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WHAT'S INSIDE

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Globalisation and the Global Growth of Long-Term Mutual Funds

KEY FINDINGS

» **Around the globe, the mutual fund industry has seen strong growth in assets in the past two decades.** Global assets in mutual funds increased from $4.0 trillion in 1993 to $28.9 trillion in September 2013, reflecting increases in each of four broad regions: the United States, Europe, Asia-Pacific, and the rest of the world.

» **An array of factors helps explain the worldwide growth in long-term mutual fund assets and the varied growth experiences across individual countries.** These factors include strong and appropriate regulation; investors' demand for professionally managed, well-diversified products offering access to capital markets; deep and liquid capital markets within a given country; favourable returns on capital market instruments; a country's economic development, demographics, and fiscal balance; and whether a country has a defined contribution plan system that allows plan participants to invest in mutual funds.

» **Mutual funds become an increasingly important financial intermediary as a country's economy develops.** A cross-country statistical analysis shows that the ratio of long-term mutual fund assets to gross domestic product tends to grow as a country's per capita income rises.

» **Mutual fund markets in developing countries have the potential to grow rapidly as their populations mature, their middle classes expand, and investors better understand and desire the benefits of domestic and international diversification that mutual funds can provide.** Wealth and income are expected to rise substantially in developing countries such as China, implying that mutual fund assets have the potential to grow considerably.

Introduction

Over the past two decades, the global mutual fund industry has boomed. Assets in mutual funds have increased more than sevenfold, from $4.0 trillion in 1993 to $28.9 trillion in 2013:Q3 (Figure 1).[1] This growth was shared across broad regions of the world. For example, assets in US mutual funds rose nearly 600 percent to $14.3 trillion. The European mutual fund industry, though smaller, grew faster, by 642 percent to almost $9.0 trillion. Assets in the Asia-Pacific region expanded 450 percent to a level of $3.3 trillion. Finally, assets in the rest of the world, which includes Canada, Brazil, and other countries in Latin America, grew 2,200 percent to a level of $2.3 trillion.

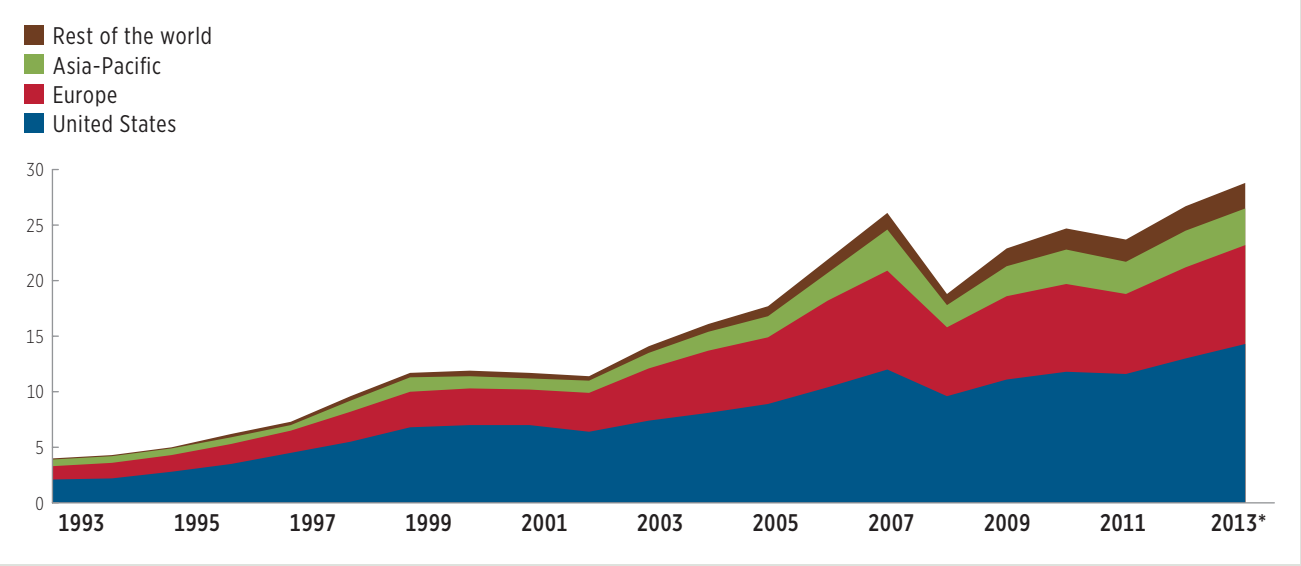
Overview of Analysis

This paper provides a broad overview of the growth in the assets, number, and types of long-term mutual funds in regions and countries around the world.[2] Four broad regions of the world—the United States, Europe, Asia-Pacific, and the rest of the world—all saw strong growth, yet experiences ranged widely among individual countries. Indeed, demand differed across countries for equity funds and bond funds, as well as for other types of funds. Also, some countries have seen more rapid growth in their mutual fund industries than others. Finally, in many countries the fund industry remains quite small relative to gross domestic product (GDP), suggesting that there is potential for future growth provided the conditions are right.

FIGURE 1

Worldwide Total Net Assets of Mutual Funds

*Trillions of US dollars; year-end, 1993–2013**



* Data are as of September 2013.

Note: Data include equity, bond, mixed/other, and money market funds. Funds of funds are not included except for France, Italy, and Luxembourg. Data include home-domiciled funds, except for Hong Kong SAR, the Republic of Korea, and New Zealand, which include home- and foreign-domiciled funds.

Source: International Investment Funds Association

Note: All values, unless otherwise stated, are in US dollars.

Several factors help explain worldwide patterns in the growth in long-term mutual fund assets, including:

- greater household demand for well-diversified, professionally managed investment products offering access to capital markets;
- strong and appropriate regulation of funds and financial markets;
- the availability of large common markets in which mutual funds can be purchased and sold;
- expansion and availability of efficient capital markets across the globe;
- superior returns on stocks and bonds (directly boosting fund assets and indirectly attracting flows);
- high or improving levels of economic development;
- changing demographics and associated fiscal challenges; and
- the existence of a defined contribution (DC) plan system that allows participant-directed investments, including in mutual funds.

These factors could influence future expansion of the mutual fund industry in countries where mutual fund products have had less market presence, such as in emerging markets in the Asia-Pacific region. This paper provides statistical evidence that mutual funds are what economists term a 'superior good'—a product for which demand rises faster than peoples' incomes rise. In emerging economies, rising per capita income, demographic changes, government fiscal challenges, and openness and modernisation of financial markets, will likely foster demand for mutual funds.

This paper provides a statistical analysis indicating that economic and financial sector development are key drivers of a country's long-term mutual fund assets. Also, countries that have accumulated significant assets in DC plan systems tend to have larger long-term mutual fund industries. By contrast, the amount of assets in defined benefit (DB) pension plan systems does not generally translate into a larger or smaller long-term mutual fund industry in a particular country. There is no evidence that countries with a bigger banking sector have either smaller or larger long-term mutual fund industries, suggesting that long-term mutual funds are neither a substitute for nor a complement to bank credit intermediation. One explanation is that as an economy grows, all types of financial intermediaries grow—but mutual funds, being a superior good/service, tend to grow somewhat faster. Based on the relative importance of these types of factors (as measured by statistical analysis), this paper shows that these influences could in the next 50 years lead to a substantial increase in long-term mutual fund assets in emerging markets, notably China.

Mutual funds will be better able to help meet such potential demand if countries have strong and appropriate regulatory frameworks, robust infrastructures for stock and bond markets, and individual account-based retirement plans that help or encourage investors to save through mutual funds.

The Long-Term Mutual Fund Industry Is Growing Worldwide

Precise definitions vary around the world, but mutual funds are generally considered to be pooled investment products that are substantively regulated and that invest in transferable securities (for example, publicly traded stocks and bonds) and money market instruments. Mutual funds are typically 'open-end' funds, which means that their shares are redeemable and their assets may expand or contract daily in response to changes in investor demand.

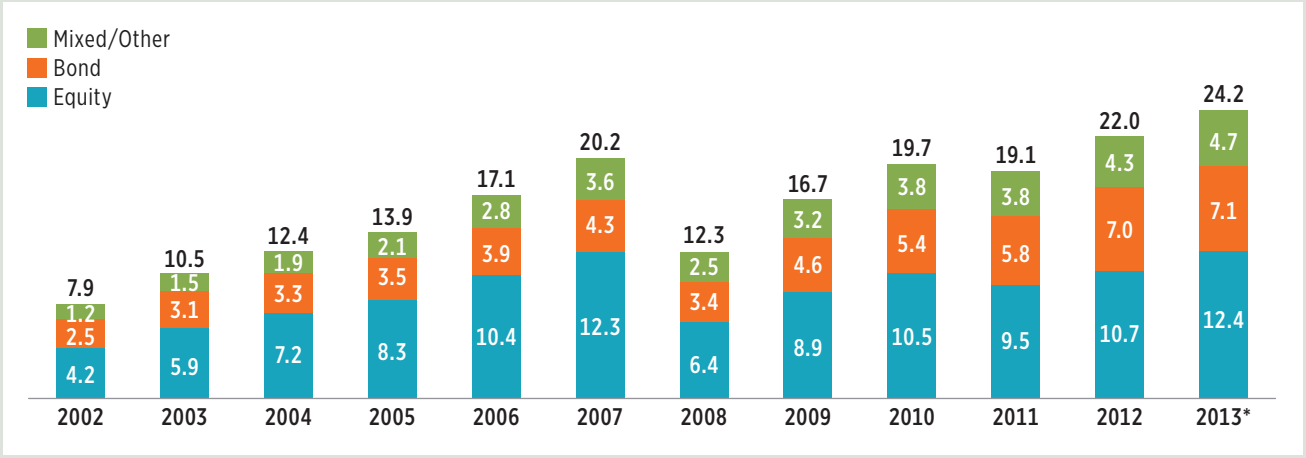
Global assets in mutual funds have grown substantially in the past 20 years. But the amount, types, and growth of mutual fund assets have varied substantially over time and across countries.

In 2006, for example, immediately before the financial crisis of 2007–2008, assets in equity funds accounted for nearly 61 percent of global assets in long-term mutual funds (Figure 2). But that share has since fallen, in part reflecting the decline in worldwide stock markets from late 2007 to early 2009 as a result of the financial crisis. In many countries, the falling equity share also reflected a decline in long-term interest rates and an increase in risk aversion following the financial crisis. These developments boosted the assets of bond funds, as well as mixed/other funds which invest in both equities and fixed-income securities. Despite the move towards fixed-income investments, equity funds still held slightly more than half of worldwide assets in long-term mutual funds as of 2013:Q3.

FIGURE 2

Composition of Worldwide Total Net Assets of Long-Term Mutual Funds by Type of Fund

*Trillions of US dollars; year-end, 2002–2013**



* Data are as of September 2013.

Note: Data include home-domiciled funds, except for Hong Kong SAR, the Republic of Korea, and New Zealand, which include home- and foreign-domiciled funds.

Source: International Investment Funds Association

There is wide diversity by country in the percentage of assets investors hold in various types of long-term funds. Figure 3 shows the composition of long-term mutual fund assets in the 25 countries with the largest mutual fund markets (ordered from left to right by the value of a country's total long-term fund assets converted into US dollars). Some countries, like the United States, the United Kingdom, Japan, and Sweden, have the majority of their fund assets in equity funds. Other countries, like Canada and South Africa, have the largest share of their fund assets in mixed/other funds. France and Switzerland have a rather even mix of assets across the three broad fund categories. And still others, notably Brazil, have the majority of their mutual fund assets in bond funds. (See Figures A1 and A2 on pages 32–35 for more detail.)

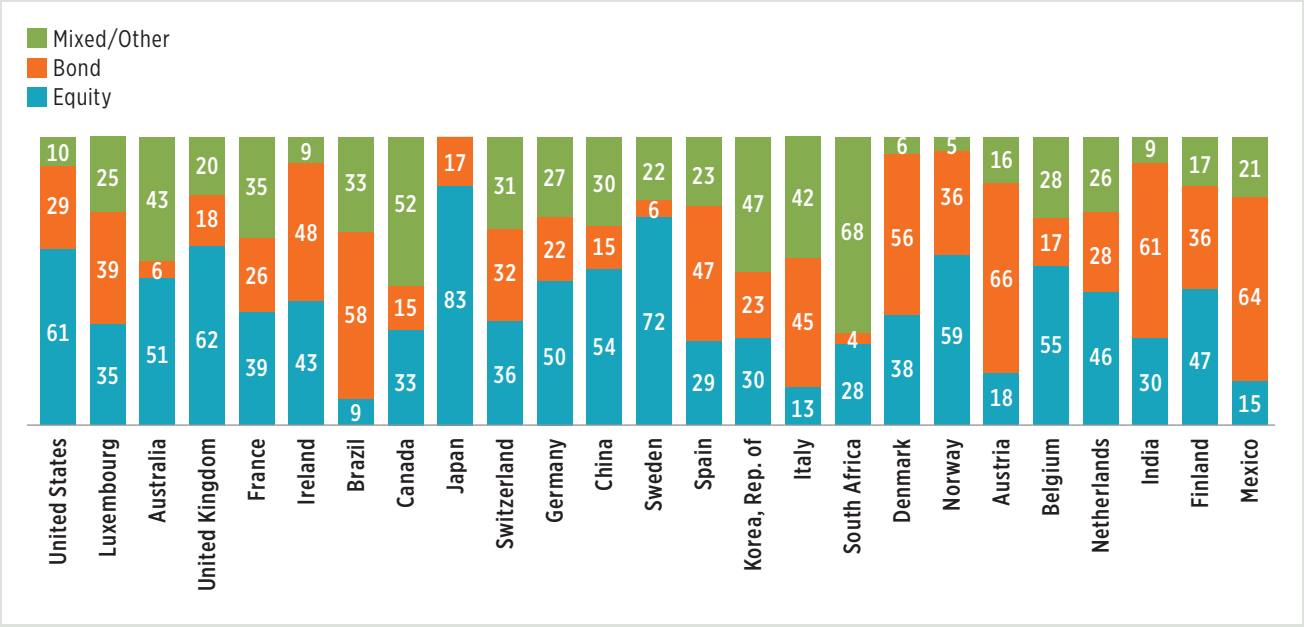
Worldwide Net Sales of Long-Term Mutual Funds

Net sales of mutual fund shares are one measure of the demand for mutual funds. Global net sales of long-term mutual funds were positive in each year from 2002 to 2013, with the notable exception of 2008, which was the nadir of the financial crisis (Figure 4). Over the 12-year period, global net sales of long-term mutual funds totalled $6.9 trillion.

