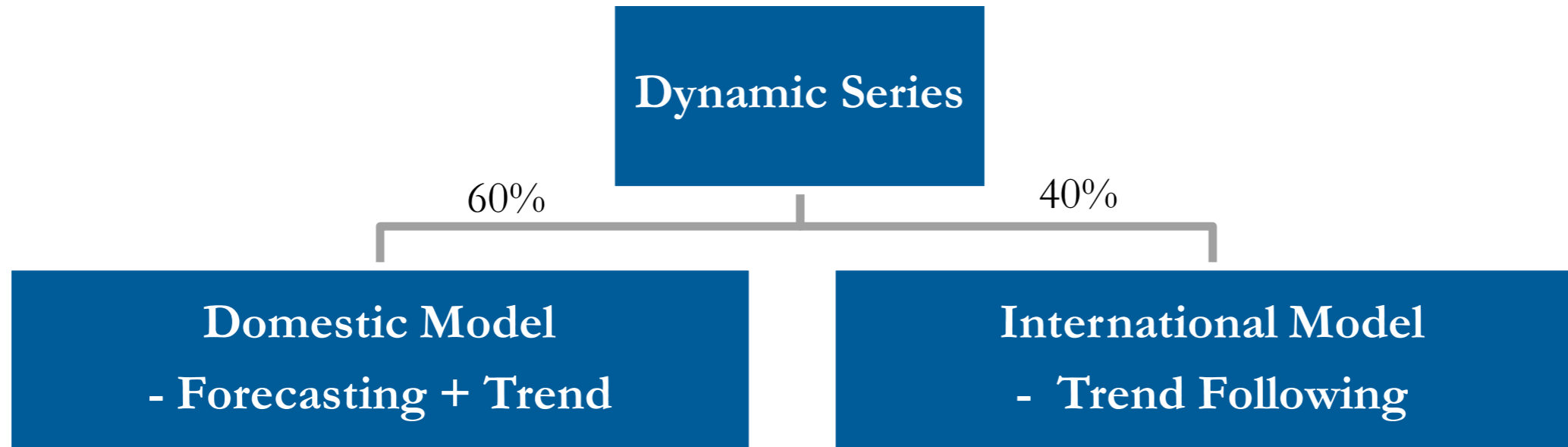
This is what Julex is all about



## What's wrong with the original simple quant rule

- Overly myopic
- Does nothing to
  - Optimize around the specific investment time horizon selected, e.g., why equal-weight?
  - Mitigate whipsaw
  - Optimize risk-on and risk-off around market turning points
  - Specify a forward looking playing field, i.e., set of asset categories to select from
- This is where Julex's expertise comes into play
- Julex attempts to repair and reduce these deficiencies

