Do Larger Investors Make Better Investing Decisions?

By David M. Blanchett

The 2007 NACUBO Endowment Study provides strong evidence that larger endowments/investors achieve greater returns than smaller endowments/investors; however, it is less clear as to whether or not these same larger investors would continue to outperform smaller investors if they had to invest in the same investments (i.e., if their outperformance is a function of investing in different investments, if they make smarter investment decisions, or if it's some combination of the two). This is the topic that this paper intends to explore: to analyze whether larger investors outperform smaller investors when limiting the underlying investment possibilities.

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Introduction

It has been well documented that larger endowments tend to outperform smaller endowments. One need only look at endowment returns segregated by total assets to see the difference, included in **Exhibit** 1 from the 2007 NACUBO Endowment Study.

While there are a number of possible reasons why larger endowments have outperformed smaller endowments, in "Secrets of the Academy: The Drivers of University Endowment Success" [Lerner 2008] the authors note: "While we cannot pinpoint the channel through which more selective schools make better investments, qualitative evidence suggests that these endowments benefit from superior investment committees (the bodies charged with providing oversight and guidance to the endowment managers), more highly-skilled investment managers, and the broader knowledge bases and social networks of the schools themselves." Additional possible reasons are the ability of larger endowments to take on more risk (due to higher asset levels) and greater access to alternative investments (e.g., timber, private equity, and hedge funds).

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Mutual Funds and Asset Flows

Mutual fund performance information provided by fund families and by data providers reflects a buy and hold strategy, which assumes that an investor has held that mutual fund for the entire performance period. This is a strategy, though, that is not followed by all investors. Remolona et al. have noted that mutual funds tend to be highly related to market returns, or that mutual fund inflows have tended to accompany market upturns and outflows have tended to accompany downturns [Remolona 1997]. This movement has been dubbed the "dumb money effect" by Frazzini and Lamont [2006] because mutual fund investors tend be "dumb" in the sense that their reallocations reduce their wealth on average.

Exhibit 1. Nominal Rates of Return for Endowments				
Nominal Rates of Return for Fiscal Years Ending June 30, 2007				
Investment Pool Assets	1-year %	3-year %	5-year %	10-year %
Greater Than $1 Billion	21.3%	16.4%	13.9%	11.1%
> $500 Million to $1 Billion	19.3%	14.2%	12.3%	9.5%
> $100 Million to $500 Million	18.0%	13.1%	11.5%	8.5%
> $50 Million to $100 Million	16.7%	11.9%	10.8%	7.9%
> $25 Million to $50 Million	15.9%	10.7%	9.8%	7.3%
Less Than or Equal to $25 Million	14.1%	9.7%	8.8%	6.7%
Number of Endowments Surveyed	726	683	636	499

Investor behavior during, or really near the end of, the Tech bubble provides a great example of the "dumb money effect". In 1999 investors sent $37 billion to Janus funds, but only $16 billion to Fidelity funds, despite the fact that Fidelity had three times the assets under management at the beginning of the year. This means that in 1999, retail investors as a group made an active allocation decision to give greater weight to Janus funds, and in doing so they increased their portfolio weight in tech stocks held by Janus. By 2001, investors had pulled about $12 billion out of Janus while adding $31 billion to Fidelity. In this instance, the reallocation caused significant wealth reduction for mutual fund investors as Janus and tech stocks performed horribly after 1999 [Frazzini 2006].

The inability of investors to consistently capture market returns has been noted in other studies as well. One of the most prominent is the DALBAR annual study, which in 2004 found that the average investor achieved only a 2.57% return from 1985 to 2004, while the S&P500 achieved a return of 12.22% and inflation averaged 3.14% over the same period [DALBAR].