FIGURE 3

Composition of Worldwide Long-Term Mutual Fund Total Net Assets by Selected Country

Percentage of assets, 2013:Q3



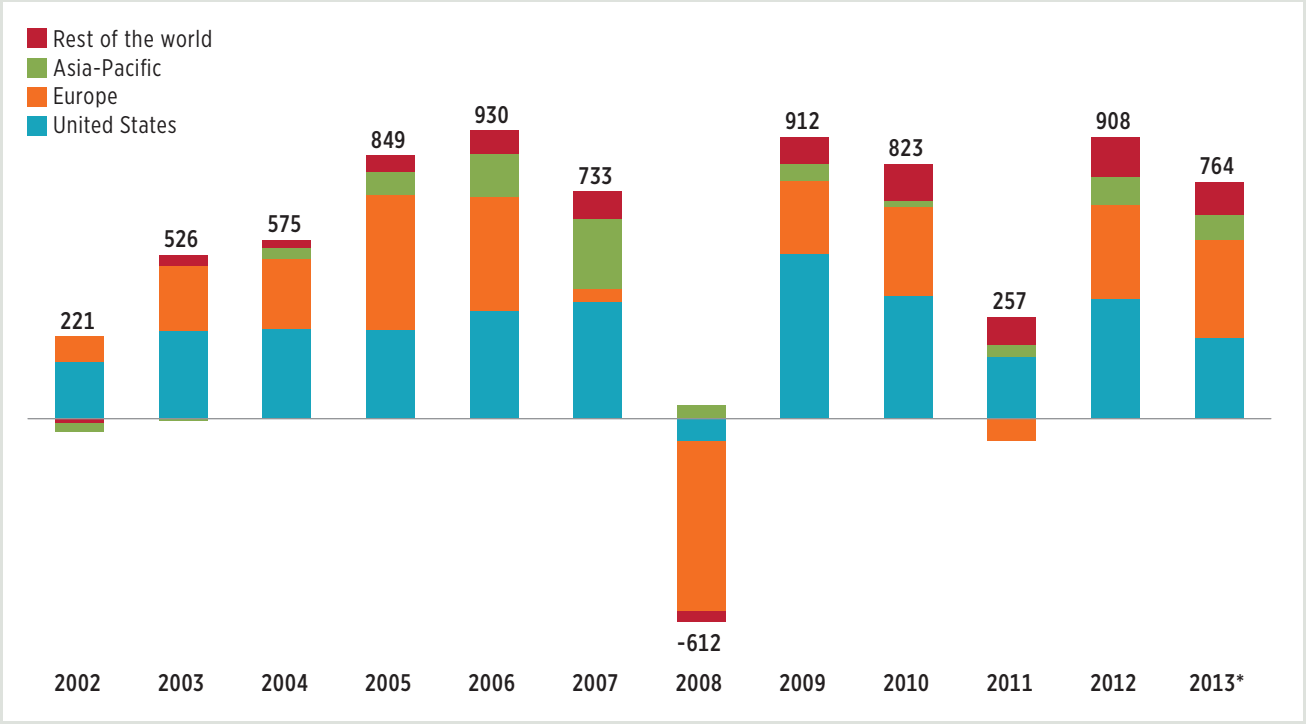
Note: Components may not add to 100 percent because of rounding. Data include home-domiciled funds, except for Hong Kong SAR, the Republic of Korea, and New Zealand, which include home- and foreign-domiciled funds.

Source: International Investment Funds Association

FIGURE 4

Worldwide Net Sales of Long-Term Mutual Funds

*Billions of US dollars, 2002–2013**



* Data are through September 2013.

Note: Net sales equals total sales minus total redemptions plus net exchanges. Data include home-domiciled funds, except for the Republic of Korea and New Zealand, which include home- and foreign-domiciled funds.

Source: International Investment Funds Association

Demand for long-term funds varied considerably by region during this period. During the six-year period of 2002 to 2007, net sales totalled $3.8 trillion, with the United States accounting for 46 percent, Europe for 36 percent, the Asia-Pacific region for 11 percent, and the rest of the world for 7 percent. Net sales fell sharply in each of the four regions in 2008, as investors responded to the financial crisis by pulling back from stock and bond markets. The effect was most pronounced in Europe, which experienced negative net sales of $547 billion. The European Fund and Asset Management Association (EFAMA) lists several reasons for the large 2008 outflow, including the response of fund investors to the large decline in equity markets, increased risk aversion of bond fund investors after the failure of Lehman Brothers, and outflows attributable to some European governments' decisions to provide guarantees for all bank deposits.[3] As global stock markets recovered, however, net sales returned in 2009 to positive territory in each region and have generally remained there since. Over the nearly five-year period of 2009 to 2013:Q3, global net sales of long-term mutual funds totalled $3.7 trillion, nearly the same as the cumulative total from 2002 to 2007.

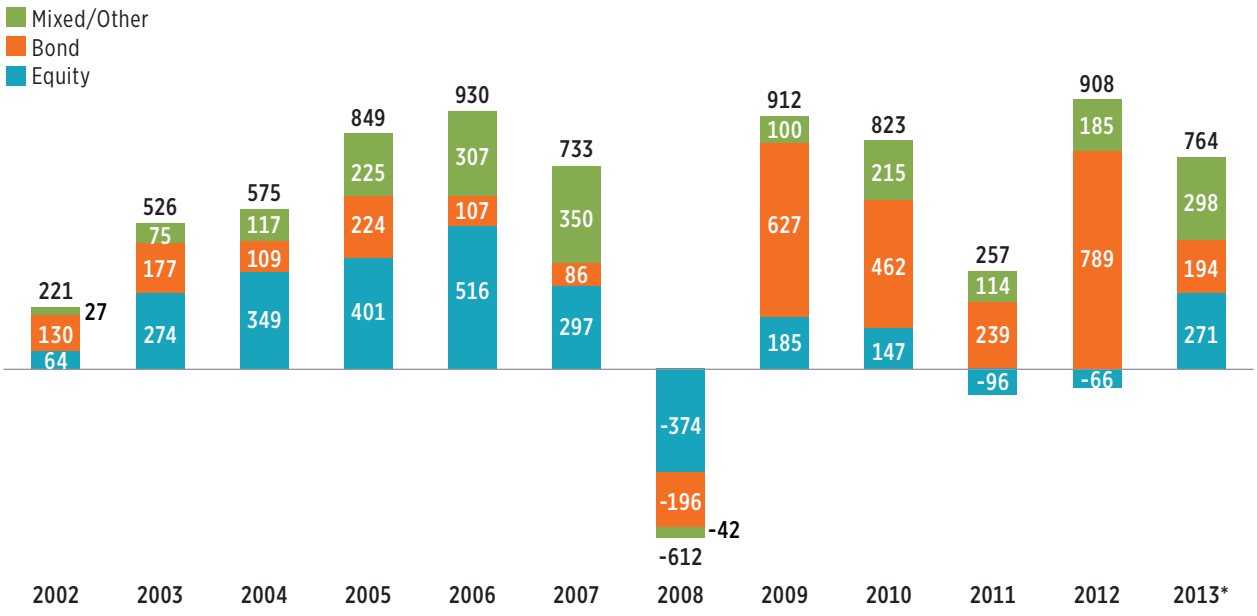
The composition of net sales also has varied by type of fund. Before 2008, half of the net sales across the world were in equity funds (Figure 5). In 2008, the worst year of the recent financial crisis, all three fund categories saw negative net sales, but equity funds accounted for the bulk of the negative sales. In the two biggest markets (in 2008), Europe experienced negative net sales in all three categories, while the United States had negative net sales in equity funds but positive net sales in bond funds.

In many countries, long-term interest rates declined during and after the financial crisis, boosting returns on fixed-income securities. Because of this, but also because of a general increase in risk aversion around the globe and other factors, there has been a significant shift in net sales towards bond funds and mixed/other funds.[4] From 2009 to 2013:Q3, bond funds and mixed/other funds absorbed

FIGURE 5

Composition of Worldwide Net Sales of Long-Term Mutual Funds by Type of Fund

*Billions of US dollars, 2002–2013**



* Data are through September 2013.

Note: Components may not add to the total because of rounding. Net sales equals total sales minus total redemptions plus net exchanges. Data include home-domiciled funds, except for the Republic of Korea and New Zealand, which include home- and foreign-domiciled funds.

Source: International Investment Funds Association

the vast majority of worldwide net sales—$3.2 trillion out of a total of $3.7 trillion across all types of long-term funds. Net sales of bond and mixed/other funds were very strong in the United States, accounting for 95 percent ($1.68 trillion of $1.76 trillion) of net sales of US long-term funds over that period. Net sales of these funds were also very strong in Europe (84 percent of total net sales) and in the rest of the world (98 percent, excluding Asia-Pacific). Only in the Asia-Pacific region did equity funds continue to receive the majority of net sales.

Growth in the Number of Global Mutual Funds

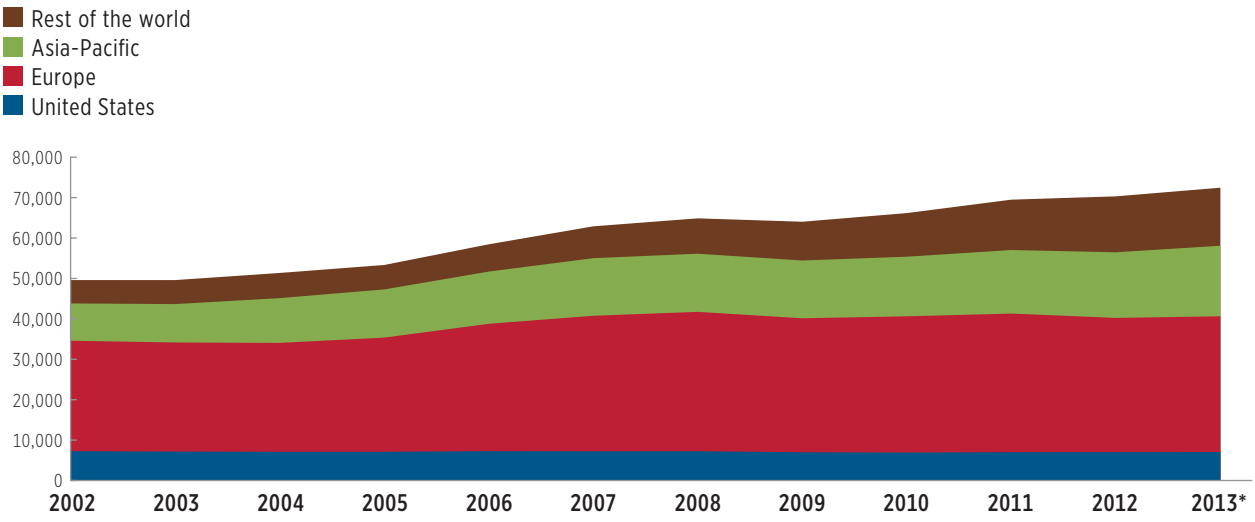
Growth in the fund industry has been accompanied by a large increase in the number of mutual funds offered for sale. For example, since 2002, there has been a net increase of almost 23,000 long-term mutual funds globally (Figure 6).

Outside Europe and the United States. In the past nearly five years, all the growth in the number of mutual funds occurred outside Europe and the United States, with net increases of about 3,000 long-term funds in the Asia-Pacific region and roughly 5,600 in the rest of the world.[5] By late 2013, the number of long-term mutual funds outside Europe and the United States stood at 31,822. Some countries experienced a very sharp percent increase in the number of funds. Chile, for instance, had 177 mutual funds in 2001, but that number grew to 2,340 by late 2013. This large increase happened as Chile liberalised the number of investment options open to its pension funds, including allowing investment in international securities. These changes encouraged the proliferation of fund types in Chile.[6] By 2013, nearly 70 percent of the 31,822 long-term mutual funds outside of the United States and Europe were in three countries: Brazil, Japan, and the Republic of Korea.[7]

FIGURE 6

Worldwide Number of Long-Term Mutual Funds

*Number of long-term mutual funds; year-end, 2002–2013**



* Data are through September 2013.

Note: Data include home-domiciled funds, except for Hong Kong SAR, the Republic of Korea, and New Zealand, which include home- and foreign-domiciled funds.

Source: International Investment Funds Association

Europe. In Europe, the number of long-term mutual funds has stabilised around or just below 34,000 since the global financial crisis, after rising rapidly in the five-year period of 2003–2007. The large number of funds in Europe reflects in part the diversity of investors in the European Union (EU), and also the need to create funds that best accommodate tax laws specific to individual EU countries. These kinds of factors have fostered rapid growth in the number of cross-border funds—funds domiciled in one country that can be sold into one or more other countries (see 'Cross-Border Mutual Funds' on page 10).[8]

United States. In the United States, the number of long-term mutual funds on net remained about unchanged over the past decade, with 7,042 funds at the end of 2013:Q3. This steadiness reflects the more mature nature of the industry in the United States, a lack of cross-border funds, and sharp increases in the number of other types of long-term funds (not discussed in this paper) that compete for investors' savings (such as funds of funds and exchange-traded funds [ETFs]).

Growth in the Market for Mutual Funds Beyond Europe and the United States

Outside Europe and the United States, growth in the mutual fund industry has varied widely.

Owing to a strong fundamental demand for long-term mutual funds, the mutual fund industry has experienced very sharp growth and now has a strong presence in some countries. Brazil, Chile, and Australia all experienced asset growth rates of more than 300 percent over the period 2002–2012, matching or exceeding those of Ireland and Luxembourg, key European locales for domiciling cross-border mutual funds (Figure 7). Asset growth in Brazil stands out, though, at more than 1,000 percent, much of it due to high returns on Brazilian bonds and the appreciation of the real against the dollar. Over the same period, the growth in Brazilian mutual fund assets measured in local currency terms has been a smaller but still impressive 542 percent.

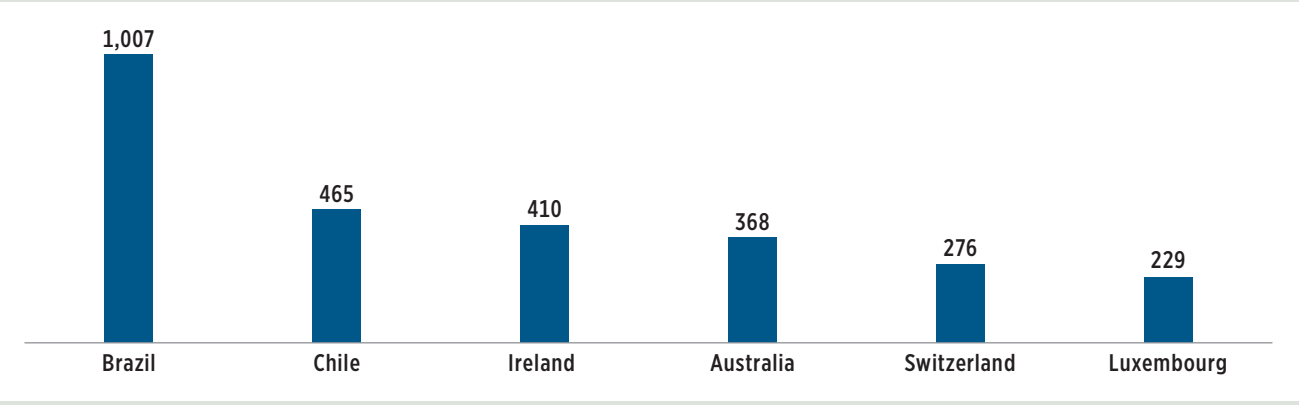
On the other hand, the mutual fund industry remains small in many countries outside of developed Europe, the United States, and other developed countries. For example, in 2012, long-term fund assets as a percentage of GDP amounted to 64 percent in the United States, 45 percent in developed Europe (including assets domiciled in Ireland and Luxembourg), and 86 percent in Australia. In contrast, in countries such as Turkey, India, and much of central eastern Europe (for example, Slovenia), the proportion of long-term mutual fund assets to GDP remains quite low (Figure 8). Indeed, in certain areas of the world, most notably in sub-Saharan Africa (excluding South Africa) and some countries in Latin America, mutual funds have a very limited presence. For example, mutual fund assets reported by Costa Rica total just 0.4 percent of that country's GDP.

The remainder of the paper explores some of the reasons for the wide-ranging experiences of countries around the world with their use of mutual funds.