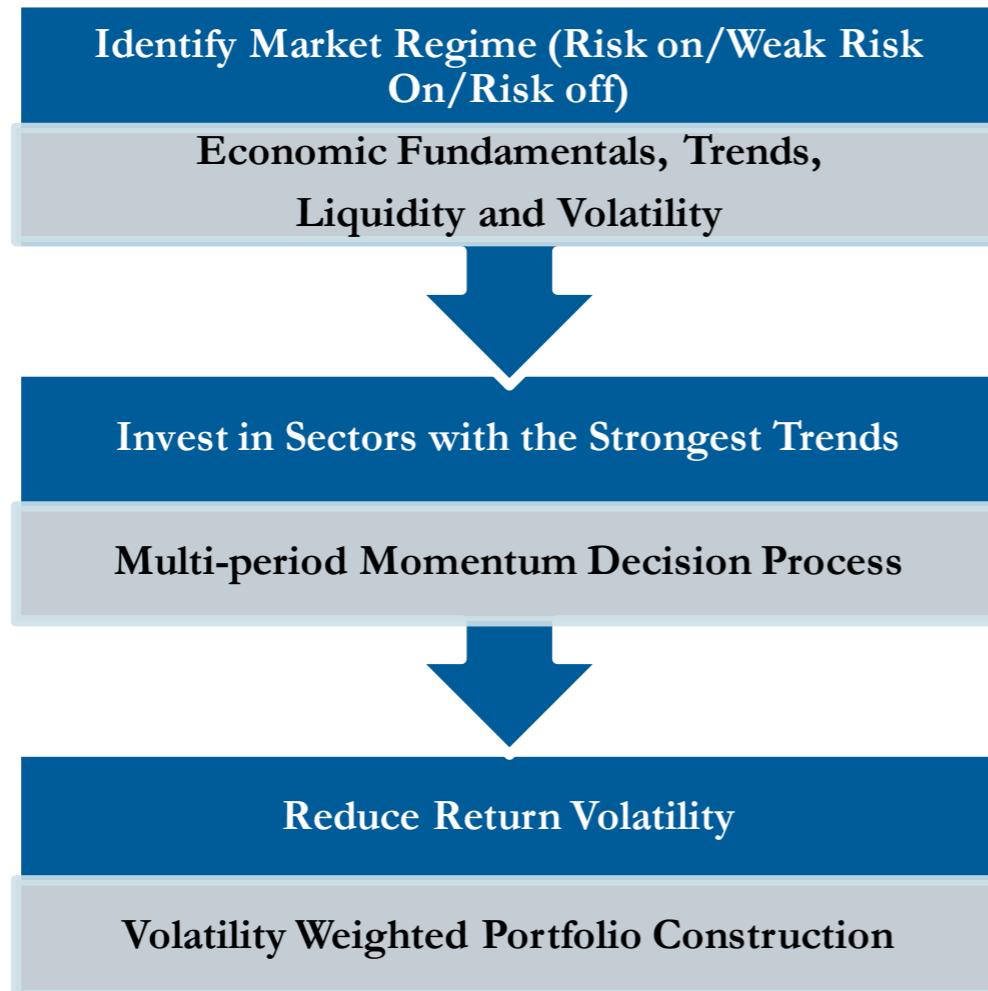




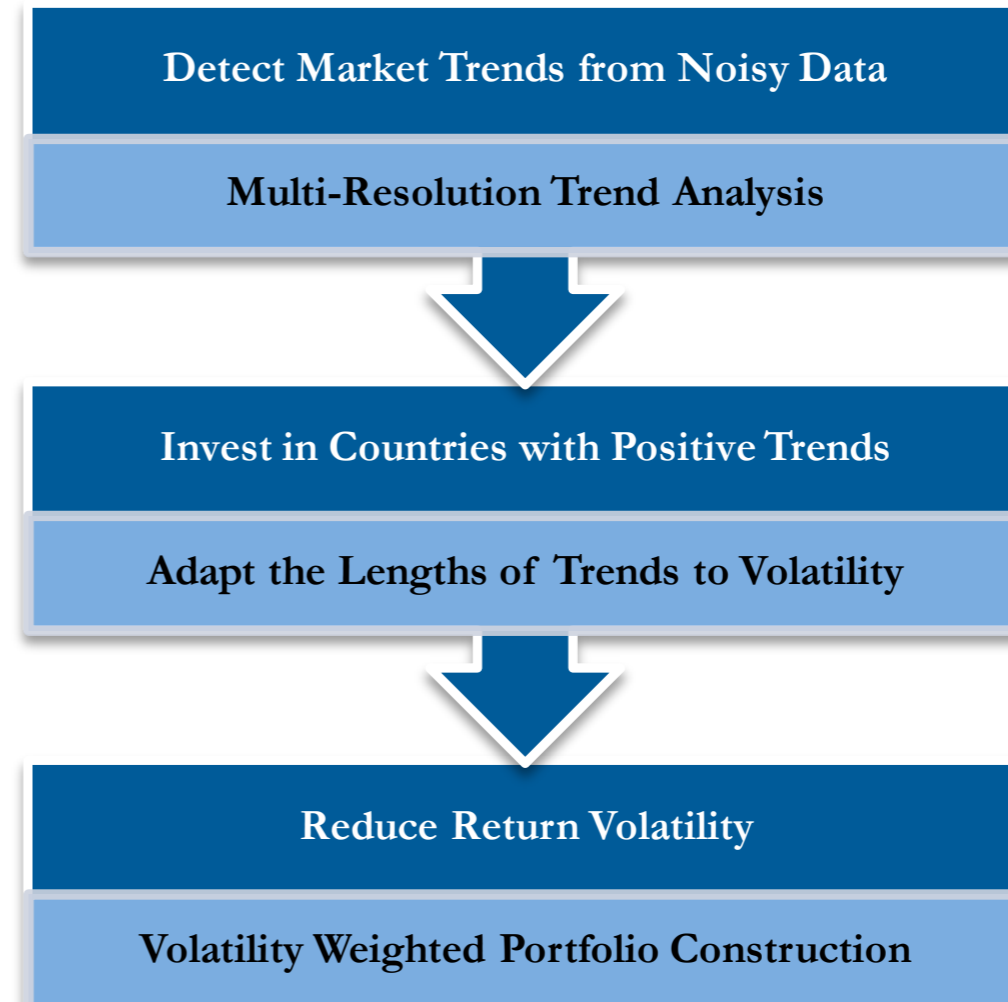
**Benefits of Multi Strategies:**

- Better