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Professional asset managers are pilloried in the popular press, compared to dartboards and even to monkeys,[1] and the literature often suggests they provide no economic value or are even a deadweight loss to the economy.

But judging by compensation and the high number of people willing to undertake the work involved in entering the profession, this is still a desirable industry. It's common to hear that asset management is a *zero sum game*. As this article shows, however, asset managers provide material economic benefit by producing liquidity and information, which zero sum arguments generally ignore. I also discuss the fallacy that market efficiency is defined by the average manager's return being equal to (or less than) zero.

Because this article addresses an issue crucial to the practice of asset valuation—why the industry should even exist—and because a seriously flawed but oft-repeated critique of the asset management profession has crept into the public consciousness, it develops its argument through a non-technical thought experiment, so industry observers cannot miss it.

THE VALUE CREATED BY THE MARKET MAKERS: A SIMPLIFIED ECONOMY

Assume that the world economy is an island populated by 1,000 people. Consider four different versions of the island's economy. In economy A, each person owns and works for his or her own business, selling their differing output to other island residents. Each saves for retirement at the same aggregate rate, and a new worker replaces each retiree, so the total number of workers doesn't change. No resident knows how much the others are producing, earning, or saving.

A resident decides to sell her business and retire. Other residents have been too busy with their own businesses to pay attention to other businesses, so every potential buyer must interrupt regular business activities to learn about this firm.

Every time someone sells a business, this mini economy's production rate drops. Transactions happen fairly often, as people enter and exit the marketplace.

The more attractive the business, the greater the number of island residents who set aside their business activities to simultaneously evaluate a possible purchase and the greater the dip in the economy's productivity. More-skilled business owners are the most likely buyers—they have more savings, but they also have the highest opportunity costs when they slow their productivity to evaluate potential purchases.

This "private market" for businesses is illiquid. Its illiquidity is a permanent drag that leads to lower production and a lower

total value for this mini-economy and each of its component businesses.

Now consider economy B, in which the same 1,000-person economy is divided in two: Main Street consists of 950 businesses and Wall Street holds the other 50. A Wall Street business owner decides that his business is to provide a business exchange. He collects information from the others, aggregating and posting it. He also standardizes ownership structures, including ownership atomization, so firms can trade in shares.

Each of the 1,000 business owners participate in this exchange, either selling a part of their businesses or posting an offer for their business on the exchange. (The price is a high one if they aren't very interested in selling.) They do this because the exchange provides visibility, standardization, rules, information, and the opportunity to buy and sell businesses in pieces so that business owners can diversify. This *public market* is more liquid than the private market in economy A.

Still, the 950 Main Street firms want to focus on business operations, and keeping track of market activities is a distraction that lowers their productivity. Of the 49 remaining Wall Street businesses, 39 decide to focus exclusively on providing financing services. We'll call these *bankers*.[2] Bankers' innovations in business ownership structure help businesspeople manage risk, find financing, and conduct other activities.

The last 10 Wall Street businesses decide to focus on deciding which firms all 1,000 businesses should own. We will call these 10 *asset managers*. (In real life, Wall Street businesses have overlapping activities, but in our simple island economy they do not.)

Our 10 asset managers help Wall Street and Main Street collect information about business value and provide reference trades (a viability and confidence check). They also temporarily step in to buy parts of businesses that haven't found buyers at their stated price. We'll call these activities *liquidity provision,* a subset of all Wall Street's market-making activities.

Finally, the 10 compete to own the right pieces of businesses and thereby generate a higher return than the other 9. That helps them capture a bigger piece of the asset management business. We'll call these activities *active management*. Active management is how these islanders get compensated for producing information and providing liquidity.

INFORMATION AND LIQUIDITY PRODUCTION ARE PART OF THE REAL ECONOMY

Economy A has only the private market in businesses. As mentioned, ownership adjustments create a drag on the economy and so reduce the economy's total value. By using the public market provided by the exchange and by Wall Street, economy B uses *specialization* to add to its total value (Smith [1776]). Combined with increased *liquidity,* specialization also helps Main Street maintain a permanently higher production level and thus a higher value for the entire economy. Much of market-making's economic value added comes from overall Wall Street activities,[3] but some comes specifically from asset managers' activities. Even if these 10 asset managers added no value by contributing suggestions (via demand) regarding security design, and only picked between securities that other firms have already invented and issued, their participation in the public market still adds economic value.