FIGURE 7

Growth in Locally Domiciled Fund Industry Assets

Percent, 2002–2012

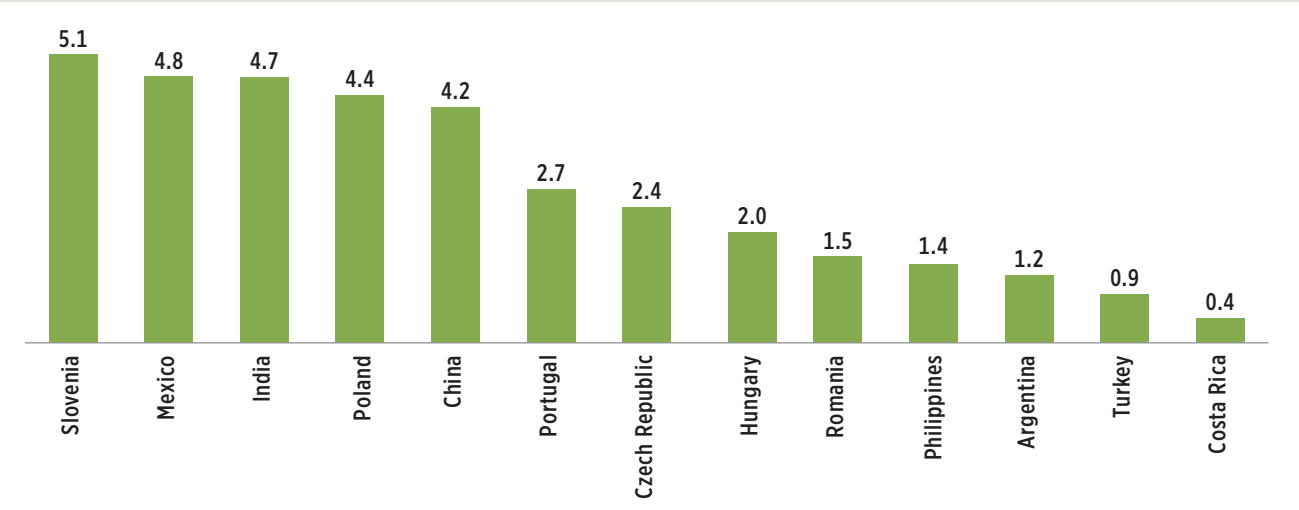


Source: International Investment Funds Association

FIGURE 8

Ratio of Locally Domiciled Fund Industry Assets to GDP

Long-term mutual fund assets as a percentage of GDP, 2012



Sources: International Investment Funds Association, International Monetary Fund, and World Bank

Cross-Border Mutual Funds

Cross-border mutual funds are mutual funds that are registered in one country and are sold 'cross-border' into one or more other countries. For example, funds registered in Europe under the Undertakings for Collective Investment in Transferable Securities (UCITS) Directive are eligible to be sold to investors in the European Union (EU) under what is known as a 'passport' arrangement.[9] Cross-border UCITS, which also have been approved for sale in some jurisdictions outside the European Union, have proven to be popular among investors in Latin America and Asia. Reflecting their advantages and popularity, the number of cross-border funds globally has increased 150 percent over the past ten years to 9,436 in 2012 (Figure 9).

Cross-border funds tend to be domiciled in countries with the most favourable business environments for establishing, servicing, and distributing funds throughout the world. These environments can include certain legal or tax withholding advantages available in a given country. The quality of a country's workforce and the efficiency and legal expertise embedded in the regulatory approval process for cross-border funds also have been cited as key factors influencing the choice of cross-border funds domiciliation (Lang and Schafer 2013). Ireland and Luxembourg are the two most prominent domiciles for cross-border funds, together accounting for 86 percent of cross-border fund registrations worldwide (Figure 10, left pie chart).

Cross-border funds are sold around the world. Europe is the predominant market, accounting for 88 percent of the funds sold across countries (Figure 10, right pie chart). Although still a small share of the world's cross-border funds, a growing number of cross-border funds are being sold into Asia-Pacific countries and Latin American regions. The most active cross-border fund markets outside of Europe—measured by cross-border funds registered for sale—are Singapore, Chile, and Hong Kong SAR.

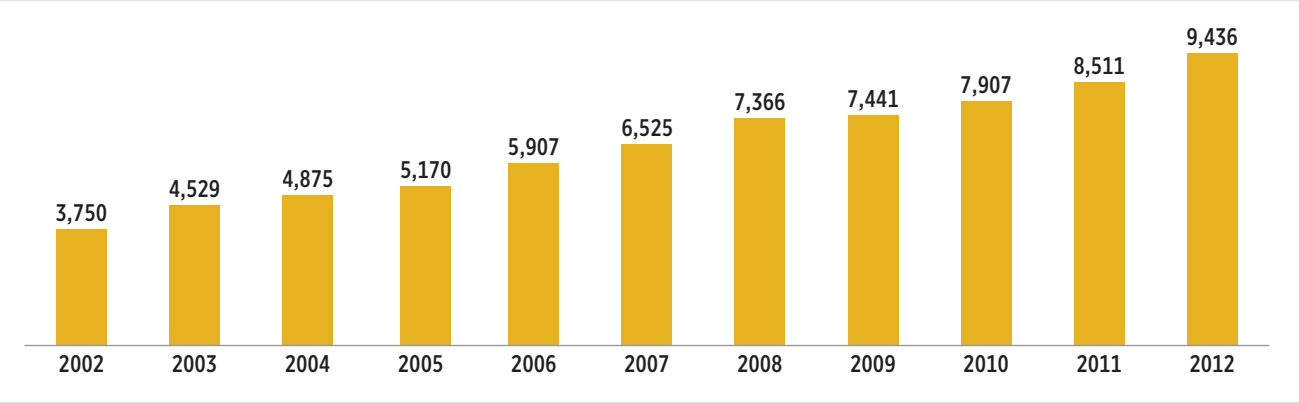
Unlike in much of the rest of the world, cross-border funds do not play a significant role in the United States (see Investment Company Institute 2013b). US-registered investment companies do not generally attempt to sell US mutual fund products to retail investors in other countries because of certain tax disadvantages associated with US mutual funds. Instead, US-based mutual fund sponsors create and domicile funds outside the United States, including in Ireland and Luxembourg, to sell to foreign investors. In December 2012, US-based mutual fund sponsors managed more than $1.7 trillion in UCITS.

By the same token, cross-border funds managed by non-US fund sponsors, such as those domiciled in Ireland and Luxembourg, are not sold to retail investors in the United States. Instead, non-US-owned fund sponsors (or their affiliates) create funds registered in the United States. As of June 2013, $1.6 trillion of US open-end mutual funds, representing 11.7 percent of open-end fund assets, was managed by European-owned investment sponsors or their affiliates.

FIGURE 9

Number of Worldwide Cross-Border Funds

Year-end, 2002–2012

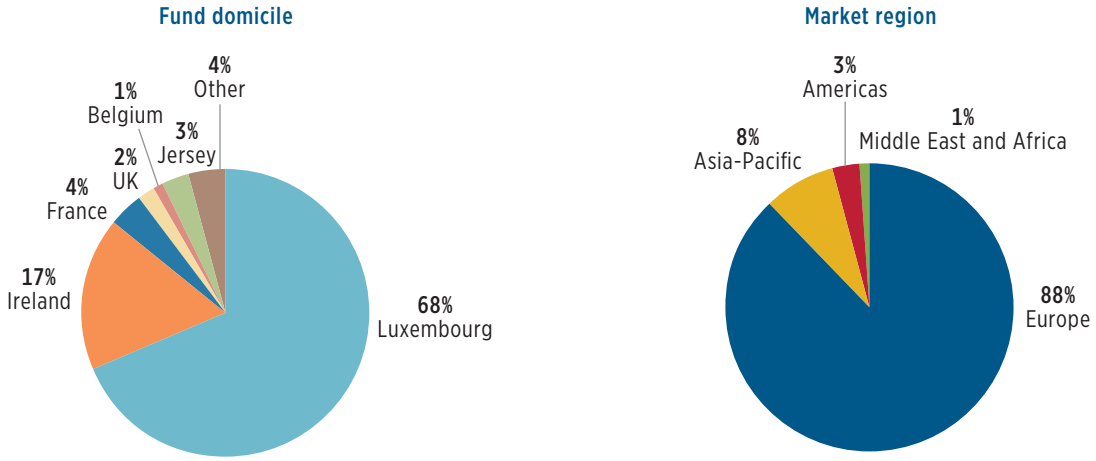


Sources: Lipper LMI and PwC

FIGURE 10

Share of Total Cross-Border Fund Registrations for Sale by Fund Domicile and Market Region

Percent, 2012



Total worldwide number of cross-border funds: 9,436

Note: Components may not add to 100 percent because of rounding.

Sources: Lipper LMI and PwC

Measuring Global Fund Assets and Net Sales

A key to understanding regional or cross-country differences in the success of mutual funds is the availability of data on fund assets, net sales, number of funds, and other aspects.

Compiling comparable mutual fund data across countries can be challenging.[10] Countries can differ in how they define funds or fund types. In addition, data providers in particular countries may from time to time redefine fund types. Also, markets create new types of mutual funds to meet investor needs. As new fund types are created, data providers or data compilers may create new category types in order to aid analyses.

Also, to ease comparisons, fund assets and net sales are typically converted to a common currency, such as the US dollar or the euro. This too creates challenges, as exchange rates can vary considerably from quarter to quarter, suggesting the need for judicious interpretation of quarter-to-quarter variation in mutual fund assets across countries.

This paper uses the best available data from national fund associations and, where appropriate, from third-party data providers. Each quarter, the Investment Company Institute (ICI) and the International Investment Fund Association (IIFA) release high-level data on the global mutual fund industry including on assets, net sales, and number of funds by country and region based on a fund's domicile. ICI compiles this data on behalf of the IIFA in cooperation with national fund associations around the world. The IIFA mutual fund data, compiled quarterly by ICI and other trade associations, cover broad fund categories, including equity, bond, money market, mixed, other, and funds-of-funds. The IIFA data provide a high-level time series beginning in the early 1990s that can be used to study broad patterns in the global fund industry.

Analysts often want finer definitions of mutual fund product spaces (for example, 'small-cap value equity funds' or 'alternative funds') or more frequent data on mutual fund assets and net sales around the globe (for example, monthly or weekly). To meet this demand, several third-party data providers report assets and estimated flows for mutual funds by detailed investment objective at a monthly and sometimes weekly frequency. These data can be helpful for understanding trends in mutual funds at levels not possible with the IIFA data (see, for example, Morningstar, 2013).[11]

Analysts and policymakers, however, should be cognizant of data limitations. One limitation is that third-party compilations of monthly global mutual fund assets typically cover less than 80 percent of global industry assets (relative to IIFA quarterly data). Third-party coverage can be even more limited for weekly data with coverage levels varying by country.[12] Also, these databases may not fully or even partially capture mutual fund assets outside Europe and the United States, nor adequately capture the increasing role of cross-border fund sales to non-European investors.

These kinds of characteristics can distort the value of estimated fund flows as an indicator for assessing balance of payments capital flows to emerging market economies.[13] As an example, consider the role of cross-border fund sales of UCITS in Chile. To obtain exposure to foreign stock and bond markets, Chile's pension funds often invest in cross-border funds domiciled in Europe. Suppose the Chilean pension fund purchases shares of a European-domiciled cross-border fund that invests in stocks and bonds of emerging market economies. An analyst looking only at estimated weekly or monthly fund flows would see that the European fund has experienced estimated inflows. Based on that fund's portfolio holdings when last reported (which might be up to three months ago because funds do not generally report their individual portfolio holdings more frequently than quarterly or in some cases monthly), the analyst might infer that the fund subsequently purchased additional holdings (because of the inflow from Chile) in emerging market stocks or bonds. If so, the analyst might incorrectly conclude that there has been a capital outflow from a developed region (Europe) to emerging market economies. In fact, however, balance of payments accounts, properly measured, would on net reflect a capital outflow from one emerging market economy to another, rather than from a developed to developing economy.

Major Factors Influencing the Growth of Global Assets of Long-Term Mutual Funds

A number of academic studies have examined the fundamental causes of growth in the global mutual fund industry across countries (see, for instance, Khorana, Servaes, and Tufano 2005; Fernando, Klapper, Sulla, and Vittas 2004; Ramos 2009). These studies typically find that a handful of factors can explain much of the variation in use of mutual funds across countries. These factors include the importance of strong regulation; demand-side factors such as a country's per capita income and the prevalence of DC pension plans; supply-side factors such as costs of, or time to establish, funds and distribution networks, and the size, liquidity, and trading costs of a country's stock and bond markets. According to Khorana, Servaes, and Tufano (2005), these factors can explain half of the variation across countries in their relative use of mutual funds (measured as mutual fund assets to GDP).

Households' Demands for Well-Diversified Products Offering Access to Capital Markets

At the most basic level, demand for mutual funds reflects a demand for professionally managed investment products that provide investors indirect access to capital markets.

By pooling the investments of many individuals, mutual funds can provide investors with diversified exposure to securities or strategies that individual investors might by themselves find either too costly or simply unattainable. For example, a typical retail investor might find it very difficult to hold and manage a portfolio of 500 stocks purchased directly on a stock market. Alternatively, a retail investor might find it too time consuming and complex to manage a portfolio with a mix of stocks and bonds, perhaps rebalancing the portfolio monthly or even weekly to adjust to changing market conditions. Also, retail investors might be unable to gain access to initial public offering (IPO) stocks except through mutual funds. Furthermore, investors may face legal or practical obstacles to making direct purchases of stocks and bonds in foreign countries. Mutual funds offer investors the ability to undertake these and other strategies at reasonable cost.

In part reflecting these kinds of considerations, US investors have over the last few decades shifted away from direct investments in stocks and bonds towards indirect investments through mutual funds. For example, from 1990 to 2012, US households reduced their direct holdings of equities by a cumulative $6.1 trillion and increased their holdings of long-term registered investment companies by $6.5 trillion (Figure 11).

In Europe, a substitution between direct investments in capital market instruments to indirect investments through mutual funds also has been noted. For example, the European Central Bank (ECB 2009) states that 'households have increasingly favoured the purchase of mutual fund shares in the last decade, at the expense of direct holdings.'

Strong and Appropriate Mutual Fund and Capital Market Regulation

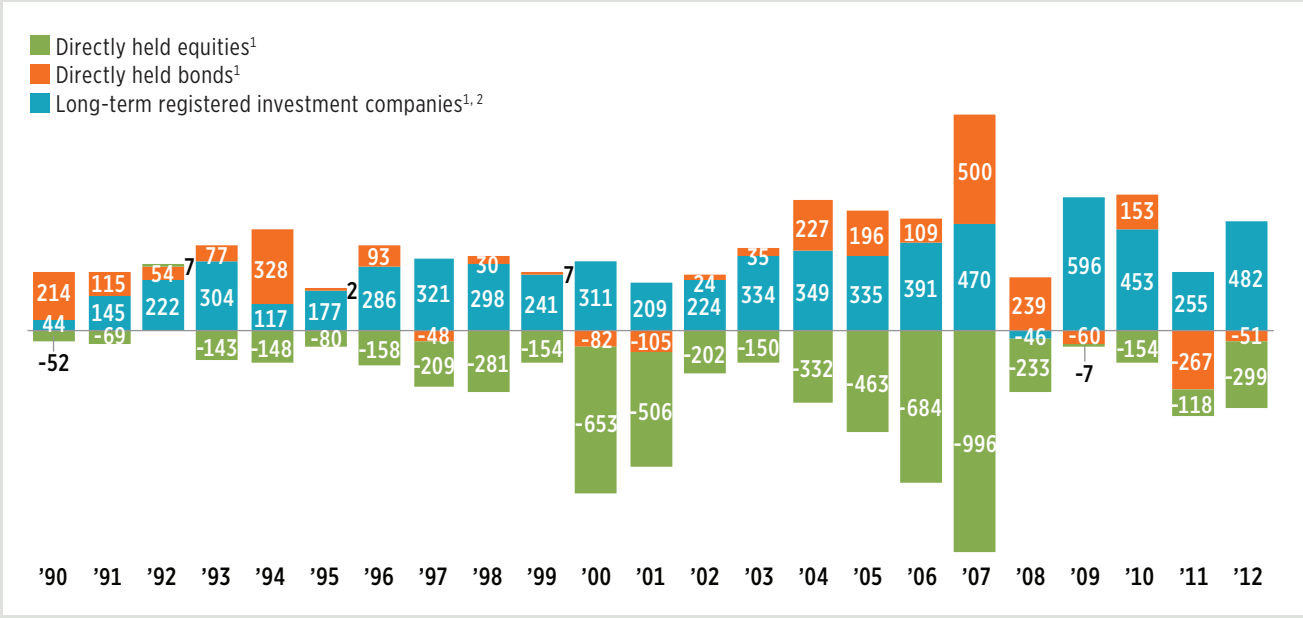
In any country, strong and appropriate regulation of capital markets is a prerequisite for building a mutual fund industry. Stock, bond, and other securities markets must have rules of the road to prevent fraud, promote transparency, foster market liquidity, and ensure well-functioning trading and clearing of securities.

