McKinsey Global Institute




July 2009

The new power brokers: How oil, Asia, hedge funds, and private equity are faring in the financial crisis

McKinsey Global Institute

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Susan Lund
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Olivia L. White
Yue Zhao

Preface

The new power brokers: How oil, Asia, hedge funds, and private equity are faring in the financial crisis is the latest research by the McKinsey Global Institute (MGI) on the evolution of four rising "power brokers" in global capital markets. It builds on MGI's previous research on capital markets and the work of McKinsey's private equity practice and global banking practice. In this report, we assess how the global economic and financial crisis has affected each of these groups of investors and whether it will alter their future course.

Susan Lund, an MGI senior fellow based in Washington, DC, and Charles Roxburgh, a director in McKinsey's London office, led this project. The project team included Matt Lippert, an engagement manager in McKinsey's Silicon Valley office; Olivia L. White, a consultant in the San Francisco office; Christopher R. Rezek and Yue Zhao, consultants in the Silicon Valley office; and Charles Atkins, an MGI research fellow in the San Francisco office.

This report would not have been possible without the thoughtful input and expertise of numerous McKinsey colleagues around the world. These include Tim Church, Kito de Boer, Janamitra Devan, Chris H. Figee, Jon C. Garcia, Seth A. Goldstrom, Aly Jeddy, Conor Kehoe, Diaan-Yi Lin , George R. Nast, Laurent Nordin, Robert N. Palter, Bruno Roy, Antoon Schneider, Robert A. Sternfels, Daan Streumer, and Ahmed Yahia. We also benefited from numerous interviews with external experts and practitioners in the field.

We also would like to thank the following MGI professionals for their tireless support of this project: Tim Beacom, knowledge operations specialist; Deadra Henderson, operations coordinator; Nell Henderson, senior editor; Jason Rico, senior research analyst; and Rebeca Robboy, external relations manager.

Our aspiration is to provide business leaders and policy makers around the world with a fact base to better understand some of the most important trends shaping global financial markets today. As with all MGI projects, this research is independent and has not been commissioned or sponsored in any way by any business, government, or other institution.

Lenny Mendonca
Chairman, McKinsey Global Institute

July 2009
San Francisco

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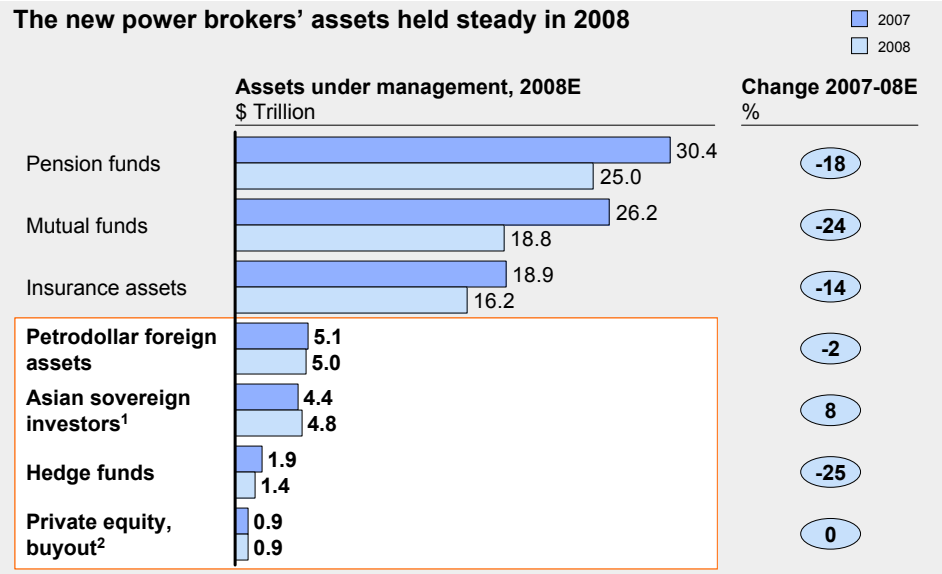
Executive summary: Still power brokers?

The global financial and economic crisis has altered the paths of four influential groups of investors—oil exporters, Asian governments, hedge funds, and private equity firms. In a 2007 report, we labeled these four the "new power brokers" because their growing wealth and clout reflected a dispersion of financial power away from traditional institutions in Western developed economies and toward new players and other parts of the world.[1] But the crisis has raised questions about the power brokers' future growth and influence. In this report, we look back at how their fortunes diverged over the last year, and we look ahead to project where they may go from here.

By our estimates, the power brokers' collective assets totaled $12 trillion at the end of 2008, roughly the same as 2007 (Exhibit 1). While this was better than the sharp declines in wealth of most institutional investors, there is no denying that the crisis has abruptly halted the power brokers' rapid ascent.

Exhibit 1



1 Includes Asian central banks ($4.3 trillion) and foreign holdings of Asian sovereign wealth funds ($490 billion).
2 Reflects estimated marked-to-market values of portfolio companies. Measuring only cumulative fundraising, assets would have grown to $1.2 trillion.
SOURCE: International Financial Services, London; Hedge Fund Research; Investment Company Institute; Preqin; McKinsey Global Institute analysis

Hedge funds and private equity were hit hard last year when credit markets seized up, depriving them of the leverage that amplified their influence in global financial markets. They were battered further by the decline in global equities, which erased much of their investors' wealth. As we write this report, the hedge fund industry is smaller and still shrinking, while private equity firms are searching for other

1 Based on new information, this report updates figures for 2006 and 2007 published in our earlier reports, *The new power brokers: How oil, Asia, hedge funds, and private equity are shaping global capital markets*, McKinsey Global Institute, October 2007; and *The new power brokers: Gaining clout in turbulent markets*, McKinsey Global Institute, July 2008. Both are available at www.mckinsey.com/mgi/. For new readers, see the sidebar: *Meet the power brokers* at the end of this summary.

investment opportunities as the buyout market lies dormant. Both industries will have to adapt to a new environment of tighter credit and potentially more regulation.

Oil exporters and Asian sovereign investors have fared better. Soaring oil prices in the first half of 2008 created a windfall for petrodollar investors—though falling financial markets erased much of the gain in the second half of the year. Asian sovereign investors' assets increased despite a sharp falloff in the region's trade surpluses at the end of the year. This growth was due entirely to China, whose assets now exceed $2 trillion. In 2008, oil investors and Asian governments combined provided the world's financial markets with roughly $4.5 billion per day in new capital—up from $2.5 billion in 2007. We project the assets of both will continue to grow in coming years, although at a slower rate than in the past.

So are these four groups of investors still power brokers? For petrodollar investors and Asian sovereign investors, the answer is clearly yes: the source of their wealth—trade surpluses—will continue over the next five years. For hedge funds and private equity buyout funds, the future is less clear, but we expect the best funds in each industry will survive and perhaps even thrive. Although our projections for their future growth are lower now than they were a year ago at the market peak, both will remain significant forces in global financial markets.

STALLED GROWTH

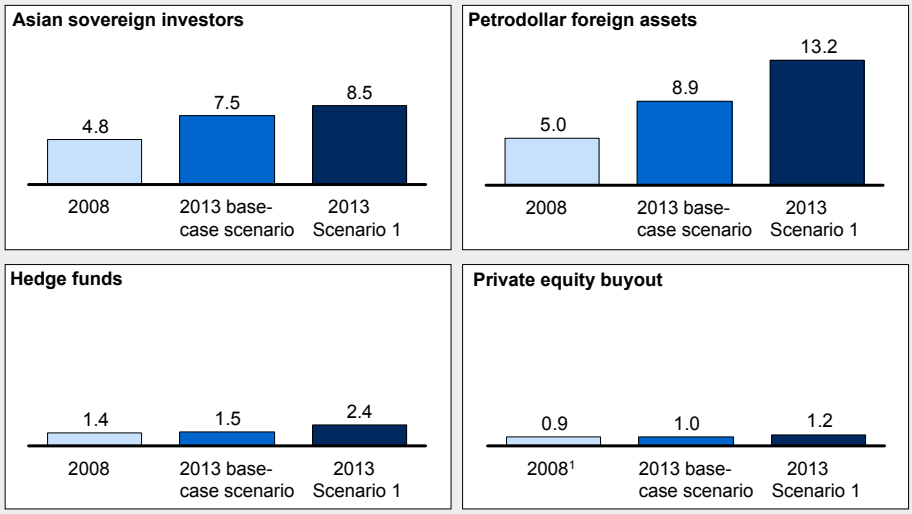
The power brokers' rapid rise before 2008 was fueled by a boom in the global economy, trade, the financial industry, and oil prices. And the power brokers did not just benefit from the boom—they were an integral part of the dynamics at play. Credit was ample and cheap, helping drive the growth of hedge funds and private equity. Easy credit also encouraged US consumers to go on a borrowing and spending binge, boosting their purchases of Asian exports and gas-guzzling trucks and SUVs. Soaring Asian exports fueled rapid economic growth in that region, adding to global energy demand and pushing up oil prices. Asian and oil exporters' trade surpluses turned into swelling capital flows that poured into global financial markets. This helped lower US interest rates even more, spurring further consumption and financial leverage, and prompting institutional investors to seek higher returns in vehicles such as hedge funds and private equity. The growth of the power brokers was mutually reinforcing.

These dynamics, however, contributed to the increasingly large global financial imbalances that fed the financial crisis. At the time of this writing, it remains unknown how the crisis will be resolved, when global GDP growth will resume, or how the economic landscape may change in the process. Amid such uncertainty, we project the power brokers' future growth based on four proprietary global macroeconomic scenarios developed by McKinsey & Company and Oxford Economics. These scenarios depict different trajectories for GDP growth, oil prices and production, Asian trade surpluses, and financial market recovery.

In our conservative base-case scenario, which assumes the global recession lasts through mid-2010, assets in hedge funds and private equity buyout funds decline in 2009 before slowly growing again. In contrast, oil exporters' and Asian sovereign investors' foreign financial assets continue to grow in coming years, and indeed reach higher levels than we foresaw in our original 2007 research (Exhibit 2). For policymakers and business leaders, this presents a serious challenge: how to ensure that this surplus capital is invested in productive opportunities that will raise living standards, rather than contribute to future asset bubbles.

Exhibit 2

Diverging paths going forward
$ Trillion



1 2008 figure reflects marked-to-market value of assets under management. Based on cumulative fundraising of past 5 years, assets under management would be $1.25 trillion.
SOURCE: McKinsey Global Institute analysis

PETRODOLLARS: SHAKEN, BUT POISED FOR GROWTH

Oil-exporting nations reaped an enormous revenue windfall in the first seven months of 2008, as petroleum prices skyrocketed to a record high of over $145 per barrel in July.[2] These riches enabled the countries' central banks, sovereign wealth funds, high-net-worth individuals, and other petrodollar investors to invest more than $1.3 trillion in foreign financial assets in 2008—a 58 percent increase over the previous year. Growing crude exports also enabled more investment in their local economies, which reached $970 billion.

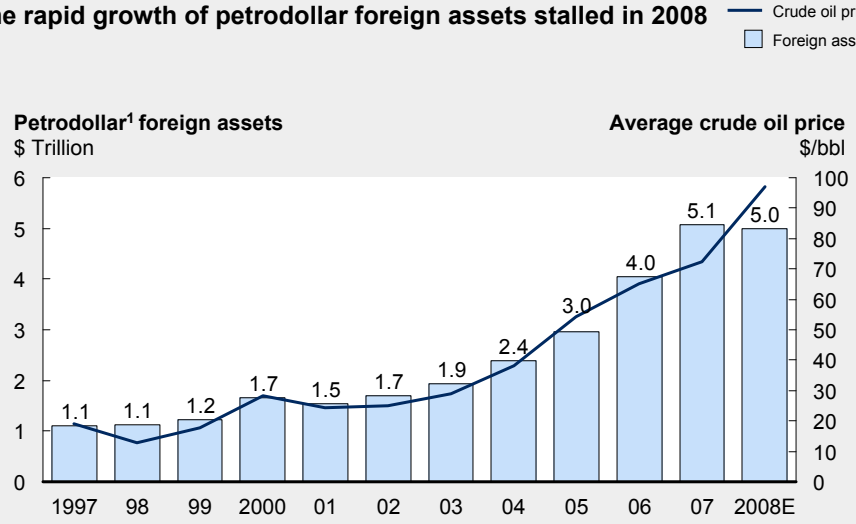
But oil and stock prices tumbled in late 2008, drying up new capital and erasing significant portfolio wealth. The central banks and sovereign wealth funds that had invested more heavily in global equities, such as Norway's Government Pension Fund - Global, saw their investment losses exceed new capital in 2008. The vehicles that had invested more conservatively in government bonds and other fixed-income securities, including those of Saudi Arabia and Russia, performed better. Many countries also used their wealth to stabilize their domestic banking systems and economies. By the end of 2008, the foreign financial assets of all petrodollar investors totaled $5.0 trillion, slightly less than a year earlier (Exhibit 3), leaving this group still the largest of the four power brokers.