risk-adjusted return
- Model risk mitigation

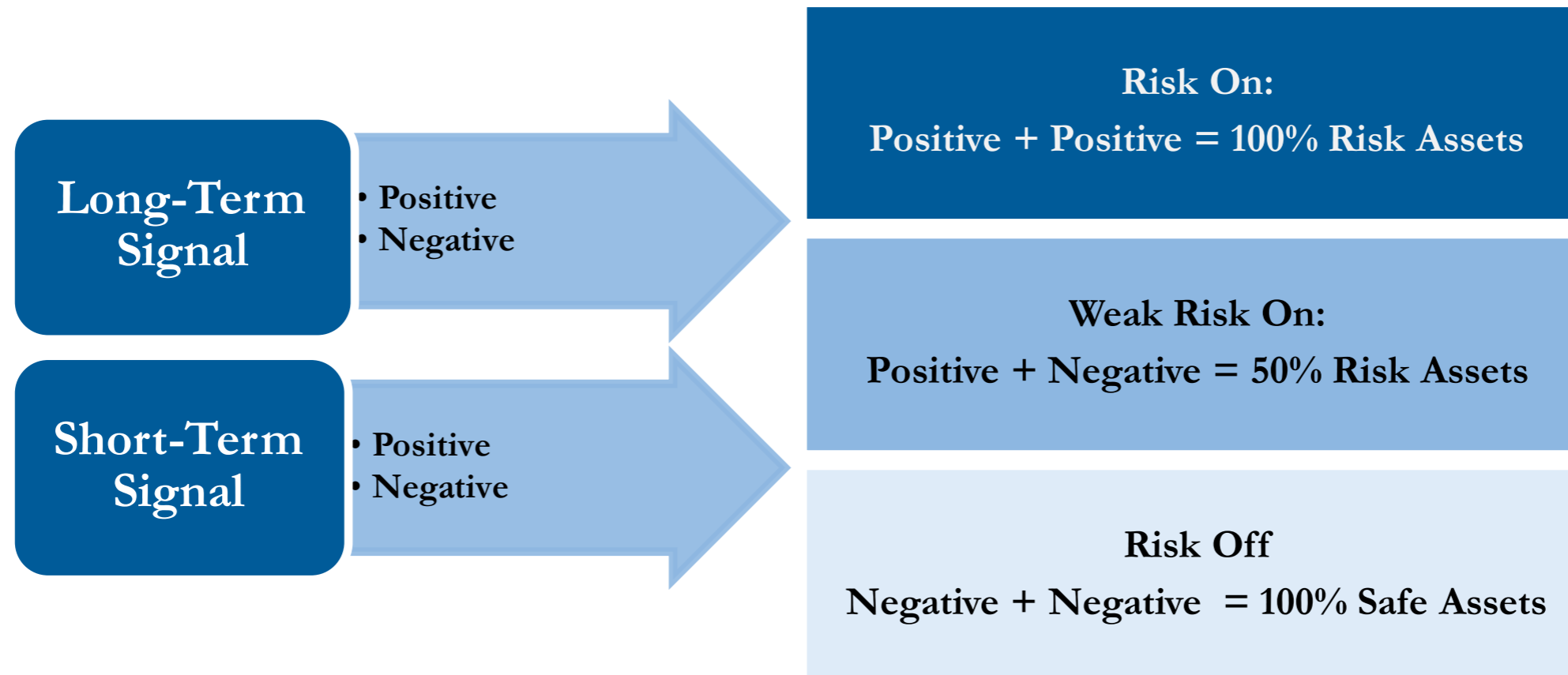
## Domestic Model

