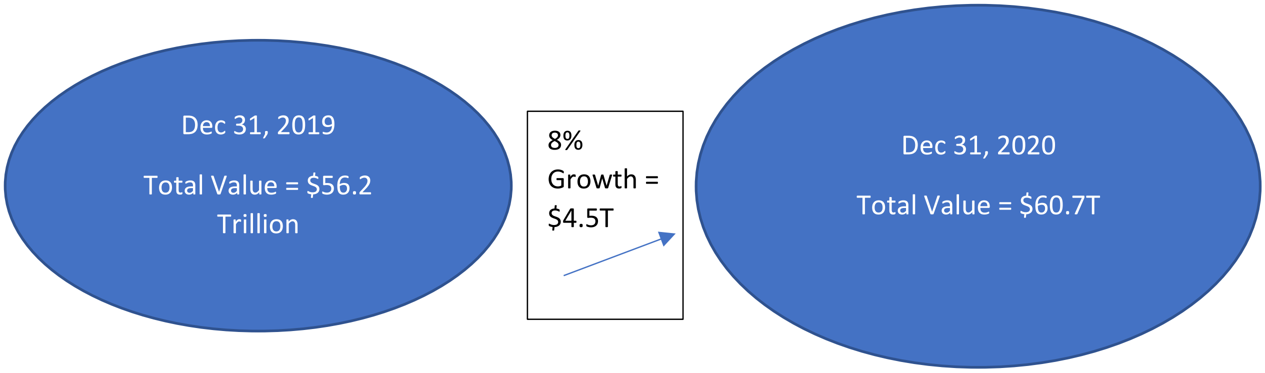
The Ultimate Equity Market Is The Global Equity Market

We are going to look at the Vanguard Total World Stock ETF to once again prove that passive management is arithmetically certain to outperform active management always. The Vanguard Total World Stock ETF attempts to mimic the characteristics of the FTSE Global All Cap Index and is judged on its accuracy. Let's have a look at the FTSE Global All Cap Index.

The FTSE Global All Cap Index is a measure of a portfolio of all publicly traded companies in the world that are not extreme micro-cap in their market capitalization (value) weights[i]. The extreme micro-cap equities are irrelevant. They comprise almost nothing in additive market capitalization. The performance of the FTSE Global All Cap Index is akin to investing in every single equity security in the world in their market capitalization weights. There is no larger equity market. This is the total universe.

Apple, the worlds largest company in terms of market value at the time of writing, had a market capitalization of (4.4B shares outstanding x $293.65[ii]/sh =) $1.29 Trillion as of December 31, 2019. It had a market weight of 2.30% in the FTSE Global All Cap Index as of December 31, 2019. The value of all publicly traded companies in the world is therefore $56.2[iii] Trillion US as of December 31.

So, the value of all publicly traded companies in the world that are material is around $56.2 trillion. Let's say that 2020 brings an 8% rate of return to the FTSE Global All Cap Index. Because Vanguard has a great track record of replicating the returns of the index, we expect the Vanguard Total World Stock ETF to return 8% or very close to it. Let's look at the return available to all investors in the world investing in equity. Pictures help:



The group of all investors in equity in the world could all receive an 8% pre-cost rate of return in 2020. They all can't get 9% or 7% or anything different than 8% pre-cost. Of course, there is variability. All won't get 8%. Many will outperform and many will underperform. But, the two offset and the rate of return to the group of all investors must average 8%. There is a zero-sum game around 8% and the $4.5T gain is finite. Investing is a positive sum game but a zero-sum game around the market return.

Now we divide the group of all participants into two groups: passive participants and active participants. Each participant is either one or the other[iv]. We know that the all money invested in the market grows by 8%. We know that passively managed money grows by 8%[v]. We are looking to solve for the rate of return on actively managed money. Well, we know two of the three variables. We can solve for the third. Using simple arithmetic, the group of actively managed money can not grow by anything different than 8%[vi] in our example.

From a different perspective, the 8% gain in the market equates to a $4.5T gain. The gain is finite. The passive participants get the percentage of all money managed passively x 8% and the active participants get $4.5T less the amount going to the passive group. To further our example, let's say 30% of $56.2T is managed passively. The passive group gets 30% x $56.2T x 8% = $1.35T. The active group gets $4.5T – $1.35T = $3.15T. That is 8% growth. ($3.15T / (70% x $56.2T) = 8%). That proves the active group's money must grow by 8%. Many will earn a higher rate of return, but this will be offset by many earning a lower rate of return. If the active group's money grows by 8%, it is certain that the average dollar invested actively must earn 8% pre-cost; the same as pre-cost return to the average dollar invested passively.

And, as is certain, the average cost to deliver active management is higher than the average cost to deliver passive management. There is a 9 basis point cost factor in the Vanguard World Stock ETF. It is the after-cost return that matters. Simple arithmetic tells us that the after-cost return on average dollar invested actively must underperform the after-cost return to every single dollar invested passively.

Why does anyone invest actively? We all have an inflated sense of our ability. This is likely a positive trait in the balance. It prompts us to act. However, it does come with negatives. We tend to accept unreasonable predictions. If a room is filled with active participants, especially professionals managing other people's money, and are asked "who will outperform their benchmark next year", all hands would go up. Even if they have the arithmetic understanding that it is impossible for all to outperform, they still believe they will be in the small group of active participants that outperform both pre and post-cost. If they didn't, they would move all investments into passive product and enjoy a lower cost factor. Or, from a cynical point of view, many work within the finance industry and the zero-sum game around the market return message places the utility of their careers in doubt.

Endnotes:

[i] Market capitalization = market value = # of shares outstanding x price per share.
Market capitalization weight = a company's market value divided by the combined value of all companies in the market.

[ii] Yahoo Finance

[iii] $1.29 Trillion / 2.3% = $56.2T rounding error exists

[iv] A passive participant is one who holds shares of every company in the market in each company's market capitalization weight throughout the period being measured. An active participant is one who does not meet the definition of a passive participant. Each participant is one or the other.

[v] By holding shares of every company in the market in their market capitalization weight, the portfolio matches the characteristics of the index. Passive participants have an option. They can invest in the shares directly or they can invest in a product that pools investors money and invests in the shares. The latter is prevalent among individual investors. The Vanguard World Stock ETF product currently holds shares in approximately 8,000 companies around the world. They charge 9 basis points for investors to buy shares of the ETF. It is difficult for individual investors to directly buy shares of 8,000 companies from around the world.

[vi] Market return = MR, % of all money managed passively = %MP, % of all money managed actively = %MA, unknown = rate of return to group of active investors.
%MP + %MA = 1, so %MP = 1 - %MA
Fundamental Equation:
MR = %MP x MR + %MA x unknown
Solve for Unknown:
%MA x Unknown = MR – (1 –%MA) x MR
Unknown = (MR – (MR - %MA x MR)) / %MA
Unknown = (MR – MR +%MA x MR) / %MA
Unknown = MR = proof that the group of money managed actively grows by the market return. Therefore, the group of all active investors must average the market return. This is pre-cost.