Petrodollar foreign investment activity has been minimal since the financial crisis escalated in September 2008, and some investors are reportedly reviewing their investment strategies. However, most will maintain their fundamental focus on long-term returns. When financial markets stabilize, they may look for future opportunities in commodities and in emerging markets. Sovereign wealth funds are taking advantage of the exodus of talent from Western banks to build their own investment capabilities. In the Middle East, there is a growing focus on partnerships with foreign companies that will also help promote local economic development.

2 Weekly prices of Brent crude oil, as reported by Datastream.

Exhibit 3

The rapid growth of petrodollar foreign assets stalled in 2008



1 Petrodollar countries are the Gulf Cooperation Council states (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates), Algeria, Indonesia, Iran, Libya, Nigeria, Norway, Russia, Syria, Venezuela, and Yemen.

SOURCE: Institute for International Finance; International Monetary Fund; US Department of Energy; McKinsey Global Institute Cross-Border Investment Database

Before the crisis, some Western policy makers, economists, and others raised concerns about the growing financial power of petrodollar and Asian sovereign wealth funds (SWFs). Some observers criticized the SWFs' secrecy about their investments, goals, and governance, and some worried about the potential for large funds to use their growing financial clout to pursue political objectives. Since then, however, many SWFs have taken steps to allay these concerns by agreeing to the International Monetary Fund's Santiago Principles, which set out common standards regarding transparency, independence, and governance.[3]

Looking ahead, we see petrodollar investors poised for future growth in almost any scenario. Their foreign assets reach nearly $9 trillion by 2013 in our base case, and more than $13 trillion if the economy recovers more quickly.

ASIAN SOVEREIGN INVESTORS: THE CRISIS SLOWS GROWTH

The global financial and economic crisis has curtailed Asian exports while triggering a record outflow of foreign capital from the region. Nonetheless, Asian sovereign investors—the region's central banks and sovereign wealth funds—saw their collective foreign financial assets grow by 9 percent in 2008, reaching $4.8 trillion by year-end. Although this growth rate was far slower than in the past, this group was the only one of the four power brokers to increase in size last year.

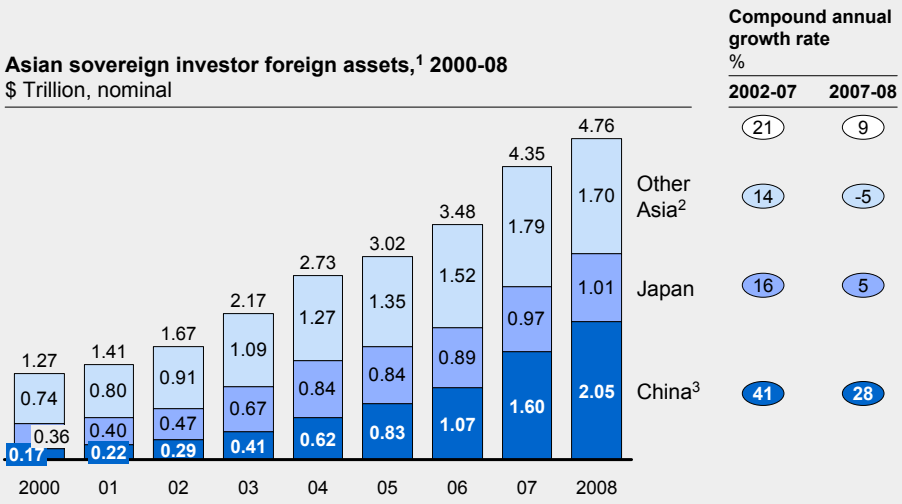
China accounted for virtually all the growth, with the assets of its central bank and sovereign wealth fund climbing 28 percent to more than $2 trillion (Exhibit 4). Across the rest of Asia, Japan's and Taiwan's foreign assets grew just slightly, while the foreign wealth of most other Asian governments declined.[4]

3 In May and June 2008, the International Working Group of Sovereign Wealth Funds, consisting of sovereign wealth funds from around the world, met to agree on a common set of principles and practices in response to the growing call for transparency. The outcome, known as the Santiago Principles, set the framework for clarifying the operations of sovereign wealth funds.

4 Throughout this report, *other Asia* refers to Bangladesh, Cambodia, Hong Kong, India, Malaysia, Pakistan, Philippines, Singapore, South Korea, Sri Lanka, Taiwan, Thailand, and Vietnam.

Exhibit 4

Asian sovereign investor assets grew in 2008, driven by China



1 Includes central bank reserve assets and sovereign wealth funds' foreign assets.
2 Other Asia: Bangladesh, Cambodia, Hong Kong, India, Malaysia, Pakistan, Philippines, Singapore, South Korea, Sri Lanka, Taiwan, Thailand, and Vietnam.
3 Does not include foreign assets of state-owned banks or other companies.
SOURCE: Global Insight; People's Bank of China; McKinsey Global Institute analysis

The continued growth of China's central bank reserves poses a dilemma for its policy makers: how to maintain exports without continuing to invest in more dollar-denominated assets. China's central bank now has an estimated $1.4 trillion of dollar assets, making it vulnerable to the future of the US economy and the value of the dollar. Chinese policy makers are now seeking to promote more domestic consumption to lessen dependence on exports. But even if its current account surplus declines over the next five years, its central bank reserve assets would still double by 2013. Policy changes to allow faster Chinese currency appreciation or more private foreign investment could change this outcome. In our base-case scenario, Asian sovereign foreign assets collectively grow to $7.5 trillion by 2013—slower growth than since 2000, but still significant.

Asian sovereign investors' investment strategies are unlikely to change substantially despite the recent turmoil. On the margin, they may seek to invest more in currencies other than the dollar and to hedge the risks of higher global inflation, in part through investments in commodities. Changes within Asian sovereign wealth funds are also apparent. They have increased transparency to allay concerns about their investments and have accelerated their hiring of outside financial professionals, many from foreign financial institutions. These moves reflect maturing and increasingly sophisticated investment organizations that may eventually become less dependent on external investment managers.

HEDGE FUNDS: CAN THEY REBOUND?

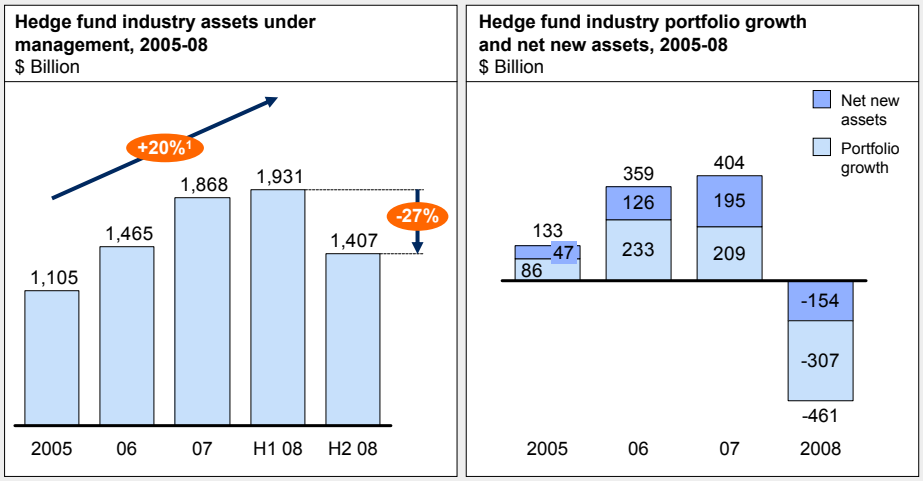
The breakdown of global credit and capital markets in September 2008 sparked a dramatic reversal of fortune for the hedge fund industry. Liquidity evaporated and investors fled to cash and other safe assets. Several major prime brokers that provided financing and other services for hedge funds curtailed their lending dramatically, while one major player—Lehman Brothers—went bankrupt, disrupting the funds' operations. Total assets under management dropped 27 percent in 2008, to $1.4 trillion, reflecting both investment losses and net asset withdrawals by investors (Exhibit 5). Hundreds of hedge funds have closed, and as many as 30

percent of those left may be at risk of liquidation because their portfolios' worth has fallen so far below their peaks.[5]

Hedge funds' influence in global capital markets has also waned. Before the crisis, hedge funds moved from the margins of the financial industry to center stage: at their peak, total investable assets[6] may have exceeded $6.5 trillion, and they accounted for a majority of the trading volume in some asset classes. Leverage has since dried up, reducing their gross assets by nearly two-thirds, to $2.4 trillion by our estimates.

Exhibit 5

Hedge fund assets under management fell 27 percent from their peak due to both performance and net asset withdrawals



1 Compound annual growth rate.
NOTE: Figures may not sum due to rounding.
SOURCE: Hedge Fund Research; McKinsey Global Institute analysis

Will the hedge fund industry rebound? We expect the answer is yes. Our research shows that a significant portion of hedge funds has delivered higher and less volatile returns than investments in public equities and bonds over time, and investor commitment to such funds remains high. To be sure, the industry's assets may shrink further in 2009 as investor redemptions continue and more funds close. But funds with long track records of good performance will survive and will likely gain scale. Our base-case projections, grounded in a conservative outlook for global economic recovery and the size of investor portfolios, show the industry in 2013 with assets under management of $1.5 trillion. This is below the industry's peak, but significant nonetheless. If financial markets and investor portfolios recover more quickly, hedge fund assets could grow to $2.4 trillion. In either case, it is clear that while the industry's meteoric rise since 2000 has been interrupted, it will remain an important part of the capital markets' landscape.

PRIVATE EQUITY: BEYOND BUYOUT

Leveraged buyout (LBO) assets under management, measured in the standard way as the cumulative sum of the past five years of fundraising, rose to $1.25 trillion in 2008, up from $900 billion in 2007. Assets managed by the broader private equity industry—

5 Most hedge funds below their peak size will not earn any performance fees until they regain their "high-water" level. In the past, many fund managers in that situation chose to liquidate, although whether they do so in the current environment remains to be seen.

6 Includes hedge funds' assets under management, borrowing, and off-balance sheet leverage through derivatives positions.

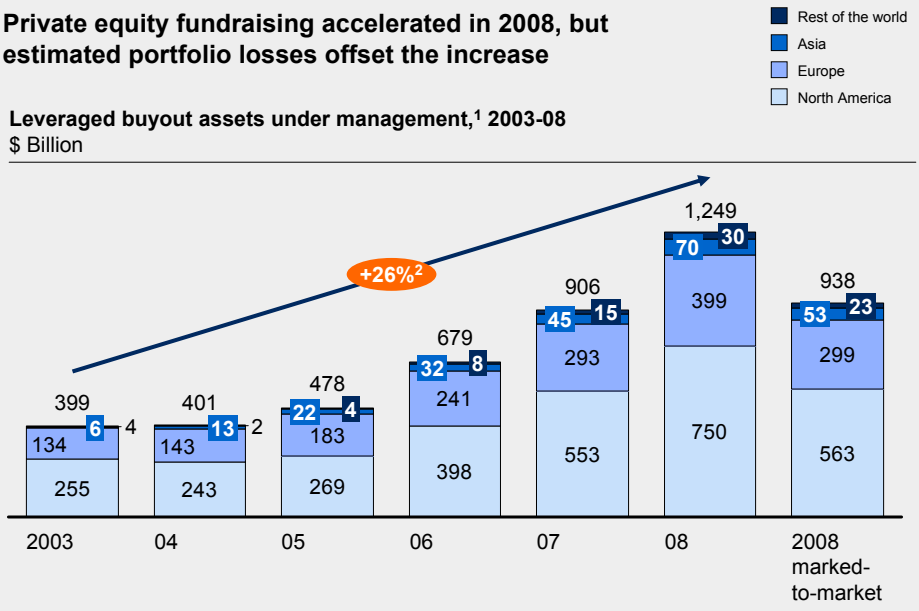
consisting of venture capital, distressed debt, infrastructure, real estate, and other types of investment funds—also rose, reaching $2.9 trillion at the end of 2008.