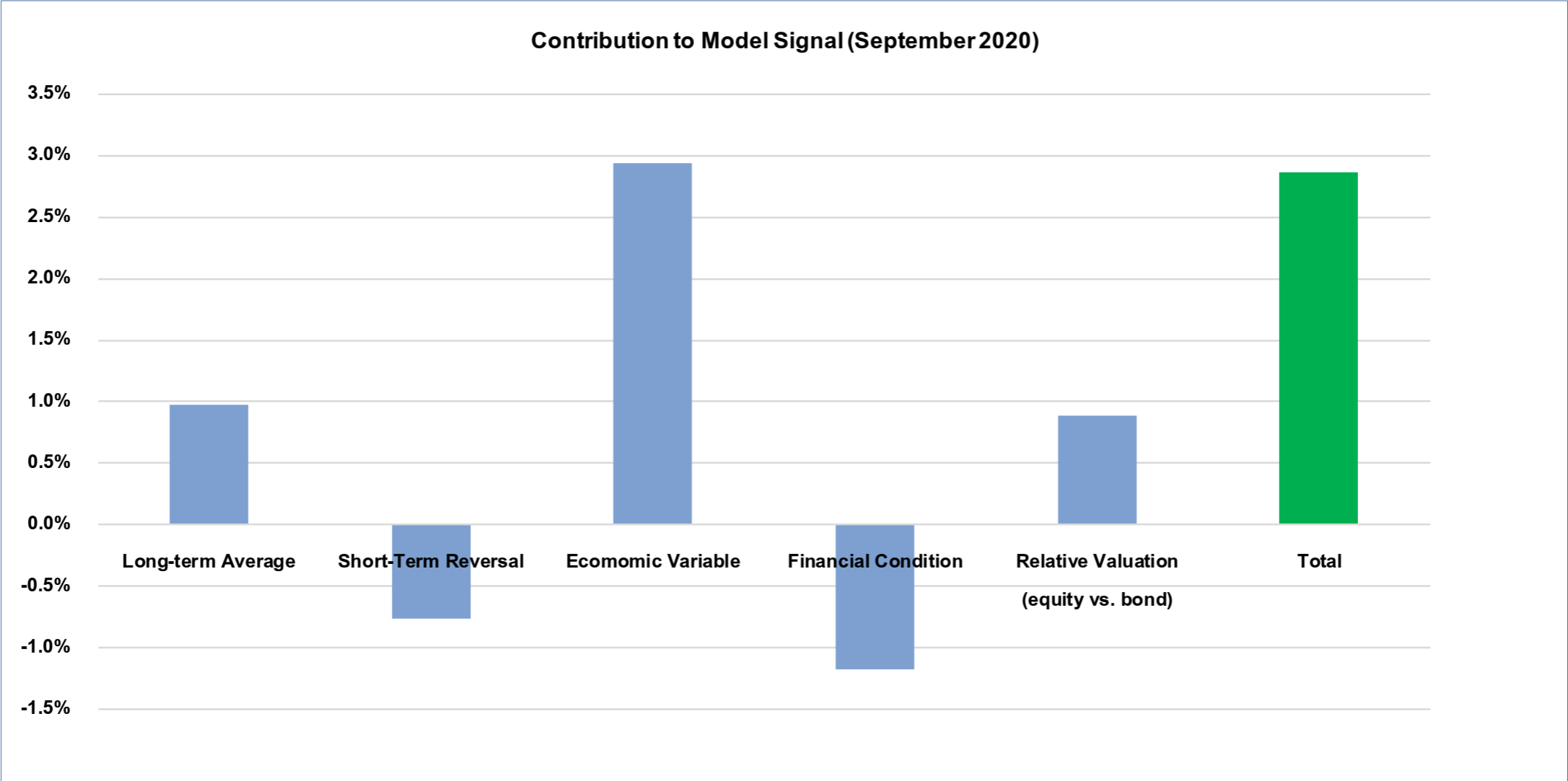


## International Model

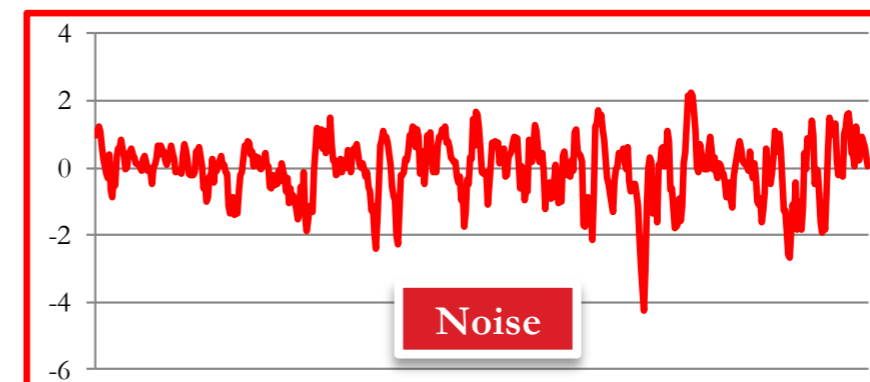
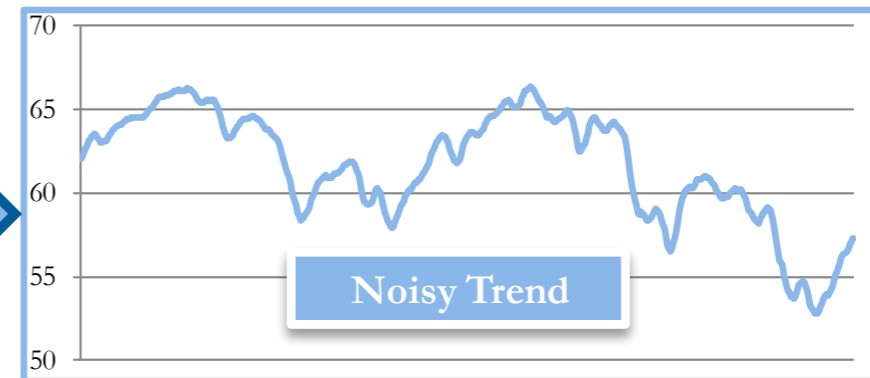