When the 10 asset managers attempt to add value by picking the right businesses, the average asset manager's return will equal the value-weighted average return of the 1,000 businesses, because these 10 asset managers represent the entire market.[4] That is the market's oft-mentioned zero sum game. By enabling specialization, however, and because they help provide overall liquidity and information, asset managers provide real economic value. They are part of the *real* economy.

To see why, consider economy C, which still has economy B's single market exchange provider. Economy C also has 39 Wall Street businesses, which manufacture all the standardized business shares that the 10 asset managers trade for their clients. (All trades result from asset managers acting as agents for business owners.)

In this economy, some asset managers realize that they can charge lower fees by *free riding* (Admati and Pfleiderer [1990]) on their competitors' efforts to provide information and liquidity. The average of all asset managers' returns are equal to the value-weighted return of all 1,000 businesses, so these managers gain a competitive pricing edge by *indexing* to the market average. These *passive managers* can then grow their share of the asset management business.

But this results in exchanges with fewer trades and less information. If the indexing proportion grows too high, some of the 950 business owners begin to lose

confidence in the prices that the market has assigned their businesses. They begin researching asset values and again trade for themselves, as in economy A. Because the active managers don't contribute enough information and liquidity, the estimation error in business valuation grows and businesses stop adjusting their ownerships. The economy sees fewer benefits from the 950 firms that specialize. All of this leads economy C closer to A. In the aggregate, economy C's total value falls; each component business also loses value, victims to *under-demand* for active asset management.

AVERAGE ALPHA EQUALING ZERO IS NOT THE SAME AS AN EFFICIENT MARKET

Is a given market efficient? To answer this question, many researchers ask whether these 10 asset managers, on average, select among the 1,000 businesses and obtain a greater return than any of the business owners could obtain on their own by simply owning a part of every business. This research style ignores the value in creating liquidity or information, as well as specialization's benefits to the overall economy, which is the part of market value that asset managers and their active management activities add. It is incorrect to assume that active asset management is a deadweight loss to the economy, although much of the literature makes this assumption. Economy B can and should be valued higher than economy A.

More recent literature (Subrahmanyam and Titman [1999]) makes room for this type of *externality*. However, technical terminology and several decades of market efficiency literature have helped industry observers, researchers, and the popular press overlook this important point. Asset managers who try to outsell each other by generating higher returns are producing real value, just as airplane manufacturers who try to outsell their competition produce the real value—also an externality—of airplanes that actually fly. Both have skill, independent of comparisons between industry averages of their sales or income.

Still, it's fair to ask whether asset managers add enough value to outweigh their cost. To answer this, consider island economy D. Economy D is the same as B, except that more of the Main Street business owners are attracted to what looks to be an easy, fun job: picking stocks. Because the average of all asset manager returns' equals the value-weighted return of the 1,000 businesses (less costs), it is difficult for Main Street business owners to see which of the 10 asset managers are more skilled. Another 100 become active asset managers, bringing the total number of active asset managers to 110 and the total number of Main Street businesses to 850. To differentiate, they invent new ways to deliver asset management and charge higher fees. They need to trade at the exchange to justify their existence to customers, so the trading volume grows. Liquidity and information grow, too.

But though some new entrants are skilled in their new business, the marginal increase in information and liquidity does not equal the marginal increase in trading costs and fees. There is an *over-demand* for asset management. At the limit, all 1,000 business owners convert their businesses to asset management and nothing else gets produced. Obviously the islanders cannot all make their livings by managing each other's investments.

It is crucial to note that in economies A, B, C, and D the average active manager's return says nothing about the economic value that asset managers create. The average active asset manager's return is what any business owner could expect by investing her savings in all of the businesses, in the same proportion as their prices, regardless of which economy they exist in. The average of all asset manager returns is equal to the value-weighted market portfolio return, regardless of which of the four economies we are in.

This means that the average over all asset managers' excess returns, relative to the market portfolio return, is zero (before fees). This is not a straw man argument. From Jensen [1968] through today's Fama and French [2010], researchers have been looking for manager skill, as measured by whether a market subset adds more excess return than the whole. It's ironic that institutional trading volume exceeded 50% in 1970, right around the time of Jensen's influential work and has steadily climbed to more than 90% today. If institutions are the smart money, the smart money has been the majority of the market for more than 40 years.

