

JULEX CAPITAL

TAA is it a black box to be distrusted?

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TAA is it a black box to be distrusted or is it a reliable solution?

Blackbox

Trust or distrust

Reliability

Blackbox

What should you expect . . . what should you demand

- The curse of TAA and other quantitative strategies
- What you should expect in terms of transparency
- What you should expect in terms of understanding
 - What
 - Why
 - How

The curse of TAA and other quant strategies

- False claim that it is proprietary
- There are no investment secrets (OK, there are a few, but they're seriously rare)
- Blackboxes should be shown the sunlight
- All too often, they're kept "secret" because they're so simple

What you should expect in terms of transparency

- Absolute transparency
- Registered investment products, such as a 40-act mutual fund, do face certain regulatory disclosure constraints
- Expect transparency . . . Insist on it

What you should expect in terms of understanding

- The manager should be able to explain what they're doing, how, and why
- And at a level and in a fashion that allows you to understand

- The “Roger Myerson test”
- A man walks into a bar . . .

Trust or distrust

Primary sources of distrust

- **Primary sources of distrust**
 - Over promising and then under delivering
 - Difficulty in measuring
 - Success
 - Failure
 - The *“Am I on track?”* problem
- **Trust requires**
 - Reasonable expectations
 - Patience

- Over promising and then under delivering
- STOP
 - Nothing can be done about a hyper-short market collapse
 - Feb/Mar 2020
 - Aug/Oct 1982
 - Whipsaw cannot be eliminated, although it can be successfully mitigated
 - TAA doesn't work in the short-run (like 3 or 4 years)

Primary sources of distrust

- The difficulty of measuring “Am I on track?”
- Correlations are so low, that comparisons to any and all static benchmarks will only mislead
- Do NOT make those comparisons
- Instead
 - Evaluate whether the TAA manager is following their process and generating results consistent with that process
 - And, perhaps, compare to other similar TAA managers

- Set and then maintain reasonable expectations
- A high level of mitigation during normal bear markets
- Highly attractive returns over rolling time windows of more than eight years

Reliability

Is it reliable? . . . here's is the data . . . draw your own conclusion

- You must draw your own conclusion
- BUT . . .
 - I will give you the data . . . And the logic
 - I will give you the results
 - And, the lens to view the results through
- The lens I hand you . . . Forces
 - Patience
 - Avoids side-by-side same-time comparisons
 - It forces that you compare entire probability distributions . . . and decide which you prefer

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

Is the logic supported by voluminous independent research

The Journal of Portfolio Management

VOLUME 44, NUMBER 1

www.ijpm.com

FALL 2017

A Century of Evidence on Trend-Following Investing

BRIAN HURST, YAO HUA OOI, AND LASSE HEJE PEDERSEN

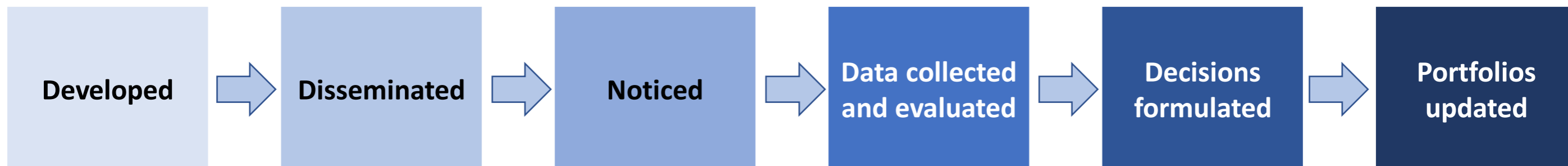
CONCLUSION

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

But . . . why do markets trend

- 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



Identify the investment time period and comparative benchmarks

Alternative investment time periods	Intended to serve client needs located this far in the future	Comparative performance benchmark
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