However, these figures mask deeper problems for the buyout industry. With credit markets frozen, the global value of buyout deals fell from $580 billion in 2007 to just $150 billion in 2008, of which just $18 billion occurred in the final quarter of the year. The decline in the largest "megadeals"—worth more than $3 billion each—accounts for two-thirds of the drop. With banks still facing huge credit losses, funding for these largest deals is unlikely to revive anytime soon. The industry should hope that history is not a guide; after the buyout peak in 1988, it took 20 years for megadeals to return.

Meanwhile, many private equity investors lost substantial wealth in the stock market declines of 2008 and are struggling to raise liquidity. New fundraising for buyouts fell to an annualized $89 billion in the first quarter, down 78 percent from the prior year. Investor sales in the secondary market for private equity commitments have increased, driving their value down to 50 cents on the dollar, the lowest point in five years. And a marked-to-market valuation of buyout assets deployed would reduce their value to around $900 billion, by our calculations, indicating significant losses for investors ahead (Exhibit 6).

Exhibit 6

Private equity fundraising accelerated in 2008, but estimated portfolio losses offset the increase



1 Assets under management defined as the sum of funds raised for current year plus four previous years.
2 Compound annual growth rate.
SOURCE: Preqin; McKinsey Global Institute analysis

With the LBO business on hold, some buyout funds are exploring alternative investment avenues. We estimate that buyout funds have $535 billion of "dry powder," or capital committed by investors but not yet deployed, which could be a significant source of capital while financial markets recover. Buyout managers are shifting funds to distressed debt, bankruptcy financing, PIPEs (private investments in public equity), emerging markets, and financial institutions. It remains to be seen, however, whether they can earn the same types of returns from these investments as from buyouts.

Meet the power brokers

Petrodollar investors had $5.0 trillion in foreign financial assets at the end of 2008.[1] Their wealth has soared along with oil prices, which rose from just $23 per barrel in 2002 to above $145 in July 2008. The group includes investors in the six states of the Gulf Cooperation Council (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates); other oil exporters in the Middle East and North Africa; and Norway, Russia, Venezuela, Nigeria, and Indonesia. The investors include central banks, sovereign wealth funds (SWFs), companies, and wealthy individuals. Government investment vehicles control 65 percent of total foreign assets. Oil investors' investment styles are diverse, ranging from conservative and passive to more risk-seeking and active. By country, the three largest petrodollar investors are Russia, with $1.1 trillion in foreign financial assets at the end of 2008; the United Arab Emirates, with $710 billion to $980 billion[2]; and Norway, with $860 billion.

Asian sovereign investors held $4.8 trillion in foreign financial assets at the end of 2008. This group includes central banks and sovereign wealth funds. Their foreign assets have grown rapidly over the last decade because of their countries' rising trade surpluses combined with government monetary policies aimed at preventing significant appreciation of their currencies. Central banks manage 90 percent of the group's foreign assets, and they invest mainly in low-risk, dollar- denominated assets as well as euro and yen assets. By country, the largest investors are China, with more than $2 trillion in foreign financial assets at the end of 2008, and Japan, with a bit more than $1 trillion.

Hedge funds had $1.4 trillion in assets under management at the end of 2008. Hedge funds and private equity firms are financial intermediaries that invest the money of wealthy individuals and institutional investors, such as pension funds, foundations, endowments, insurance companies, and, increasingly, SWFs. The term "hedge fund" covers a diverse set of lightly regulated investment vehicles that differ in their investment strategies, time horizon, liquidity, and use of leverage. They differ from mutual funds in several ways, including their investor base, use of leverage, fee structure, ability to take long and short positions, and lack of constraints on using derivatives and other types of financial instruments. Because hedge funds are not required to register with investment authorities or report on their activities, there is significant opacity around the industry. By most estimates, it included more than 7,500 funds at its peak, although the 200 largest hedge funds control more than 70 percent of assets under management.

Private equity has long been virtually synonymous with leveraged buyout funds (LBOs). Buyout assets under management, measured in the standard way as the cumulative sum of the past five years of fundraising, reached $1.25 trillion in 2008, making this the smallest of the four power brokers. However, assets managed by the broader private equity industry—which includes buyout and venture capital, distressed debt, infrastructure, real estate, and other types of investment funds—totaled $2.9 trillion. A private equity buyout fund typically generates returns by acquiring a publicly traded company, restructuring it to improve performance, and selling it several years later.

1 We use *petrodollars* broadly to refer to profits from the export of oil and natural gas.

2 We give a range for the UAE because the exact size of the largest sovereign wealth fund, the Abu Dhabi Investment Authority, is not publicly disclosed. We use a range of reported estimates for its size

The best private equity firms generate returns by choosing undervalued target companies and introducing superior governance and restructuring operations; returns are amplified by the leverage used to buy the company. A typical buyout fund remains open for up to five years, after which investors receive their payout (less performance fees paid to fund managers).

More broadly, the financial crisis will accelerate the evolution of the private equity industry. Buyout funds that survive will have strong skills in operational improvement and active management. Investors will gain more power relative to fund managers, at least for the next few years, and may put pressure on fees. For now, private equity firms will continue to look beyond buyout for investment opportunities. In the long term, when buyouts resume, fund managers' focus will return to mid-market deals rather than the megadeals of recent years. In our base-case scenario, assets under management of leveraged buyout funds remain flat at $1 trillion through 2013, under the assumption that megadeals do not recover. Over the same period, however, total private equity industry assets under management grow slightly, reaching $3.4 trillion in 2013.

* * *

In retrospect, we see more clearly than ever that the power brokers were fundamental contributors to the global financial industry and capital markets boom from 2002 through 2007. Oil investors and Asian governments provided huge sums of new capital to global capital markets. The influence of hedge funds and private equity funds grew as leverage enabled them to account for a large share of trading volumes and M&A transactions, respectively. The power brokers fueled and benefited from the boom, and from each other. Now the financial crisis and global economic recession have cast great uncertainty over their future growth and roles. Their paths have diverged: oil and Asian investors remain important sources of capital and will continue to grow; hedge funds and private equity buyout funds have stalled, but they certainly will not disappear.

1. Petrodollars: Shaken, but poised for growth

The financial crisis and economic slowdown of 2008 halted the five-year surge in oil prices and foreign asset accumulation of the world's petroleum exporters.[1] As crude prices rose, oil producers in the Middle East, Norway, Russia, and elsewhere invested much of the windfall abroad, building up a fortune of foreign financial assets worth $5.1 trillion by the end of 2007.[2] This trend continued through the first half of 2008 as oil prices soared to record highs, enabling those countries' central banks, sovereign wealth funds, high-net-worth individuals, and other petrodollar investors to invest an additional $1.3 trillion in global capital markets over the course of the year.[3]

But declining stock prices and oil prices in the second half of 2008 offset the revenue gains of the first half. The central banks and sovereign wealth funds that had invested more heavily in global equities, such as Norway's, saw their investment losses exceed new capital in 2008; the vehicles that had invested more conservatively in government bonds and other fixed-income securities, including those of Saudi Arabia and Russia, saw their assets grow. Many countries also used their wealth to stabilize their domestic banking systems and economies. By the end of 2008, the foreign financial assets of all petrodollar investors totaled $5.0 trillion—slightly less than a year earlier, but still making this group the largest of the four power brokers (Exhibit 1.1).

New investment activity by oil investors has been minimal since the financial crisis escalated in September 2008. Despite the market turmoil, however, most petrodollar investors have not fundamentally altered their focus on long-term returns, though some of them report that they are reviewing their investment strategies. When markets stabilize, they will look for new opportunities in Asia and other emerging markets. Some governments are creating new sovereign wealth vehicles with more targeted, narrowly focused investment strategies. Many are building their investment capabilities by hiring financial talent from distressed Western financial institutions. In the Middle East, there is an increasing focus on investments and partnerships with foreign companies that can help promote domestic development.

We write this report at a time of great uncertainty about how the global financial and economic turmoil will play out, and further abrupt changes in market conditions are possible. We therefore base our projections on macroeconomic scenarios for the global economy, which in turn determine oil prices. In the base case, petrodollar foreign assets rise to $8.9 trillion by 2013, reflecting the fastest growth rate of any of the power brokers. In a scenario envisioning a faster global economic recovery, petrodollar investors' foreign assets could exceed $13 trillion by 2013.

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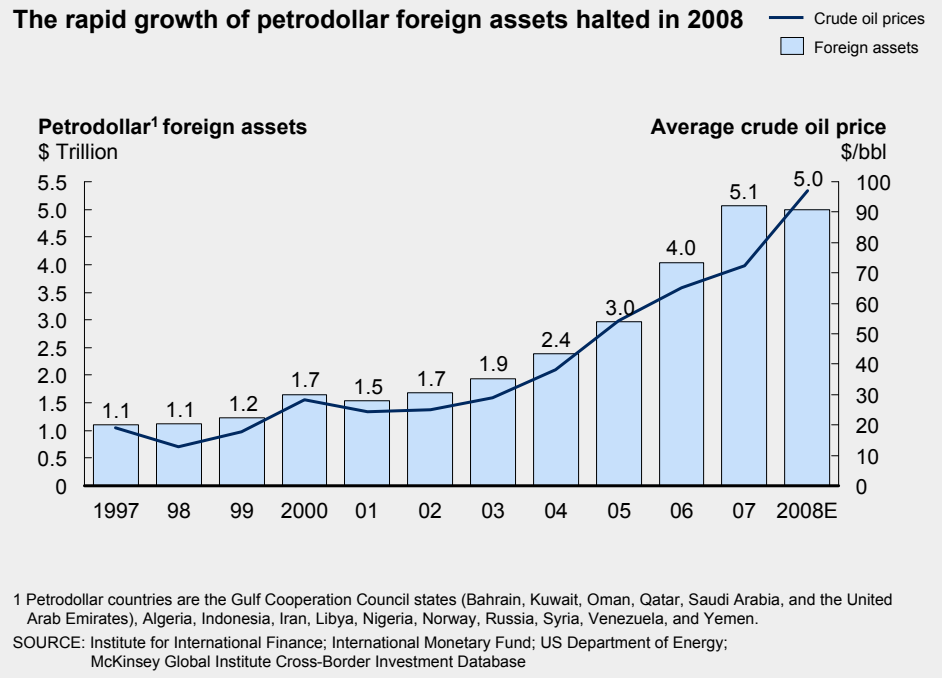
1 Throughout this paper, when we speak of the world's petroleum exporters in aggregate, we refer to all Gulf Cooperation Council states (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates), Algeria, Indonesia, Iran, Libya, Nigeria, Norway, Russia, Syria, Venezuela, and Yemen.

2 Based on new information, we have revised upward the estimates of petrodollar assets in 2007 published in our previous report, *The new power brokers: Gaining clout in turbulent markets*, July 2008 (www.mckinsey.com/mgi/).

3 We use *petrodollars* broadly to refer to profits from the export of oil and natural gas.

Exhibit 1.1



1 Petrodollar countries are the Gulf Cooperation Council states (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates), Algeria, Indonesia, Iran, Libya, Nigeria, Norway, Russia, Syria, Venezuela, and Yemen.

SOURCE: Institute for International Finance; International Monetary Fund; US Department of Energy; McKinsey Global Institute Cross-Border Investment Database

PETRODOLLAR INVESTORS SAW A WINDFALL IN THE FIRST HALF OF 2008

Skyrocketing oil prices at the beginning of 2008 resulted in a massive windfall for petroleum exporters. Crude prices started the year at $94 a barrel and peaked at over $145 in July.[4] This surge capped a nearly unabated run-up that began in 2002, when oil sold for just $20 a barrel. The volume of petroleum oil produced has also increased. As a result, from 2002 through 2007, the annual oil revenue of net crude exporters rose at a compound annual growth rate of 27 percent—and jumped by 50 percent in 2008 to roughly $1.6 trillion. This windfall has fueled unprecedented levels of both foreign and domestic investment.