Fama and French [2010] point out that, "in fact, the value-weighted portfolio of active funds that invest primarily in U.S. equities is close to the market portfolio" (p. 1915). But as I argue next, an inability to beat a benchmark (the market return) does not mean that the market is efficient, nor does it necessarily mean that we are in economy D. It is true that one manager's trading gain is another's loss, but in aggregate all managers could have negative results, with the net benefit appearing in

commissions paid to the market exchange provider.

MARKET EFFICIENCY

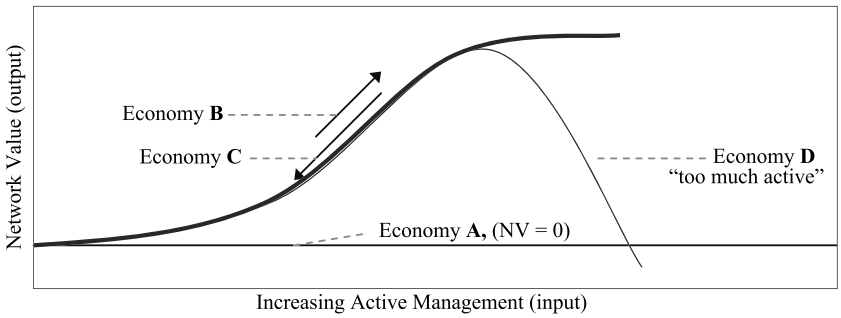
The question of market efficiency is much more related to the question of whether there is there too much active management than to the question of whether active managers beat their benchmarks.

To answer the first question, we must consider the difference between economy A and the other economies and try to model their difference in value. The value added by the liquidity and information network in economies B–D is part of the stock market's value. Changes in the network's value affect market return. Snigaroff and Wroblewski [2011] modeled and studied the extent to which various economies differ from economy A. By considering the addition of a second term to the dividend discount model, their study lets readers describe and quantify the additional *network value*. For our purposes, the addition to the current price can be considered as the added value that the market network's production adds to economy A.

We can use this insight to think about market efficiency. The network value's particular form can vary depending on one's world view. For example, we can model economies B and C by using a flattened *s*-shape curve to describe the network value contribution, as is typical in network literature. A flattened *s*-shaped curve is also consistent with classical micro-economics models pertaining to production, which show returns to inputs increasing, then decreasing.[5] Exhibit 1's thick line shows a function of this type. The total product is the sum of the security values that come from security cash flows, and the additional amount from the network value.

Economy D, however, is better modeled, with a downward sloping right tail shown by the thinner line in Exhibit 1. Economies B–D show the same curve before economy D's over-demand. Economy A, also shown in Exhibit 1, is an example of a degenerate case in which the network value is always zero. In this case the network gives the economy no added value. All the value from investing in securities comes from securities' own cash flows, shown by the flat line. Because economies B–D have a non-trivial network, the network's workings add value, which in turn raises asset prices. This additional value lets us contrast economy A with economies B–D and measure market efficiency.

EXHIBIT 1
Network Value's Contribution to Total Product



Efficient firms or industries are those that produce total output where total product reaches a maximum.[6] Market efficiency is where the network value curve flattens out; where its total product is maximized. Inefficiency exists when active management's input is so great that the total product slopes downward, as in economy D, or in economy C when total product slides downward toward economy A's illiquidity.

ACTIVE AND PASSIVE MANAGEMENT

The literature on market efficiency is extensive, but it nearly always studies efficiency via competition across firms. Such research oftentimes strays toward the fallacy that an average manager's return that's equal to zero equals market efficiency, discussed previously. By definition, financial economics models almost always assume no production function curve from investor activities. This is understandable, because modeling this is not as easy as studying competition among firms, and whether or not firms beat benchmarks is a vivid gauge. This article does not consider such competition; instead it focuses is on the aggregate value added or subtracted by the sum of the competing firms.

