AJAY KHORANA
HENRI SERVAES

3

On the Future of the Mutual Fund Industry around the World

SINCE THE INTRODUCTION in 1924 of the first mutual fund in the United States, the mutual fund industry has experienced tremendous growth, not only in the United States but also throughout the world. Khorana, Servaes, and Tufano (2005) documents that at the end of 2001, the global mutual fund industry had $11.7 trillion in assets, 40 percent of which was domiciled outside the United States. A significant portion of the remaining assets were concentrated in Luxembourg ($750 billion), France ($721 billion), Italy ($360 billion), and Japan ($343 billion). By the end of the third quarter of 2007, the worldwide figure had grown to $25.8 trillion, with approximately 52 percent of all assets domiciled outside the United States. Luxembourg remains the second-largest market in the world, with assets of $2.92 trillion, followed by France ($2.22 trillion), Germany ($1.49 trillion), and Australia (first-quarter 2007 figure of $936 billion).[1]

We would like to thank Brian Reid and participants at the Brookings–Tokyo Club Seminar on the Future of the Mutual Fund for helpful discussions and comments. The views expressed herein are those of the authors and not of Citigroup Global Markets Inc.

1. See Investment Company Institute, "Trends in Mutual Fund Investing" (October 2007) (www.ici.org/stats/mf/trends_10_07.html#TopOfPage); EFAMA (European Funds and Asset Management Association), supplementary tables, "Total Net Assets in U.S. Dollars" (2007) (www.efama.org/60Statistics/20MoreStat/International_Statistics/intlstatsq12007suppltables/documentfile); EFAMA, "Trends in the European Investment Fund Industry in the Fourth Quarter of 2007," Quarterly Statistical Release 32 (2008).

This chapter provides an overview of the mutual fund industry worldwide and highlights our views on the industry's future evolution. A lot of our thinking relates to changes that we expect to take place in the United States; if we expect contrasting trends to emerge in other countries, we highlight them separately. This worldwide emphasis is especially important because we believe that more of the industry's future growth will occur outside the United States. Obviously it is not possible to assess the future of the industry without considering relevant facts and figures about where it currently stands; each topic therefore starts with a description of the current state of the industry with respect to that topic.

We start this chapter by summarizing some of our earlier work on the size of the mutual fund industry worldwide and the factors related to its success. We also discuss how legal and regulatory factors affect industry growth and speculate on what their effects imply for the future. We then turn to a description of methods used to sell and distribute funds, contrasting the approaches employed in different countries, and follow that with some thoughts on how the process is likely to evolve going forward. We also describe costs across funds and across countries.

We then turn to the newer types of funds that have been introduced, such as index funds, funds of funds, and hedged mutual funds. What are the costs and benefits of these funds? Will they become more important in the future?

We also review aspects of fund investor behavior. While a number of attempts have been made to show that investor behavior with respect to fund choice is fully rational, we find it difficult to support that contention. If investors are not fully rational, then funds can potentially benefit from their behavior, and we illustrate what actions funds can take in light of observed investor behavior and its implications for the future.

The chapter next sheds light on fund governance and the role of fund directors in particular. We review the work on the importance of fund directors, examining what evidence there is to indicate that governance standards affect performance; we also discuss how we expect fund boards to evolve in the future.

We then consider the tricky issue of performance. A majority of the academic research supports the view that it is not possible for fund managers to earn risk-adjusted excess returns sufficient to warrant the fees that they charge. However, recent academic work suggests that particular subsets of fund managers do exhibit persistently superior performance. We review those findings and discuss their implications for the industry's future.

We then report on concentration in the fund management industry, predicting further consolidation in the future and speculating on what it implies for investors and for the industry's future profitability. We conclude by summarizing our thoughts regarding the future of the mutual fund industry overall.

Determinants of the Size of the Mutual Fund Industry around the World

Table 3-1 provides a summary of the size of the fund industry in countries around the world in 2001, based on Khorana, Servaes, and Tufano (2005). Two conclusions emerge. First, Luxembourg, not the United States, has the largest fund industry relative to its GDP and to the size of its equity and debt market (primary securities), followed by Ireland. The ranking of Luxembourg and Ireland is attributable to the fact that they have become hubs for sales of funds across Europe; funds are set up in both countries and offered for sale in many other European countries. Their size obviously comes at the expense of industry size in the rest of Europe. Hong Kong ranks third, again because many of the funds domiciled in Hong Kong are also sold elsewhere. Fourth on the list is Australia, with a ratio of industry size to GDP of 93.4 percent (the U.S. ratio is 68.3 percent). Australia's funds are sold domestically; therefore, if we ignore cross-border sales, Australia actually has the largest fund industry in the world (using industry size relative to GDP as the measure).

Second, in many countries, the industry is very small relative to both GDP and the size of the debt and equity market, implying large future growth potential. Markets that stand out are those in China, India, Russia, and perhaps Turkey, all countries that have a relatively large GDP but only a small fund industry. If each of those markets were to grow in size to the sample median assets to GDP, it would add $97 billion in assets in China, $29 billion in India, $27 billion in Russia, and $10 billion in Turkey. While those numbers are small relative to the size of the U.S. market, they clearly are conservative estimates of the growth potential in those countries. There is little doubt that the markets will grow, even relative to GDP, but we do not believe that they will be as substantial as in the United States or much of western Europe unless a number of conditions are met. Khorana, Servaes, and Tufano (2005) discusses those conditions in great detail. In what follows, we highlight some of the study's findings and give specific examples of possible improvements to allow the industry to thrive and grow.

Typically, the industry does not flourish unless the overall quality of a country's judicial system is high. Most of the time China and Russia are excluded from studies that investigate the quality of the judicial system, but it is safe to say that at this point they would not rank high. We do have data on judicial system quality for India and Turkey. Khorana, Servaes, and Tufano (2005) computes a measure of judicial quality by summing up five measures developed by La Porta and others (1998): efficiency of the judicial system, rule of law, corruption, risk of expropriation, and risk of contract repudiation. Each variable is ranked on a scale

Table 3-1. *Mutual Fund Industry Size around the World*[a]

Country	*Industry size*	*Industry/ primary securities*	*Industry/ GDP*	*Starting year*
Algeria	0	0.000	0.000	n.a.
Argentina	3,751	0.010	0.014	1960
Australia	334,016	0.378	0.934	1965
Austria	55,211	0.142	0.293	1956
Bangladesh	5	n.a.	0.000	n.a.
Belgium	70,313	0.099	0.306	1947
Brazil	148,189	0.213	0.295	1957
Burma	0	0.000	0.000	n.a.
Canada	267,863	0.167	0.383	1932
Chile	5,090	0.042	0.077	1965
China	7,300	0.003	0.006	2001
Costa Rica	1,428	n.a.	0.088	n.a.
Croatia	384	0.024	0.019	1997
Czech Republic	1,778	0.041	0.031	1994
Denmark	33,831	0.075	0.209	1962
Ecuador	200	0.014	0.015	n.a.
Finland	12,933	0.043	0.106	1987
France	721,973	0.212	0.550	1964
Germany	213,662	0.035	0.116	1949
Greece	23,888	0.108	0.205	1969
Hong Kong	170,073	0.203	1.051	1960
Hungary	2,260	n.a.	0.044	1992
India	13,490	0.037	0.028	1964
Indonesia	764	0.007	0.005	1996
Ireland	191,840	0.823	1.856	1973
Israel	14,200	0.071	0.126	1936
Italy	359,879	0.128	0.330	1983
Japan	343,907	0.026	0.083	1965
Libya	0	0.000	0.000	n.a.
Luxembourg	758,720	4.845	39.914	1959
Malaysia	10,180	0.040	0.115	1959
Mexico	31,723	0.090	0.051	1956
Morocco	4,100	n.a.	0.125	n.a.
Netherlands	93,580	0.059	0.246	1929
New Zealand	6,564	0.071	0.132	1960
Norway	14,752	0.060	0.090	1993
Pakistan	375	0.013	0.006	1962
Peru	680	0.024	0.013	n.a.
Philippines	211	0.003	0.003	1958