At the mutual fund level, regulation is needed to protect investors, provide adequate disclosure to make informed decisions, and limit potential conflicts of interest between fund sponsors and fund investors. Some academic studies (for example, Khorana et al. 2005) have found that a strong regulatory structure for funds can 'have a positive impact on the size of the mutual fund industry, especially fund industry regulations addressing the process of

FIGURE 11

US Households' Net Investments in Funds, Bonds, and Equities

Billions of US dollars, 1990–2012



[1] Net new cash flow and reinvested dividends are included.

[2] Data for funds include mutual funds, variable annuities, ETFs, and closed-end funds.

Sources: Investment Company Institute and Federal Reserve Board

approving fund starts, mandating fee and performance disclosures, and handling conflicts of interest between the fund management company and fund shareholders. Countries that more vigilantly protect fund shareholders' interests have larger industries.'

A country-by-country analysis of mutual fund regulations around the world is beyond the scope of this paper. Generally speaking, though, mutual fund regulatory systems around the globe have a uniform goal of seeking to protect investors. Although the specifics of fund regulation differ by jurisdiction, regulatory schemes often have common elements such as broad disclosure, standards for valuing assets, investment or diversification standards, or other provisions that seek to protect investors, such as limits on leverage or limiting relationships between fund sponsors and funds.

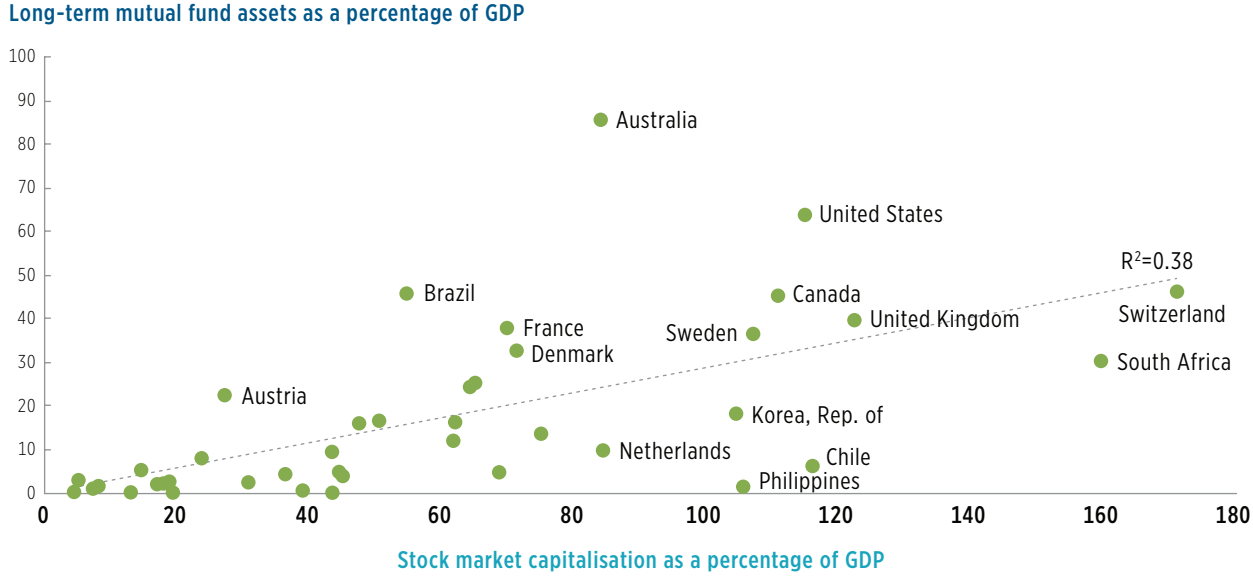
Availability of Deep and Liquid Capital Markets

Capital markets are a key foundation for the development of a mutual fund industry. Indeed, there is strong evidence that the relative size of a country's capital markets is correlated with the size of the mutual fund industry in that country. Figure 12 plots the ratio of long-term mutual fund assets to GDP in a given country against the relative size of that country's stock market (measured as total stock market capitalisation as a percentage of GDP). There is a strong, positive relationship between these two measures. Nevertheless, the relationship is not perfect, indicating that the existence of a large capital market is not the sole factor determining the relative importance of mutual funds to a given country. For example, Australia has a much higher ratio of long-term mutual fund assets to GDP than would be expected given the size of its stock market,

FIGURE 12

Countries with Larger Stock Market Capitalisation to GDP Ratios Have Larger Long-Term Mutual Fund Industry Total Net Assets to GDP Ratios

Percent, December 2012



Note: Total net asset data for Russia are as of 2011. Data are included for Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Costa Rica, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, India, Italy, Japan, Republic of Korea, Mexico, Netherlands, New Zealand, Norway, Pakistan, Philippines, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Trinidad and Tobago, Turkey, United Kingdom, and the United States.

Sources: International Investment Funds Association and World Bank

which—as discussed later—relates to the availability in Australia of mutual funds as an investment option for their DC pension system.

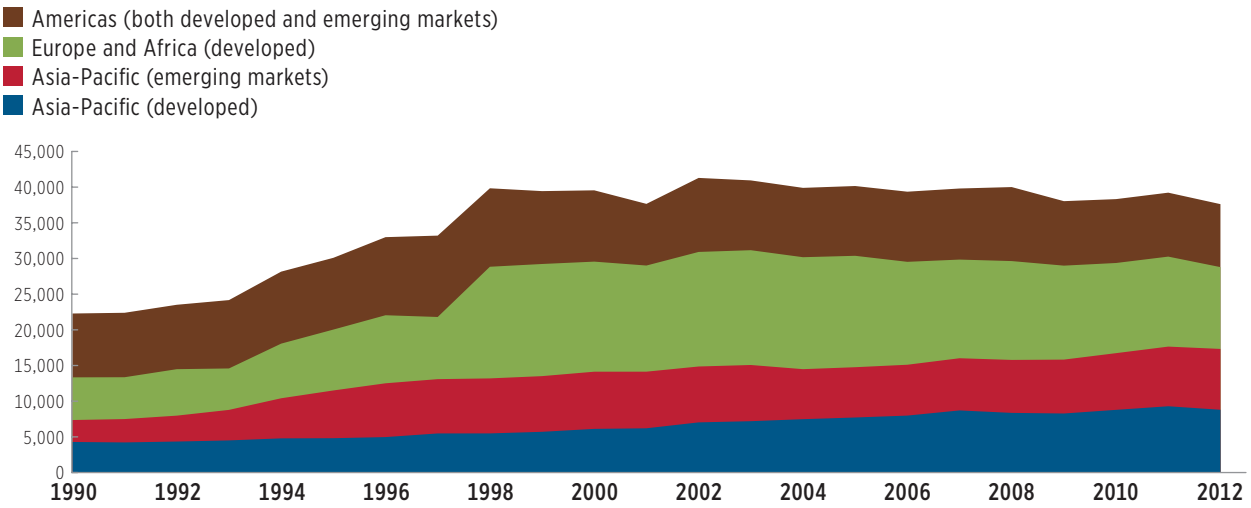
A prerequisite to growth of the mutual fund industry around the world is access to an adequate supply of tradeable stocks and bonds. Figure 13 displays the number of stocks listed on stock exchanges around the world. As of 2012 there were 40,000 stocks listed worldwide, up from about 23,000 in 1990. Much of this growth has stemmed from new listings in the Asia-Pacific region, especially in emerging market economies. Thus, there does seem to be a large, increasing supply of listed stocks across the world in which mutual funds can invest.

But a supply of stocks and bonds is not enough. Capital markets also need to be liquid in the sense that the supply of securities must *trade* with some regularity. In other words, investors do not simply buy the supply of securities and hold them forever. Liquid capital markets are important to mutual fund development for at least three reasons. First, liquid capital markets allow funds to buy and sell securities at a reasonable cost in terms of bid-ask spreads. Second, if capital markets are liquid, as a fund buys or sells securities, securities prices will not move too much, which could otherwise reduce a fund's return from investing in such securities. Third, liquidity in capital markets is important even if funds do not buy or sell securities on a given day. Generally speaking, a

FIGURE 13

Number of Listed Domestic Companies for Developed and Emerging Market Economies

Year-end, 1990–2012



Source: World Bank

mutual fund's share price—its net asset value or NAV—is determined at the end of the day by valuing each of the fund's portfolio holdings. Holdings are typically valued at the last price a security changed hands during the day or according to some measure of price quotes. If, however, many securities trade infrequently, which is essentially the definition of an illiquid market, determining a fund's NAV can be challenging.

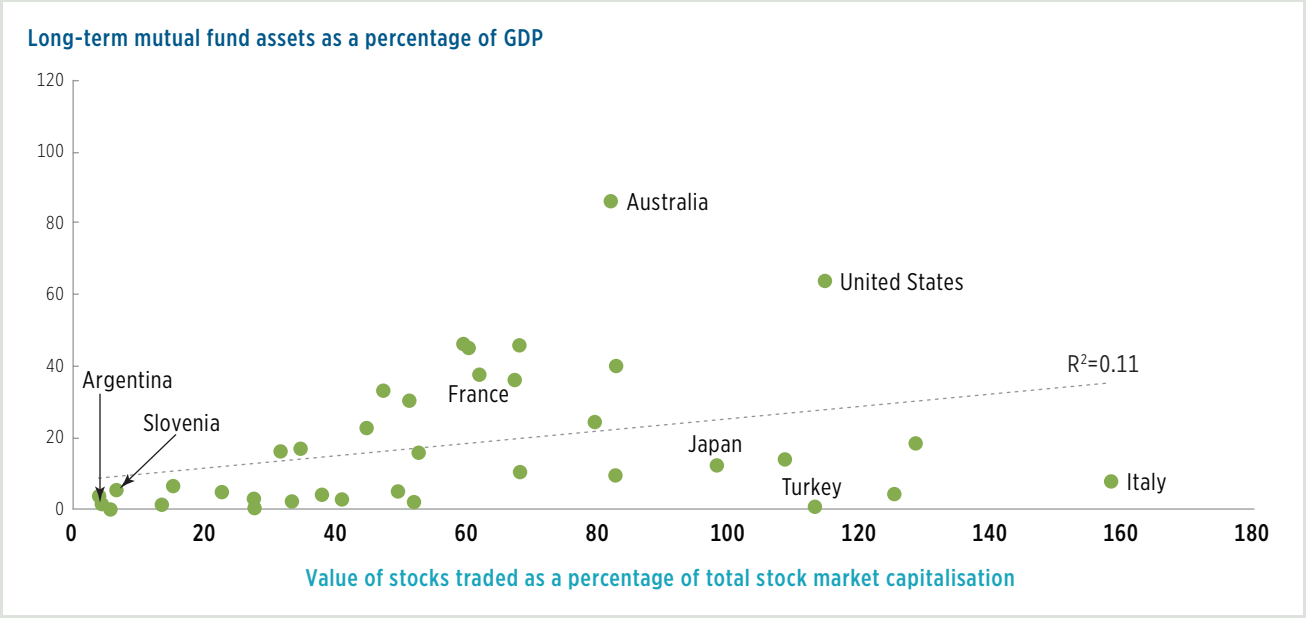
Academic studies (Khorana et al. 2005) find a correlation across countries between mutual fund use and stock market liquidity. For example, Figure 14 plots stock market liquidity, as measured by the value of stock trading volume relative to stock market capitalisation, against the ratio of a country's mutual fund assets to GDP for 38 different countries. Mutual funds have greater market presence in countries where stock markets are more liquid. For example, France, the United States, and Australia all have a high level of stock market liquidity and high mutual fund market presence. In contrast, a number of countries, such as Argentina and Slovenia, have both very low stock market liquidity and mutual fund market presence.

Here again, the relationship is not perfect.[14] For example, stock market liquidity is about as high in Japan as it is in Australia and the United States. But mutual funds are used to a much more limited extent in Japan, in part likely reflecting differences in how individuals in these countries

FIGURE 14

Stock Market Liquidity Is Positively Correlated with a Country's Long-Term Mutual Fund Presence

Percent, December 2012



Note: Data are included for Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, India, Italy, Japan, Republic of Korea, Mexico, Netherlands, New Zealand, Norway, Pakistan, Philippines, Poland, Portugal, Romania, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Turkey, United Kingdom, and the United States.

Sources: International Investment Funds Association and World Bank

tend to save. Japanese households have historically kept a much higher fraction of their wealth in currency and bank deposits, compared with Australia and the United States where households save significantly through mutual funds.[15] This simply indicates that a well-developed capital market is a prerequisite for, but not a guarantee of, a significant role for mutual funds in a country's financial markets.

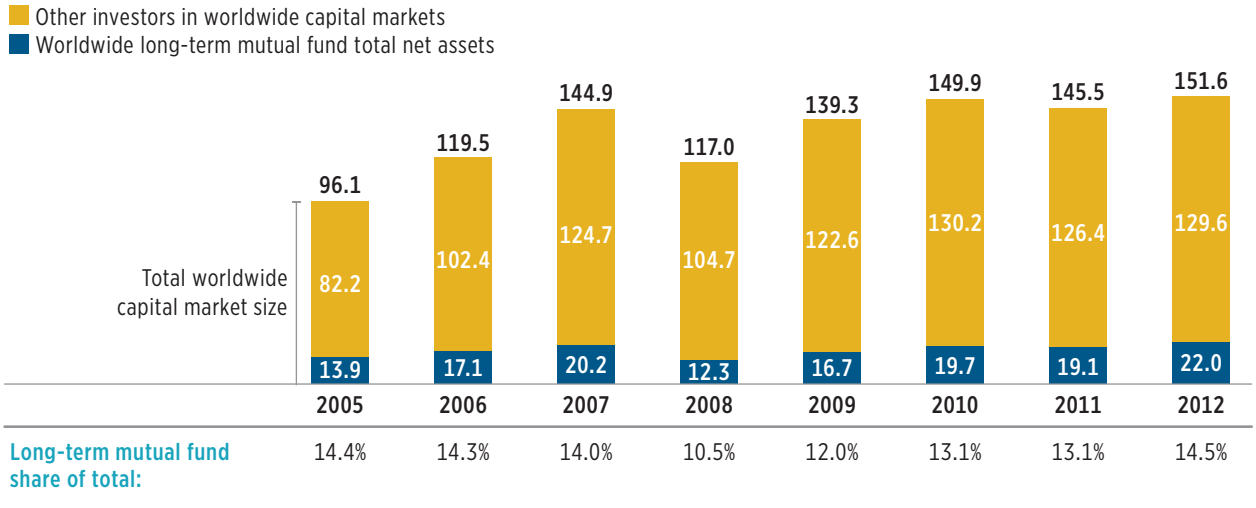
Capital markets are more likely to be liquid when there are a range of other participants mutual funds can transact with. At a global level, this is certainly the case. Figure 15 shows that capital markets around the globe comprise about $150 trillion, of which long-term mutual funds hold approximately $22 trillion worldwide, amounting to about 14.5 percent of worldwide stock and bond markets as of 2012. The remaining 85 percent of stock and bond market assets are held by retail investors directly or by institutional investors such as central banks, sovereign wealth funds, DB pension plans, banks, insurance companies, hedge funds, broker-dealers, or other investment pools such as bank trust accounts or ETFs.