But when market efficiency is incorrectly defined as a situation in which the average manager's alpha is zero, this leads to the researcher's conundrum: Why is there so little passive management? The literature has addressed this in several ways. Markowitz, Snigaroff, and Wroblewski [2011] built individual asset management firm's production curves and showed empirically that

these slope downward. Asset managers produce value, but only up to a point, as per Perold and Salomon [1991].[7]

This is different than Berk and Green's [2004] model, in which the manager production curves are essentially flat. Their argument is that asset managers do produce alpha, but consume it themselves. This difference is important, because Berk and Green allow for a world in which the aggregate industry production curve is flat, a model consistent with the frictionless (with complete information and liquidity) markets view. That model differs from the idea that the asset management industry in aggregate produces value, but only up to a point (Snigaroff [2000]).

Fama and French [2010] argued against the Berk and Green [2004] world with empirical evidence that mutual funds produce less than zero excess returns, net of fees. However, their *equilibrium accounting* and Sharpe's [1991] *arithmetic of active management* do not include any production function arising from asset management activities. The important argument made here is that active management is not necessarily irrational, even if manager's net excess returns are less than zero. Indeed, we would expect rational wealth maximizers to be willing to incur some cost to build the more efficient economies B and C.

Pástor and Stambaugh [2010] consider investors' cautious move to a passive style by positing an industry with a free rider issue, but do not build an investor production function, as seen in Snigaroff and Wroblewski [2011]. That paper argues that asset managers produce a real economic good, so investors are rationally cautious before moving to a passive style. They want to maximize total return and may not believe that network value's total product is in the downward sloping region. It has been difficult for investors to know whether they are in economy B, C, or D.

CONCLUSION

Asset pricing models generally assume that trading is free and information is both free and infinite. Such models presume ex ante that any active management is detrimental to investor wealth. But information can be transmuted to prices quickly and more accurately when an information and liquidity provision infrastructure exists. Without this infrastructure the economy has no public market, just like the all-private market of island economy A. The incremental value that asset managers add is a function of the size and quality of the market they help create. The value of the information and liquidity that asset managers *produce* is embedded in each business's trading price. This is the market's network value. It has real monetary value for investors and for the economy. We can model it by considering how, in the above thought experiment, economy A differs from economies B–D.

A common belief holds that an asset manager provides no economic value because his firm does not beat the market benchmark. As shown here, this is incorrect. In discussing asset management results, both academic literature and the business press should measure success by considering the share of industry income that firms' obtain. That is a better measure of an asset management firm's skill as compared to its competitors.

Interestingly, the business press regularly reports the success of firms outside the asset management industry by measuring the company's total dollar income. Suppose that instead they considered the average *rate* of income growth of companies within a given industry. In the banking industry, the average bank's rate of income growth equals the industry income growth average, simply because banks comprise the entire industry. Does this mean that banking activity is an economic deadweight loss? Of course not. Yet bankers are not compared to monkeys and asset managers are—the myth of the monkey.

ENDNOTES

[1]See for example Machan [1993] and Greenburg [2008] to cite two of many examples in the popular business press. In 1988 Burton Malkiel began hosting a regular contest between blindfolded, dart-throwing staff members to represent monkeys pitted against professional asset managers.

[2]The banking discussed here is investment banking, as the focus is on asset management, not general financing activities, although these are part of the value Wall Streets adds.

[3]Of course, all kinds of financing and financial innovation can contribute to the overall economic value that financial activity adds. This discussion centers on equity financing and investment banking, with a further focus on asset management.

[4]By value-weighted return we are referring to weights proportional to how the asset managers have invested in these companies.

[5]For a good review of the literature regarding these ideas, see Niehans [1990]. Niehans attributes the first rigorous description of total and marginal product to Jacques Turgot in 1767 (p. 75).

[6]The well-known micro-economic principle of growing total product until its marginal benefit equals marginal cost is not easily applied to our case. Cost is readily determined by French's [2008] empirical study documenting that the cost of price discovery is an annual 67 basis points. Marginal revenue is more difficult to determine, and is far more variable than cost. French's work does seem to suggest a fairly low marginal cost hurdle. There has been a great deal of recent research on the asset-pricing effects of liquidity and information, and the payoffs to liquidity are very large. See Liu [2006] for an example, or the Snigaroff and Wroblewski [2011] rate of NV growth of 3.21%. But these rates of growth are different than the marginal revenue for network value.

[7]Unfortunately, to generate an industry total product curve, the micro-economics literature generally does not allow for direct addition of individual manager production curves to obtain an industry production curve.

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