(continued)

Table 3-1. *Mutual Fund Industry Size around the World*[a] *(continued)*

Country	*Industry size*	*Industry/ primary securities*	*Industry/ GDP*	*Starting year*
Poland	2,936	0.023	0.017	1992
Portugal	16,618	0.065	0.151	1986
Romania	10	0.001	0.000	1994
Russia	297	0.002	0.001	1996
Saudi Arabia	12,105	n.a.	0.068	n.a.
Singapore	7,538	0.016	0.088	1959
Slovakia	165	0.013	0.008	1992
Slovenia	1,538	0.131	0.082	1992
South Africa	14,561	0.076	0.129	1965
South Korea	119,439	0.165	0.283	1969
Spain	159,899	0.101	0.275	1958
Sri Lanka	44	0.008	0.003	1992
Sweden	65,538	0.129	0.313	1958
Switzerland	75,973	0.065	0.307	1938
Taiwan	49,742	n.a.	0.176	1984
Thailand	8,430	0.052	0.071	1995
Tunisia	471	0.027	0.024	1991
Turkey	3,000	0.023	0.020	1986
United Arab Emirates	0	0.000	0.000	n.a.
United Kingdom	316,702	0.061	0.222	1934
United States	6,974,976	0.193	0.683	1924
Uruguay	185	0.022	0.010	n.a.
Yugoslavia	0	0.000	0.000	n.a.
Median		0.048	0.088	
Mean		0.071	0.148	

Source: Based on Khorana, Servaes, and Tufano (2005).

a. The table lists the size of the fund industry at the end of 2001 (in $ millions). Only open-end mutual funds are included in the analysis. Ireland, Luxembourg, Hong Kong, and countries with no industry were dropped in calculating medians and means. See Khorana, Servaes, and Tufano (2005) for a more detailed description of the sources employed to collect these data.

from 1 to 10; a higher value implies better quality. The judicial score was 30.61 for India and 27.31 for Turkey. The U.S. score was 47.61, while all countries with a well-developed fund market scored above 40. We therefore believe that the growth potential in India and Turkey is limited unless the overall quality of their legal regime improves. However, we do not expect to see dramatic improvements in legal quality in the near future.

Khorana, Servaes, and Tufano (2005) also finds that the industry was larger when fund initiations and fund prospectuses required regulatory approval. In

India both fund initiations and prospectuses require approval, and part of an approval process is already in place in China, Russia, and Turkey.

In addition, fund management companies want to be able to start new funds quickly and at low cost. Khorana, Servaes, and Tufano (2005) finds that industries are larger in countries where the relative cost to set up a fund—computed as cost divided by average fund size—is small and where the process takes less than 120 days. The effect of setup time in particular is dramatic. Industries are about 5 percentage points smaller relative to the size of the debt and equity market and about 16 to 19 percentage points smaller relative to GDP when setup time is longer than 120 days. We find it unlikely that simply shortening the period (that is, the launch window) without making any other changes will have a dramatic effect on industry size because we believe that the setup period is just a proxy for the ease of doing business. Nevertheless, allowing funds to be established faster clearly is an important step, as long as it does not affect the quality of the review process that takes places before a fund is established. It also is important to note that a short setup period is not a necessary condition for the fund industry's success: at 225 days, the U.S. setup time is one of the longest in the world.

Finally, Khorana, Servaes, and Tufano (2005) reports that the fund industry is larger in countries that have more defined contribution pension plans. Therefore, replacing defined benefit with defined contribution plans (or adding such plans) is one way of stimulating the development of the industry. However, we believe it will take a long time before China, Russia, or Turkey will move in that direction. Poirson (2007) reports that in India efforts to establish defined contribution plans are well under way.

In sum, we expect most of the growth in the industry to come from expansion outside the United States. But if the industry is to reach its full potential, countries need to improve the overall quality of their judicial system. We believe that any such improvement is unlikely to occur in the near future, especially in those countries with the largest perceived growth potential.

How Funds Are Sold and How Much It Costs to Own Them

There are basically three channels through which funds are sold: direct sales through a fund management company; sales through a financial adviser; and sales through a commercial bank. The third channel is really a hybrid, because some banks, though not all, provide advice to customers when asked. In addition, banks usually sell their own bank-sponsored funds, although lately the choice of products has expanded to include other funds. The predominant type of distribution mechanism used varies by country. In the United States, most funds are

sold through brokers or by a fund management company directly—see Bergstresser, Chalmers, and Tufano (2008)—but banks are the primary distributors in most of continental Europe. That is due in part to the fact that for much of the history of the fund industry, U.S. banks were prevented from offering mutual funds.

We do not expect current distribution channels to undergo dramatic changes in the future; they are well established, and we expect no shifts in the supply of or demand for other distribution channels. Of course, when funds are not distributed directly by the fund management company, the distributors have to be compensated, and their fees have to be paid either indirectly, through superior performance, or directly, through reductions in other fees. However, in a careful comparison of funds sold through intermediaries and funds sold directly—see Bergstresser, Chalmers, and Tufano (2008)—funds sold through intermediaries had higher non-distribution-related fees and inferior risk-adjusted performance. Those findings notwithstanding, intermediaries will remain important in the fund distribution process because of their perceived benefits or the lack of awareness among potential customers about alternative purchase mechanisms. We discuss these issues in more detail later in the chapter when we analyze consumer behavior.

Cross-Country Sales

Some countries—Australia, Canada, Japan, and the United States among them—have created in essence a closed fund marketplace: only funds established in a particular country can be offered for sale in that country, and they are not offered for sale in other countries. In the European Union, on the other hand, funds can be sold across countries with relative ease, mainly because regulations were developed to allow it to happen. As alluded to earlier, many cross-border sales in the EU originate in Luxembourg and Ireland, while cross-border sales from other EU countries are limited. In addition, a limited number of funds have been established in tax havens—such as Bermuda, the Cayman Islands, and the Channel Islands (Jersey, Guernsey, and the Isle of Man)—and they are offered for sale in select European countries. Khorana, Servaes, and Tufano (2008) examines more than 45,000 funds offered for sale in eighteen countries in 2002 (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Norway, Spain, Sweden, Switzerland, the United Kingdom, and the United States). The study finds that around 54 percent of the funds were offered for sale in the country in which they were domiciled; 42 percent were domiciled either in Luxembourg, Ireland, or one of the tax havens; and only 4 percent were domiciled in another European country.

We do not expect to see dramatic changes in those patterns, but we do offer other thoughts about the future:

—Cross-border sales will remain limited to Europe and some countries in Asia (through Hong Kong). We do not expect the United States or Canada to open their markets to foreign funds. That does not mean that foreign fund managers cannot sell funds in United States or Canada, but they will have to set up operations there to do so.

—Even in Europe, cross-border sales will decline in importance. In particular, sales from countries other than Luxembourg and Ireland will suffer, because part of the attractiveness of funds from Luxembourg and other tax havens comes from their ability to keep ownership of and income from the funds concealed from tax authorities. As European legislation changes, it will become more difficult to do so, thereby reducing the benefit of buying funds from these countries. Luxembourg and Ireland will suffer to a lesser degree because they will continue to benefit from EU legislation permitting cross-border sales and because they are now well-established fund hubs.

—Luxembourg's dominance over Ireland is likely to increase going forward. Of the two pan-European fund hubs, Luxembourg has always been larger; Khorana, Servaes, and Tufano (2008) reports that 7,748 fund classes were domiciled in Luxembourg in 2002 and only 1,279 in Dublin. The difference is due in part to the fact that Luxembourg was the first market to act as a hub for cross-border sales, in part because of its strict bank secrecy laws. Ireland became an entrant only relatively recently, through the establishment of the Dublin International Financial Services Centre. Fund management companies that set up operations in Dublin were given tax breaks to do so, fueling the industry's dramatic growth. However, those tax advantages have now expired, and because more of the critical mass for cross-border funds is still in Luxembourg, we have no reason to believe that the strong growth in Dublin will continue.