Foreign investments reached $1.3 trillion in 2008

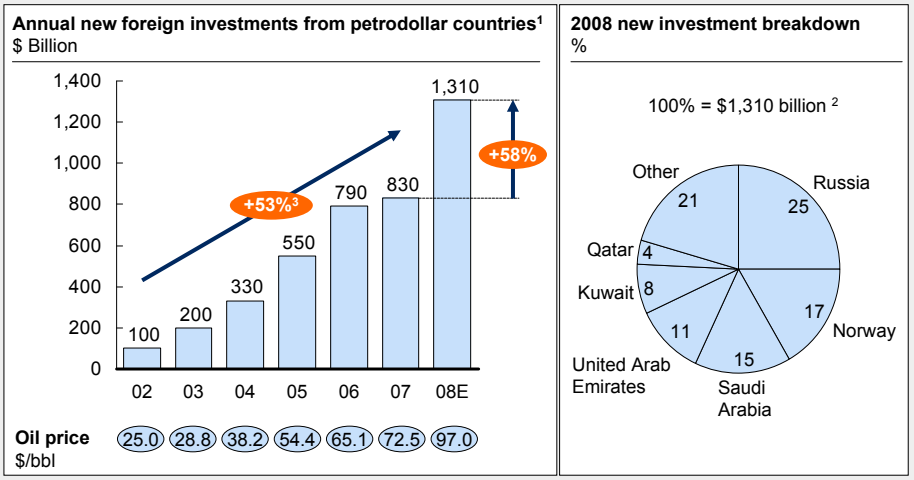
As oil prices have climbed, petrodollar investors—including central banks, sovereign wealth funds, companies, and wealthy individuals—have become increasingly important sources of capital in global financial markets. Between 2002 and 2007, their new foreign investments rose at a rate of 53 percent per year, exceeding $800 billion by 2007. In 2008, oil investors purchased an unprecedented $1.3 trillion of new foreign assets—equal to $3.6 billion per day (Exhibit 1.2).

Russia made $330 billion in new foreign investments in 2008, more than any other oil-exporting country. Norway acquired an estimated $220 billion in foreign financial assets last year, while Saudi Arabia added $200 billion to its total. Rising oil prices in recent years have created new petrodollar powers in the Middle East and elsewhere: Algeria, Indonesia, Iran, Libya, Nigeria, Syria, Venezuela, and Yemen. When oil prices were lower, these countries spent the bulk of their petroleum profits domestically. However, with higher oil prices, they have been able to invest significant amounts in foreign markets. For example, Algeria's foreign exchange reserves reportedly rose to $143 billion at the end of 2008 from $110 billion a year earlier, and Iran's increased to $97 billion from $51 billion over the same period.

4 Weekly prices of Brent crude oil, as reported by Datastream.

Exhibit 1.2

New petrodollar foreign investments reached $1.3 trillion in 2008, but were offset by investment losses at the end of the year



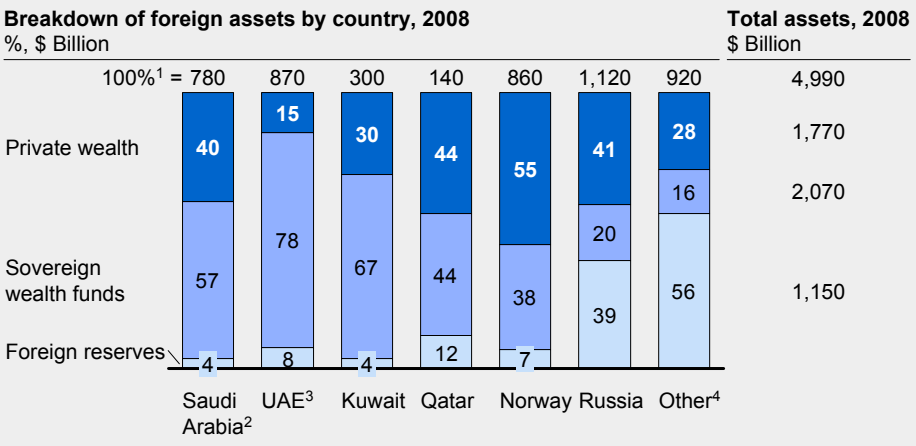
1 Petrodollar countries are the Gulf Cooperation Council states (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates), Algeria, Indonesia, Iran, Libya, Nigeria, Norway, Russia, Syria, Venezuela, and Yemen.
2 Some figures do not sum due to rounding.
3 Compound annual growth rate.

SOURCE: Institute for International Finance; International Monetary Fund; US Department of Energy; McKinsey Global Institute Cross-Border Investment Database

Petrodollar investors are a diverse group. Sovereign wealth funds have received most of the attention, but they are only part of the picture. Wealthy individuals and families, companies, and central banks also hold significant wealth. In aggregate, governments—including sovereign wealth funds and central banks—control most of the foreign wealth (Exhibit 1.3). Even sovereign investors, however, employ a wide range of investment strategies.

Exhibit 1.3

Most petrodollar foreign assets are in government control



1 Some figures do not sum due to rounding.
2 We include most assets of the Saudi Arabia Monetary Authority under sovereign wealth fund because they are invested in a more diverse portfolio than traditional central bank foreign reserves.
3 Foreign assets of UAE are estimated from public reports of the assets of the Abu Dhabi Investment Authority and other sources. The range of UAE assets for 2008 is $710 billion to $980 billion.
4 Other: Algeria, Bahrain, Indonesia, Iran, Libya, Nigeria, Oman, Syria, Venezuela, and Yemen.

SOURCE: Press releases; ministries of finance; interviews; McKinsey Global Institute Cross-Border Investment Database

Several of the oil-based sovereign wealth funds made international headlines when they used their riches to support struggling Western financial institutions in the early stages of the financial crisis. These deep pools of capital with very long-term investment horizons could provide liquidity when other investors were fleeing. For

example, at the end of November 2007, the Abu Dhabi Investment Authority (ADIA) provided Citigroup with $7.5 billion to recapitalize its balance sheet. In January 2008, the Kuwait Investment Authority bought a $3 billion stake in Citigroup and invested $2 billion in Merrill Lynch. All told, from March 2007 through June 2008, oil exporters' sovereign wealth funds invested $32 billion in Western financial institutions, initially helping to stabilize the financial system. But the value of some of these investments had fallen 68 percent by mid-March 2009, at the equities market's recent low point, leaving many oil investors with large paper losses.

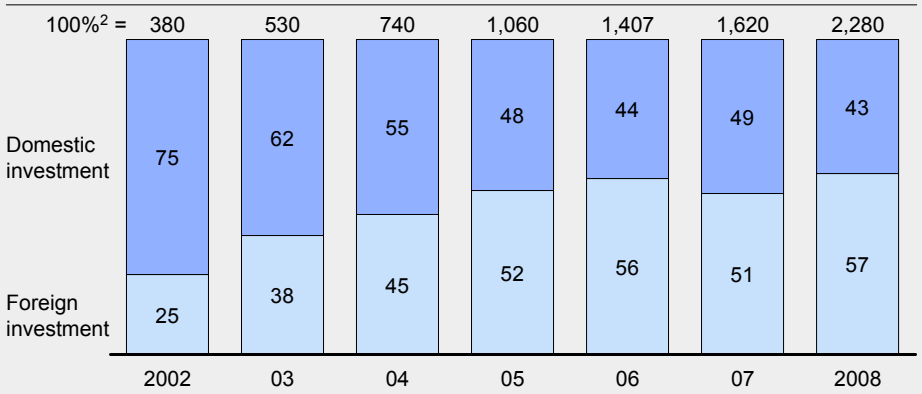
Domestic investment climbed to $970 billion

As petroleum prices have risen, foreign investments have accounted for an increasing share of all investment by oil exporters (Exhibit 1.4).[5] This is because most oil-producing countries' domestic economies and financial systems are too small to absorb so much capital. Nonetheless, the recent oil windfall has enabled rapid growth in the amount of investment in their local economies as well.[6]

Exhibit 1.4

Foreign investment has been an increasing portion of total investment

Breakdown between new domestic and foreign investment by petrodollar countries[1]
%, $ Billion



1 Petrodollar countries are the Gulf Cooperation Council states (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates), Algeria, Indonesia, Iran, Libya, Nigeria, Norway, Russia, Syria, Venezuela, and Yemen.
2 Note: Total yearly foreign and domestic investment is larger than total oil revenue, since other parts of the economy of some oil exporters are also substantial contributors to GDP. Russia and Norway are notable examples.
SOURCE: Institute for International Finance; International Monetary Fund; US Department of Energy; McKinsey Global Institute Cross-Border Investment Database

5 Total investment is higher than total oil export revenue because in some countries, other sectors of the economy contribute to savings and investment. Notable examples are Russia and Norway.

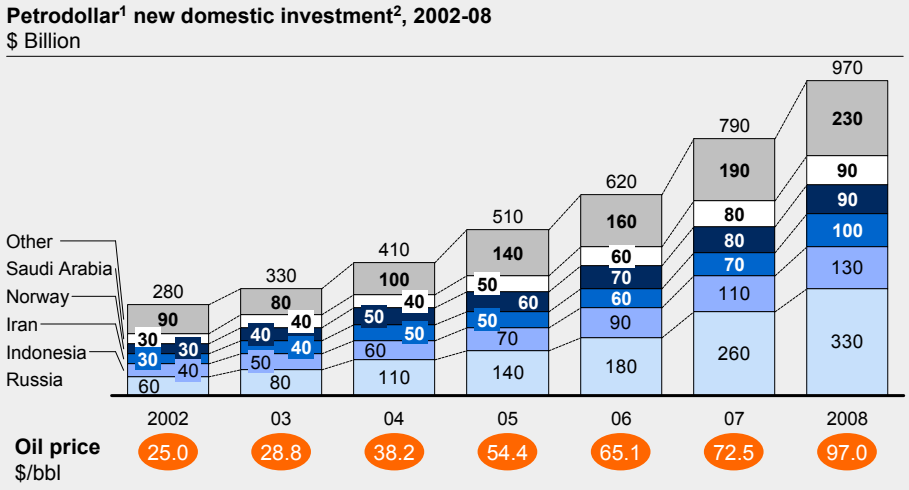
6 As a percent of GDP, aggregate investment in fixed capital has been more or less constant at 21 percent of GDP for all net oil exporters. But this figure belies the rapid growth in GDP due to the rise in oil prices. At the writing of this report, oil prices hover around $60 per barrel, or about three times their level a decade ago.

From 2002 through 2008, oil exporters' new domestic investments increased at a rate of 23 percent a year, reaching $790 billion in 2007 and $970 billion in 2008 (Exhibit 1.5).[7] Russia and Indonesia, countries with large populations and domestic economies, accounted for the biggest share of that investment, although some of the smaller states, such as Qatar, have the highest investment as a percent of GDP.

These domestic investments are aimed at diversifying and developing the local economies, particularly in the Gulf Cooperation Council (GCC) states—Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. A new generation of GCC leaders increasingly recognizes the need to spur local development, both to create jobs for the rising number of young people entering the workforce and to develop more robust economies that will outlive the oil boom.[8] Collectively, GCC has planned $1.4 trillion in spending on infrastructure and construction projects from 2009 to 2015 (Exhibit 1.6). This includes Saudi Arabia's plans to build several entirely new cities as economic hubs and to expand its petrochemical industry. Abu Dhabi is building new cultural institutions, such as a branch of the Louvre Museum, and aims to build the world's first carbon-neutral city. GCC states are investing in alternative energy projects and research. Dubai has created a regional financial center and a shipping hub, and the emirate will soon be home to the world's tallest building.

Exhibit 1.5

In absolute terms, petrodollar domestic investment has also grown rapidly since 2002



1 Petrodollar countries are the Gulf Cooperation Council states (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates), Algeria, Indonesia, Iran, Libya, Nigeria, Norway, Russia, Syria, Venezuela, and Yemen.
2 New investment is measured as gross fixed capital formation.

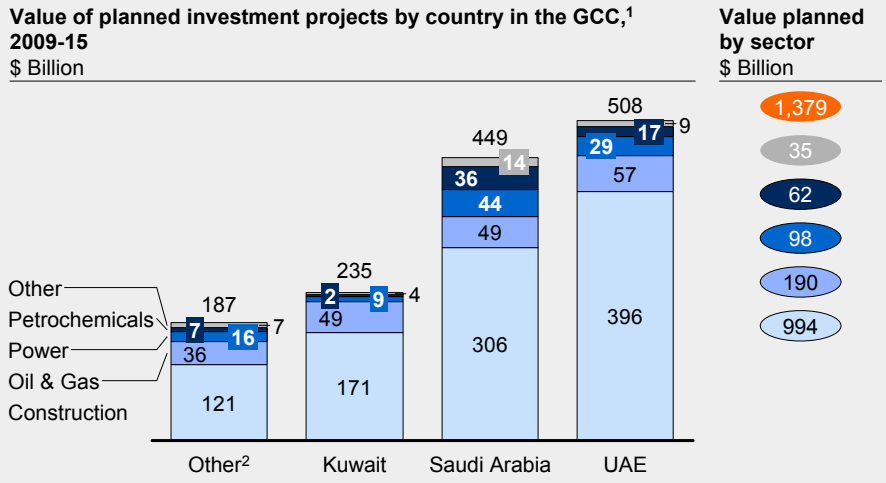
SOURCE: Institute for International Finance; International Monetary Fund; US Department of Energy; Global Insight; McKinsey Global Institute Cross-Border Investment Database

7 Domestic investment is measured as gross fixed capital formation and sourced through Global Insight (World Market Monitor). At this writing, a number of countries have not reported their actual 2008 figures, so we estimate them based upon increases in similar countries that have reported such figures.