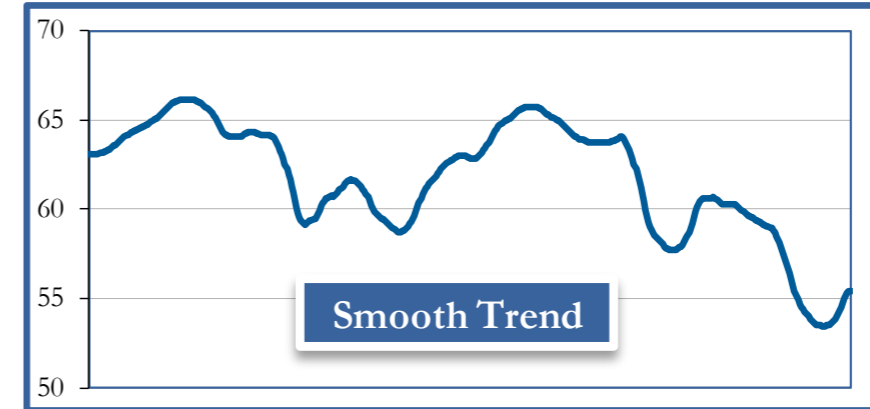
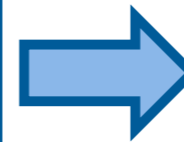
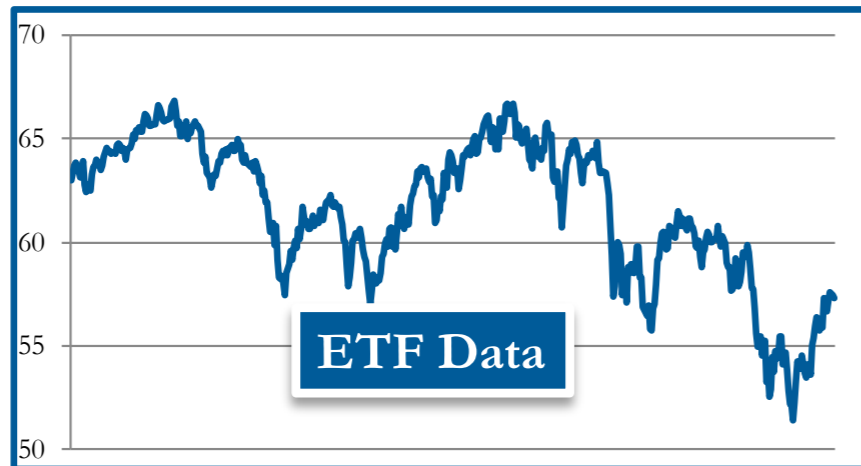