What Does It Cost to Own a Fund?

Investors have to pay a variety of fees when purchasing mutual funds. Broadly speaking, fees are of two types: one-time fees that are paid when an investor enters or leaves the fund (or both) and annual recurring fees. Annual fees can be further divided into two subsets: management fees and all other expenses. Management fees are revenues of the fund management company, used to pay the salaries of investment managers and other operating expenses, including advertising costs. Management fees sometimes follow a sliding scale, with fees declining as the value of assets under management increases. All other expenses are direct expenses borne by the fund, such as transfer agent fees, custodian fees, accounting fees, and

audit and legal fees. They are passed on to investors, but they do not accrue to the management company. In addition, in some countries, such as the United States, management companies are allowed to include a separate charge for distribution (called a 12b-1 fee in the United States). Those fees are used by the fund management company to pay for efforts to sell, market, and advertise the fund. In practice, most, if not all, of the fees are used to compensate the financial advisers selling the fund.

Fees levied for entering the fund (front-end loads) and exiting the fund (back-end loads) accrue to the fund management company, but they also can be used as compensation for the advisers selling the funds. Back-end loads often follow a sliding scale, with fees declining as investors keep their money in the fund for a longer period of time.

There are substantial differences in fees charged across countries and across funds within a country. Khorana, Servaes, and Tufano (2008) documents various fee levels for funds offered for sale in eighteen countries at the end of 2002 (see the list of countries on p. 71), including fourteen European countries, Australia, Canada, Japan, and the United States. The authors look at management fees, total expense ratios, and total expense ratios combined with entry and exit fees (loads), assuming that investors remain invested in the funds for five years. The differences are startling. For example, equity funds offered for sale in the United States had the lowest value-weighted management fees (0.62 percent), while the fees were more than three times higher in Canada (1.96 percent). When other expenses and amortized loads were added, Australia had the lowest costs (1.41 percent), while Canada remained most expensive (3.00 percent). The differences can be explained in part by the fact that fund sizes differ across countries and that fees generally are negatively related to size. Similarly, there is a negative relation between fees and the size of the fund complex. However, the differences remain large even after taking into account measures of scale and scope. Various factors are related to the remaining fee differences, the most important of which is that fees are lower in countries with stronger investor protections. We do not expect to see dramatic shifts in the fees being charged across countries, mainly because we do not expect to see major changes in the underlying factors driving the fees.

Some specific pressures have arisen within certain countries, however. In Canada, the press has been particularly vocal about the findings presented in Khorana, Servaes, and Tufano (2008) showing that Canada is the most expensive country in the world for fund investors. Part of the reason is that distribution costs are high: the vast majority of funds in Canada are sold through advisers who have to be compensated. But, as pointed out above, management fees are high as

well. The response from the Investment Institute of Canada (IFIC), which represents the Canadian fund industry, has been that investors have a preference for fund advisers; they also present arguments questioning the reliability of the research. However, Khorana, Servaes, and Tufano's response to those arguments indicates that IFIC's criticisms have little or no merit.[2] Despite the fund industry's response, some Canadian funds have started lowering their fees recently. We expect to see a further modest decline in the future.

Fee levels in the United States are quite modest when placed in an international context. Nevertheless, there has been substantial criticism of fee levels, due in part to findings in Freeman and Brown (2001). The authors compare mutual fund fees to pension fund fees and argue that while they should be similar, mutual fund fees were much higher. Freeman has testified about their study in Congress, and a statement from the New York state attorney general's office supports Freeman and Brown's arguments.[3] At the heart of the matter is the conjecture that fund management companies have not passed along economies of scale in fund management to investors. That allegation has been followed by a spate of lawsuits against fund management companies, but up to this point, most cases have been dismissed in summary judgment.

The cases have been filed under Section 36(b) of the Investment Company Act, claiming that with an increase in assets under management, fund advisers reap significant economies of scale and that the savings are not adequately passed on to fund shareholders. In a well-known section 36(b) case, *Gartenberg* v. *Merrill Lynch Asset Management*, the courts ruled that in order to violate section 36(b), the "adviser must charge a fee that is so disproportionately large that it bears no reasonable relationship to the services rendered and could not have been the product of arm's length bargaining."[4] A number of these cases have been dismissed in U.S. courts on the grounds that the plaintiffs failed to establish material facts to support their arguments. Some cases have gone to trial, however, and

2. "Letter to President and CEO of the Investment Funds Institute of Canada Responding to Her Comments on a Previous Draft of the Paper: 'Mutual Fund Fees around the World'" (faculty.london.edu/hservaes/ific.pdf).

3. John P. Freeman, "A Law Professor Comments on the Mutual Fund Fee Mess," statement before the Senate Governmental Affairs Subcommittee on Financial Management, the Budget, and International Security, January 27, 2004 (www.senate.gov/~govt-aff/_files/012704freeman.pdf); New York State Attorney General's Office, "Statement by Attorney General Eliot Spitzer regarding the Investment Company Institute's Mutual Fund Fee Report," 2004 (www.oag.state.ny.us/press/2004/jan/jan06b_04.html).

4. *Gartenberg* v. *Merrill Lynch Asset Management, Inc.*, 528 F. Supp. 1038 (S.D.N.Y. 1981), aff'd, 694 F.2d 923 (2d Cir. 1982), cert. denied, 461 U.S. 906 (1983) (Gartenberg I); *Gartenberg* v. *Merrill Lynch Asset Management, Inc.*, 573 F. Supp. 1293 (S.D.N.Y. 1983), aff'd, 740 F.2d 190 (2d Cir. 1984) (Gartenberg II).

Table 3-2. *Expense Ratios and Price Dispersion in the U.S. Mutual Fund Industry, 2000*

Sector	*Number*	*Average fee (percent)*	*75th percentile/ 25th percentile*	*90th percentile/ 10th percentile*
Aggressive growth	1,274	1.91	2.0	3.1
Balance growth	472	1.64	2.2	3.7
High-quality bonds	862	1.18	2.5	4.9
High-yield bonds	337	1.67	2.2	3.2
Growth and income	978	1.58	2.5	5.5
Government securities	450	1.32	2.5	4.7
Income	218	1.71	2.2	3.4
Long-term growth	1,812	1.79	2.0	3.1
Retail S&P500 Index	82	0.97	3.1	8.2

Source: Hortaçsu and Syverson (2004).

we believe that if the plaintiffs are successful, there may be some downward pressure on fees in the future.

As mentioned earlier, substantial differences in fees exist within countries for similar fund types. Table 3-2 contains selected numbers from Hortaçsu and Syverson (2004), which explores fee differences among U.S. funds in 2000, with a particular focus on S&P 500 index funds. What stands out in this table is the wide distribution of expenses for similar fund types. The ratio of the 75th percentile of the distribution of fees relative to the 25th percentile is at least 2 for all sectors listed in the table, while the ratio of the 90th to the 10th percentile exceeds 3 and is as high as 8.2 for S&P 500 index funds. Hortaçsu and Syverson (2004) also presents two other interesting facts about S&P 500 index funds. First, the weighted average fee for the funds actually increased over the period 1995–2000 from 26.8 basis points to 32.2 basis points. Second, the market share of the funds in the lowest-cost quartile declined over that period from 86 percent to 75 percent, while the market share of the funds in the highest-cost quartile increased from 1.4 percent to 4.1 percent. How is that possible, particularly given that information dissemination has improved over time, thereby reducing search costs?