8 We discuss domestic investments in the GCC in more detail in *The coming oil windfall in the Gulf*, McKinsey Global Institute, January 2008 (www.mckinsey.com/mgi/).

Exhibit 1.6

There are $1.4 trillion worth of planned investment projects in the Gulf between 2009 and 2015



1 Gulf Cooperation Council.
2 Other: Bahrain, Qatar, and Oman.

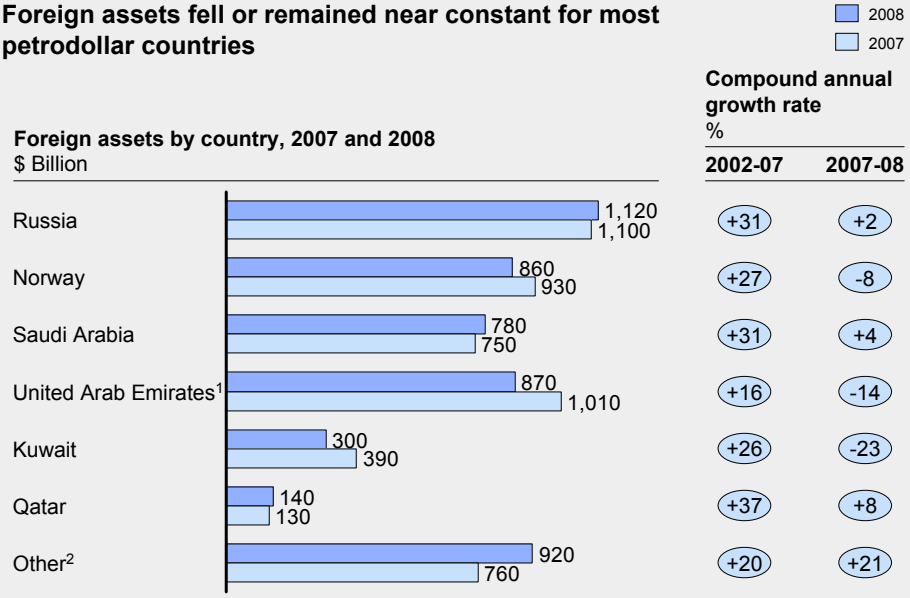
SOURCE: MEED Projects; Zawya database; Projects Updater; McKinsey Global Institute analysis

THE FINAL QUARTER OF 2008 WIPED OUT MUCH OF THE WINDFALL

In the final quarter of 2008, global stock markets crashed and oil prices plummeted. By our estimate, petrodollar investors collectively lost $1.4 trillion on their existing portfolios, or 21 percent.[9] However, losses varied substantially across investors and, in some countries, exceeded the size of new foreign investments in 2008. Furthermore, some oil-exporting countries tapped their wealth to support domestic banks, buoy their currencies, or stimulate their economies. As a result, most of these countries posted little if any gain in their foreign assets in 2008 (Exhibit 1.7).

Exhibit 1.7

Foreign assets fell or remained near constant for most petrodollar countries



1 UAE's foreign assets are estimated from public reports and other sources. The range for 2008 is $710 billion to $980 billion.
2 Other: Algeria, Bahrain, Indonesia, Iran, Libya, Nigeria, Oman, Syria, Venezuela, and Yemen.

SOURCE: McKinsey Global Institute Cross-Border Investment Database; McKinsey Global Institute analysis

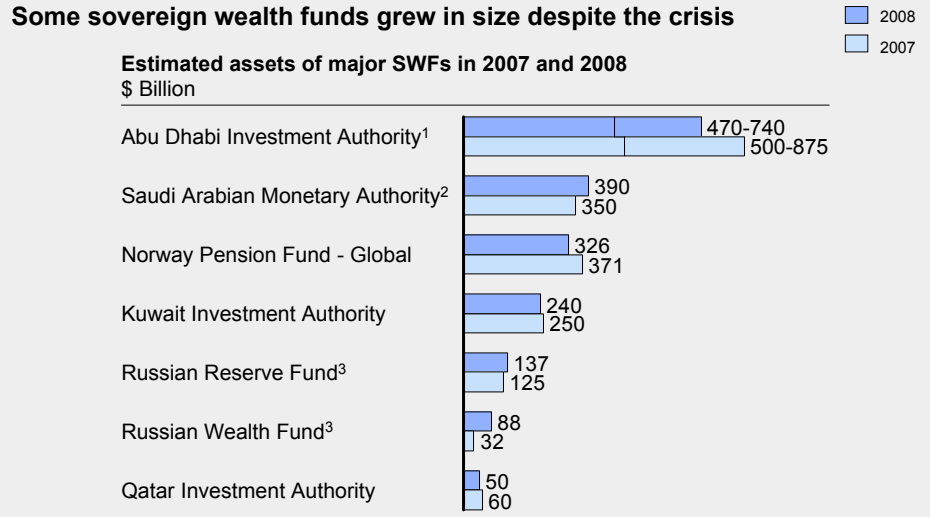
9 Losses on the estimated aggregate total foreign assets held after the first half of 2008.

Conservative investors were winners in 2008

Investors that were least exposed to global equities fared the best. Among the largest oil-exporters, Russia may have had the least exposure to global equity markets. Its central bank and sovereign wealth funds—the Reserve Fund and National Wealth Fund—invest exclusively in sovereign bonds and cash, and thus their losses in 2008 were minimal.[10] Similarly, the Saudi Arabian Monetary Authority (SAMA) invests mainly in fixed-income securities, although it has some equity exposure as well. Despite modest losses on its portfolio, SAMA increased its assets from $350 billion to $390 billion in 2008 due to a substantial influx of new capital in the first half of the year (Exhibit 1.8).[11]

Exhibit 1.8

Some sovereign wealth funds grew in size despite the crisis



1 Estimates for ADIA's assets vary widely. We indicate the published range for 2007, and our estimates for 2008 are based upon this range.
2 SAMA is a central bank, but we include it as a SWF because its portfolio is more diversified than a typical central bank. It also invests on behalf of several state pension funds. Figures here are marked-to-market estimates, which differ from official reports.
3 The former Russian Oil Stabilization Fund was split into the Reserve Fund and the National Wealth Fund in February 2008.

SOURCE: McKinsey Global Institute Cross-Border Investment Database; Press releases; The Peter G. Peterson Institute for International Economics; McKinsey Global Institute analysis

Norway's sovereign wealth fund and some sovereign wealth funds in the United Arab Emirates reportedly posted substantial portfolio losses that exceeded new investments in 2008. Norway's Government Pension Fund - Global is in the process of increasing its target allocation to global equities from 40 percent to 60 percent. As a result, its managers put all new oil revenue into equities in 2008 and lost a reported $92 billion in the final two quarters of the year.[12] Counting new inflows, the fund's assets were worth $326 billion by the end of 2008, compared with $371 billion a year earlier.

ADIA reportedly also suffered substantial investment losses. Although the exact composition of its portfolio is not publicly disclosed, a variety of reports suggest ADIA invests significantly in equities and alternative investment vehicles. If this is correct, it could have lost up to 30 percent on its investments, offsetting the new capital inflows in the first half of 2008.[13]

10 Russia's National Wealth Fund, as it is called on the Ministry of Finance's English Web site, is sometimes referred to elsewhere as the National Welfare Fund or National Wellbeing Fund.

11 SAMA is a central bank, although it manages assets of several government pension plans and invests in a more diversified portfolio of securities than a traditional central bank.

12 Norway, Government Pension Fund - Global, Annual Report, 2008.

13 There is a wide range of public estimates on the size of ADIA's assets. See, for example, Edwin M. Truman, *Sovereign wealth funds: The need for greater transparency and accountability*, Peterson Institute for International Economics, policy brief 07-6, August 2007; Brad W. Setser and Rachel Ziemba give a much smaller figure in *GCC sovereign funds: Reversal of fortune*, Council on Foreign Relations working paper, January 2009.

Wealthy private investors from oil-exporting countries probably also lost significantly on their investments. Their portfolio allocations are typically like those of yield-seeking sovereign wealth funds, with most of their money in equity investments and some exposure to alternative investments. Taking into account portfolio losses and new inflows of capital, their collective assets probably shrank by almost 15 percent, to an estimated $1.8 trillion at the end of 2008.

Oil exporters used their wealth to shore up domestic banks and economies

The global financial crisis has also hit the domestic economies of oil-exporting nations, some more strongly than others. In aggregate, petrodollar countries have spent more than $280 billion of their wealth to support their currencies, provide liquidity to banks, and aid local companies and investors. This aid proved vital to helping contain the damage from the global financial and economic crisis, although it also reduced the countries' foreign assets.

Russia spent more than one-third of its central bank reserve assets to bolster its currency, the ruble, in 2008 and early 2009. In mid-2008, Russia's central bank reserves peaked at $600 billion—$120 billion higher than at the end of 2007. But as the global financial crisis continued and foreign investors grew concerned about Russian investments, the central bank spent nearly $220 billion to defend its falling currency. By the end of 2008, Russia held $440 billion in reserves; by the end of February 2009, it held around $380 billion.

Oil producers also tapped their foreign assets to support local banks facing losses. Russia's National Wealth Fund invested $10 billion in the state's development bank Vnesheconombank (VEB) in late 2008. The Qatar Investment Authority announced a $5.3 billion plan to take stakes in local banks to shore them up and maintain investors' confidence.[14] The Kuwait Investment Authority announced plans to use $5 billion to invest in local companies and banks and to stabilize the local stock market. SAMA made deposits totaling $3 billion in struggling Saudi banks. GCC governments joined together to purchase $4.8 billion of toxic assets from the Gulf International Bank, one of the worst-hit financial institutions in the Middle East.[15] And Norway diverted $20 billion from its pension fund for spending to stimulate its slumping domestic economy.[16] (See sidebar, *A closer look at sovereign wealth funds*.)

LONG-TERM INVESTMENT HORIZON WILL REMAIN

Since the financial crisis deepened in September 2008, many oil investors have moved to the sidelines, conserved cash, and focused on supporting domestic companies and banks. Some petrodollar sovereign wealth funds have announced that they are reviewing their investment strategies, although most will retain their long-term investment horizon.[17] Once the financial crisis subsides and recovery begins, they will be ready to jump at new opportunities. Early evidence suggests the petrodollar investors will make more investments in real estate and land,

14 "Doha Bank approves share sale to Qatar wealth fund," *Reuters*, December 22, 2008.

15 "Arab states bail out Gulf International Bank," *Financial Times*, March 23, 2009.

16 Spencer Anderson, "Strategies aim to deliver amid oil volatility," *Financial Times*, May 11, 2009.

17 John Irish and Dania Saadi, "Qatar fund plans 6-month pause, then strategy switch," *Reuters*, March 12, 2009; Wojciech Moskwa and Aasa Christine Stoltz, "Norway to review oil fund strategy after 2008 losses," *Reuters*, April 3, 2009.

commodities, and emerging markets. The crisis has also heightened their focus on building the organizational capabilities of sovereign wealth vehicles, in part by creating a greater flow of talent from abroad. In the Middle East, there will also be more focus on foreign investments that will have the added benefit of helping promote local economic development.

More focus on real estate, commodities, and emerging markets

In recent months, managers of several petrodollar sovereign wealth funds have discussed plans to broaden their investment strategies to include more real estate, commodities, and activity in emerging markets. The focus on real estate reflects the current opportunities to snap up many properties at depressed prices. The Abu Dhabi Investment Company, which is owned by the Abu Dhabi Investment Council, stated in April that it plans to launch an international real estate investment fund.[18] The Kuwait Investment Authority reportedly plans to take advantages of opportunities in global real estate and in equities.