- Combining long-term trend with short-term forecasts
- Economic, valuation and technical factors are considered in the model

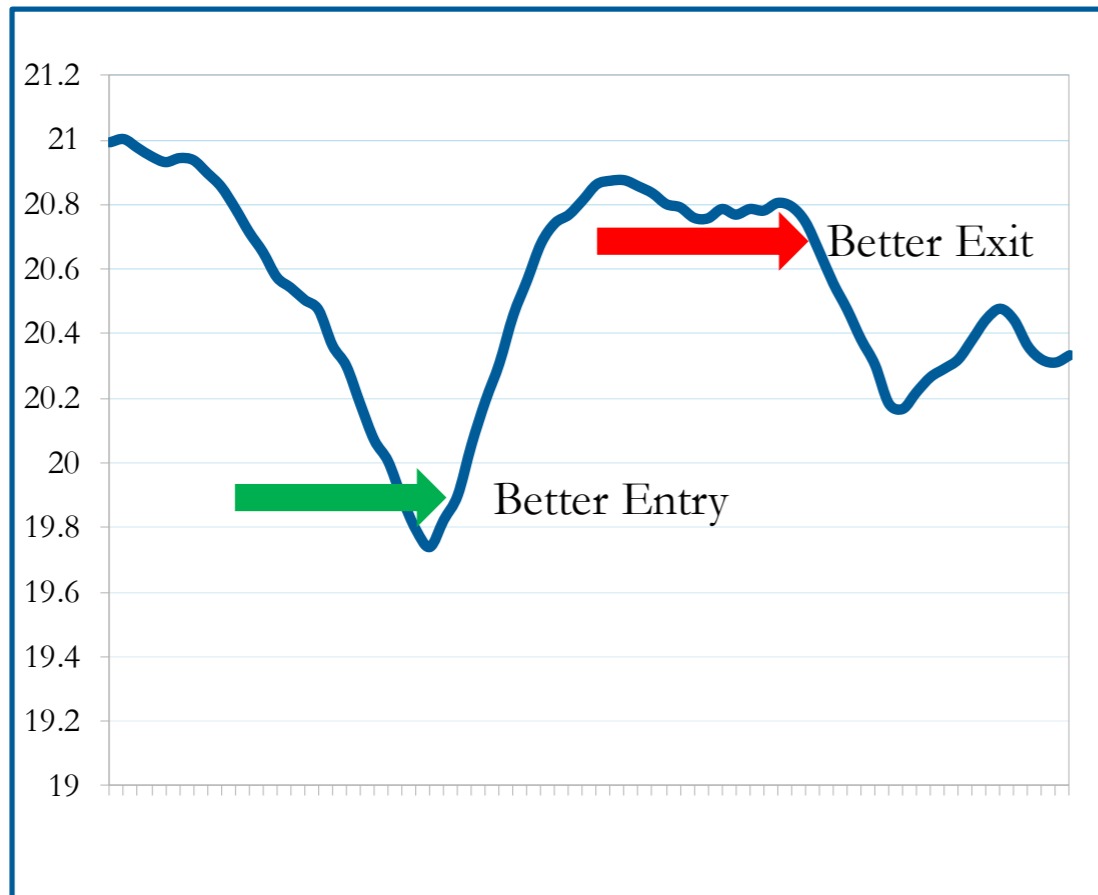




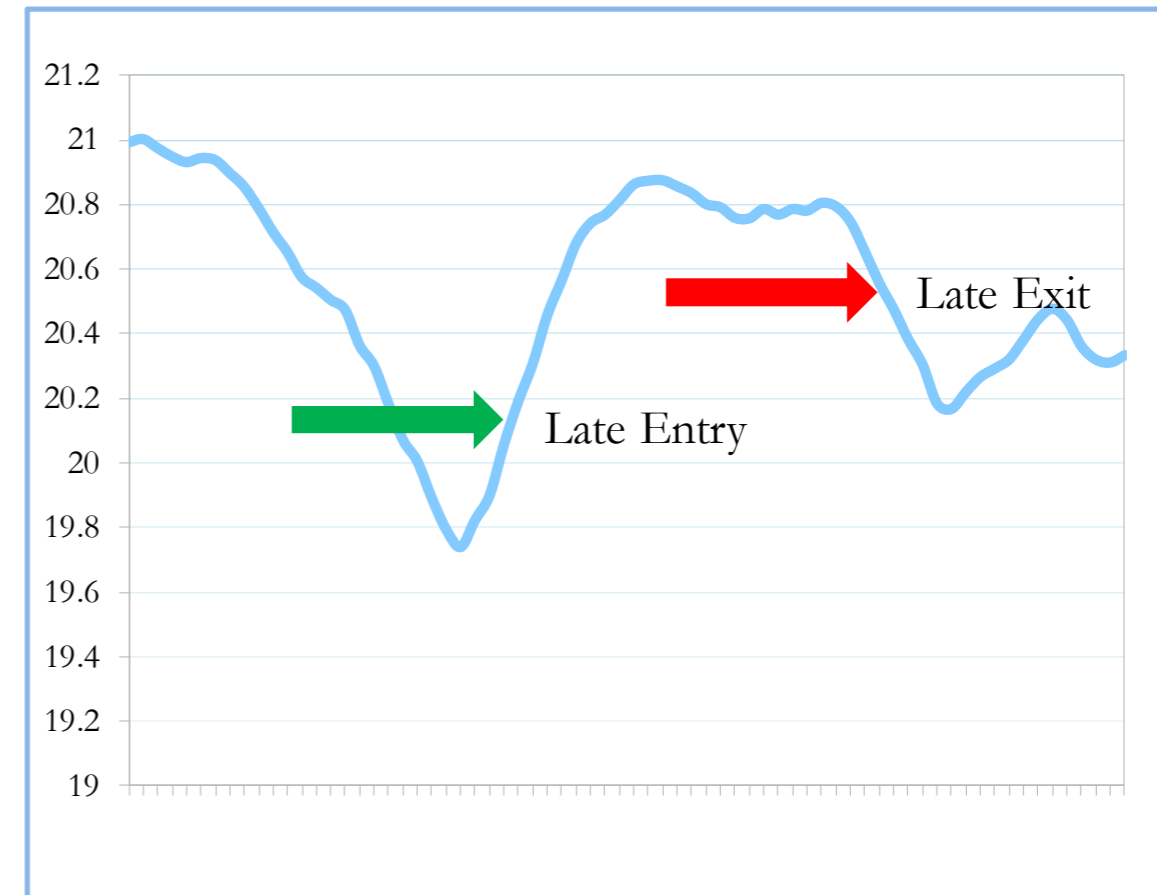
## Detecting trend from different "lens"