Identify the investment time period and comparative benchmarks

Alternative investment time periods

Intended to serve client needs located this far in the future

Comparative performance benchmark

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50%/50% stocks/bonds

17 ½ years

15 to 20 years

75%/25% stocks/bonds

22 ½ years

21 years and greater

100% stocks

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

- Monthly returns spanning the time period Jan 1919 through Feb 2020
- 29 asset categories
 - 7 - U.S. stocks
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 - Developed country
 - Emerging country
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 - 2 - U.S. investment grade corporate bonds
 - Medium maturities
 - Long maturities
 - 1 - International government bonds
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- 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%

- Quantitative rule

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The results

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

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 th	0.3%	4.8%
98 th	0.4%	5.6%
97 th	0.7%	6.1%
96 th	0.8%	6.6%
95 th	0.9%	7.0%
94 th	1.4%	7.5%
93 rd	1.6%	7.8%
92 nd	2.0%	8.0%
91 st	2.3%	8.2%
90 th	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

Time periods of 7 ½ years

Average returns

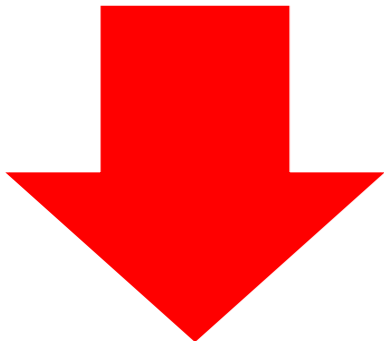
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Julex Capital

Organization, team, transparency . . . and a history of building the right products for the right reasons

Firm Overview

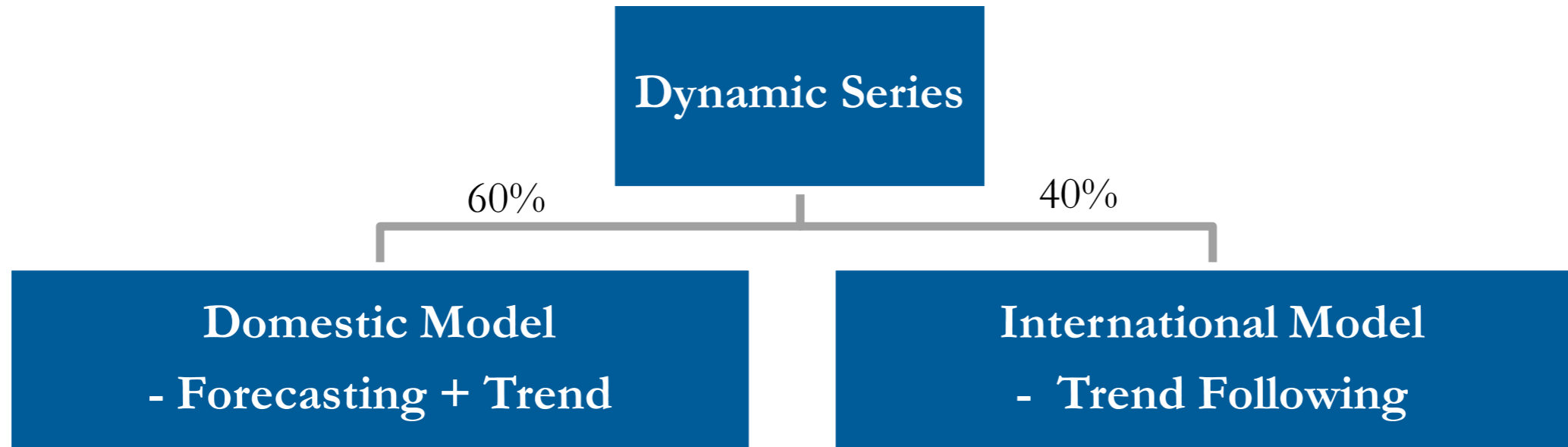
- Employee-owned, established 2012
- Quantitative, rules-based investment process
- Strategy Focus:
 - Tactical strategies – limit loss
 - Quantitative equity strategies - generate alpha
- Experienced Team
 - Institutional investment experience
 - Portfolio management team includes 3 Ph.D.'s
- GIPS compliance verified by ACA Performance Services