In addition to investing in real estate, some oil exporters—particularly in the Middle East, where arable land is in short supply—have stepped up investments in agricultural land for food production and biofuels. For instance, the United Arab Emirates has secured 400,000 hectares of farmland in Sudan, while Saudi Arabia is leasing land in Ethiopia to grow grains.[19] A survey of press reports since 2006 by the International Food Policy Research Institute found eight signed deals involving investors from oil-exporting countries securing farmland in developing countries.[20]

Some petrodollar investors are interested in commodities investments as a way to secure future supplies of raw materials and as a hedge against the risk of higher global inflation. The executive director of the Qatar Investment Authority, for example, said in March that the fund would turn its focus to commodities—particularly food and energy—in the second half of this year.[21]

Petrodollar investors also are looking to emerging markets, especially in Asia, for long-term growth opportunities. For example, Kuwait's finance minister told Reuters in May 2009 that the emirate plans to raise its stake in the Industrial and Commercial Bank of China and invest in China's energy and industrial sectors.[22] The Qatar Investment Authority plans to invest $400 million in infrastructure in Africa, particularly in South Africa, focusing on transportation, communication, and energy. It also has set up a joint venture with the government of Indonesia to invest $850 million in that country and plans to establish a $1 billion fund to invest in agriculture, natural resources, and tourism in Vietnam. As the head of the Kuwait Investment Authority noted at the start of the crisis in 2007, "Why invest in 2 percent-growth economies when you can invest in 8 percent-growth economies?"[23]

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18 Stanley Carvalho, "Abu Dhabi investor plans global property fund," *Reuters*, April 21, 2009.

19 "Outsourcing's third wave," *Economist*, May 21, 2009.

20 Joachim von Braun and Ruth Meinzen-Dick, "'Land grabbing' by foreign investors in developing countries: Risks and opportunities," International Food Policy Research Institute (http://www.ifpri.org).

21 Andrew England and Javier Blas, "Qatar to target food and energy," *Financial Times*, March 13, 2009.

22 John Irish and Caroline Drees, "Kuwait looks to raise stake in China's ICBC," *Reuters*, May 15, 2009.

23 Henny Sender, "Deep well: How a Gulf petro-state invests its oil riches—Kuwait's Mr. Al-Sa'ad likes Asian real estate but is cool to treasuries," *Wall Street Journal*, August 24, 2007.

Hiring new talent

The crisis has caused financial institutions to lose thousands of employees in the United States and Europe. Sovereign wealth funds in oil-exporting countries, as well as in Asia, have benefited from this outflow of talent. For instance, ADIA announced in January that it had hired a managing director from J. P. Morgan to guide its global real estate investment strategy. The Abu Dhabi Investment Company said in April that it had hired a senior investment banker from Rothschild to advise on cross-border mergers and acquisitions. The Qatar Investment Authority reports that it has received 40 percent more job applications in 2008, including many from employees of global banks.

These hires will expand sovereign wealth funds' financial and investment expertise, allowing better selection and monitoring of external investment managers. Such hires may also be part of another trend we discussed in our initial report: the funds' move to manage a larger portion of their portfolios directly rather than through outside money managers.

New vehicles to manage sovereign wealth

Many governments around the world, including those of oil-exporting countries, are creating new sovereign wealth investment vehicles. Many of these funds have more narrowly defined investment strategies; in the Middle East, some of the new vehicles will take more active roles in ownership. For the petrodollar governments, this proliferation of funds serves several purposes. First, it allows policy makers to create more targeted and well-defined investment goals for each entity. In addition, it creates competition among sovereign investment vehicles and may therefore spur better performance, as the higher-performing funds could get larger capital injections in the future.

For example, in 2006, Abu Dhabi spun off the Abu Dhabi Investment Council from the larger ADIA to focus on local and regional investments. In 2008, Abu Dhabi created the state-owned Advanced Technology Investment Company to invest in high technology locally and internationally; its first major deal was a joint venture with chip-maker Advanced Micro Devices (AMD) to create The Foundry Company, a semiconductor manufacturer. Also in 2008, Abu Dhabi's Mubadala Development Company formed a joint venture with Rolls-Royce to provide aviation services in the Middle East.

In 2008, Russia split its former petrodollar stabilization fund into two entities with distinct mandates: the Reserve Fund, intended to cover budget deficits arising from drops in oil prices, and the National Wealth Fund, which will seek long-term returns. Some other oil-rich states, not included in our group of petrodollar countries because they are not yet major oil exporters, have also established sovereign wealth funds recently. Brazil, for example, established a fund in 2008 with initial capital of $6.5 billion to provide a cash cushion that can be used to stabilize the country's currency or counter an economic slowdown. The fund seeks higher returns by buying the corporate debt of Brazilian companies expanding overseas. Kazakhstan has also recently established a fund.

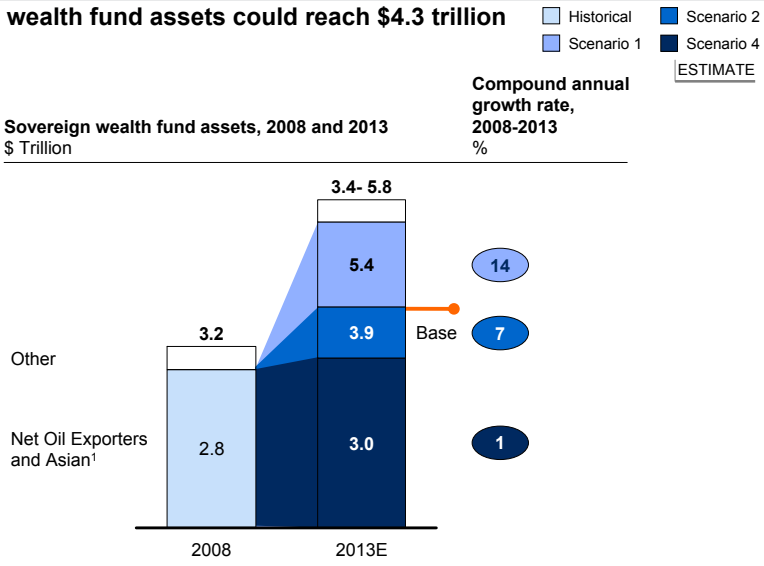
A closer look at sovereign wealth funds

We define *sovereign wealth funds* broadly as a diverse group of government-controlled investment vehicles. They generally invest the trade surpluses that result from the export of oil, other commodities, and manufactured goods. Using this definition, we include entities such as Singapore's Temasek Holdings, which has a growing share of its portfolio invested in foreign companies, and the Saudi Arabian Monetary Authority (SAMA), even though it's a central bank. This is because SAMA manages funds on behalf of Saudi Arabia's pension fund and has a more diverse portfolio of investments than traditional central banks.

We estimate the world's sovereign wealth funds had $3.2 trillion in assets under management at the end of 2008—roughly the same as a year before—making them significant players in global capital markets (Exhibit 1.A). Moreover, we project in our base-case scenario that their wealth will grow to $4.3 trillion in 2013. In this scenario, the global recession lasts until mid-2010, depressing Asian current account surpluses and oil prices. In Scenario 1, which assumes the global economy starts to grow again by the end of 2009, we project that sovereign wealth fund assets will grow to $5.8 trillion in 2013. In Scenario 4, in which GDP does not resume growth until 2011, sovereign wealth fund assets grow to $3.4 trillion in 2013.[1]

Exhibit 1.A

Sovereign wealth fund assets could reach $4.3 trillion by 2013



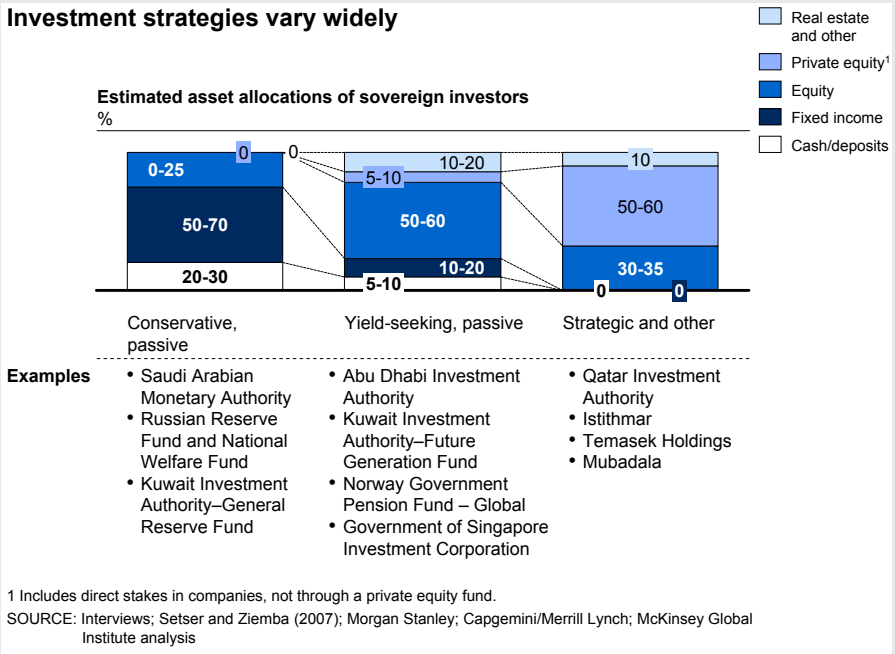
1 Includes sovereign wealth funds in Algeria, Bahrain, China, Indonesia, Iran, Kuwait, Libya, Malaysia, Nigeria, Norway, Oman, Qatar, Russia, Saudi Arabia (including the Saudi Arabian Monetary Authority), Singapore, South Korea, United Arab Emirates, and Venezuela.

SOURCE: International Monetary Fund; Sovereign Wealth Fund Institute; McKinsey Global Institute analysis

Sovereign wealth funds employ a wide range of investment strategies, each of which is unique. Yet we can group them into three broad categories (Exhibit 1.B).

1 The base-case scenario assumes a severe economic recession, with GDP growth resuming in 2010. Oil prices rise to about $75 per barrel in 2013, and Asian trade surpluses grow. Portfolio returns are calculated for each sovereign wealth fund individually based on their asset allocations. Scenario 1 assumes GDP growth resumes in late 2009, causing oil prices to reach $100 per barrel in 2013 and greater growth in Asian trade surpluses. Scenario 4 assumes a longer recession until 2011 and declining Asian trade surpluses.

Exhibit 1.B



1 Includes direct stakes in companies, not through a private equity fund.

SOURCE: Interviews; Setser and Ziemba (2007); Morgan Stanley; Capgemini/Merrill Lynch; McKinsey Global Institute analysis

Conservative, passive investors. These sovereign wealth funds employ a conservative strategy, focused primarily on fixed-income assets, and are passive, portfolio investors. It includes SAMA, the two Russian funds (the Reserve Fund and the National Wealth Fund), and the Kuwait Investment Authority's General Reserve Fund.

Yield-seeking, passive investors. These investors hold more diversified portfolios of assets with higher expected returns and risk. They are estimated to hold most of their assets in equities, with the remainder roughly split between safer, fixed-income assets and higher-risk alternative investments, including hedge funds, leveraged buyout funds, and real estate. This group includes some of the largest sovereign investment vehicles, such as the Abu Dhabi Investment Authority (ADIA) and Norway's Government Pension Fund - Global.

Strategic investors. The third category of investors is smaller than the first two. All have narrower investment mandates than the passive portfolio investors and take more direct and active stakes in companies. For example, Dubai's Istithmar has significant real estate investments in New York and London and several significant private equity investments, including a stake in the US luxury retailer Barneys. Other investors in this group, such as Abu Dhabi's Mubadala, seek to promote national strategic and economic interests by investing domestically and in international corporate assets.

In the Middle East, investments that contribute to national economic development

In earlier papers we noted that some oil exporters, particularly those in the Middle East, may pursue strategic foreign investments in specific companies that are not only commercially attractive but that can also generate benefits for the local economy by bringing new skills, technologies, or business opportunities.[24] These investments

24 *The coming oil windfall in the Gulf*, McKinsey Global Institute, January 2008 (www.mckinsey.com/mgi/).

may take the form of setting up a joint venture with a foreign company, establishing a more loosely defined partnership, or taking a sizable equity stake in it. For example, Mubadala's $1.35 billion investment in US private equity firm Carlyle in 2007 was aimed in part at expanding private equity investments in the Middle East and North Africa (MENA);[25] Carlyle recently closed a new fund targeted at MENA investments. A key reason for Mumtalakat Holdings' 30 percent stake in McLaren Group is to develop Bahrain's aluminum industry. GE, which has an extensive partnership with Mubadala, was one of the first foreign companies to sign up for Abu Dhabi's new carbon-neutral Masdar City.

Petrodollar investors' losses in public equity and debt markets last year may cause them to lean increasingly toward such corporate stakes with economic development benefits.