The authors argue that three factors can explain the findings, and their empirical work supports their view. First, while search costs have decreased for the average investor, they have actually increased for the marginal investor because more first-time investors have entered the mutual fund market. Second, switching costs are an important consideration, and investors like to retain assets in funds managed by the same fund management company. Third, investors value features

other than performance, such as responsiveness to their queries. Elton, Gruber, and Busse (2004) also studies S&P 500 index funds, and the authors also note the large differences in fees charged by various funds. While they discuss rational explanations for the survival of high-cost index funds, they also entertain the possibility that the survival of such funds is possible only if investors are irrational. We discuss investor behavior in more detail later and describe how fund management companies may benefit from it.

There is one final cost element that we have not discussed: performance (incentive) fees, which are charged when performance exceeds certain prespecified benchmarks. Performance fees are not very common in the United States because since 1970 the fees have had to be symmetric (fulcrum fees), meaning that a fund management company has to reduce its fees for underperformance to the same extent that it increases its fees for superior performance. Elton, Gruber, and Blake (2003) studies incentive fees in the U.S. mutual fund industry and finds that in 1999 only 1.7 percent of all funds charged incentive fees; however, those funds controlled 10.5 percent of all fund assets. It is surprising, however, that those funds did not earn any incentive fees, on average, because they did not outperform their benchmarks. In Europe, such funds are much more common, because the fees can be asymmetric, meaning that funds may receive extra remuneration for outperformance but do not have to pay for underperformance. Sigurdsson (2007) reports that 12 percent of European equity funds have such a structure and that funds take various actions to maximize the value of performance fees.

We do not expect to see significant growth in the importance of performance fees in the United States, given their symmetric nature. However, we believe that there is room for growth of such fees in Europe because they may generate extra income for fund management companies while strengthening the perception that the objectives of the fund and the investor are aligned.

New Fund Types

Mutual funds invest in all types of assets. Some specific fund types, discussed below, have grown in importance over the past decade or so, and they are likely to continue to do so in the future.

INDEX FUNDS. Index funds mimic the performance of an underlying index. The first column of table 3-3 shows that in 2002 index funds made up a modest fraction of all funds offered in a number of countries. They were most popular in Japan, where 6.3 percent of all funds offered were index funds, and least popular in Norway, where they made up only 0.3 percent of all funds. It is possible, of

Table 3-3. *Specific fund Types by Country, 2002*[a]
Percent

Country of sale	*Fraction Index Funds*	*Fraction Indexed Assets*	*Fraction Guaranteed Funds*	*Fraction Sector Funds*	*Fraction Funds of Funds*
Austria	1.9	1.2	0.8	9.7	2.4
Belgium	2.1	1.1	8.7	14.2	0.9
Canada	5.1	3.1	n.a.	15.5	n.a.
Finland	1.4	1.9	0.0	20.0	1.5
France	3.1	1.6	1.2	10.0	8.6
Germany	2.5	1.5	0.6	12.9	3.1
Italy	1.3	0.5	0.6	14.0	2.7
Japan	6.3	8.8	n.a.	n.a.	n.a.
Luxembourg	1.8	1.8	2.0	19.0	2.3
Netherlands	2.1	1.7	1.1	22.0	1.5
Norway	0.3	0.3	0.1	16.0	3.5
Spain	1.0	0.8	9.8	11.6	5.1
Sweden	1.2	1.1	0.0	12.1	1.4
Switzerland	1.1	1.0	0.4	9.9	0.6
United Kingdom	1.1	1.2	0.5	7.4	3.1
United States	3.5	5.6	n.a.	13.0	n.a.

Source: Based on individual fund data provided by Morningstar, Lipper Fitzrovia, and Financial Research Corporation.

a. Table lists the fraction of specific fund types by country of sale, except for the second column, where the fraction is based on assets. In the first, third, fourth, and fifth columns, the reported fraction is computed as the fraction of fund classes offered for sale in each country that are of the specific type.

course, that there are relatively few funds but that they make up a large fraction of fund assets. However, that is not the case, as illustrated in the second column. In fact, there were only three countries where the importance of index funds increased when they were weighted by size—Finland, Japan, and the United States. We expect further, but limited, growth of the U.S. index sector, based on three factors: information on the advantages of indexing is becoming more widely available; fewer investors are novices; and a number of major players in the fund industry have reduced the management fees on their index funds. Our sense is that index funds will also gain in importance in Europe as potential investors become more informed about the benefits of indexing. However, another type of fund has emerged in Europe, guaranteed funds, which shares some of the features of index funds.

GUARANTEED FUNDS. Guaranteed funds typically are established with a limited life and the promise of a capital guarantee if held for that period. For example, a fund may have been established in 2001 with a five-year life span. It guarantees investors that they will fully participate in the increase in value of the underlying index but that if the index drops below the starting level, investors will receive their original investment, with no loss of principal. Such a strategy is financed by investing in zero coupon bonds, combined with options on the index. Given that the returns often do not include the dividends received on the index, the strategy can easily be executed with the funds received when a fund starts operations. A variation on guaranteed funds is the so-called "click fund." Such funds not only provide capital guarantees but also "click in" gains if they exceed a certain threshold. For example, if the underlying stock index increases by 20 percent over the life of the fund, those gains will be clicked in and investors will not lose them under any circumstances. As illustrated in the third column of table 3-3, guaranteed funds are extremely popular in certain European countries, Belgium and Spain in particular. Our sense is that their popularity will increase because the capital guarantee makes for an easy marketing tool. In addition, Khorana, Servaes, and Tufano (2008) finds that guaranteed funds charge lower fees than other funds with the same investment objective: total shareholder costs, which include annualized loads, are about 15 basis points lower for guaranteed funds. That also may appeal to investors. However, guaranteed funds are much more expensive than index funds, while often they just mimic the performance of the underlying index.

SECTOR FUNDS. Sector funds specialize in a particular sector of the economy and invest almost exclusively in equities. They also are very popular. The fourth column of table 3-3 shows that these specialty funds make up 10 percent or more of all equity funds in most countries, with a low of 7.4 percent in the United Kingdom and a high of 22 percent in the Netherlands. Khorana and Nelling (1997) documents that sector funds perform as well as other diversified equity funds and are not any riskier than small-cap or aggressive growth funds; the authors conclude that sector funds have a role to play in an investor's overall portfolio. We believe that such funds will maintain their popularity going forward and will be used as a portfolio optimization tool for sophisticated retail investors.

FUNDS OF FUNDS. Funds of funds are mutual funds that invest in other funds; most of the time the other funds are mutual funds as well, but they could also be hedge funds. We know very little about these investment vehicles, but as illustrated in the fifth column of table 3-3, they are quite prominent in some countries, and we believe that they deserve further study. Khorana, Servaes, and Tufano (2008) reports that these funds are substantially cheaper than regular funds with

the same objective, but it is important to be aware of the fact that the underlying funds are also charging management fees. Given the dual layer of fees levied, we are surprised by their success. One possibility is that fund investors are less aware of the embedded fees. Without further study, it is difficult to make predictions regarding the future success of these investment vehicles.

HEDGED MUTUAL FUNDS. Hedged mutual funds follow strategies similar to those followed by hedge funds. Because hedge funds follow various styles, identifying them is not a straightforward exercise. Using a variety of search methods, Agarwal, Boyson, and Naik (2008) identifies forty-six U.S. mutual funds that follow hedge fund strategies. The authors did not find that the funds performed especially well relative to traditional mutual funds or hedge funds but that they did have higher expenses. Nevertheless, we believe that this type of fund will continue to grow in importance as retail investors, in pursuit of enhanced returns, seek exposure to strategies of the hedge fund type.

In sum, we believe that a number of the emerging fund types will attract a disproportionate share of new assets because of one or more of the following features: simplicity, cost, or unique product appeal. As a result, funds in traditional asset classes are likely to lose market share to these fund types. We also expect traditional mutual funds to lose some market share to hedge funds and exchange-traded funds, but we expect the losses to be limited.