Beyond liquidity of stock and bond markets, funds generally need the ability to transact in a range of financial derivatives such as futures, forwards, and interest rate swaps to manage their portfolios. Indeed, derivatives may be an absolute necessity for sponsors to create and manage certain types of funds. Creating and managing a fund whose target return is -2 times the return on the S&P 500 index requires active management of a pool of derivatives. Investors also may want exposure to commodities (for example as a hedge against inflation), which for most retail investors will be more cheaply obtained through a pooled investment product such as a mutual fund. Funds in turn can often achieve exposure to commodities inexpensively and effectively through derivatives because derivatives allow them to avoid the costs of holding and storing actual physical quantities of commodities, which can be quite costly. Finally, funds with an international focus must be able to access foreign capital markets, implying the need to manage foreign currency positions, which is often best achieved through derivative markets.

FIGURE 15

Long-Term Mutual Fund Share of Worldwide Stock and Bond Markets

Trillions of US dollars; year-end, 2005–2012



Sources: International Investment Funds Association and International Monetary Fund

Availability of a Large Common Market in Which Mutual Funds Can Be Bought and Sold

The United States and Europe together currently account for approximately 80 percent of the world's mutual fund assets. The success of mutual funds in both locales is due, in no small part, to the fact that both are large common markets. A large common market helps enable the purchase and sale of mutual fund shares across a large region and/or population, which through economies of scale can help reduce costs of investing in mutual funds.

The United States is a natural common market. Its political union, dating from the late 1700s, entails an essentially complete economic union.[16] In particular, mutual fund shares can be purchased or redeemed across state boundaries within the United States. Thus, while mutual funds tend to be established in a small number of states such as Delaware, Massachusetts, and Maryland, investors who buy into those funds may be located in any of the 50 US states or any US territory. Investors' ability to buy and sell mutual fund shares nationwide is predicated on a common currency, legal protections that limit the ability of states to restrict interstate commerce, and a mutual fund regulatory framework established at the federal level. All of these features help create a common market for mutual funds with a pool of more than 90 million investors and millions more potential investors.

In Europe, much of the success of open-end mutual funds can be attributed to the UCITS framework, which allows funds registered in one EU country to be eligible to be marketed across the European Union.[17] The UCITS framework has evolved to strengthen the marketability of UCITS across borders.[18] At the same time, the establishment of the eurozone has created a common currency area, which helps eliminate a major roadblock to buying and selling securities across national boundaries, namely that of foreign exchange risk and settlement. Thus, the UCITS structure, in conjunction with the establishment of the eurozone, has contributed to a common market for mutual funds within much of Europe.

The existence of a large common market does not guarantee the success of mutual funds within a given country. For example, India forms a large common market, but owing to other factors such as its degree of economic development, mutual funds have played a much more limited role than in the United States and Europe. In other areas, political or other factors may preclude the establishment of a large common market, such as in sub-Saharan Africa (excluding South Africa). In such cases, cross-border funds may be an alternative that achieves many of the same benefits as a common market.

Capital Market Returns

Returns on stocks and bonds can vary significantly from year to year, but in the long-term returns are generally favourable. For example, Figure 16 shows a measure of the global-average yield that retail depositors earned in developed countries on liquid bank deposits from 2002 to 2013. The figure also shows the return on global stock markets over the same period. Stock market returns varied considerably—for example, they fell sharply in 2008 but earned a 35 percent positive rate of return the following year. Despite widely variable returns, the average return on stocks (9.72 percent) exceeded the return on liquid bank deposits (0.67 percent) by a large margin. Mutual funds give investors the ability to share in these kinds of favourable returns through the vehicle of a diversified, professionally managed portfolio.

Returns on capital markets affect mutual fund asset growth in two ways. First, demand for mutual fund shares often follows market returns. For example, Figure 17 plots the global return on stocks from Figure 16 against net sales of equity fund shares annually from 2002 to 2013:Q3. The striking correlation between the two series indicates that net sales of equity funds to investors track stock market returns.

The second way that capital market returns influence fund asset growth is more mechanical: positive returns boost assets through growth in the value of a fund's underlying securities. Thus, when capital market returns are positive, fund assets will grow (unless investors redeem enough assets to offset those returns). Figure 18 breaks down the change in global assets of long-term mutual funds from 2003 to 2013:Q3 into components due to returns and net

FIGURE 16

Returns on Equities Worldwide Have Averaged More Than Returns on Liquid Bank Deposits

Percent; year-end, 2002–2013

	Yield on liquid bank deposits[1]	Return on equities[2]
2002	0.85	-18.98
2003	0.63	34.63
2004	0.73	15.75
2005	0.86	11.37
2006	1.07	21.53
2007	1.28	12.18
2008	0.83	-41.85
2009	0.41	35.41
2010	0.44	13.21
2011	0.40	-6.86
2012	0.27	16.80
2013	0.23	23.44
Average	**0.67**	**9.72**

[1] Weighted average yield on liquid bank deposits in Australia, Canada, eurozone, Japan, Republic of Korea, United Kingdom, and the United States; these countries or regions comprised equity mutual fund assets totaling 97.0 percent of worldwide equity fund assets in 2013.

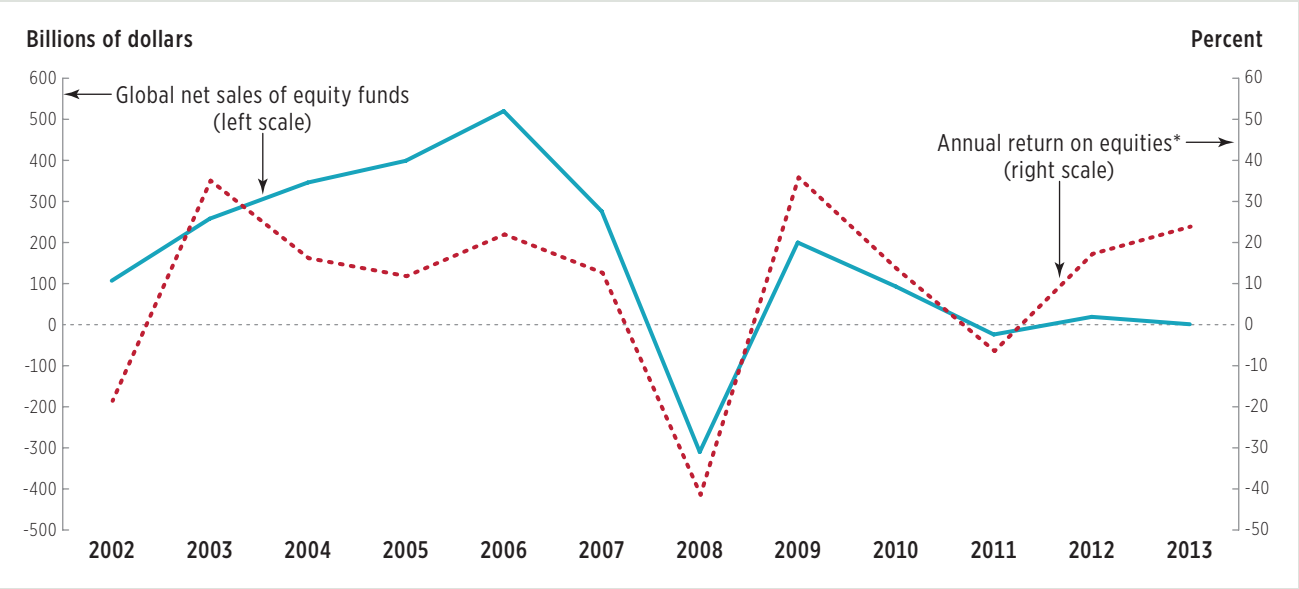
[2] December to December percent change in MSCI All Country World Daily Total Return Index.

Sources: Various central banks, Bloomberg, and Morgan Stanley Capital International

FIGURE 17

Worldwide Net Sales of Equity Funds Are Related to Equity Market Returns

2002–2013



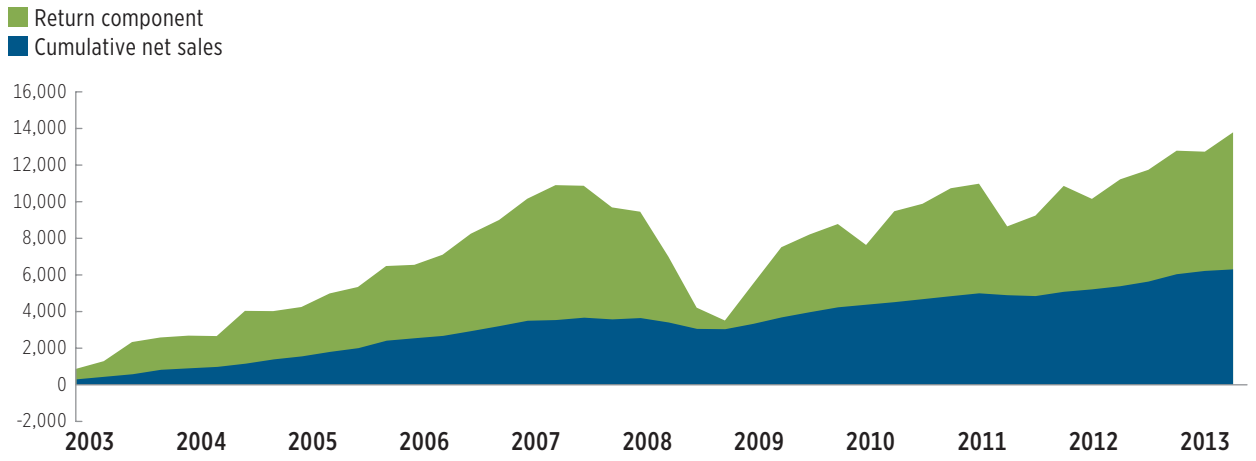
* December to December percent change in MSCI All Country World Daily Total Return Index.

Sources: International Investment Funds Association, Bloomberg, and Morgan Stanley Capital International

FIGURE 18

Cumulative Change in Worldwide Assets of Long-Term Mutual Funds

Billions of US dollars; quarter-end, 2003:Q1–2013:Q3



Note: Net sales is a calculation of total sales minus total redemptions plus net exchanges. Data include home-domiciled funds, except for the Republic of Korea and New Zealand, which include home- and foreign-domiciled funds. The data exclude Australia, Ireland, and Hong Kong SAR.

Source: International Investment Funds Association

sales. Over this period, global mutual fund assets rose almost $14 trillion. The decomposition shows that about half of this reflected net sales of long-term mutual funds. The other half reflected returns on the securities these funds hold. In addition, virtually all of the quarter-to-quarter variation in the cumulative total is due to capital market returns. These same features show up at the level of individual countries. For example, mutual fund assets in Brazil increased by $930 billion from 2002 to 2012 primarily because of high returns earned over that period on Brazilian fixed-income securities and equities.

A Country's Economic Development

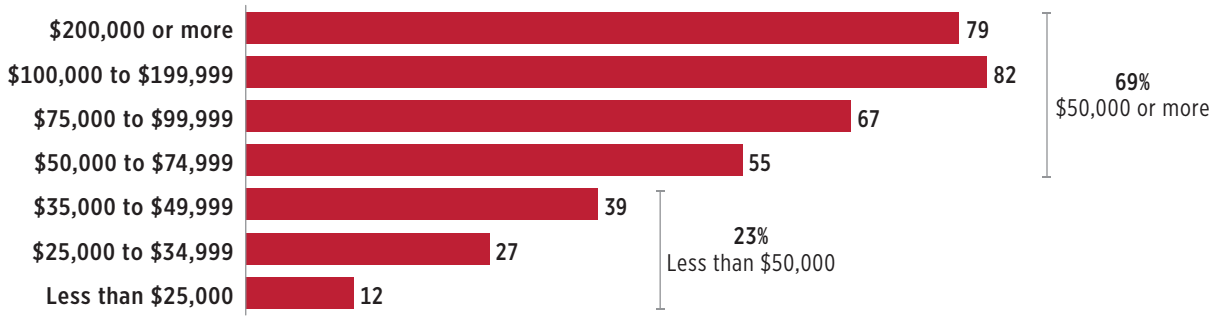
Economists describe a good as 'income elastic' or 'superior' when the demand for the good or service rises more than proportionally to a rise in income. Evidence indicates that investors view mutual funds as a superior good (Fernando, et al. 2003).

For example, Figure 19 shows the ownership rates of US mutual funds categorised by the level of household income in the United States. The figure shows that ownership of mutual funds increases substantially with household income.

FIGURE 19

Ownership of Mutual Funds Increases with Household Income

Percentage of US households within each income group, 2013[1, 2]



[1] Total reported is household income before taxes in 2012.

[2] For the complete time series of data from 1994 to 2013, see Figure A6 in the appendix of *ICI Research Perspective* 'Ownership of Mutual Funds, Shareholder Sentiment, and Use of the Internet, 2013.'

Sources: Investment Company Institute and US Census Bureau

The same kind of effect appears across countries. Figure 20 plots GDP per capita (a measure of average income in a given country) against the ratio of long-term mutual fund assets to GDP in the same country. The ratio of fund assets to GDP gauges the country's demand for mutual funds relative to the size of that country's economy. Long-term mutual funds have lower market presence in countries with low per capita income (for example, China). Assets in long-term mutual funds generally rise relative to the size of a country's economy as per capita income rises (for example, France, Switzerland, and Australia).

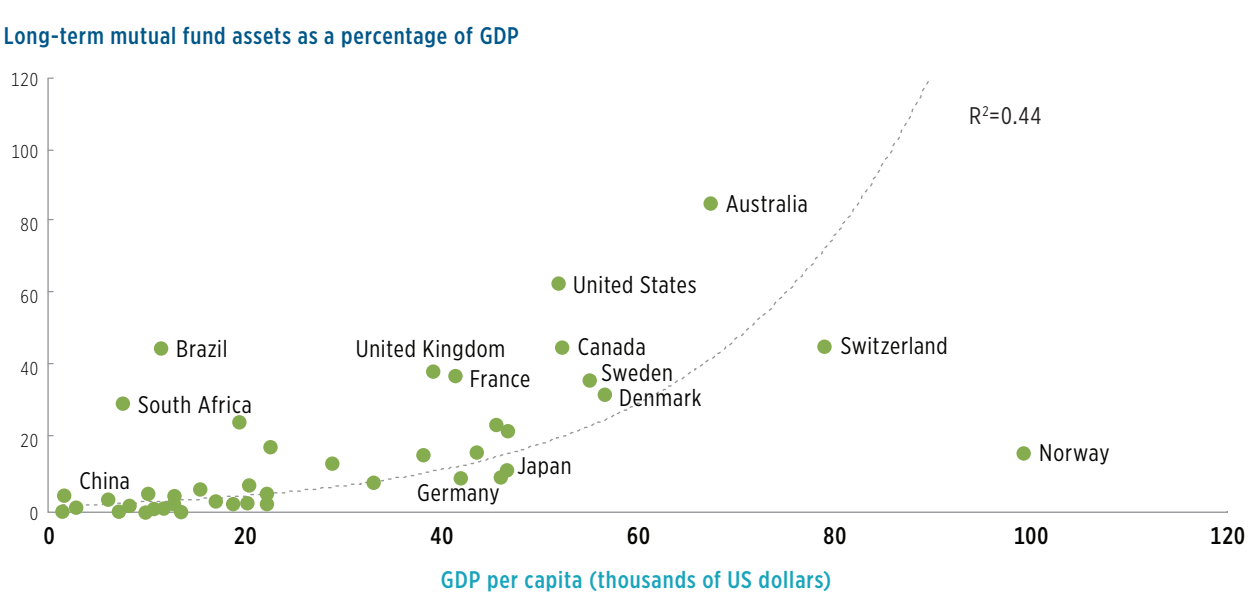
The figure also shows the line of 'best fit' between the two variables in the chart.[19] The relationship is strong, explaining nearly half of the cross-country variation in the relative demand for long-term mutual funds. A notable feature of the best-fit line is that it curls up as income per capita rises, indicating that long-term mutual fund assets take on a proportionally greater role in helping investors save as a country becomes more developed.