In the fourth quarter of 2006, Morningstar started providing information on "Investor Returns," or dollar weighted returns, which measure how the typical investor in a given fund fared over various time periods. This measure incorporates the impact of cash inflows and outflows from all investors' purchases and sales for a given period. If investors bought a fund after it had posted big gains and sold at a low ebb, investor returns will be lower than the fund's total returns. If investors bought and sold at more opportune times, however, investor returns will be higher than the fund's total returns.

Analysis

An analysis was conducted to determine whether or not bigger investors make better investing decisions. Using investor return and total return data obtained from Morningstar, two different tests were conducted. For both tests, the net investor return was calculated by subtracting the investor return from the total return of the mutual fund. This calculation eliminates the potential impact of expense ratios since both the investor return and total return are both reduced by expense ratio, and therefore the only piece of remaining information is whether or not the actual investors in the fund performed better, worse, or the same as the underlying fund. This calculation also controls for the underlying market exposure of each fund.

The first test compared the net investor returns of different share classes for Vanguard mutual funds and the second test compared the net investor returns of different mutual funds segmented into groups based on the minimum initial purchase amounts.

Vanguard Test

The Vanguard analysis focused on the net investor returns for Vanguard's three primary retail share classes: Investor, Admiral, and Institutional. While the minimum initial purchase amounts can vary across the share classes, the minimum for Investor shares is typically $3,000, the minimum for Admiral shares is typically $100,000, and the minimum for Institutional shares is typically $5 million. The Investor shares have the highest expense ratio among the three share classes, followed by Admiral, and with Institutional being the cheapest (see **Exhibit 2** for additional information).

Larger investors are more likely to invest in the cheapest share class they qualify for, which creates a relatively easy way to segment investors based on investible assets, while holding the actual investments themselves constant (i.e., each investor group is buying fundamentally the same market exposure, but they buy the cheapest share class which they qualify for). Note, though, that this methodology does not perfectly

segment investors, because certain smaller investors may have access to a share class with a higher asset minimum than their account size if assets are held in some type of pulled account (e.g., a 401(k) plan).

As a reminder, the net investor return is calculated by subtracting the investor return from the total return of the fund. For example, if the total return of the Investor Share class was 14.00% and the investor return was 13.90%, the net investor return would be -.10%, which suggests that the underlying investors earned a total return less than the market. It's important to remember that this methodology eliminates the impact of the varying expense ratios across the different share classes. Institutional shares have lower expense ratios than the Investor shares, and therefore the actual return received by an Institutional investor is going to be higher when compared to the actual return received by someone investing in an Investor share (with the difference being the difference in expense ratios). However, based on the net investor return methodology employed in this paper, if each of the different share class groups invest with the same level of relative efficiency (i.e., they are equally good investors), there would be no difference in the net investor returns. Also, because the total return is subtracted from the investor return, the underlying market exposure of each fund is neutralized. This ensures the only remaining information left in the calculation is how well (or poorly) the underlying mutual fund investors did in terms of capturing the actual return of the fund.

In order for a Vanguard mutual fund to be included in the analysis, it had to have more than one share class available and at least one of the share classes had to be an Investor share class (i.e., the share class with the lowest minimum initial purchase amount). The test population of mutual funds is included in **Appendix I.** Annual total and investor returns data was obtained from Morningstar from 2002 and 2007.

The arithmetic and geometric net investor returns for the Vanguard Investor, Admiral, and Institutional share classes for the test period are included in **Exhibit 3.** The arithmetic return is the simple average return and would be earned by an investor that holds a single fund. For example, if the net investor returns were -1% and 1%, the arithmetic average would be 0.00% (-1% + 1% / 2 = 0.00%). The geometric return is the dollar weighted return, or the return that would actually be realized by an investor holding all of Vanguard's funds. Using the previous example of net investor returns of -1% and 1%, the geometric average would -.01% ((1.01 * .99) - 1 = -.01%) . The geometric average is always less than or equal to the arithmetic average, the higher the variation (or standard deviation) of the returns, the greater the difference.