The Behavior of Fund Investors

Consumers tend to choose products that maximize their utility, and how they choose mutual funds should be no different. While funds come with certain attributes that affect their perceived benefits (including the services provided by the fund management group, such as recordkeeping), we believe that the key driver of consumer choice should be a fund's expected risk-adjusted return. That return should be computed after management fees and other expenses have been deducted, and, ideally, should also take into account the tax consequences for fund investors.

Consumer Behavior

A number of academic papers cast doubt on whether fund investors behave rationally. Below is a summary of some stylized facts regarding consumer behavior in the fund industry, together with an assessment of whether such behavior may be rational, and if so, under what circumstances.

CHASING WINNERS. Funds that have performed well in the past realize large inflows, particularly star funds—that is, funds that realize the highest performance levels. In fact, what is almost a winner-takes-all phenomenon appears: the

best funds get a disproportionate share of new money. See, for example, Sirri and Tufano (1998).

Is such behavior rational? There are three possible scenarios in which it may be. First, it could be rational if excess performance persists (hot hands). However, there has been relatively little evidence in the literature to support the hot hands phenomenon. The most influential study in this area is Carhart (1997), which demonstrates that there is virtually no evidence of persistence in fund returns after controlling for a variety of risk factors. The one exception in the author's research is the persistence in performance among poorly performing funds. More recently, there has been some work suggesting that certain fund and manager characteristics are associated with excess performance; we will defer a discussion of that work and its implications until later in the chapter.

Second, better-performing funds may receive more media attention, which reduces search costs for fund investors. However, Sirri and Tufano (1998) finds little evidence that that is the case. While media attention correlates with fund flows, the authors' evidence does not support the notion that media attention drives flows or that flows are larger for better-performing funds that have received a lot of media attention. Of course, there may be other ways to attract consumers' attention. Funds that charge high fees may be able to employ those fees in advertising, thereby reducing the search costs for investors. Sirri and Tufano's evidence is consistent with that possibility: the flow-performance relationship is especially strong for high-fee funds.

Third, even without hot hands or search costs, chasing winners could still be rational. That valuable insight comes from Berk and Green (2004), which develops a model of the fund industry consistent with a number of stylized facts. The authors' key assumption is that some fund managers may be able to earn excess returns but that as they attract more funds, their ability to deliver excess performance declines. Investors learn about managerial ability by observing past returns. Funds that have high past returns attract additional investors, but, as a result of the additional inflows, diseconomies of scale prevent fund managers from delivering superior performance on a consistent basis. That is certainly a possibility, but we are concerned about a number of other implications. When calibrating their model, Berk and Green found that if managers' funds were expanding upon initial good performance, their excess returns would have to have been 6.5 percent before fees on the first dollars invested and 5 percent after assumed management fees of 1.5 percent. We find those numbers to be quite high, but we recognize that others may have different opinions.

Fund investors not only chase winners but also focus their attention on external certification of performance by Morningstar. Morningstar rates virtually every

fund in existence in the United States and in many other markets. It assigns a star ranking of from one to five stars based on three-year, five-year, and ten-year risk-adjusted performance. Del Guercio and Tkac (2008) shows that those ratings have a substantial impact on subsequent inflows and that the effect is not subsumed by returns. Khorana and Servaes (2007) finds that family market share is positively related to Morningstar ratings and that that effect is stronger than the effect of performance. Is it rational on the part of fund investors to chase Morningstar rankings? It is if such ratings have a substantial impact on search costs, but further research is required to investigate that possibility.

Overall, we find the winner-chasing behavior of consumers in the fund industry somewhat puzzling. While lower search costs or greater managerial skill combined with economies of scale may explain some of the behavior, we are reluctant to support that conclusion. In particular, we feel that the search costs have to be extremely high to justify search-cost-based arguments.

FAILURE TO WITHDRAW FROM POORLY PERFORMING FUNDS. As discussed, poor performance persists; it therefore is surprising that investors fail to withdraw their money from funds that perform poorly. Berk and Tonks (2007) reports that such funds do face substantial withdrawals if performance is poor for only one year but that the flow-performance sensitivity declines substantially for funds that continue performing poorly. They argue that many investors *do* leave poorly performing funds, but after those investors have left, the remaining investors are less sensitive to poor performance. Why? It does not appear to be rational on the part of such investors. Are they not aware of other options available, or are they merely oblivious to what happens to their funds? In either case, we do not believe that such behavior is rational.

FAILURE TO CHOOSE AMONG THE BEST OPTIONS. As discussed, in the United States there is large variation in fees among funds with the same investment objectives, even for a highly homogeneous fund category such as S&P 500 index funds. We mentioned three possible explanations for such behavior: search costs; product differentiation; and irrationality. While we feel that the first two arguments are difficult to rule out in practice, Choi, Laibson, and Madrian (2008) presents an experiment that diminishes their importance. Wharton MBA students and students from Harvard College were asked to allocate funds across four S&P 500 index funds. When provided with a prospectus that disclosed fees, 95 percent of the students failed to minimize fees. Of course, the students still had to incur search costs to find the fees in the prospectus. However, even when they were given a summary statement of fees, thereby eliminating search costs, 85 percent still failed to minimize fees. Finally, when students were provided with data on the return on the fund since its inception, a piece of information that is completely

irrelevant, students actually chased funds with the best performance. Choi, Laibson, and Madrian (2008) concludes that search costs alone cannot explain investor behavior and that investors appear to value some fund attributes other than services provided by the fund management company.

UNEQUAL TREATMENT OF FEES. At least two articles suggest that investors treat different types of fees differently. Barber, Odean, and Zheng (2005) argues that investors pay more attention to fees that are more apparent, such as front-end loads, than to annual expenses. The authors find that mutual fund flows are negatively related to front-end loads but not to annual expenses. When they subdivided expenses into regular operating expenses and marketing expenses (so-called 12b-1 fees), they found that investors were less likely to buy funds with high operating expenses but more likely to buy funds with high marketing expenses. Given that operating expenses do have a negative effect on fund flows, that result does not fully support their argument. All it really says is that the marketing effort paid off.

Khorana and Servaes (2007) studies the market share of fund families. The authors find a positive relationship between loads and market share, a negative relationship between operating expenses and market share, and no relationship between 12b-1 fees and market share. Their interpretation is that loads are paid to financial advisers for selling funds and that a larger selling effort helps; operating expenses, on the other hand, reflect the price paid for the service, and funds that charge a higher price are smaller. However, if some of the fees are used explicitly for marketing (12b-1 fees), they counterbalance that effect. Thus, while all fees ultimately affect net return in a similar way, fees that are employed in sales efforts do not reduce the size of the fund management company.

ASYMMETRIC RESPONSE TO FEE CHANGES. Khorana and Servaes (2007) studies the effect of changes in fund management company expenses on their market share in the U.S. mutual fund industry. The authors find that fund families that reduced expenses gained market share in the sample as a whole and that families that increased expenses lost market share. However, that result applied only to fund families with above-average expenses. For families with below-average expenses, changing fees did not affect market share, as long as fees remained below average. Fund families can benefit from that asymmetric response on the part of fund investors.

Fund Family Response

If consumers are irrational, funds and the families that sponsor them can potentially benefit from their behavior in the following ways:

—*Promote and create top funds.* Given that winning funds attract a disproportionate amount of all new money invested in the industry, it is important for fund families to promote and create such funds. Promotion implies spending money on advertising and sales efforts. As Sirri and Tufano (1998) demonstrates, the flow-performance relationship is especially strong for high-fee funds. Funds should exercise care, however; while the relationship does hold for high-fee funds, it is not obvious that star funds can simply increase their fees in the future. In addition to the promotion of funds, families can create top funds; they have a number of methods at their disposal to do so. First, they can start many funds at the same time so that, by luck alone, one of them may turn out to be an excellent performer. The funds that perform poorly can be closed down or merged into another fund, and the surviving fund can use its own performance track record in promotions. Second, families may be able to subsidize the performance of some funds at the expense of others. Gaspar, Massa, and Matos (2006) shows that doing so is possible through preferential IPO allocations and trading among funds in the family and that it is especially relevant for high-performance and high-fee funds.