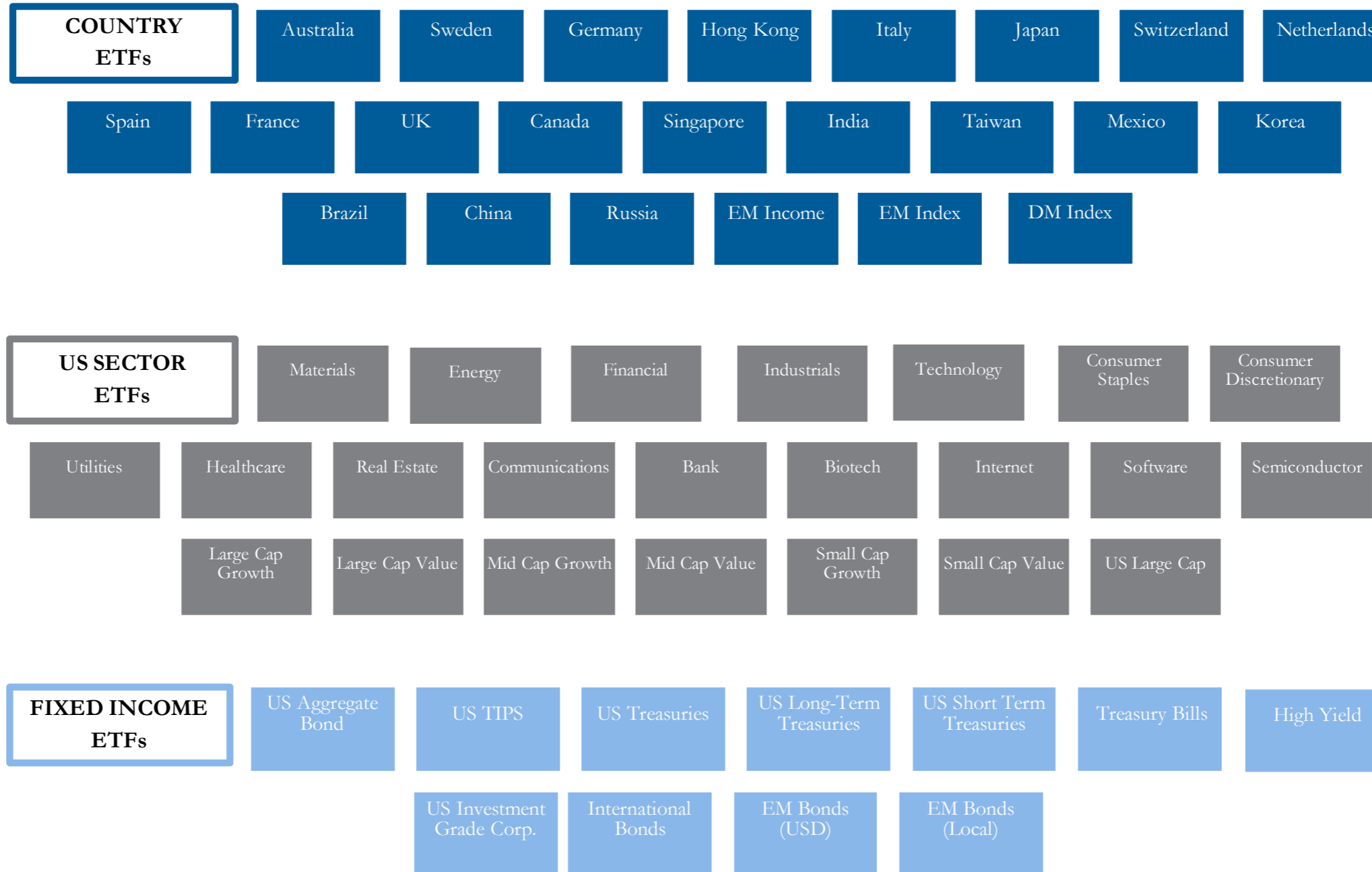
## Adaptive Trend Model



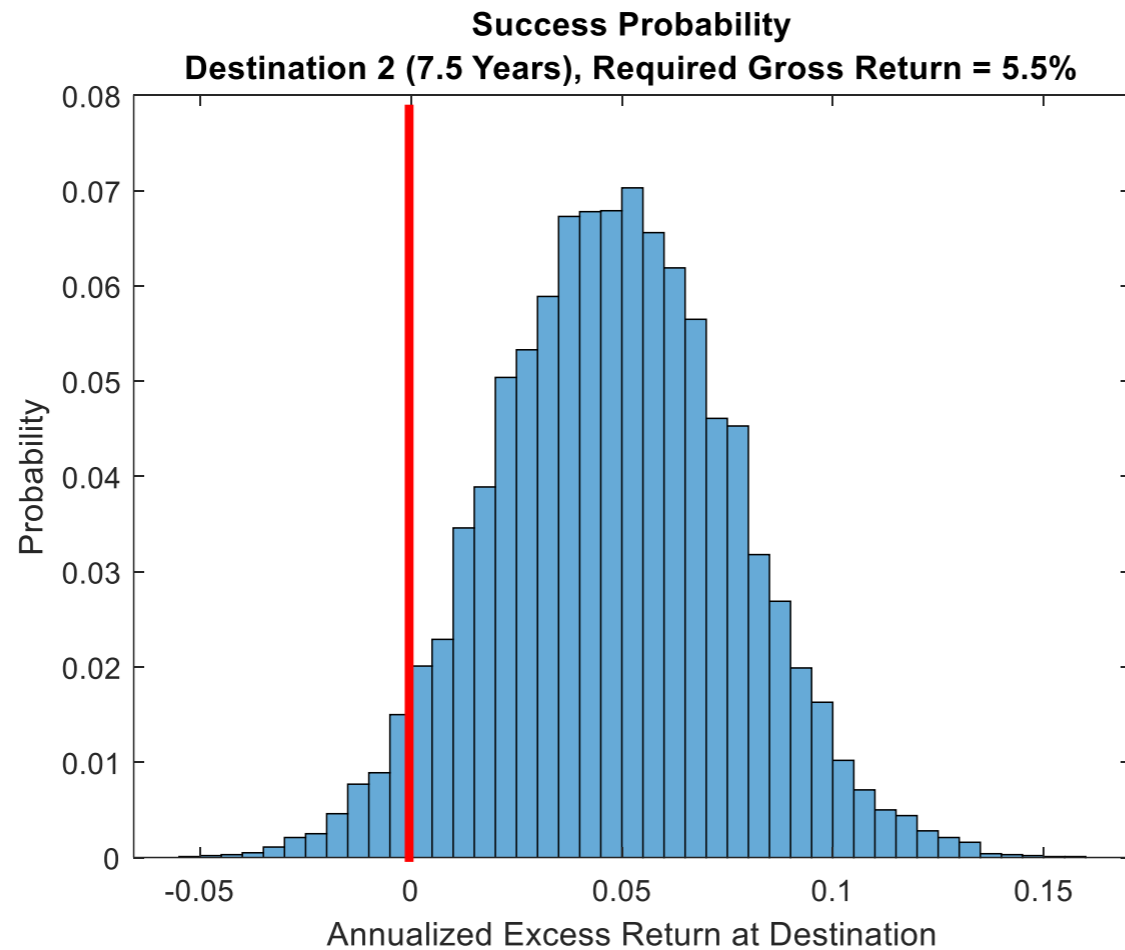
## Static Trend-Following Model







# Hypothetical back test results for 7½ investment time period portfolio



Year	Destination 2	Excess Return
2003 Sept. –Dec.	11.0%	9.6%
2004	11.3%	5.8%
2005	6.0%	0.5%
2006	11.6%	6.1%
2007	13.7%	8.2%
2008	4.3%	-1.2%
2009	16.1%	10.6%
2010	15.1%	9.6%
2011	3.2%	-2.3%
2012	10.6%	5.1%
2013	19.2%	13.7%
2014	5.9%	0.4%
2015	2.5%	-3.0%
2016	10.0%	4.5%
2017	17.1%	11.6%
2018	2.0%	-3.5%

Note: The performance results shown on this slide are HYPOTHETICAL based on modeled results and are gross before investment management fees. Please see Disclosures for more information.

\* The success probability is estimated with 100,000 samples created by bootstrapping the back-testing monthly returns.

# Hypothetical backtest results summary

Destination Number	Destination (Years)	Target Gross Return	Allocation	Annual Return	Standard Deviation	Sharpe Ratio	Max Drawdown	Success Probability*
2	7.5	5.5%	70% Dynamic +15% AGG +15% IEF	10.3%	7.1%	1.28	6.5%	95.7%
3	12.5	6.5%	80% Dynamic +10% AGG +10% IEF	11.2%	8.0%	1.24	7.8%	97.4%
4	17.5	7.5%	90% Dynamic +5% AGG + 5% IEF	12.1%	9.0%	1.21	9.2%	97.5%
5	22.5	8.5%	100% Dynamic	13.0%	10.0%	1.17	10.5%	97.2%