Exhibit 4 includes a comparison of the performance of the Vanguard Investor share class versus the Vanguard Admiral share class for each year for each respective fund to determine which share class (i.e., size investor) tended to have the higher net investor return.

As the reader can see from Exhibits 3 and 4, those Vanguard funds with higher minimums tended to outperform those with lower minimums (Institutional vs. Admiral and Admiral vs. Investor) on an absolute basis as well as on a frequency of outperformance basis (Admiral vs. Investor). This suggests that larger investors do in fact make better investing decisions when holding the underlying investments constant. While

Exhibit 2. Vanguard Share Class Information

	Vanguard Share Class		
	Advisor	**Admiral**	**Institutional**
Minimum Investment	$3,000	$100,000	$5,000,000
Median Expense Ratio	0.21%	0.10%	0.07%
Average Expense Ratio	0.23%	0.13%	0.08%

Appendix I. Test Population of Vanguard Funds (# per year): 2002–2007

	2002	2003	2004	2005	2006	2007	Total
Investor	52	53	54	55	57	60	331
Admiral	50	50	50	51	53	54	308
Institutional	15	16	17	18	20	23	109

Exhibit 3. Total Net Investor Returns by Vanguard Share Class

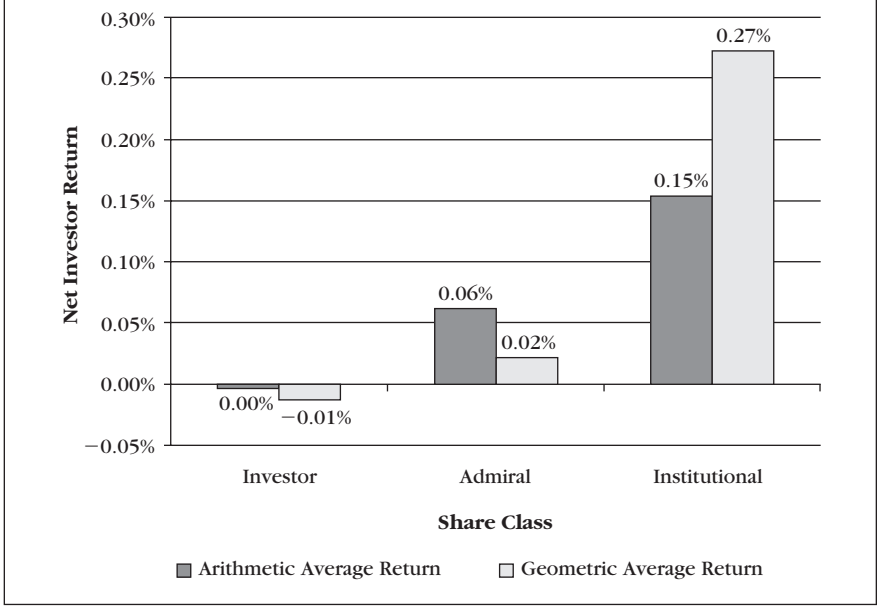
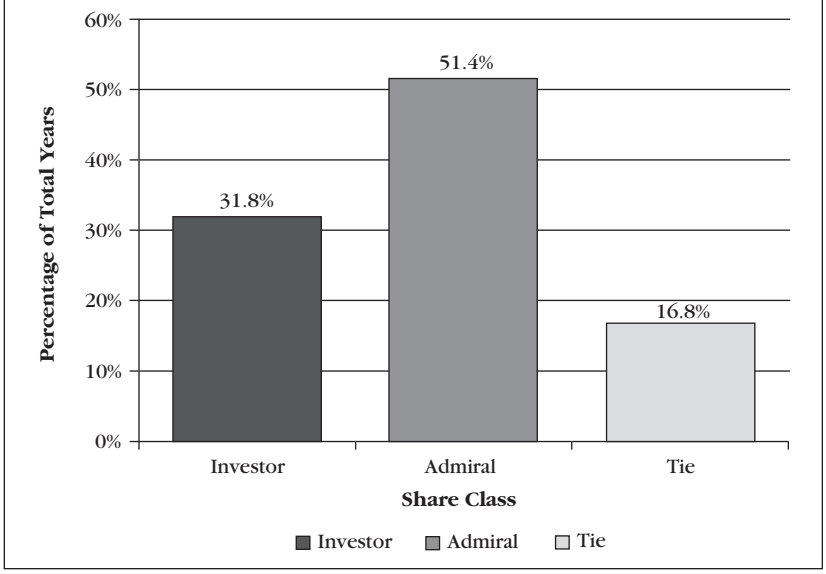