Particular countries appear as outliers, once again suggesting that no single factor accounts for the relative difference in use of mutual funds across countries. Norway, for instance, has very high per capita income yet uses mutual funds to a relatively low degree. This is most likely because Norway, as an oil exporting country, has accumulated a very large sovereign wealth fund to help finance public pensions for Norwegian retirees.[20]

FIGURE 20

Fund Use Increases with Per Capita Income

2012



Note: Total net asset data for Russia are as of 2011. Data are included for Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Costa Rica, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, India, Italy, Japan, Republic of Korea, Mexico, Netherlands, New Zealand, Norway, Pakistan, Philippines, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Taiwan, Trinidad and Tobago, Turkey, United Kingdom, and the United States.

Sources: International Investment Funds Association and International Monetary Fund

These features have important implications for developing countries. When countries are underdeveloped, mutual funds are likely to be a less significant feature of financial intermediation. As economies develop, however, it is likely that the *potential* demand for mutual funds will rise sharply. For mutual funds to play a significant role in the economy—especially in helping investors save for retirement—other conditions must be met, such as establishing vibrant and well-regulated stock and bond markets, creating a robust regulatory structure for mutual funds specifically, and providing for necessary infrastructure (e.g., telecommunications).

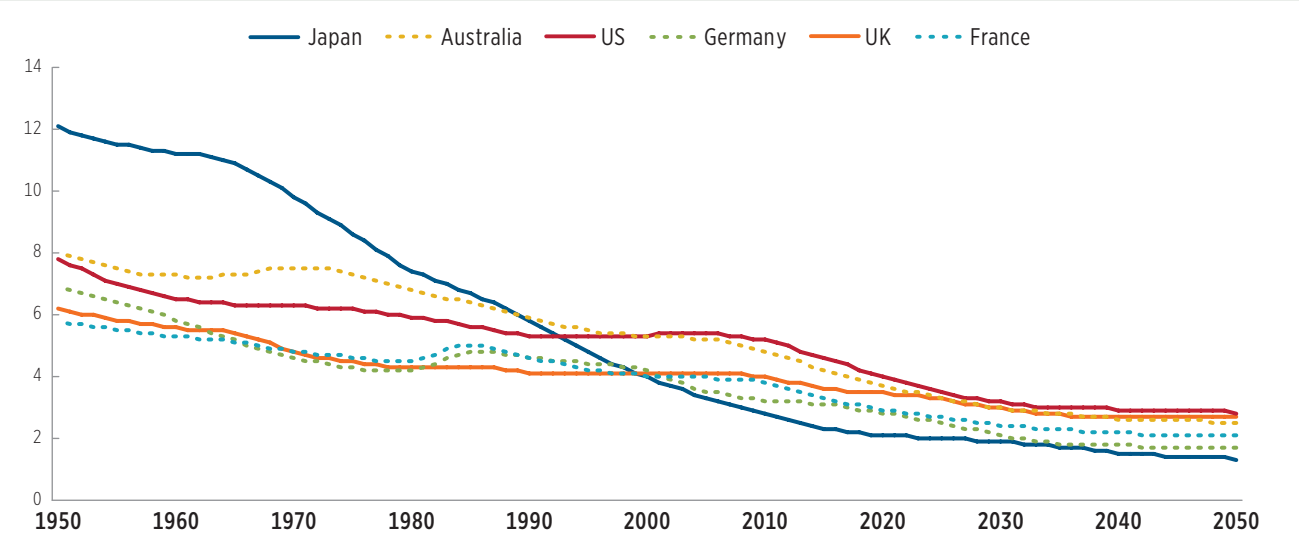
Demographics and Fiscal Position

Changing demographics have made government-provided pay-as-you-go (PAYGO) retirement schemes increasingly unsustainable. These schemes historically have been created during periods of rapid population growth and were premised on large numbers of workers supporting a smaller number of retirees. This assumption has become untenable in many developed countries. For example, Figure 21 shows the ratio of the population aged 15 to 64 to that aged 65 or older for developed countries. This ratio, known as the *support ratio*, is a measure of the number of working-age people relative to those of retirement age. As the figure shows, the ratio fell sharply in each of these countries from 1950 to 2010 and is expected to continue falling through 2050. By 2050, the support ratio in these countries is expected to average 2.2 workers per retiree compared with 7.8 workers per retiree in 1950.

FIGURE 21

Support Ratio for Developed Countries

Ratio, 1950–2050



Note: The support ratio is defined as the population aged 15 to 64 divided by the population aged 65 and older.
Source: UN World Population Prospects, 2008 Revision

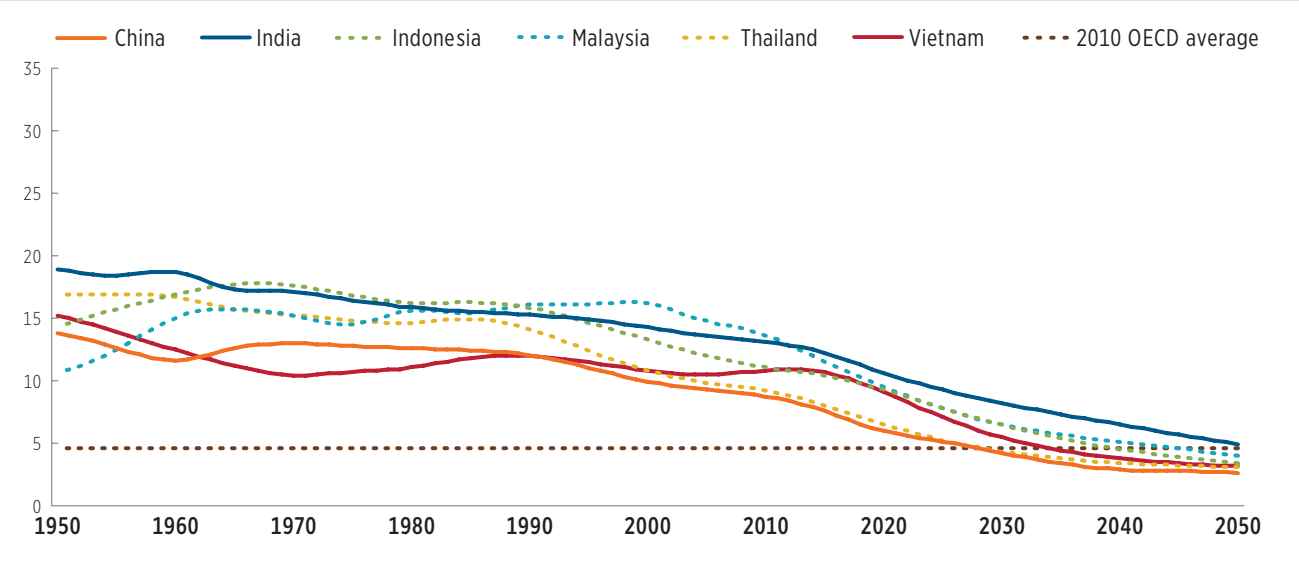
Figure 22 shows that the same trend holds for emerging economies in Asia, although generally it occurs much later because these countries currently have younger overall populations. For example, in China, the support ratio in 2010 was 8.7 workers to each retiree, but estimates indicate that the ratio will fall significantly in the future. Indeed, by 2030 the support ratio in China is expected to be below the *current* average (i.e., as of 2010) support ratio of 4.6 for countries in the Organisation for Economic Co-operation and Development (OECD). Although this is not as low as where OECD countries will be by 2050, it suggests that by at least 2050, China will be facing an issue similar to that of today's average OECD country.

Many developed countries, notably Japan, the United Kingdom, the United States, and countries in the European Union, have accumulated significant government debt relative to their GDP (Figure 23), partly because of long-standing fiscal imbalances, but also because of heavy expenditures related to financial crises arising in the banking sectors in those countries. For example, according to International Monetary Fund (IMF) estimates, the ratio of government debt to GDP is expected to rise to almost 150 percent in Japan by 2016, and to about 90 percent in the United States and United Kingdom. Developing economies in Asia stand in contrast.

FIGURE 22

Support Ratio for Developing Asia

Ratio, 1950–2050

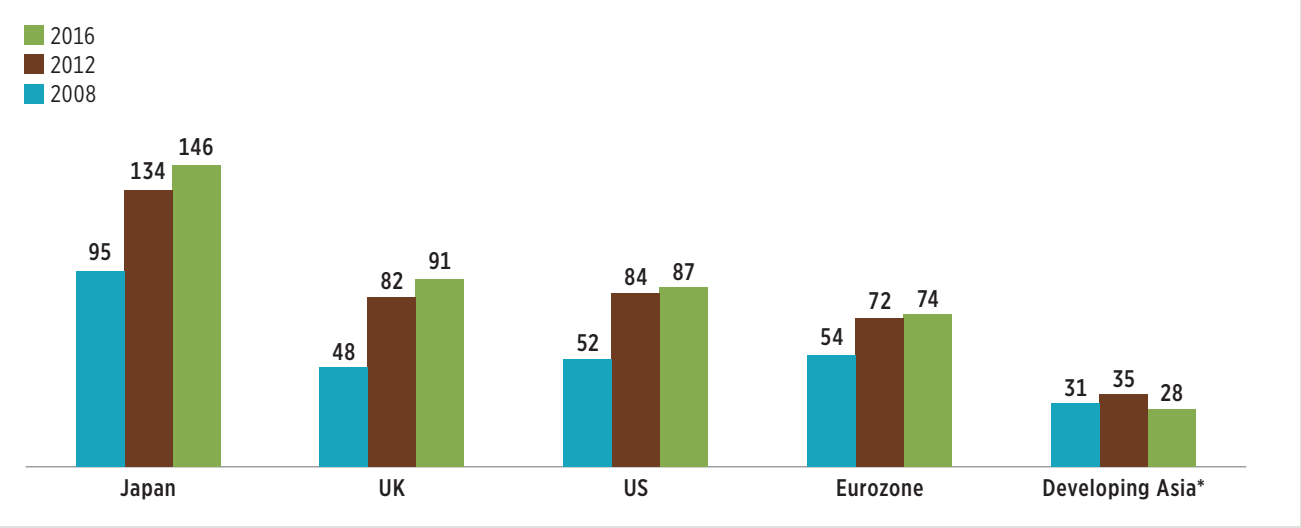


Note: The support ratio is defined as the population aged 15 to 64 divided by the population aged 65 and older.
Source: UN World Population Prospects, 2008 Revision

FIGURE 23

Fiscal Challenges (Net Government Debt as Percentage of GDP)

Percentage of GDP, 2008–2016



* For developing Asia, gross debt is used since the International Monetary Fund does not report net debt.
Source: International Monetary Fund Fiscal Monitor

In addition, in many developed countries, employer-sponsored DB pension plans have come under pressure. These plans have proven to be more expensive than many employers anticipated. Moreover, because of changes in market interest rates, the costs of funding these plans can vary substantially from year to year. For private-sector employers, fluctuations in the cost of funding DB plans have been large enough to have a noticeable effect on profits. The 2008 financial crisis exacerbated and brought these problems to the fore.

The confluence of changing demographics, fiscal imbalances, and funding pressures on employer-sponsored DB plans have led many countries to adopt or consider adopting DC plans, which, as discussed in the next subsection, often make considerable use of mutual funds.

The demographics and fiscal positions of emerging market economies, especially those in developing Asia, suggest that these concerns are perhaps currently less pressing, but are likely to become increasingly so as time passes. For example, some analysis suggests that public pension systems in much of developing Asia may be unsustainable because they are likely to require very large government contributions to meet future promises (ICI Global 2013). It is reasonable to expect that the same dynamic that has led to the increased prominence of DC plans in developed countries will increase their relative importance in the developing world.

Participant-Directed Retirement Plan Accounts

DC plan systems differ substantially in their design around the world. Some, such as in the United States and New Zealand, are voluntary systems where the level of contributions is chosen by employees and employers may match part of the employee's contribution. Others, such as in Australia and Chile, are government-mandated and prescribe a minimum level of contributions, but allow for additional contributions above these minimum levels. Some systems are tax-advantaged in that they may allow tax-deferred contributions, tax-deferral on returns, or tax-free withdrawals. Nevertheless, many DC plans around the world have common features, such as restrictions on pre-retirement withdrawals and the ability to invest contributions in mutual funds. Importantly, countries with DC systems that allow participants to choose investments, including investments in mutual funds, are more likely to have a robust mutual fund industry.

A large fraction of the assets of long-term mutual funds in the United States is attributable to the success of its DC plan system. Assets in DC plans—plus those in individual retirement accounts (IRAs) to which US investors sometimes roll over employer-sponsored plan accumulations (whether from DB or DC plans)—accounted for 48 percent of long-term mutual fund assets in 2012.[21] Contributions to US DC plans were bolstered in the 1990s and 2000s by demographics. Over those decades, a large fraction of the US population was in their 'high saving years,' those immediately preceding retirement age.[22] Fink (2008) details a series of reforms and tax changes that greatly enhanced the US DC system. At the end of 2012, long-term mutual funds managed $2.7 trillion, or 54 percent, of assets held in 401(k), 403(b), and other DC plans. By contrast, long-term mutual funds managed $2.2 trillion, or 40 percent, of assets held in IRAs at the end of 2012 (see Investment Company Institute 2014). Clearly, both DC plans and IRAs have contributed to US mutual fund asset growth over the past two decades.

Several other countries have introduced DC plan systems, including mandatory systems in Australia and Chile. In Australia, a mandatory plan system was instituted in the early 1990s with mandatory contribution rates rising from an initial 3 percent of income in 1992 to 9 percent in 2002. Australian fund assets grew from A$285 billion at the end of 1993 to A$1,821 billion at the end of December 2013.[23] Australia intends to gradually raise the mandatory contribution rate to 12 percent by 2020.[24] This could boost the financial market importance of mutual funds in Australia even further (recall, as noted earlier, that the ratio of mutual fund assets to GDP in Australia already appears to be well above average). On the other hand, this could be mitigated somewhat by demographic patterns, notably as more Australians reach retirement age they will likely begin to draw down their accumulated balances.

In Chile, assets in the mutual fund industry also have grown tremendously due to the introduction in the 1980s of a mandatory DC plan system. The increase in measured long-term mutual fund assets has not been quite as dramatic as in Australia, though, because Chile has a much higher number of cross-border funds selling to its domestic investors. In 2012, there were 1,277 cross-border funds registered for sale in Chile compared with just 62 funds in Australia, according to PricewaterhouseCoopers (PwC). Because of the openness of the Chilean market to cross-border funds, funds domiciled outside of Chile also have benefited from Chile's DC system (primarily UCITS sold out of Europe by US and European fund companies). This structure gives Chileans the ability to more easily diversify their portfolios into long-term mutual funds whose investment objectives lie primarily outside of Chile.

In light of these observations, it is hardly surprising that the existence of a participant-directed DC plan system in a given country helps explain the relative importance of mutual funds to the country's economy. Figure 24 plots the ratio of long-term mutual fund assets to GDP against the ratio of that country's DC plan assets to GDP for ten OECD countries that have DC plan systems. The ratio of DC plan assets to GDP by itself explains nearly 32 percent of the relative use of mutual funds across these countries.