Julex - the investment professional team

Team	Role	Experience	Education
Henry Ma Ph.D., CFA	President Chief Investment Officer	Geode Capital – Hedge Fund Manager Loomis Sayles – Director of Quantitative Research Fortis Investments - Director of Quantitative Research Sun Life Financial– Portfolio Manager	Ph.D. Economics – Boston University BA, MA – Peking University
George Xiang Ph.D., CFA	Portfolio Manager Research	State Street Global Advisors (SSGA) – Head of Quantitative Research Loomis Sayles – Senior Quantitative Analyst Conseco Capital – Quantitative Research Manager	Ph.D., Mathematics – Purdue University BA – Nankai University
Frank Zhuang Ph.D.	Portfolio Manager Research	Ericsson – Senior Engineer Nortel, Alcatel/Lucent - Senior Research Scientist	Ph.D. Electric Engineering – University of Maryland MS – West Virginia University
Jeffrey Megar CFA	Investment Committee Member	F-Squared Investments – Senior Vice President State Street Global Advisors – Senior Portfolio Manager Fortis Investments – Senior Portfolio Manager Cypress Tree Investment Management	MBA – Northeastern University BA – Framingham State University
Liam Flaherty	Research	MFS Investments - Independent Contractor MassMutual - Internship	BA – Babson College
Bo Wang	Research		Ph.D. Candidate, Economics – Boston College BA – Renmin University of China

What's wrong with the original simple quant rule

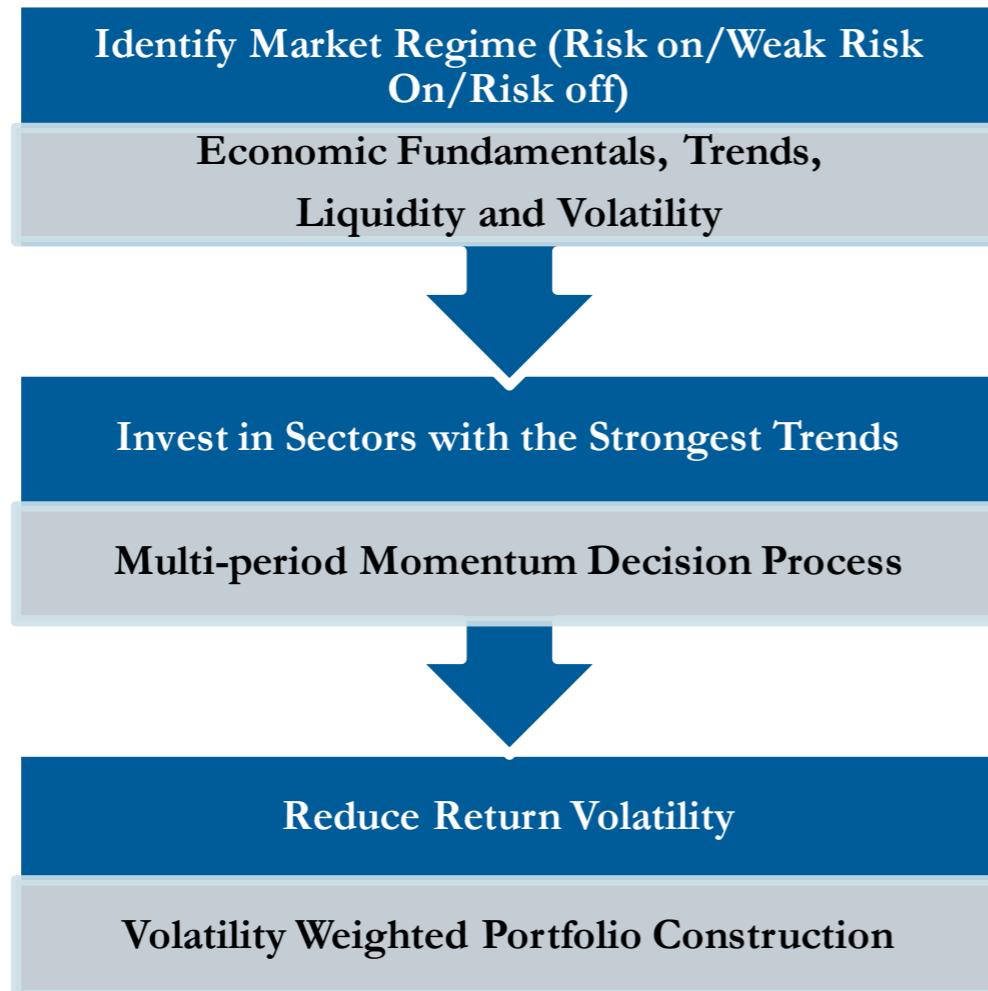
- Overly myopic
- Does nothing to
 - Optimize around the specific investment time horizon selected, e.g., why equal-weight?
 - Mitigate whipsaw
 - Optimize risk-on and risk-off around market turning points
 - Specify a forward looking playing field, i.e., set of asset categories to select from
- This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



