Poker analogy to understand the "zero-sum game around the market return" nature of investing.

10 friends get together to play poker. Each brings $10,000 to the poker table. They play for a year. There are winners and losers but it is certain that there is $100,000 in poker chips at the table always. There will be winners and losers but if one or more hold more than $10,000 after a year, it is certain that at least one must hold less than $10,000. This is an example of a zero-sum game. The total money available for the players is constant at $100,000.

After one year they reset and each hold $10,000. They decide to hire a dealer. The dealer charges 2% per year to deal. There is now a 2% annual charge to participate in the game. At the end of one year there is $98,000 at the table and $2,000 in the dealer's pocket. Total money available for the players declines by 2% per year. This is a negative sum game as all could have less than their original $10,000. It is a zero-sum game around the after-cost return of -2%. If one or more earn a greater than negative 2% return, or hold more than $9,800 at the end of the year, then it is certain that at least one earns less than a -2% return.

They reset again and each hold $10,000. Now we introduce a magical replenishing of poker chips by 7% at the end of the year. At the end of year 1 there is $105,000 of money at the table and $2,000 in the dealer's pocket. This is now a positive-sum game as all could have more than their original $10,000. All could have $10,500. But, the money at the table is still finite. There is a zero-sum game around the after-cost magical replenishment rate of 5%. If one or more have grown their poker chips by more than 5% by the end of the year, it is certain that at least one must have grown his or her chips by less than 5%.

They reset again and each hold $10,000. 3 of the 10 players are happy with the magical replenishment rate and decide to not gamble. They talk to the dealer and the dealer charges them .15% to sit and not gamble. The remaining 7 players decide to sit and gamble and are charged 2%. The 3 non-gamblers receive 7% - .15% = 6.85%. At the end of the year each non-gambler holds $10,685 in poker chips.

The 7 gamblers are participating in a positive sum game but a zero-sum game around the 5% after-cost, magical replenishment rate. All 7 could grow their chips by 5% but if one or more grow their chips by more than 5%, it is certain that at least one must grow their chips by less than 5%. Stated using dollars, by the end of the year the money available for the 7 gamblers is 7 x $10,000 + the after-cost magical replenishment rate of 5% = $73,500. $73,500 / 7 players equals $10,500. If one or more holds more than $10,500 at the end of the year, then one or more must hold less. There is only $73,500 available for the gamblers. If one is extremely skilled and lucky and holds $40,000 at the end of the year, the remaining 6 hold $33,500 combined.

Would you rather be the gambler or the non-gambler in this example? Simple arithmetic is on the side of the non-gambler.

Let's look at this game without the cost of a dealer. The 3 non-gamblers chips grow by 7%. At the end of the year each holds $10,700 in chips. The chips available for the 7 gamblers grows by 7%. There is a zero-sum game around the after-cost (0%) magical replenishment rate of 7%. If one or more hold more than $10,700 in chips at the end of the year, at least one must hold less. Each group has grown their combined chips by 7%.

Let's look at this game with a 1% dealer charge and a .15% charge to sit and not gamble. The 3 non-gamblers grow their chips by 6.85% to $10,685. The 7 non-gamblers are participating in a positive sum game but a zero-sum game around the after-cost replenishment rate of 6%. All could grow their chips to $10,600. If one or more grow their chips by more than $10,600, than it is certain that at least one will hold less than $10,600.

Let's look at this game with a ridiculous 20% dealer charge and a .15% charge to sit and not gamble. This is not realistic. The example is used to reinforce the concept that cost matters. The 3 non-gamblers grow their chips by 6.85% to $10,685. The 7 non-gamblers are participating in a game where cost is substantially higher than the magical replenishment rate. This is a negative sum game but a zero-sum game around the after-cost replenishment rate of negative 13% (7% - 20%). **Cost Matters!**

How is this analogous to investing? The 3 non-gamblers are analogous to passive investors, the 7 gamblers to active investors, the magical replenishment rate to the long-term market return, the dealer charge to total cost of active investing and the charge to sit and not gamble to the total cost of passive investing. This and the above hold true regardless of the number of participants.

The poker analogy reinforces the concept that market gains or losses are finite. All market participant's gains and losses must average to the market return. Is it possible that every active manager outperforms the pre-cost market return? Even more relevant, is it possible that every active manager outperforms the after-cost return of the passive participant?