—*Take advantage of consumers' treatment of fees.* Fund families can take many actions to benefit from the failure of consumers to consider all aspects of fees. First, given the lack of sensitivity between fees and market share for low-cost fund families, families with below-average fees should consider raising their prices. Second, as discussed in Khorana and Servaes (1999), fund families could start new funds that resemble existing funds just to reset fee breakpoints to higher levels. Third, funds that have performed poorly and have seen all the smart money leave could consider raising their fees because the remaining investors appear not to be fee sensitive. Fourth, in countries where asymmetric performance fees are allowed, the introduction of performance fees can enhance revenues for the fund adviser.

—*Cash in on risk aversion.* Funds that provide a capital guarantee are relatively easy to manage, mainly because they often follow an indexed approach. While the fees on such funds are generally lower than fees for actively managed funds, they are higher than for index funds, and fund families can include such funds in their product mix to increase aggregate fees earned. Clicking in gains achieved after a certain period of time also may help.

Governance

Mutual funds in general and fund boards in particular have come under increased scrutiny in the United States, particularly in light of late trading and market timing irregularities that have surfaced at a small number of funds over the past few years.

Some believe that the actions of fund boards are influenced by investment advisers, and therefore the effectiveness of fund boards in managing the potentially divergent objectives of fund advisers and shareholders has come into question.

As mentioned earlier, one outcome of the adverse publicity has been shareholder lawsuits claiming that fund fees in the United States are excessive; however, the cross-country study of fees in Khorana, Servaes, and Tufano (2008) documents that U.S. fund fees are some of the lowest in the world. Regardless, since fee setting is an important part of the negotiations between the fund and the fund management company and one in which the board plays a vital role, board effectiveness is being examined more closely. The U.S. Securities and Exchange Commission (SEC) has initiated new rules affecting the composition of fund boards that require boards to increase the proportion of independent directors from 50 percent to 75 percent and to place an outside chairperson on the board. The new rules are being actively debated by the industry and regulators.

While this is a very U.S.-centric view of the industry, the debate has raised a fundamental issue with regard to the role and effectiveness of fund boards in general. Some question whether fund boards are even needed since external market forces can substitute for board regulation and oversight by allocating capital to better-performing (net of fees) fund complexes. In markets around the world in which investors are generally more capable of making rational capital allocation decisions, some would suggest that doing away with fund boards is a plausible scenario; see, for example, Wallison and Litan (2007). However, others argue that small investors do indeed need the protection provided by mutual fund boards that function well.

There is some empirical evidence in the United States on how board structure influences a variety of decisions that fund boards are entrusted with, including those regarding the approval of fees and fund mergers. Tufano and Sevick (1997) documents that funds with a greater proportion of independent directors levy lower fees, and Khorana, Tufano, and Wedge (2007) finds that more independent boards are quicker to arrest a fund's underperformance by initiating a fund merger. However, neither study finds any evidence to suggest that the presence of an independent chair makes the board more effective, which is a fiercely debated issue. The studies do shed some light on how board structure affects board effectiveness.

Kuhnen (2007) focuses on the importance of connections in the choice of directors and advisory firms. The author finds that directors tend to hire advisory firms (fund families) that they have worked with in the past and that when creating new funds, advisory firms offer board seats to directors with whom they have had business relationships in the past. The more connected that board members are to the management of the fund family, the higher the management fees

and expense ratios. While those connections are clearly important, it is virtually impossible for investors to trace these relationships.

In light of the evidence, it is unlikely that mutual fund boards are going to become redundant any time in the near future, at least in the United States. However, we do believe that regulation and disclosure rules will be modified to make fund boards a more important shareholder protection mechanism, both in the United States and around the world.

Improvements in Assessing Skill and What It Means to Investors

As discussed previously, until the start of the twenty-first century there was a relatively broad consensus that funds could not systematically earn positive risk-adjusted returns after taking into account the fees that they charge. In addition, there was little evidence to suggest that fund and fund manager characteristics were related to performance. That consensus no longer holds. We now review some of the studies on fund return predictability, but we urge readers to be cautious when interpreting the evidence. More research is clearly warranted to determine whether these findings are robust.

One of the first studies to challenge the consensus view is Chevalier and Ellison (1999). The authors find that various fund manager characteristics, such as age and whether the manager holds an MBA, were related to performance. A lot of the effects disappeared after properly controlling for risk and expenses, but one survived: there was a positive relationship between performance and the average SAT scores of students in the universities attended by the fund managers.

More recently, Khorana, Servaes, and Wedge (2007) documents a positive relationship between the amount of personal wealth invested by fund managers in the funds that they managed and subsequent performance. Using new SEC disclosure requirements imposed on U.S. funds, the authors study the 2005 performance of all funds with manager ownership available as of December 2004, a sample covering more than 1,300 funds. They find that the average manager's investment in his or her funds was quite modest (about $97,000) but that nevertheless a strong positive relationship existed between the fraction of the fund's assets owned by fund managers and subsequent performance: for every percentage point of fund assets owned by managers, risk-adjusted performance increased by about 3 percentage points. The authors suggest that the effect is due to the incentives created by managerial ownership to work harder at beating the market, but they acknowledge that it also could have been information based. That is, managers buy more shares in their funds because they know the funds will outperform. Either way, the information is useful for investors in making portfolio allocation decisions.

Along similar lines, Cremers and others (2008) finds a positive relation between fund performance and the ownership stake of the directors of the fund.

The previous studies focus on managerial characteristics; recent studies also have considered fund characteristics and fund family characteristics. Chen and others (2004) finds an inverse relation between fund size and returns but a positive relation between family size and returns. The negative effect was most pronounced in small stocks, suggesting that liquidity may be an important driver of the relationship.

Another line of research focuses on the actual portfolio composition of the funds, which has to be disclosed only in the United States. One of the first contributions in this area is Cohen, Coval, and Pastor (2005), which examines whether the portfolio holdings of a manager match those of successful managers—the more closely they match, the more skilled the manager is in picking stocks. More important, they find that this measure can be used not only to assess skill but also to predict future performance: subsequent returns of managers in the best performance quintile were between 2.4 percent to 4.4 percent higher per year than the returns of those in the worst quintile. Wermers, Yao, and Zhao (2007) shows that that approach yields even higher returns when applied to the stocks held by the funds instead of to the funds themselves.

Kacperczyk, Sialm, and Zheng (2005), a study of industry concentration of actively managed U.S. funds, finds that more concentrated funds perform better, after controlling for risk, suggesting that managers with a more concentrated portfolio are more skilled. Kacperczyk, Sialm, and Zheng (2008) uses portfolio disclosures to compute the return on a fund, minus the return the fund would have earned had it not changed its portfolio composition since the composition was last disclosed. This return gap captures unobservable actions by funds. Kacperczyk, Sialm, and Zheng (2008) finds that the gap predicts future fund performance: the decile portfolio with the highest return gap outperforms the market by 1.2 percent a year, while the portfolio with the lowest gap generates a market-adjusted return of –2.2 percent. Finally, Cremers and Petajisto (2008) develops a new measure of portfolio management called "active share," which captures the extent to which the portfolio weights deviate from the index against which fund performance is measured. Funds with a low active share are really closet indexers—that is, they claim to be actively managed but just hold the underlying index. The authors find that this measure of active management is positively related to performance: funds with the highest active share pick portfolios that outperform their benchmarks by approximately 1.5 percent per year after fees and transaction costs are taken into account.