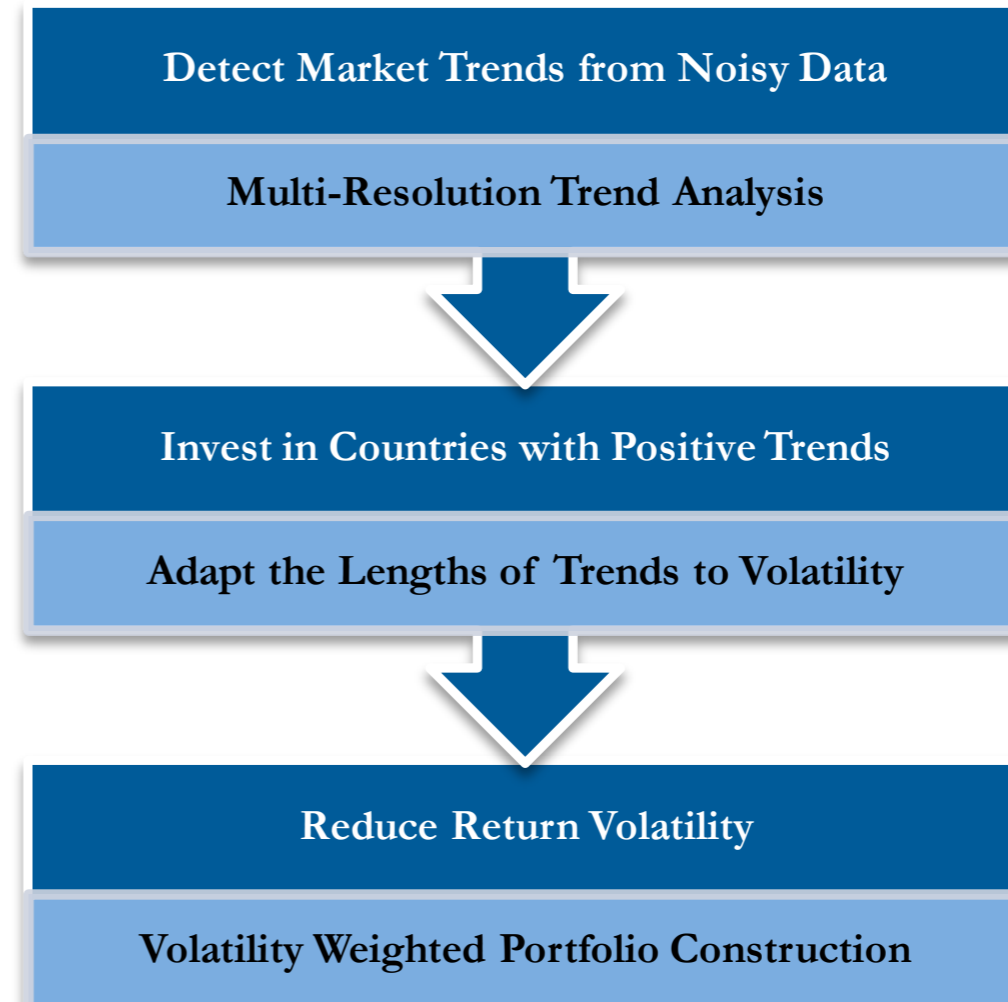
Benefits of Multi Strategies:

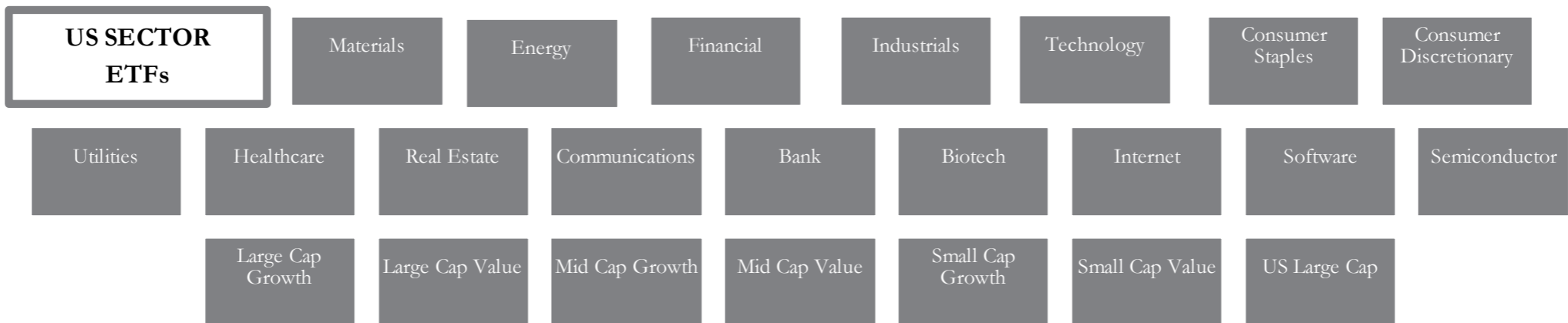
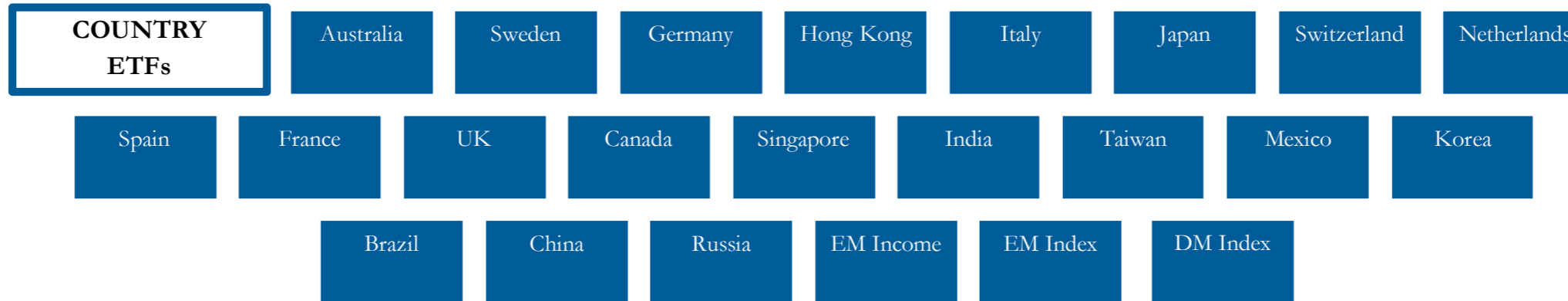
- Better risk-adjusted return
- Model risk mitigation