PETRODOLLAR FOREIGN ASSETS COULD GROW TO NEARLY $9 TRILLION BY 2013

Despite the economic downturn, petrodollar foreign assets will continue to climb over the next five years in all scenarios that we consider. Even with oil prices far below their 2008 peak, petroleum exporters will nonetheless enjoy rising revenue for the foreseeable future because of the increasing energy demand from China and other emerging markets.

Growth is based on macroeconomic scenarios for the global economy

Future growth in petrodollar foreign assets will depend on three factors: the value of oil produced, the quantity of oil revenue invested abroad, and investment returns. For each of these factors, we base our projections on four proprietary global macroeconomic scenarios developed by McKinsey & Company and Oxford Economics. Exhibit 1.9 shows a stylized version of the path of global GDP over time in each scenario. (See the appendix for more detail on our scenarios and projection methodology.) For simplicity, we focus on three of the scenarios: Scenario 1, or the "quick fix," in which global GDP starts to grow again in late 2009; Scenario 2, labeled "battered, but resilient," in which GDP resumes growth in mid-2010; and Scenario 4, the "long freeze," in which GDP does not begin growing again until 2011.[26] We highlight Scenario 2 as the base case because it is viewed as the most likely to occur by a plurality, 39 percent, of respondents to the *McKinsey Quarterly* executive survey (June 2009).

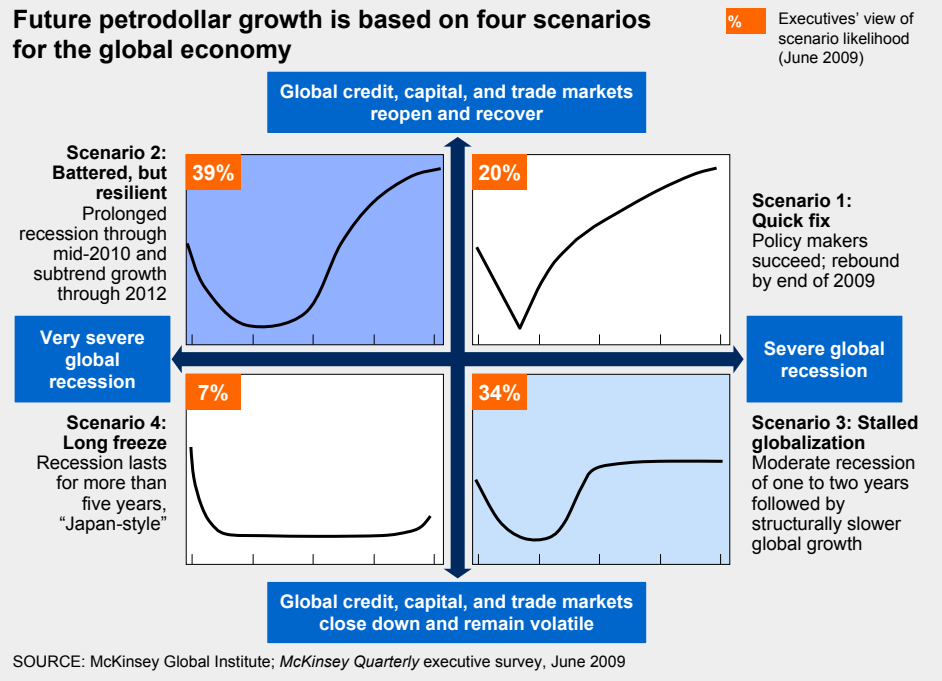
The value of oil produced will be determined by the price of crude and the volume of production. Our projections for oil prices and volumes in each global economic scenario are made using McKinsey Global Institute research on energy demand and oil production.[27] In the base case, crude prices rise in coming years as the economy recovers, surpassing $70 per barrel by 2013. In Scenario 1, oil prices climb steadily to $100 per barrel by 2013, while in Scenario 4, crude lingers below $50 per barrel for several years before rising to $60 per barrel in 2013.

25 Siobhan Kennedy, "Abu Dhabi buys $1.35 billion stake in Carlyle Group," *The Times*, September 21, 2007.

26 We don't discuss Scenario 3 separately because although the economic recovery paths are very different in scenarios 2 and 3, the value of petrodollar foreign assets in 2013 is similar.

27 *Averting the next energy crisis: The demand challenge*, McKinsey Global Institute, March 2009 (www.mckinsey.com/mgi/).

Exhibit 1.9



SOURCE: McKinsey Global Institute; *McKinsey Quarterly* executive survey, June 2009

The amount of oil revenue that goes toward future foreign investment depends upon how much oil is consumed domestically and how much of the oil export revenue is invested in the local economy. In the past, oil exporters have varied their domestic consumption of oil and spending of oil revenue in proportion to the value of oil that they produced. We assume that this trend will occur in the non-GCC nations. Thus in the base-case scenario, the domestic use of oil and oil revenue will decrease through 2010 before resuming growth and nearing 2007 levels by 2013. In Scenario 1, which envisions a faster economic recovery, the domestic use of oil and oil reserves will decline in 2009 but surpass 2007 levels by 2011. In Scenario 4, which assumes a slower economic recovery, the domestic use of oil and oil reserves will remain below 2006 levels for the next five years.

As noted previously, the GCC states have been increasing domestic investments in recent years to diversify their economies. They have already committed $1.4 trillion to new investment projects over the next five years. We therefore assume that in all scenarios, these countries' domestic investment will continue to rise at the same pace it has for the past five years, regardless of the oil price.

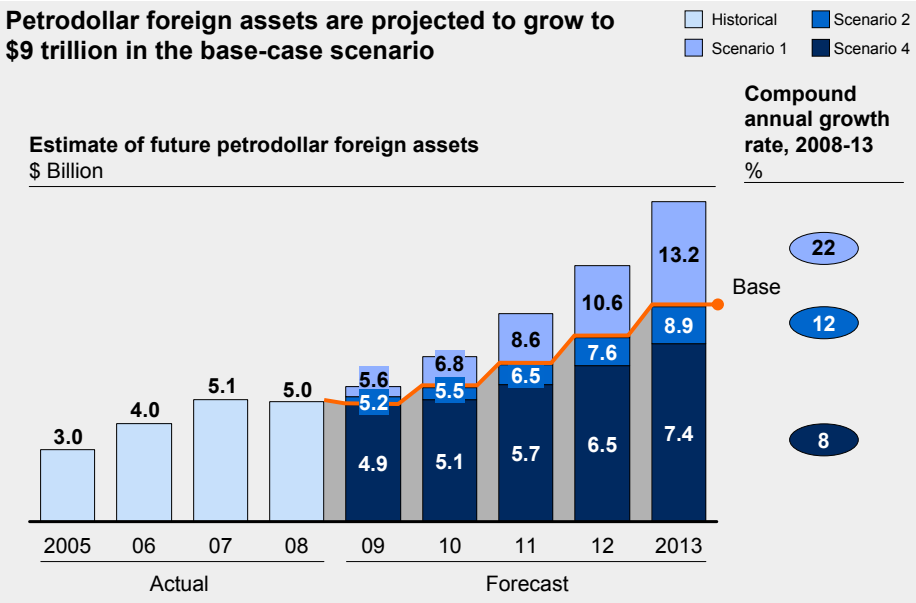
The final key assumption is the rate of appreciation on existing foreign investments. We take a very conservative view on future returns, assuming that oil revenue is allocated as it has been in the past, both across investors—sovereign wealth funds, central banks, and private individuals—and across asset classes in each individual investor's portfolio. Projected returns are then calculated based on equities' returns in the macroeconomic scenarios. In the base-case scenario, average investor rates of return are between 1 percent and 6 percent. In Scenario 1, investor rates of return range from 3 percent to 8 percent, with aggressive investors performing better. In Scenario 4, rates of return are between -1 percent and 2 percent, with all investors seeing negative or near-zero returns through 2010.

Petrodollar foreign assets grow to $8.9 trillion by 2013 in the base-case scenario

In our base-case scenario, petrodollar foreign assets climb to $8.9 trillion by 2013 (Exhibit 1.10). This reflects a compound annual growth rate of 12 percent, significantly lower than the 25 percent pace seen between 2002 and 2007 but faster than the rate of growth of the other power brokers or institutional investors.

Exhibit 1.10

Petrodollar foreign assets are projected to grow to $9 trillion in the base-case scenario



SOURCE: US Federal Reserve; Capgemini; Merrill Lynch; Watson Wyatt; National Association of College and University Business Officers; Foundation Center; Conference Board; McKinsey Global Institute analysis

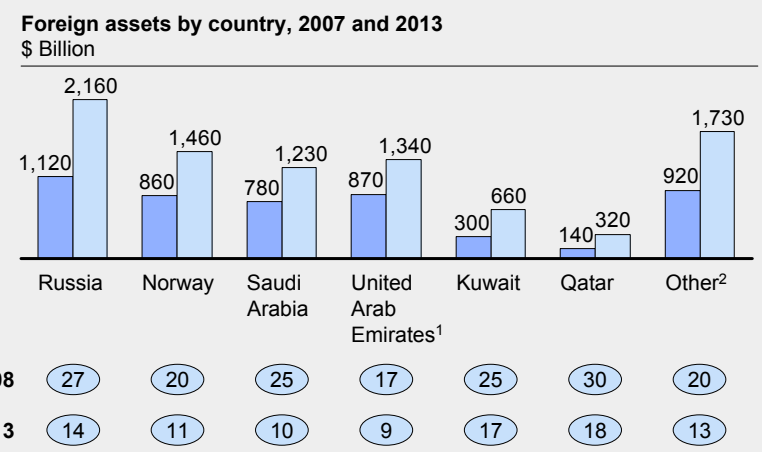
In this scenario, Russia continues to be the largest holder of foreign assets among the oil exporters, with its foreign wealth increasing by $1 trillion to reach $2.2 trillion in 2013 (Exhibit 1.11). Norway's foreign assets grow by $600 billion over the same period, to $1.5 trillion. GCC countries see their foreign wealth climb by $1.3 trillion, to $3.5 trillion in 2013. Within the GCC, the United Arab Emirates posts the largest gain in foreign assets in absolute terms ($470 billion); although it does not have as much oil as Saudi Arabia, it spends a smaller share of its oil revenue and enjoys substantial appreciation on its already massive foreign wealth. Among GCC states, Qatar and Kuwait continue to experience the fastest rates of growth.[28]

The foreign assets of some of the newer petrodollar powers continue to increase rapidly. Venezuela's assets rise at a 21 percent compound annual growth rate, Nigeria's at 20 percent, Libya's at 18 percent, and Algeria's at 14 percent. The combined foreign assets of other oil exporters, including Iran, Syria, and Yemen, climb by $940 billion over the next five years to $1.8 trillion.

28 From 2008 through 2013, Qatar's foreign financial assets are predicted to grow at a compound annual rate of 18 percent and Kuwait's to increase at a 17 percent annual pace.

Exhibit 1.11

In the base case, foreign assets of all countries will grow substantially by 2013, but at a slowed rate



1 Foreign assets of UAE are estimated from public reports about the assets of the Abu Dhabi Investment Authority and other sources. The range of UAE assets for 2008 is $710 billion to $980 billion. We base our future projections on 2008 assets of $870 billion.
2 Other: Algeria, Bahrain, Indonesia, Iran, Libya, Nigeria, Oman, Syria, Venezuela, and Yemen.
3 Compound annual growth rate.

SOURCE: McKinsey Global Institute Cross-Border Investment Database; McKinsey Global Institute analysis

Petrodollar foreign assets range from $7.4 trillion to $13.2 trillion in 2013

In Scenario 1, the global recession is less severe and capital markets recover more quickly. The price of oil rises steadily as global demand outstrips increases in supply. As a result, petrodollar foreign assets grow considerably faster, reaching $13.2 trillion by 2013. This reflects a compound annual growth rate of 22 percent, nearly as high as the 25 percent growth rate between 2002 and 2007.

In this scenario, GCC countries account for more than 40 percent of the growth, while Russia accounts for less than it does in the base case. This is because we assume a faster rate of asset appreciation in this case. Provided that GCC sovereign investors maintain a similar portfolio balance that is more heavily weighted toward equities than Russia's central bank and sovereign wealth funds, GCC investors would profit more from quickly recovering financial markets. As in the base-case scenario, the more recent petrodollar powers' foreign assets continue to grow at the most rapid rates.

In Scenario 4, GDP does not resume growth until 2011, oil revenue remains substantially depressed, and sluggish global equities markets limit returns on investments. In this case, our forecast shows petrodollar foreign assets increase to $7.4 trillion by 2013, at a compound annual growth rate of 8 percent.