Cohen, Frazzini, and Malloy (2007) takes the portfolio holdings approach a step further. The authors develop a trading strategy based on the portfolio holdings of mutual funds that does not require investment in the funds themselves. Their strategy is based on an extensive study of the education networks of fund managers and corporate board members. Investing in these connected stocks (stocks of companies whose board members have a connection with fund managers) yields excess returns of up to 8.5 percent per year.

A final line of research focuses on improvements in econometric techniques to identify performance persistence. In a bootstrap analysis, Kosowski and others (2006) uncovers performance persistence for 10 percent of U.S. domestic equity fund managers, while Mamaysky, Spiegel, and Zhang (2007) shows that it is possible to identify persistent excess performance of 3.5 percent to 7 percent a year when different models for measuring fund performance are combined.

Implications for Investors

Overall, the research reviewed above suggests that various factors and techniques can be combined to identify excess performance. What do those findings imply for investors? Whether the findings discussed previously affect investors obviously depends on whether investors have access to the information in the first place and what they do with it. We believe that three groups of investors are emerging. First, *naïve investors*. These are investors who are poorly informed about fund availability and about what it costs to invest in funds, and they have no insight into the work on the predictability of returns. Instead of buying funds, they are "sold" funds, often load funds through financial advisers. In addition to the loads, such funds also charge nontrivial management fees, which have an obvious negative effect on fund performance. Naïve investors also exhibit the strongest irrational behavior: they chase past performance, they do not fully consider the impact of fees on performance, and they are most easily persuaded to invest by advertising. They also show the most interest in guaranteed funds and click funds, and they can be convinced that performance fees are necessary to motivate managers. Moreover, they stay behind when smarter money has left a fund. While such investors are important for the profitability of the fund management industry, they are in the minority, and as information becomes even more available, we expect a modest decline in their importance in the future.

Second, *informed investors*. These investors have taken more time to become informed about the various options available, and they also have a better understanding of finance and financial markets. Fees are a key determinant in their decisionmaking, but they still can be convinced that performance persists, without

studying the drivers of persistence. They often allocate some of their money to index funds, while the remainder is actively managed. When performance deteriorates, they reallocate their capital. They are attracted by the promise of high returns on hedge funds, but they are not fully aware that the high management and performance fees charged in that sector may compromise performance. They find hedged mutual funds an attractive investment option, but they know little about them because the hedged mutual fund sector is too small. The success of this sector depends very much on the performance of the first few entrants, which at this point is poor. We believe that the majority of investors, who are not aware of the research findings discussed in this chapter, fall into this category.

Third, *up-to-date investors*. These investors are more up to date on the latest research and thinking in fund management and performance assessment, in particular. They can be further subdivided into two groups: *up-to-date investors with modest wealth* and *up-to-date investors with substantial wealth*. Investors with modest wealth will remain invested in mutual funds. Part of their money will be invested in the cheapest index funds available; the remainder will be allocated according to the most recent research on fund return predictability. Investors with substantial wealth will either follow a do-it-yourself approach or use private bankers that do so. The idea is to skip the mutual fund industry altogether, if possible, and to follow the investment strategies used by successful funds. Of course, some strategies rely on fund manager traits or unobservable fund actions, and they will still require investing in funds.

There is some evidence that the new money being invested is indeed smart. Gruber (1996) finds that the return earned by newly invested money in actively managed funds is higher than the average return earned by those funds, suggesting that new money is smart. However, Zheng (1999) disputes that finding using a larger sample. Of course, those findings predate a lot of research on return predictability, and conducting a study on the performance of new money invested in the fund industry today would be a worthwhile undertaking.

Consolidation in the Fund Industry and Implications for Fund Investors

Throughout the world and within countries, a large number of companies offer mutual funds. Khorana and Servaes (2007) reports that there were 525 mutual fund families offering funds for sale in the United States in 1998, up from only 167 in 1979. That is not surprising in light of the tremendous growth experienced by the U.S. industry; what is perhaps more surprising is that the fraction of the mutual fund assets managed by the top five families has not declined at all.

Table 3-4. *Concentration in the Fund Industry in Various Countries, 2002*[a]
Percent

Country of sale	*Market share of three largest families*	*Market share of five largest families*
Australia	36	47
Austria	39	46
Belgium	29	43
Canada	24	38
Finland	54	70
France	18	26
Germany	28	39
Italy	24	33
Japan	36	49
Luxembourg	30	40
Netherlands	33	45
Norway	48	63
Spain	26	38
Sweden	32	46
Switzerland	40	51
United Kingdom	24	32
United States	28	34

Source: Based on individual fund data provided by Morningstar, Lipper Fitzrovia, and Financial Research Corporation.

a. Market shares are computed based on funds offered for sale in a specific country (not funds domiciled in that country).

Khorana and Servaes (2007) reports that the top five families managed 31 percent of total assets in 1979 and 1980 and 37 percent in 1998. The figure for 2002 was 34 percent, based on Morningstar data. That evidence attests to the success of large fund families, such as Fidelity and Vanguard, in the United States. The remaining share of the market gets divided up into smaller pieces as new fund families enter. That phenomenon is not unique to the United States. Table 3-4 shows the fraction of fund assets controlled by the three- and five-largest fund families in seventeen countries, based on data from Morningstar and Lipper Fitzrovia. The figures are based on funds offered for sale in a country, which we believe is the proper definition, rather than funds domiciled in that country. The concentration ratios are very high, ranging from 18 percent in France to 54 percent in Finland for the three-firm ratio and 26 percent in France to 70 percent in Finland for the five-firm ratio.

While it is very difficult to study the actual profitability of mutual fund operations—see, for example, Huberman (2007)—we believe that it is safe to assume

that size is a critical driver of efficiency. However, given that concentration ratios already are extremely high, we do not expect much consolidation to happen at the national level among the larger players; however, there clearly is room for consolidation among the smaller players. We therefore expect the large players to maintain their positions, while consolidation among smaller players will have only a minor effect on concentration at the national level.

There has been substantial international consolidation, however. For example, when we study the ten largest asset managers domiciled in the seventeen countries listed in table 3-4, we find that Deutsche Bank and Fidelity enter the list in five countries and Axa, Citigroup, DGZ-Dekabank, Fortis, and Nordea enter the list in three countries. Much of that consolidation has come through acquisition, although some firms have grown abroad by starting new operations in a country. We believe that it will be virtually impossible to enter a mature market as a start-up without remaining a niche player, but that strategy is still possible in developing markets. In addition, to enter the EU market, a firm has only to acquire a management company with a presence in one country to allow it to distribute funds to most member states. Luxembourg remains of key importance in that regard. Even in developing markets, we believe that acquisition may be the fastest way to establish a market presence.

We do not expect fund investors to enjoy the benefits of increased consolidation in the form of lower fees. Our sense is that any improvements in efficiency will go to the management companies' bottom line. However, that prediction has not been formally tested using past mergers and so is very speculative.

Conclusion

The future of the fund industry worldwide is healthy. In many countries, the industry is still poorly developed, and with the right regulatory impetus, there is room for a lot of growth: China, India, Russia, and Turkey are important in that regard. In many developed markets, the industry is quite mature, and while funds are being offered by a very large number of organizations, a large fraction of the market is captured by just a few companies. That applies to virtually all markets in North America and western Europe. We expect to see further consolidation in the industry among smaller fund management companies and in terms of cross-border mergers between financial institutions active in the fund industry.

We expect some pressure on fees but believe that the overall effect will be small, because a lot of investors are not fully aware of the effect of fees on performance and because fees can be used in selling efforts. Fund families have succeeded in differentiating their product offerings so that investors focus on elements besides

fees and performance. Continued innovation in fund types will help fund families in that regard. However, sophisticated investors will continue to demand low-fee products, many of them indexed. They also will use more recent developments in the work on performance persistence to identify top-performing funds. It is possible, however, that increased inflows into those funds will affect the predictability of their performance.