Exhibit 4. Which Vanguard Share Class Had a Better Net Investor Return for Years 2002–2007: Investor or Admiral?



the differences between investor types was not extreme (e.g., the difference in the geometric return for Institutional shares was 28 bps higher than Investor shares) there is a clear relationship between size and subsequent performance.

Full Scope Test

An additional analysis was conducted where the net investor returns were calculated for different minimum initial purchase amounts. Unlike the previous Vanguard test, where investors were segmented by size within the same general investment, this analysis looks at the aggregate net investor returns based on minimum different purchase amounts for different mutual funds. This analysis could be considered less "pure" than the Vanguard study because the investments themselves are not held constant (i.e., it is not possible to segment investors within a single mutual fund based on assets) and because certain investments may be used by different types of investors regardless

of assets since there is only one share class available. However, the minimum initial purchase amount does provide a level of assurance that investors only with that minimum purchase amount can purchase mutual fund (and are therefore of a given asset size), and therefore serves as a reasonable measure with which to segment investors.

The test population was based on those funds in existence as of December 31, 2007. Net Investor Returns are reviewed for the funds from 2001 to 2007 (seven total years, one additional fund year than the Vanguard study). While using a single "lookback" period (from December 31, 2007) likely introduced some hindsight bias into the data, it is assumed that the overall impact is negligible. The mutual funds are grouped together based on minimum initial purchase amounts and the geometric average return for all of the funds for that purchase group over the entire period is calculated. This return could be considered the aggregate net investor return for all the mutual funds with that minimum purchase amount over the entire period tested (2001 to 2007). Note, those mutual funds that have multiple share classes and the same minimum purchase amount (e.g., those with B and C shares) were limited to one per fund per share classes, defined as the share class with the lowest expense ratio, in an attempt to remove overlap among funds as much as possible.

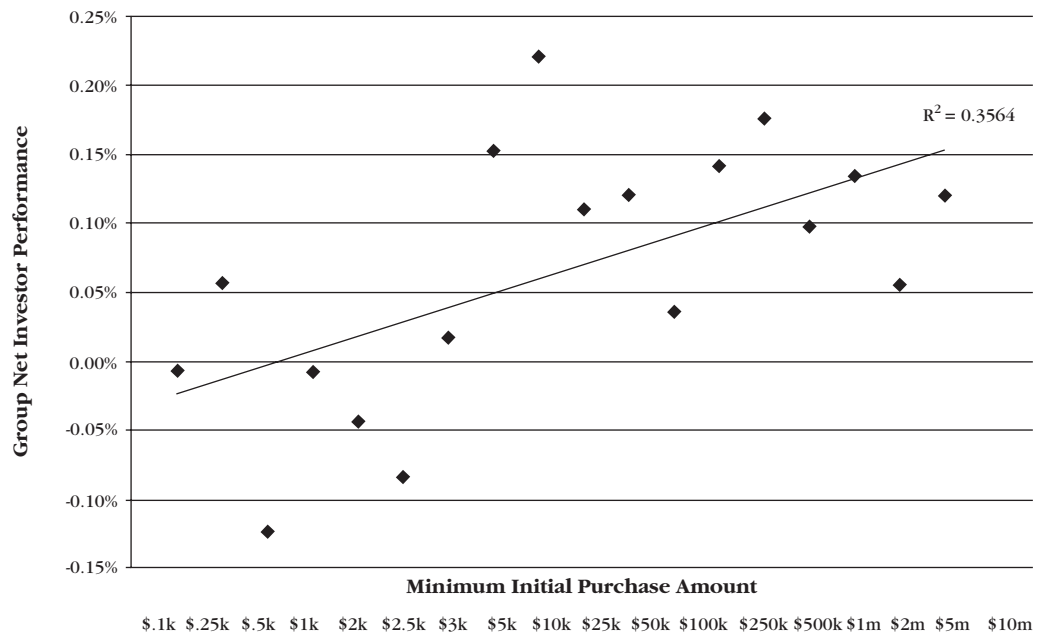
While there were 38 different distinct minimum initial purchase groups available, only those with at least 100 mutual funds were included in this test (which was considered to be a sufficiently large test group). This reduced the test set to 18 groups. The number of funds per test group, as well as the number of funds per year, is included in **Appendix II.**