Note: The performance results shown on this slide are HYPOTHETICAL based on modeled results and are gross before investment management fees. The back test period is Sep. 2003 – Dec. 2018. Please see Disclosures for more information..

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## Annualized returns net of fees for large cap stock manager "A"

1 year	3 years	5 years	7 years	10 years	12 years
20.9%	24.3%	27.5%	20.8%	17.8%	19.3%

Returns are as of market close on November 30, 1999

## Annualized returns net of fees for large cap stock manager "B"

1 year	3 years	5 years	7 years	10 years	12 years
-0.4%	14.9%	-0.9%	3.5%	4.1%	1.2%

Returns are as of market close on May 31, 2012

- Instead . . . I have two different U.S. stock managers with LONG track records

### Annualized returns net of fees for two U.S. stock managers

	5 years	10 years	15 years	20 years	25 years	35 years
Manager "C"	14.5%	15.2%	9.5%	6.3%	9.7%	11.2%
Manager "D"	7.7%	11.5%	7.3%	6.9%	8.2%	9.2%

Returns are as of market close on August 31, 2020

# Friday, Sept 25<sup>th</sup> at 11am Eastern

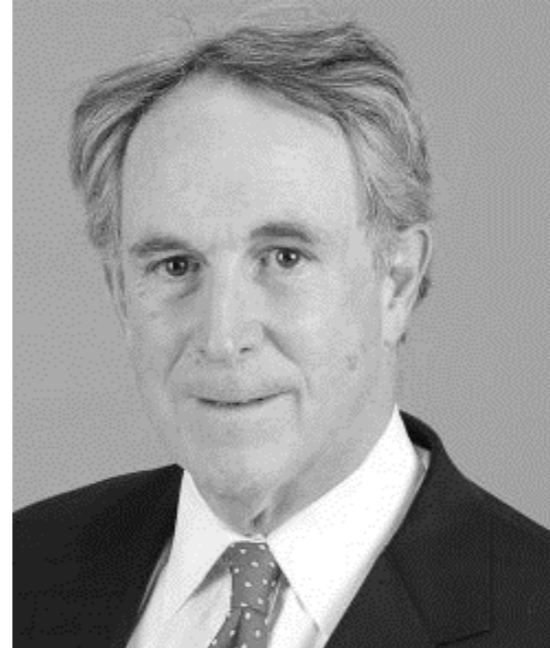
The general . . . the case small cap within a portfolio

The specific . . . why small cap right now

For more information contact



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