Thank you very much. I’m glad to be here tonight

Correct misperception about NEW YORK.

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Here’s a brief road map about where I expect to be headed tonight. Of course, yuou all kno how easy it is to get lost in Boston.

A major point here is that there are good reasons that S&P 500 Market-cap-weighted indexing rose to be the standard against all other strategies are measured. There’s been a sort of stigma the best 12 years that if everything else anyone can think of is Smart Beta, that Market Cap indexing must be dumb Beta. Well, since more than 85% of core equity mutual funds managed every which was have underperformed IVV on an after-tax and after-fee basis since inception, perhaps it’s time to show some respect before I present the latest Smart Beta index to take on the S&P and all other comers.

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CEO of Wells Fargo made a huge investment in modern computers for the investment area but couldn’t get anyone there to use them. He hired one of these three guys and teamed him with another who was already there. I will give a complementary admission to the first guy who can identify which two and give me their names. (PAUSE)

Next, Mac hired this guy, an investment guy and compulsive quant scientist. Bill Fouse. Kismet came in the form of Mr. Schwayder from Samsonite. He was a Professor of Accounting at U. Chicago from which Wayne Wagner and others recruited by Mac had already come. He had $6 million he pulled from underperforming mutual funds in which part of the pension had been invested. He wanted to see if it could be invested in the market – the U. of Chicago Efficient Market way. At the time, they thought of the market as the NYSE, so the initial implementation was to take the $6 million and invest it in all the NYSE positions equally. One week and $300,000 in trading costs later in the stone knife era, and no answers the best IBM of its day could supply, the fund was pulled until a more efficient trading solution could be found.

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* Eventually, Wagner talked to an economist buddy that mentioned the old Cowles Commission work that has become an index, the S & P 500. It turned out to be a
* Dream implementation tool for index funds when trading costs were substantial.
* This may be impossible for those of you born after 1980 to fathom but this was the ticker-tape machine era – and we considered that to be modern technology.
	+ Stocks still traded by open outcry
	+ Bid-ask spreads were in 1/8s
	+ Brokers typically charged their best institutional customers just 10 ₵ per share
* Automatic position weight tracking – **an ingenious solution** already available
* Implementation of WF S&P 500 fund led institutional investment evolution
* It became the measurement standard for pension funds and together with ERISA helped give birth to the consultant industry (PAUSE) OK, all good comes with some bad.
* Along with technological advances, what really got the S&P 500 established – at least for most institutions - as the indexing standard happened in 1982. CME launched S&P 500 futures after Dow Jones sued the CME for infringement on IP. Talk about Pyrrhic victories!
* The next apple-seeds for cap-weighted indexing were planted by Vanguard making it available to retail and small institutions for the first time. Yes, that’s a very young Jack Bogle.
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* Well, now that indexing had become a big business and they hadn’t made any money off it, all the U. of Chicago efficient market gurus who wrote reams of articles professing wisdom that trying to beat the market was futile – wrote new articles on how they had a secret sauce that could beat the market and went into money management.
* The two most famous of these were Eugene Fama and Ken French. They found two so-called anomalies to EMT that they said were empirically consistent over time: value (as measured by price/book) and smaller cap stocks. With that they went into Money Management with mixed and mostly non-impressive results/
* Pause. Bob Fernholz, a frequent speaker at NY QWAFAFEW, wrote a paper called Diversity-weighted indexing claiming that anti-value biases made the S&P too top-heavy and his technique addressed the concentration issue with a semi-log model. He formed Intech, a money management company that still has some institutional customers but implementation shortfall was an issue.
* Hillenbrand & Mean Reversion
* ARNOTT (Stars and Stripes Forever)
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* These changes were huge in transforming us from the era of implementation shortfall and disintermediation of retail from nothing but the lousiest products to today’s era of getting trading for near-nothing and your Beta for free.
* Techno-evolution \* Decimalization
* Decentralization \* Deregulation
* End of disintermediation \* Specialist essentially eliminated
* Era of exchange control SHATTERED – NYSE reduced to nothing more than a television studio and a meeting facility.
* And ETFs have become at least as big a disruptor of the fund industry. I wrote in 2000 how the modern structure was so efficient that the traditional forward-pricing at NAV, trading to cash flows, working trades over days/weeks, keeping 5% cash on hand opaque model would eventually have to go the way of the dinosaur. 17 years later, we’re still not 25% of the way done – but it is happening. And it’s not a bubble or a cyclical phenomenon. It’s strictly structural.
* One of the products this structure made feasible early on was the equally weighted S&P 500, introduced by Rydex, bought by Guggenheim, now bought by Power Shares. It doesn’t matter who owns it. The success has been the same. But tracing and a cursory analysis of its success also tells you something about the market and the indexes.
* Point to 2003 – 2009; 2009 – 2017; A STRUCTURAL change in risk and reward for investors. If you know the Fed will bail out big companies in financial crisis AND keep the equity owners whole, that’s a huge and unprecedented structural change in the reward/risk ratio for owning equities. Citicorp anecdote.
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* Here are the weighting methodologies used in all three indices and applied to the same 500 stocks. The first you should be familiar with. The second could not be simpler. The bottom equation applies to Reverse Market Cap which technically from a mathematical perspective be Inverse Market Cap but from a practical perspective could too easily be confused with the inverse indexes commonly used by futures-related products. This index was built to be fair, open, and transparent – not to confuse people. (PAUSE)
* Anyway, this is what’s going on. The inverse, 1/market cap -- or (market cap) to the -1 power if you prefer is calculated – for each of the 500 stocks. So, the numerator of the weight for Apple is an incredibly small number – something like 3 divided by 10 to the 12th.
* Next, The sum of those 500 numbers becomes the denominator for each weight and the 500 weights are assigned, leading to stocks allocated 0.1% or lower in the S&P 500 being the largest holdings but not nearly as large as Apple since there are so many nearly equivalent. Generally the highest weight is in the vicinity of 1.2% and there are usually about 15 more above 1.0%. such that the top 20 holdings are in the neighborhood of 20%.
* So, there is more diversity than the S&P 500 where generally close to 50% is accounted by the top 20 but less diversity than the equally weighted, 0.2% per position, 4.0% accounted for by top 20. I hope this helps you get your arms around the construction of the three indexes.
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* The mathematical rationale for Reverse Market-Cap Weighting is simple conceptually but a bit more complex in demonstration. To do so, we separated each index into two parts all by descending market cap order. It turned out that the most stable statistically significant breakdown was the top 120 and the bottom 380. To simplify and illustrate the testing, we calculated the average total weight for each section. The numbers were as shown:

For S&P, the total weight of the top 120 stocks as ranked by market capitalization was 0.667%. The total weight of the bottom 380 was 0.333%

For RSP’s equally weighted index, it was constant throughout, 120\*0.2 = 24%, leaving the lower 380 market cap stocks with a weight of 76%.

For RVRS, the top 120 market cap stocks has an average weight of 5.6%, leaving 94.4% for the bottom 380. So far so good. But not enough yet to say anything about relative performance.

* So, we took the average quarterly return and standard deviation of each individual stock price for the period and performed a Monte Carlo simulation creating 30,000 sets of potential return for each weighting scheme. For each simulation, this was compared to the average return (sum/120) for the top 120 stocks to which we assigned the value a, and the sum of the next 380 stocks (sum/380) which we assigned the value b.
* We then called x the return for the cap-weighted portfolio using the fixed cap weights for each period. Similarly y was the return for the equally weighted portfolio for each period’s simulation and z was the return of the reverse cap weighted portfolio for each simulation. What we hoped to show is that most of the time, when a<b, then x<y<z and we expected the opposite to be true for every combination of prices spit out by the simulation for the fixed quarterly weighting schemes. It turned out that 11.7% of the time when a<b, that z failed to be greater than y but only 4.4% did z fail to be greater than x when a<b.
* Thus, the concept that when RSP outperforms SPY, RVRS can be expected to outperform RSP was validated.

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Now for the empirical testing during the period. Obviously, I wouldn’t be here if it didn’t work out. Here is the ubiquitous growth of $100 chart giving exactly the separation at the end of the test period that you would expect to see.

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Here are the individual year-by-year returns. Where you can see that concept applies in all but one year measured.

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The HHI is a measure that portfolio analysis has borrowed from econometrics recently for the concentration within a population. The difference is dramatically less concentration in RVRS than in the S&P 500.

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These are the Risk=Return profiles of the factor indexes based on the S&P 500. There is no pretense of RVRS being in the all-weather northwest quadrant. But it is the most northern index in terms of return with a commensurately high standard deviation.

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My longtime friend, Frank Sortino, made a friend of hedge fund managers everywhere when he logically declared that the only volatility that should concern investors is downside risk. Upside risk is good risk – it’s where investors make excess returns. Thus, the Sortino ratio was born and is still widely used today. In measuring return relative to downside risk, RVRS has a better Sortino than RSP which is better than that of the S&P 500.

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In summation

1. Market cap weighted S&P 500 Indexing still tough to beat
2. Yet, anti-value, pro-size, pro-momentum biases are vulnerabilities
3. Alternative weighting schemes no longer as tough to implement as portfolio solutions
4. RSP, equally weighted S&P 500 ETF has outperformed SPY since inception
5. RVRS, reverse market-cap weighted index, can be expected to outperform RSP index most times when latter beats S&P 500
6. RVRS can be useful as long-term return-oriented holding and as a tactical tool for hedge funds

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Thank you.