The net investor returns for each group were regressed against the respective group number (listed in Appendix I). The regression was done against the group number versus the actual purchase amounts since there was a large variation/range in the purchase group amounts (e.g., the largest was $10 million, which is 100,000 times the smallest purchase amount of $100). The goal of this paper was not to determine the relative information breakpoints among investors of different sizes, but rather to determine if there was a general relationship between investor size and performance. The results of the regression are included in **Exhibit 5.**

Appendix II. Test Population of Additional Funds (# per year): 2002–2007

Group Number	Initial Purchase Minimum	Year							Total # of Test Funds
		2001	2002	2003	2004	2005	2006	2007	
1	$100	61	64	65	75	78	87	98	101
2	$250	82	132	304	320	326	332	369	370
3	$500	718	773	799	861	894	921	975	984
4	$1,000	1,250	1,381	1,479	1,552	1,655	1,798	1,838	1, 875
5	$2,000	156	178	195	229	264	279	291	309
6	$2,500	750	798	838	922	990	1,082	950	1,155
7	$3,000	116	120	119	127	132	134	139	139
8	$5,000	180	210	230	255	283	302	299	249
9	$10,000	154	167	173	184	195	209	169	216
10	$25,000	62	65	65	65	75	90	97	101
11	$50,000	62	79	88	97	111	122	130	131
12	$100,000	125	173	184	211	236	258	261	274
13	$250,000	69	90	102	110	119	133	142	151
14	$500,000	29	54	58	83	88	105	101	107
15	$1,000,000	334	369	411	449	517	621	661	683
16	$2,000,000	70	73	71	71	82	90	93	94
17	$5,000,000	183	197	217	229	275	317	338	342
18	$10,000,000	113	130	136	145	154	199	201	210

Exhibit 5. Geometric Net Investor Return for Mutual Fund Groups Based on Minimum Initial Purchase Amount 2001–2007



Those mutual funds with larger minimum initial purchase amounts tended to have higher geometric net investor returns than those with lower minimum initial purchase amounts. While the relationship could only be described as reasonably strong (with an R? of 35.64%) there was a clear trend in the results: the worst six groups were among the seven test groups with the smallest minimum initial purchase amounts. While there was significant deviation in the net investor returns realized by investors at the individual fund level, in the aggregate, investor returns were very similar to the total returns of the mutual funds themselves.

Conclusions

While larger investors already have advantages over smaller investors, such as a greater opportunity set of investments and lower fees, the results of this analysis suggest that even when holding the investments constant, larger investors tend to make better investing decisions than smaller ones. It is difficult to ascribe the reason as to why larger investors performed better than smaller investors, the two the author feels to be more likely are a higher level of sophistication among those charged with making the eventual investing decisions and the higher quality advice available to those investors with more assets (primarily because of the higher fees that can be charged on them). In summary, though, it does appear that larger investors are in fact better investors. ■

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