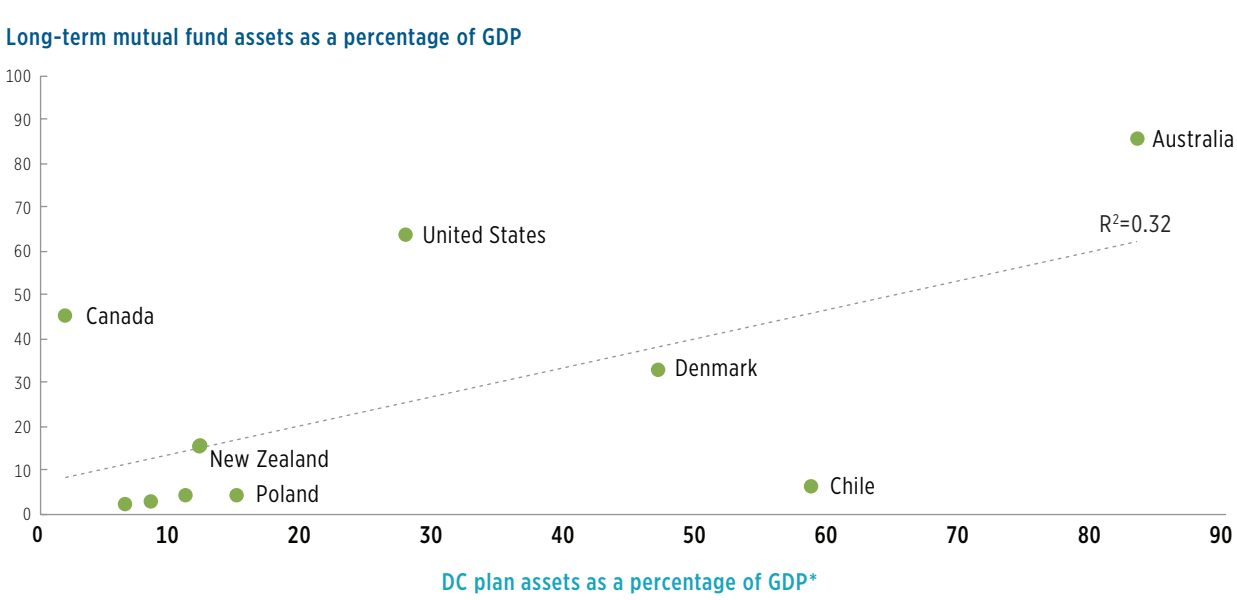
If the sample is broadened to 42 countries—which includes countries that have no DC plan assets—explanatory power falls somewhat (to 27 percent). In part, this may simply underscore that no single factor is sufficient to understand why the use of mutual funds varies across countries.

It also may reflect, though, the difficulty at times of assessing incipient demand for mutual funds in a given country. For example, Brazilians reportedly are becoming increasingly aware that they must save for the future because the government-run retirement system has drastically reduced the generosity of pensions in recent years. This kind of development is difficult to capture in a statistical analysis. Another example: retirement security in Japan is primarily met through a mandatory contributory DB pension funded through payroll taxes. Thus, DC plan assets in Japan are small relative to the size of the economy and, consequently, have little current effect on the overall mutual fund market. As Figure 25 shows, however, the number of DC plans in Japan has increased significantly since 2004, as has the number of plan participants, indicating the potential for growth in mutual fund assets invested through DC plans.

FIGURE 24

Assets in Long-Term Mutual Funds Are Related to Defined Contribution Plan Assets

Percent, 2012



* DC plan assets are a 2011 OECD estimate.

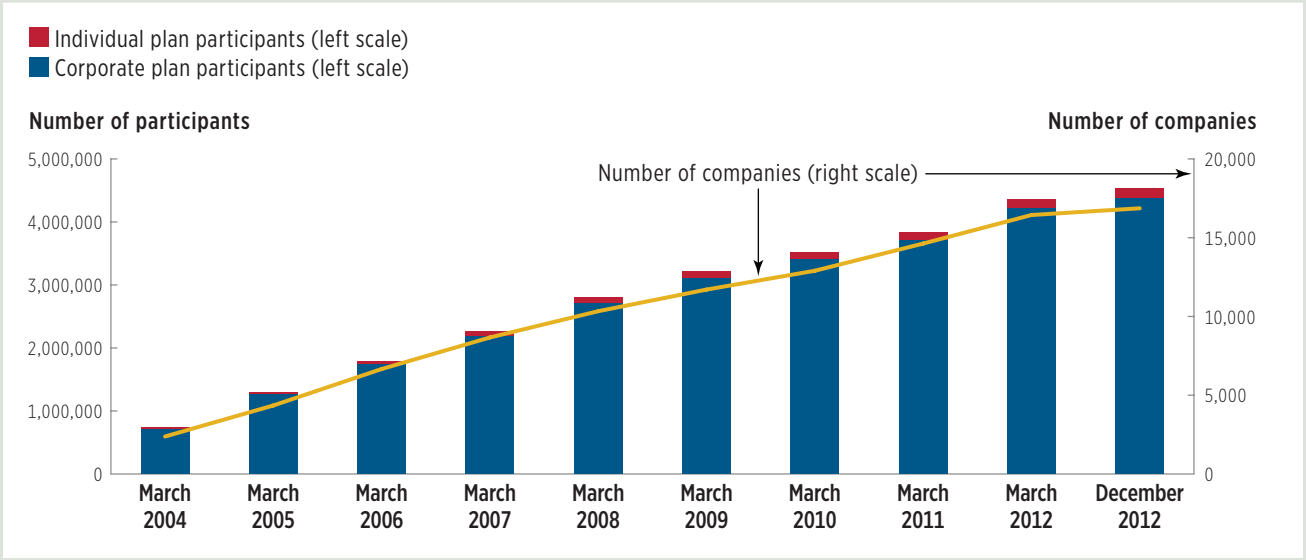
Note: Data are included for Australia, Canada, Chile, Czech Republic, Denmark, Mexico, New Zealand, Poland, Slovakia, and the United States.

Sources: International Investment Funds Association and OECD

FIGURE 25

Role of Defined Contribution Plans in the Japanese Retirement System

March 2004–December 2012



Sources: Japan Ministry of Health, Labour, and Welfare; Nomura Institute of Capital Markets Research

Growth Potential of the Fund Industry Outside of the United States and Europe

In many parts of the developing world, such as certain parts of Asia, assets of long-term mutual funds remain a relatively minor feature of the economy. Moreover, in sharp contrast with other regions in Asia such as Hong Kong SAR and Singapore where investors have access to a wide array of cross-border funds, investors in developing Asia (as well as investors in developing regions outside of Asia) do not always have access to cross-border funds sold from other jurisdictions.

Nevertheless, fund markets in developing countries have the potential to grow rapidly as their populations mature, their middle classes expand, and investors better understand and desire the benefits of domestic and international diversification. For example, as noted in the previous section, compared with developed countries, populations in Asia (excluding Japan) are relatively young but the proportion aged 65 or older is expected to rise gradually in the next 50 years. In addition, per capita income is expected to rise significantly in developing countries in the next few decades. The OECD projects that the global middle class will rise to 4.9 billion people in 2030 from 1.8 billion in 2009. Nominal GDP of countries outside the United States and Europe is forecast to exceed $50 trillion in the next five years with most of this growth occurring in emerging Asia. The people in this growing middle class will not necessarily be high net worth individuals; the OECD defines 'middle income' as those who earn between $10 and $100 per day (in 2010 dollars). Still, the rapid increase in the number of people in the 'middle income' bracket means that many more people could potentially be planning financially for retirement and other life events by 2050.

Thus, the potential for growth in mutual fund assets outside the United States and Europe remains considerable. The remainder of this section uses statistical techniques (regression analysis) to gauge this potential. The analysis illustrates just how large this potential could be by focusing on China.

To undertake this analysis, IIFA data were compiled on the assets of long-term mutual funds in 42 countries in 2012, as well as of estimated assets of locally domiciled funds in Hong Kong SAR and Singapore.[25] Earlier statistical studies (Khorana et al. 2005; Fernando et al. 2003) examined broad arrays of factors that might plausibly influence the size of a country's mutual fund industry. The analysis here instead focuses on a rather limited set of explanatory factors, including demand-side factors such as per capita income, DC pension plan assets, and the support ratio (as measured by working age population divided by those aged 65 or older); and supply-side factors, such as stock market capitalisation relative to income and stock market liquidity relative to market capitalisation and income.[26] This paper also explores whether government fiscal position (measured as by government debt relative to GDP), the relative size of the banking system (measured as the ratio of bank credit to GDP), and infrastructure (measured by the number of Internet users in a country) influence the size of the mutual fund industry.

Viewed in isolation, almost all of these factors individually help explain the ratio of long-term mutual fund assets to GDP across countries (Figure A4 on page 37). The size of the banking system, the ratio of DB assets to GDP, and Internet use are all positively associated with larger long-term mutual fund industries across countries. Also, countries with lower support ratios—workers per retiree—tend to have larger mutual fund industries. Gross government debt to GDP, however, is not statistically associated with the size of the long-term mutual fund industry across countries.

Four factors—per capita GDP, equity market capitalisation relative to GDP, equity market turnover relative to GDP, and the ratio of DC assets to GDP—dominate the statistical results individually and collectively. Individually, each of these four factors can explain anywhere from 8 to 38 percent of the cross-country variation in the ratio of long-term funds assets to GDP. When the statistical analysis examines several factors at a time, the approach is quite successful (Figure A5 on page 38). Together, GDP per capita, equity market turnover relative to GDP, and the ratio of DC assets to GDP explain more than half (56 percent) of the cross-sectional variation in the long-term mutual fund industry assets across countries. This analysis establishes a strong link between economic development (as measured by per capita income) and a country's relative use of mutual funds (as measured by the ratio of long-term mutual fund assets to GDP), but also shows that there are other important factors. The estimated effect of the ratio of DC assets to GDP suggests that countries with long-established DC pension systems will likely have larger long-term mutual fund industries.[27]

Two variables deserve special mention: the ratio of DB plan assets to GDP and the ratio of bank credit to GDP ('bank credit' is a measure of banks' assets). Individually (in Figure A4), these variables are positively correlated with a country's use of mutual funds (measured as the ratio of long-term fund assets to GDP). This suggests that assets in long-term mutual funds, banks, and DB plans all tend to grow as an economy develops. But there is no evidence that the assets of mutual funds grow at the expense of bank or DB plan assets: the statistical analysis (Figure A5) indicates that there is no statistical relationship between the assets in long-term mutual funds, banks, and DB plans beyond that captured by the growth of a country's per capita income.

China's mutual fund industry is currently small in relation to its GDP but the statistical analysis indicates that could change over the next several decades. Market analysts project that GDP per capita could reach $40,000 in China by 2050 (Keohane 2011). If that occurs, ICI Global's statistical analysis suggests that China's long-term mutual fund assets could reach $11.8 trillion (or 21 percent of GDP). This assumes that China has no DC plan system allowing participants to invest in mutual funds. If, to the contrary, China develops a DC pension plan system that allows contributions to be invested in mutual funds, its mutual fund asset could be even larger by 2050, perhaps $15 trillion.

The potential for rapid growth in mutual fund assets is not limited to China. Rising per capita income in emerging market countries around the world could significantly increase the demand for long-term mutual funds and foster industry growth in many other regions. This growth potential is a natural consequence of economic and financial development, in particular the growing wealth, GDP, and income per capita in many emerging economies.

Underlying the statistical analysis in this paper is the assumption that retail investors naturally shift towards indirect investment through mutual funds as countries develop. These developmental differences are evident when comparing Hong Kong SAR and China. In Hong Kong, the fund market is well developed with significant cross-border fund sales and with locally domiciled industry assets estimated at nearly $80 billion (or 30 percent of GDP), almost exactly what this paper's statistical analysis would predict.[28] By contrast, based on the high measured liquidity of China's stock market, this paper's statistical analysis suggests that China's long-term mutual fund assets should be 11.5 percent of GDP compared with the actual level of 4.2 percent ($346 billion). If, however, we only use per capita income to explain the ratio of long-term mutual fund assets to GDP in China, the predicted ratio is 4.9, which is very close to the actual figure. These differences show that China's potential is not only about future economic growth, but also about successfully encouraging Chinese investors to take advantage of the benefits of accessing capital markets through the diversification available from mutual funds. As international experience shows, such a transition may take decades: higher per capita income by itself does not guarantee a larger mutual fund industry.

Conclusion

Many factors are associated with the growth and globalisation of the long-term mutual fund industry. First, a prerequisite for fund industry growth is strong, appropriate regulation, especially investor protection. Second, the 'market presence' of long-term mutual funds (the ratio of long-term mutual fund assets to GDP) is higher in countries with higher per capita GDP and more liquid capital markets. Third, the favourable returns on capital market instruments naturally boosts the value of mutual fund shares and attracts new investors to mutual funds. Fourth, the development in a given country of a DC plan system that offers investors the choice of directing contributions to mutual funds can help that country's long-term fund assets grow.

FIGURE A1

Total Net Assets by Type of Fund, 2013:Q3

Billions of US dollars, end of quarter[1]

	Total	Equity[2]	Bond[2]	Balanced/ Mixed[2]	Money market[2]	Other funds[2]
World	**$28,873**	**$12,392**	**$7,103**	**$3,498**	**$4,692**	**$1,188**
Americas	**16,459**	**7,527**	**4,115**	**1,846**	**2,838**	**132**
Argentina	11	0	5	2	4	0
Brazil	1,072	96	589	232	51	103
Canada	912	293	129	435	27	28
Chile	36	2	11	3	18	1
Costa Rica	2	0	0	0	2	0
Mexico	118	9	40	13	56	0
United States	14,306	7,126	3,340	1,160	2,681	0
Europe	**8,945**	**3,240**	**2,614**	**1,441**	**1,262**	**389**
Austria	90	16	60	13	0	1
Belgium	88	46	15	24	4	0
Bulgaria	0	0	0	0	0	0
Czech Republic	5	1	3	1	0	0
Denmark	113	43	63	7	0	0
Finland	83	32	24	9	16	2
France	1,491	406	273	352	443	17
Germany	363	181	79	79	5	20
Greece	6	2	1	1	1	1
Hungary	11	1	4	0	7	0
Ireland	1,387	441	487	62	363	33
Italy	205	25	86	80	14	0
Liechtenstein	36	6	10	5	7	7
Luxembourg[3]	2,872	905	1,001	469	322	175
Malta	2	0	0	0	0	1
Netherlands	78	36	22	14	0	6
Norway	106	54	33	4	13	1
Poland	26	7	7	2	6	4
Portugal	9	1	2	1	1	3
Romania	3	0	2	0	0	2
Slovakia	3	0	2	1	0	0
Slovenia	2	2	0	1	0	0
Spain	226	63	101	50	11	0
Sweden	235	159	13	45	16	2

Continued on the next page

FIGURE A1 CONTINUED

Total Net Assets by Type of Fund, 2013:Q3

Billions of US dollars, end of quarter[1]

	Total	Equity[2]	Bond[2]	Balanced/ Mixed[2]	Money market[2]	Other funds[2]
Switzerland	$389	$133	$120	$115	$20	$0
Turkey	15	1	6	2	6	0
United Kingdom	1,101	679	199	102	7	114
Asia and Pacific	**3,327**	**1,592**	**370**	**147**	**565**	**653**
Australia	1,647	661	81	0	344	560
China	420	184	53	94	80	9
India	94	22	46	2	20	4
Japan	782	635	127	0	19	0
Korea, Rep. of	282	64	48	30	69	71
New Zealand	33	5	3	18	4	2
Pakistan	3	1	0	0	2	0
Philippines	5	2	3	1	0	0
Taiwan	61	18	9	1	27	6
Africa	**142**	**33**	**4**	**64**	**27**	**15**
South Africa	142	33	4	64	27	15

[1] Foreign exchange rates are used to convert local currencies to US dollars.

[2] See Tables D.1–D.4 in 'International Data Exchange Worldwide Assets, Flows, and Number of Investment Funds 2013: Q3' for definitions.

[3] Total net assets data for 'Other funds' includes UCITS and non-UCITS.