Domestic Model

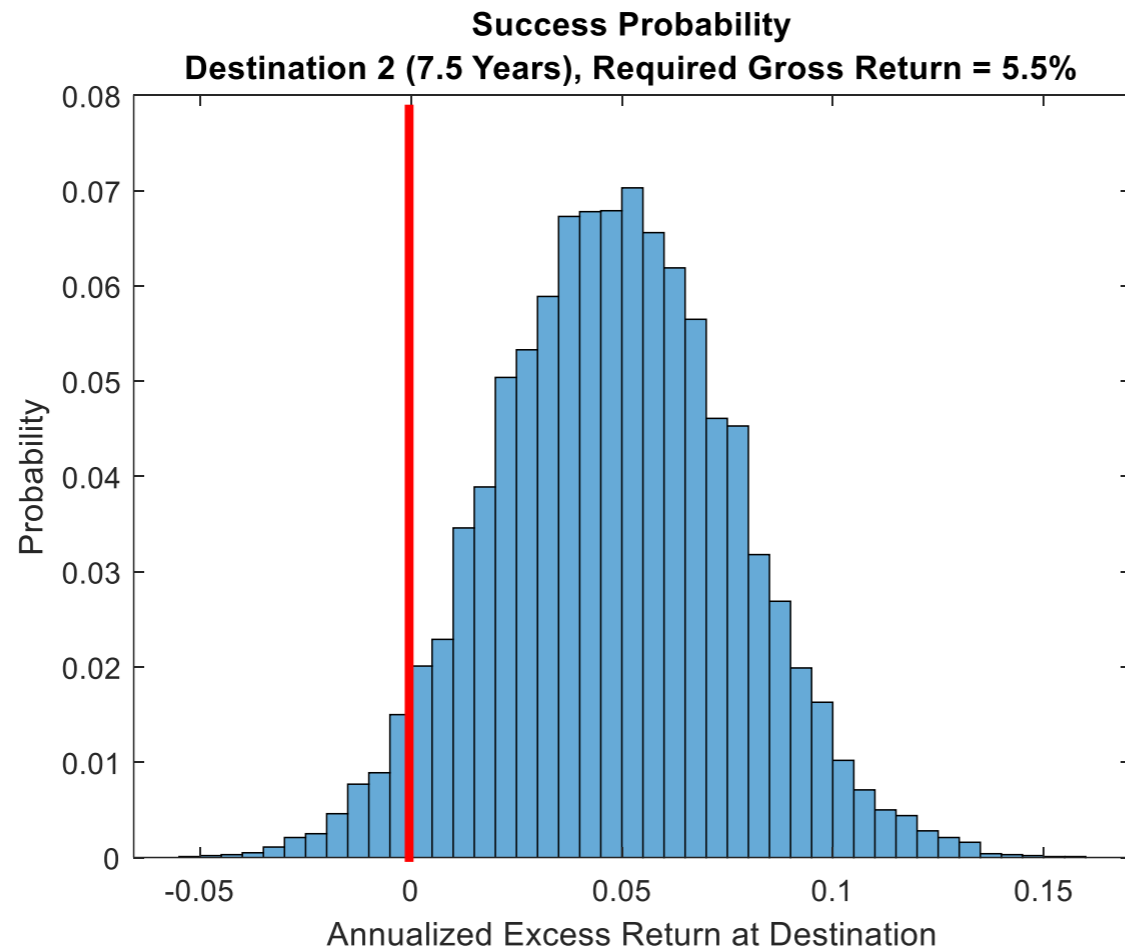


International Model





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%

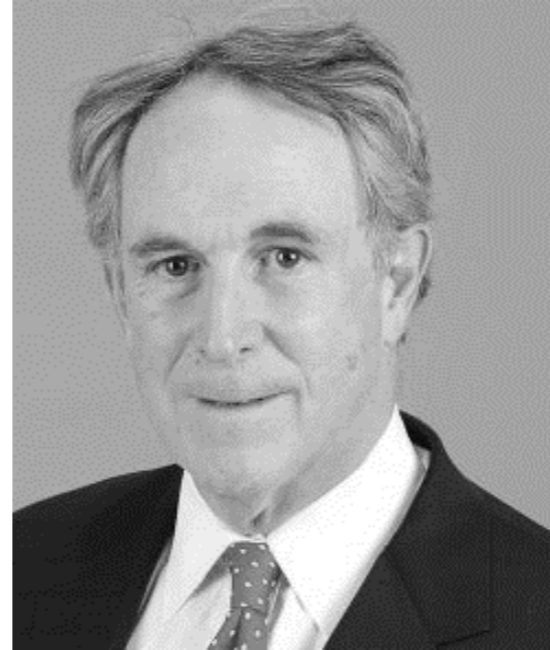
Note: The performance results shown on this slide are HYPOTHETICAL based on modeled results and are gross before investment management fees. Please see Disclosures for more information.

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

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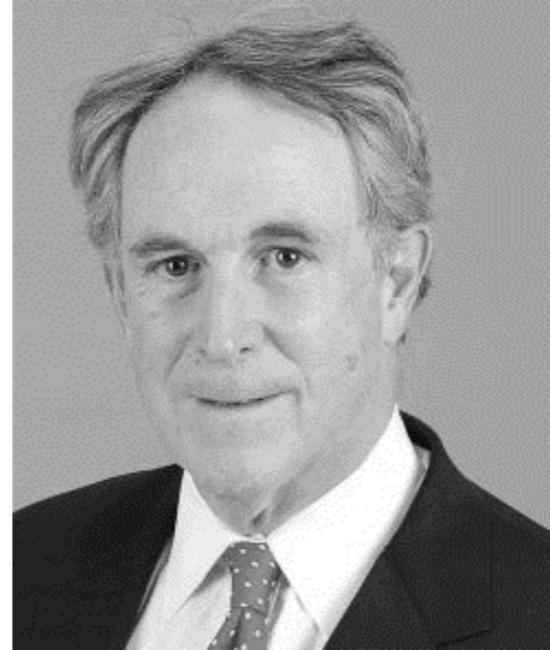
TAA why does it work, what is the inherent logic?

Friday, Dec 11th at 11:00 a.m. EASTERN time

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Some part of the investment performance shown is HYPOTHETICAL. It is based on the back tests of historical data. Hypothetical performance results have many inherent limitations, some of which are described below. No representation is being made that any account will or is likely to achieve profits or losses similar to those shown. In fact, there are frequently sharp differences between hypothetical performance results and the actual results subsequently achieved by any particular trading program.

One of the limitations of hypothetical performance results is that they are generally prepared with the benefit of hindsight. In addition, hypothetical trading does not involve financial risk, and no hypothetical trading record can completely account for the impact of financial risk in actual trading. For example, the ability to withstand losses or adhere to a particular trading program in spite of trading losses are material points which can also adversely affect actual trading results. There are numerous other factors related to the markets in general or to the implementation of any specific trading program which cannot be fully accounted for in the presentation of hypothetical performance results and all of which can adversely affect actual trading results.

The composition of a benchmark index may not reflect the manner in which a Julex portfolio is constructed in relation to expected or achieved returns, investment holdings, portfolio guidelines, restrictions, sectors, correlations, concentrations, volatility, or tracking error targets, all of which are subject to change over time.

No representation or warranty is made to the reasonableness of the assumptions made or that all assumptions used to construct the performance provided have been stated or fully considered.