There is some evidence that improved fund governance has affected decision-making in some circumstances, but we would urge regulators not to impose further governance standards without a careful study of their costs and benefits. We believe that outside the United States, consumers would be better served by more disclosure of fees and expenses and their effect on performance. We believe that more transparency will ultimately benefit the industry.

References

Agarwal, Vikas, Nicole M. Boyson, and Narayan Y. Naik. 2008 (forthcoming). "Hedge Funds for Retail Investors? An Examination of Hedged Mutual Funds." *Journal of Financial and Quantitative Analysis.*

Barber, Brad M., Terrence Odean, and Lu Zheng. 2005."Out of Sight, Out of Mind: The Effect of Expenses on Mutual Fund Flows." *Journal of Business* 78 (6): 2095–2120.

Bergstresser, Daniel, John M. R. Chalmers, and Peter Tufano. 2008 (forthcoming). "Assessing the Costs and Benefits of Brokers in the Mutual Fund Industry." *Review of Financial Studies.*

Berk, Jonathan B., and Richard Green. 2004. "Mutual Fund Flows and Performance in Rational Markets." *Journal of Political Economy* 112 (6): 1269–95.

Berk, Jonathan B., and Ian Tonks. 2007. "Return Persistence and Fund Flows in the Worst-Performing Funds." Working Paper 13042. Cambridge, Mass.: National Bureau of Economic Research.

Carhart, Mark M. 1997. "On Persistence in Mutual Fund Performance." *Journal of Finance* 52 (1): 85–110.

Chen, Joseph, and others. 2004. "Does Fund Size Erode Mutual Fund Performance? The Role of Liquidity and Organization." *American Economic Review* 94 (5): 1276–1302.

Chevalier, Judith, and Glenn Ellison. 1999. "Are Some Mutual Fund Managers Better than Others? Cross-Sectional Patterns in Behavior and Performance." *Journal of Finance* 54 (3): 875–99.

Choi, James J., David Laibson, and Brigitte C. Madrian. 2008. "Why Does the Law of One Price Fail? An Experiment on Index Mutual Funds." Working Paper. Yale School of Management.

Cohen, Lauren, Andrea Frazzini, and Christopher Malloy. 2007. "The Small World of Investing: Board Connections and Mutual Fund Returns." Working Paper 12261. Cambridge, Mass.: National Bureau of Economic Research.

Cohen, Randolph B., Joshua D. Coval, and Lubos Pastor. 2005. "Judging Mutual Fund Managers by the Company They Keep." *Journal of Finance* 60 (3): 1057–96.

Cremers, Martijn, and Antti Petajisto. 2008 (forthcoming). "How Active Is Your Fund Manager? A New Measure That Predicts Performance." *Review of Financial Studies.*

Cremers, Martijn, and others. 2008 (forthcoming). "Does Skin in the Game Matter? Director Incentives and Governance in the Mutual Fund Industry." *Review of Financial Studies.*

Del Guercio, Diane, and Paula A. Tkac. 2008 (forthcoming). "Star Power: The Effect of Morningstar Ratings on Mutual Fund Flow." *Journal of Financial and Quantitative Analysis.*

Elton, Edwin J., Martin J. Gruber, and Christopher R. Blake. 2003. "Incentive Fees and Mutual Funds." *Journal of Finance* 58 (2): 779–804.

Elton, Edwin J., Martin J. Gruber, and Jeffrey A. Busse. 2004. "Are Investors Rational? Choices among Index Funds." *Journal of Finance* 59 (1): 261–88.

Freeman, John P., and Stewart L. Brown. 2001. "Mutual Fund Advisory Fees: The Cost of Conflicts of Interest." *Journal of Corporation Law* 26 (3): 609–73.

Gaspar, José-Miguel, Massimo Massa, and Pedro Matos. 2006. "Favoritism in Mutual Fund Families? Evidence on Strategic Cross-Fund Subsidization." *Journal of Finance* 61 (1): 73–104.

Gruber, Martin J. 1996. "Another Puzzle: The Growth in Actively Managed Mutual Funds." *Journal of Finance* 51 (3): 783–810.

Hortaçsu, Ali, and Chad Syverson. 2004. "Product Differentiation, Search Costs, and Competition in the Mutual Fund Industry: A Case Study of S&P 500 Index Funds." *Quarterly Journal of Economics* 119 (2): 403–56.

Huberman, Gur. 2007. "Is the Price of Money Managers Too Low?" Discussion Paper 6531. London: Center for Economic Policy Research.

Kacperczyk, Marcin, Clemens Sialm, and Lu Zheng. 2005. "On the Industry Concentration of Actively Managed Equity Mutual Funds." *Journal of Finance* 60 (4): 1983–2011.

———. 2008 (forthcoming). "Unobserved Actions of Mutual Funds." *Review of Financial Studies.*

Khorana, Ajay, and Edward Nelling. 1997. "The Performance, Risk, and Diversification of Sector Funds." *Financial Analysts' Journal* 53 (3): 62–74.

Khorana, Ajay, and Henri Servaes. 1999. "The Determinants of Mutual Fund Starts." *Review of Financial Studies* 12 (5): 1043–74.

———. 2007. "Competition and Conflicts of Interest in the U.S. Mutual Fund Industry." Working paper. Georgia Institute of Technology and London Business School.

Khorana, Ajay, Henri Servaes, and Peter Tufano. 2005. "Explaining the Size of the Mutual Fund Industry around the World." *Journal of Financial Economics* 78 (1): 145–85.

———. 2008 (forthcoming). "Mutual Fund Fees around the World." *Review of Financial Studies.*

Khorana, Ajay, Henri Servaes, and Lei Wedge. 2007. "Portfolio Manager Ownership and Fund Performance." *Journal of Financial Economics* 85 (1): 179–204.

Khorana, Ajay, Peter Tufano, and Lei Wedge. 2007. "Board Structure, Mergers, and Shareholder Wealth: A Study of the Mutual Fund Industry." *Journal of Financial Economics* 85 (2): 571–98.

Kosowski, Robert, and others. 2006. "Can Mutual Fund 'Stars' Really Pick Stocks? New Evidence from a Bootstrap Analysis." *Journal of Finance* 61 (6): 2551–95.

Kuhnen, Camelia. 2007. "Social Networks, Corporate Governance, and Contracting in the Mutual Fund Industry." Working paper. Northwestern University.

La Porta, Rafael, and others. 1998. "Law and Finance." *Journal of Political Economy* 106 (6): 1113–55.

Mamaysky, Harry, Matthew Spiegel, and Hong Zhang. 2007. "Improved Forecasting of Mutual Fund Alphas and Betas." *Review of Finance* 11 (3): 359–400.

Poirson, Hélène K. 2007. "Financial Market Implications of India's Pension Reform." IMF Working Paper 07/85. Washington: International Monetary Fund.

Sigurdsson, Kari. 2007. "Asymmetric Performance Fees in European Mutual Funds." Working paper. London Business School.

Sirri, Erik R., and Peter Tufano. 1998. "Costly Search and Mutual Fund Flows." *Journal of Finance* 53 (5): 1589–1622.

Tufano, Peter, and Matthew Sevick. 1997. "Board Structure and Fee-Setting in the U.S. Mutual Fund Industry." *Journal of Financial Economics* 46 (3): 321–56.

Wallison, Peter J., and Robert E. Litan. 2007. *Competitive Equity: A Better Way to Organize Mutual Funds*. Washington: American Enterprise Institute.

Wermers, Russ, Tong Yao, and Jane Zhao. 2007. "The Investment Value of Mutual Fund Portfolio Disclosures." Working paper. University of Maryland.

Zheng, Lu. 1999. "Is Money Smart? A Study of Mutual Fund Investors' Fund Selection Ability." *Journal of Finance* 54 (3): 901–33.