Note: Funds are home-domiciled funds except for New Zealand, which include home- and foreign-domiciled funds. Components may not add to the total because of rounding or missing components. An entry shown as zero indicates an amount that is less than $500 million.

Source: International Investment Funds Association

FIGURE A2

Total Net Assets by Type of Fund, 2013:Q3

Percentage of mutual fund assets, end of quarter[1]

	Total *Billions of US dollars*	Equity[2]	Bond[2]	Balanced/ Mixed[2]	Money market[2]	Other funds[2]
World	**$28,873**	**43%**	**25%**	**12%**	**16%**	**4%**
Americas	**16,459**	**46**	**25**	**11**	**17**	**1**
Argentina	11	3	46	18	33	0
Brazil	1,072	9	55	22	5	10
Canada	912	32	14	48	3	3
Chile	36	7	31	9	49	3
Costa Rica	2	1	8	0	91	0
Mexico	118	8	34	11	47	0
United States	14,306	50	23	8	19	0
Europe	**8,945**	**36**	**29**	**16**	**14**	**4**
Austria	90	18	66	15	0	1
Belgium	88	52	17	27	4	0
Bulgaria	0	24	14	19	43	0
Czech Republic	5	17	55	25	2	0
Denmark	113	38	56	6	0	0
Finland	83	38	29	11	19	2
France	1,491	27	18	24	30	1
Germany	363	50	22	22	1	5
Greece	6	29	24	23	15	9
Hungary	11	6	32	1	61	0
Ireland	1,387	32	35	4	26	2
Italy	205	12	42	39	7	0
Liechtenstein	36	17	29	15	19	21
Luxembourg[3]	2,872	31	35	16	11	6
Malta	2	11	20	8	0	61
Netherlands	78	46	28	18	0	8
Norway	106	52	32	4	12	0
Poland	26	27	26	10	23	15
Portugal	9	15	28	11	15	31
Romania	3	2	47	2	0	48
Slovakia	3	11	57	24	4	5
Slovenia	2	64	5	29	1	1
Spain	226	28	45	22	5	0
Sweden	235	67	6	19	7	1

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FIGURE A2 CONTINUED

Total Net Assets by Type of Fund, 2013:Q3

Percentage of mutual fund assets, end of quarter[1]

	Total *Billions of US dollars*	Equity[2]	Bond[2]	Balanced/ Mixed[2]	Money market[2]	Other funds[2]
Switzerland	$389	34%	31%	30%	5%	0%
Turkey	15	4	40	12	43	2
United Kingdom	1,101	62	18	9	1	10
Asia and Pacific	**3,327**	**48**	**11**	**4**	**17**	**20**
Australia	1,647	40	5	0	21	34
China	420	44	13	22	19	2
India	94	24	48	3	21	5
Japan	782	81	16	0	2	0
Korea, Rep. of	282	23	17	11	24	25
New Zealand	33	15	10	55	13	6
Pakistan	3	25	0	4	69	2
Philippines	5	31	52	16	1	0
Taiwan	61	29	15	2	44	10
Africa	**142**	**23**	**3**	**45**	**19**	**10**
South Africa	142	23	3	45	19	10

[1] Foreign exchange rates are used to convert local currencies to US dollars.

[2] See Tables D.1–D.4 in 'International Data Exchange Worldwide Assets, Flows, and Number of Investment Funds 2013: Q3' for definitions.

[3] Total net assets data for 'Other funds' includes UCITS and non-UCITS.

Note: Funds are home-domiciled funds except for New Zealand, which include home- and foreign-domiciled funds. Components may not add to 100 percent because of rounding or missing components.

Source: International Investment Funds Association

FIGURE A3

Cross-Border Fund Registrations for Sale by Region and Country

2012

Market region	Cross-border fund registrations	2012 growth
Europe	63,286	9.8%
Asia-Pacific	5,905	5.2
Americas	2,165	22.0
Middle East and Africa	908	1.8
Total world	72,264	9.6
Top markets		
European		
Germany	7,002	15.9
Switzerland	5,521	9.6
Austria	5,210	7.8
United Kingdom	5,006	15.2
Netherlands	4,918	18.5
France	4,345	13.4
Spain	4,217	3.3
Italy	4,110	9.4
Sweden	3,331	8.9
Finland	2,761	8.0
Belgium	2,417	-1.1
Non-European		
Singapore	2,409	13.4
Chile	1,277	19.2
Hong Kong SAR	1,214	-2.1
Macau	935	-2.1
Taiwan	864	1.1
Peru	753	32.6
Korea, Rep. of	328	17.1
South Africa	204	-8.5
Japan	91	2.2
Australia	62	-6.1

Sources: Lipper LMI and PwC

FIGURE A4

Cross-Country Regression Results

Univariate regressions attempt to explain the size of long-term mutual fund assets as a percentage of GDP at the end of 2012.

Dependent variable: Long-term mutual fund assets/GDP	Coefficient	P-value	R^2	Correlation with per capita GDP
Independent variable				
Per capita GDP	0.534	0.0041	0.378	1.00
Equity market capitalisation (% of GDP)	0.286	0.0000	0.381	0.33
Equity market turnover ratio (% of market cap)	0.124	0.0932	0.078	0.16
Equity market turnover ratio (% of GDP)	0.332	0.0002	0.378	0.35
Defined contribution assets (% of GDP)	0.569	0.0201	0.267	0.22
Defined benefit assets (% of GDP)	0.230	0.0242	0.160	0.36
Bank credit (% of GDP)	0.128	0.0153	0.205	0.46
Internet users (# per 100 residents)	0.414	0.0004	0.206	0.78
Support ratio (15–64 pop/65+ pop)	-1.514	0.0292	0.051	-0.61
Gross government debt (% of GDP)	0.013	0.8299	0.001	0.11

Note: Forty-two countries are included in the analysis. Luxembourg, Ireland, Hong Kong SAR, and Singapore are excluded from the analysis.

FIGURE A5

Explaining the Size of the Long-Term Mutual Fund Assets Relative to GDP

This table reports multivariate OLS regressions explaining the size of the long-term mutual fund assets as a fraction of a country's GDP at the end of 2012.

Regression	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.950	-2.149	-1.876	-16.364	-2.141	-9.828
Per capita GDP	0.386***	0.367***	0.309***	0.369**	0.377***	Exclude
Equity market capitalisation (% of GDP)		0.074**				
Equity market turnover ratio (% of market cap)				0.168**	-0.038	0.041
Equity market turnover ratio (% of GDP)	0.065**		0.054*		0.056*	0.068*
Defined contribution assets (% of GDP)	0.436***	0.419***	0.456***	0.376***	0.438***	0.478***
Defined benefit assets (% of GDP)			0.088			
Bank credit (% of GDP)			0.018			
Internet users (# per 100 residents)				0.041		0.263**
Support ratio (15-64 pop/65+ pop)				0.717		
Gross government debt (% of GDP)				0.038		
R^2	0.559	0.564	0.585	0.626	0.563	0.475
Adjusted R^2	0.526	0.531	0.528	0.552	0.518	0.420
Number of countries	44	44	43	37	44	43

* Denotes statistical significance at 10 percent level.

** Denotes statistical significance at 5 percent level.

*** Denotes statistical significance at 1 percent level.

Note: Regressions 5 and 6 are stepwise regressions and 6 excludes per capita GDP from search. Countries in the analysis include Hong Kong SAR and Singapore. Luxembourg and Ireland are excluded from the analysis.

Notes

[1] On behalf of the International Investment Funds Association (IIFA), ICI collects mutual fund data from national trade associations to arrive at an estimate of worldwide mutual fund assets. Whenever possible, home-domiciled (or 'locally domiciled') fund asset totals are shown in Figure 1. Some jurisdictions may include ETFs or funds of funds. Please see www.iifa.ca/ for more information on IIFA and www.ici.org/research/stats/worldwide/ for recent IIFA worldwide mutual fund data releases.

[2] Except when noted, this paper excludes money market funds from the analysis because the focus is primarily on the long-term behavior of individual investors. Money market funds tend to be used far more by institutional investors, such as hedge funds, corporations, and governments to manage short-term liquidity. To avoid double counting, funds of funds are also generally excluded. (Funds of funds invest in other, underlying mutual funds and exchange-traded funds [ETFs]). To keep the paper manageable, ETFs generally are excluded as well, despite retail investors' increasing use of ETFs for long-term investing and the expanding global market for ETFs. Future issues of *ICI Global Research Perspectives* will discuss the ETF market. ETFGI reports global ETF assets of $2.25 trillion as of December 2013, see www.etfgi.com.

[3] See from page 34 of 2009 EFAMA's Asset Management Report. Available at www.efama.org/Publications/Statistics/Asset%20Management%20Report/Asset%20Management%20Report%202009.pdf.

[4] In Europe, the demand for bond funds also may have been boosted by changes in capital standards for insurance companies, which sometimes use mutual funds as an investment vehicle. The Solvency II Directive 2009/138/EC revised capital standards for insurance companies domiciled in the European Union. Under this directive, holdings in sovereign debts or certain corporate bonds receive a reduced capital assessment. Because of this, insurance companies, which sometimes invest in European mutual funds, have reportedly shifted some of their mutual fund holdings to bond mutual funds. See Cerulli (2013b).

[5] ICI does not receive data on the total number of funds in Australia. Thus, the total number of funds outside Europe and the United States is understated.

[6] See the *Financial Times* paper on Chile's active fund market, available at www.ft.com/intl/cms/s/0/d102df60-207d-11e3-b8c6-00144feab7de.html#axzz2uMrDIt00.

[7] As noted in Figure 6, the Republic of Korea includes both home- and foreign-domiciled funds in its total number of funds so this overstates the number of locally domiciled funds. According to cross-border fund registration data compiled by PwC, there were 328 cross-border funds registered for sale in the Republic of Korea in 2012.

[8] This paper defines a 'cross-border' fund as one that is domiciled in one country but sold into one or more other countries. This definition is indicative of how funds are structured and sold in certain markets and not necessarily of the demand in a given country for investments outside that country. For example, cross-border funds are not a part of the US retail fund landscape. Nevertheless, US-based residents purchase mutual funds domiciled in the United States that invest primarily in the bonds or equities of other countries.

[9] UCITS, or *undertakings for collective investment in transferrable securities*, are collective investment schemes established and authorized under a harmonized EU legal framework, currently EU Directive 2009/65/EC, as amended (UCITS IV), under which a UCITS established and authorized in one member state can be sold cross border into other member states without a requirement for an additional full registration. Since it was first adopted in 1985, the UCITS Directive has been modified several times to take into account developments in financial markets.

[10] The number of countries represented in the IIFA data collection effort has varied over time with countries being added or dropped. The current press release for the data states that 'the collection for the third quarter of 2013 contains statistics from 44 countries.' (See www.ici.org/research/stats/worldwide/.) Generally, the number of countries covered has increased, leading to asset contributions from smaller jurisdictions, and the type of assets included in some countries has increased or changed. For example, Australia had a large jump in assets in 1998 when asset coverage was broadened to include most superannuation fund assets.

[11] See, for example, Morningstar (2013).

[12] For example, as of December 2013, global assets in mutual funds and ETFs totaled $32 trillion according to IIFA and ICI data. The weekly sample of one third-party data provider, EPFR, covers less than 45 percent of the $32 trillion global asset total. See www.epfr.com/fundflows.aspx.

[13] See Maio and Pant (2012) for a discussion on using estimated mutual fund flows as an indicator of market sentiment towards emerging market countries.

[14] The relationship is considerably stronger when both variables are measured in natural logarithms, suggesting that scaling is important. To maintain simplicity and consistency with other figures in the paper, Figure 14 is presented without variables in logged form.

[15] See page 5 of Ynesta (2008) for statistics on relative shares of household assets invested in currency and bank deposits versus ownership of direct equity holdings and mutual fund shares.

[16] There are modest limits to this in the United States. For example, individual states have the ability to independently set sales taxes on goods or services sold within their borders.

[17] See European Fund and Asset Management Association (EFAMA), www.efama.org/Lists/Topics/form/DispItem.aspx?ID=34.

[18] There is no single standard under the UCITS Directive for marketing a UCITS cross-border in the European Union. Therefore, a UCITS must comply with the marketing regulations of each member state in which it markets its shares. This increases the cost of offering the product.

[19] Statistically speaking, the line in the figure is obtained by a regression of the natural log of the ratio of long-term mutual assets to GDP against a constant and per capita income. This exponential specification allows the elasticity to vary with per capita income, so that a 10 percent increase in per capita income leads to a larger (smaller) percentage increase in long-term mutual fund assets at higher (lower) per capita income levels.

[20] According to Norway's Ministry of Finance website, 'The purpose of the Fund is to facilitate government savings to finance rising public pension expenditures, and support long-term considerations in the spending of government petroleum revenues.' See www.regjeringen.no/en/dep/fin/Selected-topics/the-government-pension-fund.html?id=1441.

[21] ICI tracks the composition of US retirement assets in its quarterly retirement market data release. See www.ici.org/research/stats/retirement/ret_13_q3.

[22] See Reid (2000) for a discussion of trends in the 1990s and Brady, Burham, and Holden (2012) for an assessment of how the US retirement system has provided for retirement security (www.ici.org/pdf/ppr_12_success_retirement.pdf). See also 'Mutual Funds and the US Equity Market' by Engen and Lehnert (2000) for a discussion of the US mutual fund industry trends from 1984 to 2000 (www.federalreserve.gov/pubs/bulletin/2000/1200lead.pdf).

[23] These asset totals represent the assets of 'superannuation (pension) funds' in Australia and have been the prime driver of asset growth in Australia. These asset totals can be found at the Australia Bureau of Statistics website. (See www.abs.gov.au/Ausstats/abs@.nsf/mf/5655.0.)

[24] For planned Australian mandatory contribution rate increases, see www.ato.gov.au/Rates/Key-superannuation-rates-and-thresholds/?page=20#Super_guarantee_charge_percentage.

[25] Following Khorana, Servaes, and Tufano (2005) and Fernando, Klapper, Sulla, and Vittas (2003), Ireland and Luxembourg are at this point excluded from the paper's analysis.

[26] Estimates of DC assets are sourced primarily from the OECD's 'Pensions at a Glance 2013' based on OECD estimates of private pension assets and the DC share of those assets in 2011. When OECD estimates of DC assets were not attainable, Cerulli estimates were used for missing values available. If no reliable estimate was available from either source, DC assets were set to zero.

[27] Measuring the influence of retirement systems is necessarily imperfect because some DC or DB systems may contribute to long-term mutual fund industry assets more or less than others based on how they are structured. These structural differences introduce uncertainty about the potential effect of either DC or DB pension assets on the demand for mutual fund assets. Also, the presence of cross-border funds in certain markets will attenuate the relationship because some sales will go to foreign domiciled funds that are not counted in the assets of locally domiciled funds. This cross-border effect would be especially prevalent in markets like Hong Kong SAR and Singapore, but would be present in any fund market where cross-border funds are particularly active. To explore this cross-border effect, a dummy variable was created for markets with higher than the median number of cross-border fund registrations (more than 400 cross-border funds) and was interacted with the ratio of DC plan assets to GDP. In a simple regression with this dummy variable (not reported in appendix), markets with a below-median number of cross-border fund registrations had an estimated effect close to one for DC assets, while markets with higher than the median registrations had a coefficient that was attenuated towards zero for DC assets.

[28] For example, Strategic Insight estimates that there are $140 billion of cross-border fund assets in Hong Kong SAR versus locally domiciled fund assets of $79 billion at the end of 2012. In other words, Hong Kong's fund market is well over $200 billion based on locally domiciled and cross-border fund assets sold in Hong Kong. For comparison, Strategic Insight estimates that there are $51 billion of cross-border assets in Singapore versus locally domiciled fund assets of $27 billion at the end of 2012.

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