In this scenario, Russia accounts for more of the total growth in petrodollar foreign assets, and GCC countries account for less than in the base-case scenario. This is because of Russia's larger oil revenue and the fact that asset appreciation is significantly slower. We project that GCC countries will continue to boost their domestic spending to diversify their economies, even if the global economy remains weak. This higher domestic spending will significantly lower the projected compound annual growth rates for Saudi Arabia's foreign assets to 2 percent and the United Arab Emirates' to 4 percent.

* * *

Petrodollar investors have taken their knocks during the financial crisis and economic slowdown. Nonetheless, they are adapting to changing conditions and using their existing wealth to prepare for the future. We expect these investors to continue to grow in wealth and influence as the global economy recovers and oil prices rise. And as they do, they will help shape global capital markets in the years ahead.

2. Asian sovereign investors: The crisis slows growth

The global financial and economic crisis is hitting Asian countries through two primary channels. Turmoil in capital markets has caused a record outflow of foreign capital from the region, while the recession in the United States and Europe is dampening demand for Asia's exports. Nonetheless, Asian sovereign investors—the region's central banks and sovereign wealth funds—saw their collective foreign financial assets grow by $400 billion in 2008, reaching $4.8 trillion by year-end. Although this growth rate was far slower than in the past, Asian governments were the only one of the power brokers to record any gains last year.[1]

The overall growth in Asian sovereign investors' assets was driven almost entirely by China, whose foreign wealth surpassed $2 trillion. Across the rest of Asia, the story was bleaker. Japan's and Taiwan's foreign assets grew just slightly, while the foreign wealth of most other Asian governments declined.[2]

Our research finds that Asian sovereign investors' assets will continue to grow, albeit at a slower rate than in the past. In the base-case scenario, their assets grow half as fast in the next five years as they did from 2002 through 2007, reaching $7.5 trillion by 2013. Still, their assets would be one-quarter the size of global pension funds at that time. China's government-owned foreign assets alone could double over the next five years, despite a declining current account surplus.

What kind of investors will they be? While there is no evidence that their long-term investment horizons or strategies will change substantially, the events of 2008 have prompted some shifts. China is searching for ways to promote higher domestic consumption, a move that would help address global imbalances and slow future reserve accumulation. China also will seek to use new investments to diversify away from the dollar and to hedge the risks of higher global inflation. Changes within Asian sovereign wealth funds are also apparent. They have increased transparency to allay concerns about their investments. They have also accelerated their hiring of outside financial professionals, tapping talent being shed by Western banks and other financial institutions. This will enhance their financial capabilities and may eventually enable them to become less dependent on external investment managers. In the years to come, Asian sovereign investors will grow in wealth and expertise.

1 Based on new information, this chapter updates figures for 2006 and 2007 published in our earlier reports: *The new power brokers: How oil, Asia, hedge funds, and private equity are shaping global capital markets*, McKinsey Global Institute, October 2007, and *The new power brokers: Gaining clout in turbulent markets*, July 2008. Both are available at www.mckinsey.com/mgi/.

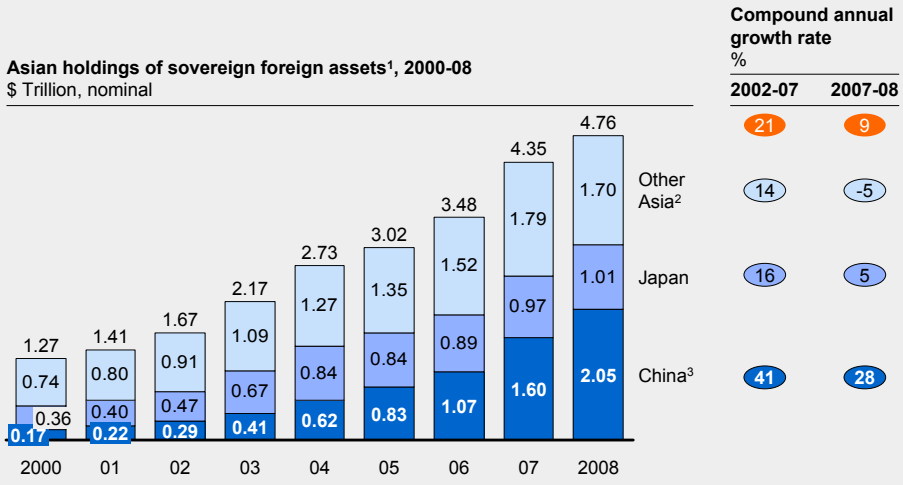
2 Throughout this report, *other Asia* refers to Bangladesh, Cambodia, Hong Kong, India, Malaysia, Pakistan, Philippines, Singapore, South Korea, Sri Lanka, Taiwan, Thailand, and Vietnam.

ASIAN SOVEREIGN FOREIGN ASSETS REACHED $4.8 TRILLION

Asian sovereign investors' foreign assets grew to $4.8 trillion by the end of 2008, up from $4.4 trillion in 2007 (Exhibit 2.1).[3] While this 9 percent growth is impressive against the backdrop of the global economic crisis, it is substantially slower than the 21 percent compound annual growth rate seen between 2002 and 2007. As in recent years, large current account surpluses in China and Japan drove the growth in foreign assets in 2008 (Exhibit 2.2). Asian economies had a combined current account surplus of $642 billion last year. Total foreign assets did not grow by quite this much because foreign investors withdrew a net of $150 billion from the region in 2008, and some Asian governments drew down their wealth to finance spending in response to the financial crisis. Nevertheless, Asian sovereign investors' assets have doubled in just five years.

Exhibit 2.1

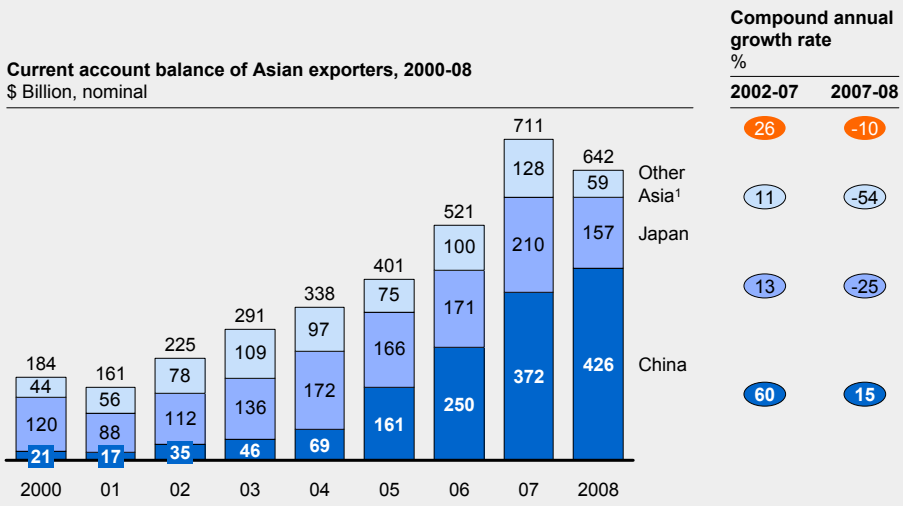
Asian sovereign foreign assets grew in 2008, driven by China



1 Includes central bank reserve assets and sovereign wealth funds foreign assets.
2 Other Asia: Bangladesh, Cambodia, Hong Kong, India, Malaysia, Pakistan, Philippines, Singapore, South Korea, Sri Lanka, Taiwan, Thailand, Vietnam.
3 Does not include foreign assets of state-owned banks or other companies.
SOURCE: Global Insight; People's Bank of China; McKinsey Global Institute analysis

Exhibit 2.2

Asian current account surpluses declined in 2008, but remain large



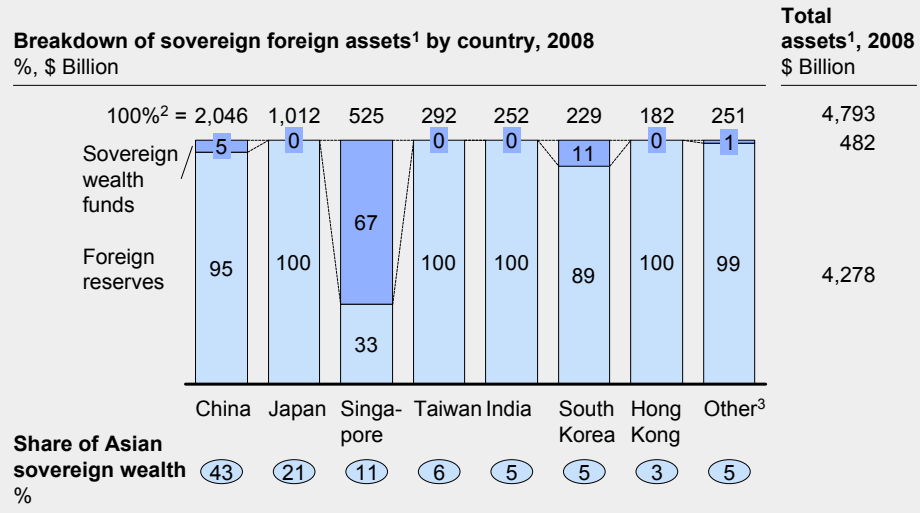
1 Other Asia: Bangladesh, Cambodia, Hong Kong, India, Malaysia, Pakistan, Philippines, Singapore, South Korea, Sri Lanka, Thailand, and Vietnam.
SOURCE: International Monetary Foundation; McKinsey Global Institute Analysis

3 In our last report, in July 2008, we listed Asian sovereign investor assets in 2007 as $4.6 trillion. Our current estimate is lower because we exclude the domestic investments of Asian sovereign wealth funds.

The wealth of Asian sovereign investors is highly concentrated. Together, the region's central banks hold 90 percent of total foreign financial assets ($4.3 trillion) and China's and Japan's central banks together account for 64 percent (Exhibit 2.3). When ranked against global asset managers, the People's Bank of China is by far the largest, while the Bank of Japan ranks ninth (Exhibit 2.4). These reserves are invested almost exclusively in liquid fixed-income securities—particularly US Treasuries—even though they are well in excess of what is needed for monetary stabilization purposes.[4]

Exhibit 2.3

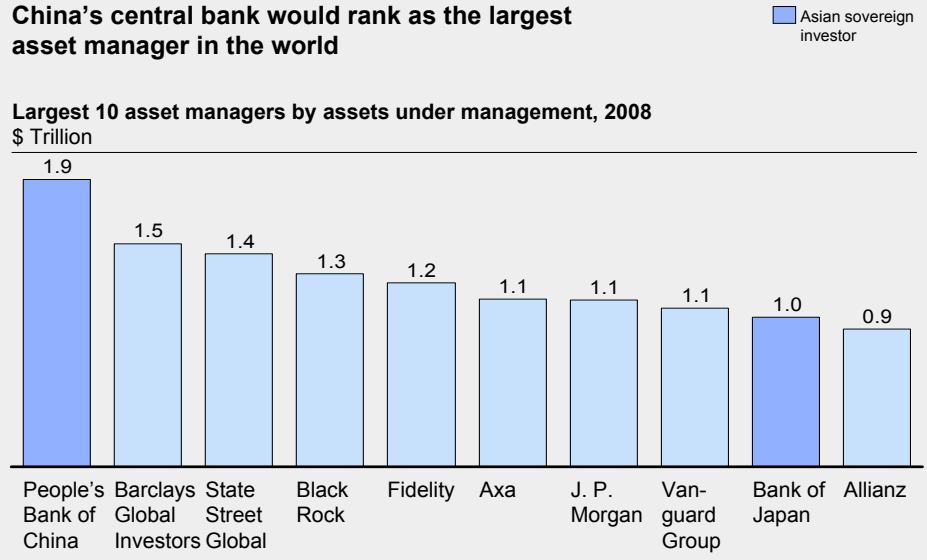
Central banks account for 90 percent of Asian sovereign foreign assets



1 Includes central bank reserve assets and sovereign wealth funds' foreign assets.
2 Some figures do not sum due to rounding.
3 Other: Bangladesh, Cambodia, Malaysia, Pakistan, Philippines, Sri Lanka, Thailand, and Vietnam.

Exhibit 2.4

China's central bank would rank as the largest asset manager in the world



SOURCE: Company reports; International Financial Services, London; Investment Alliance; Investment Company Institute; Nelson Marketplace Web; People's Bank of China; Bank of Japan; McKinsey Global Institute analysis

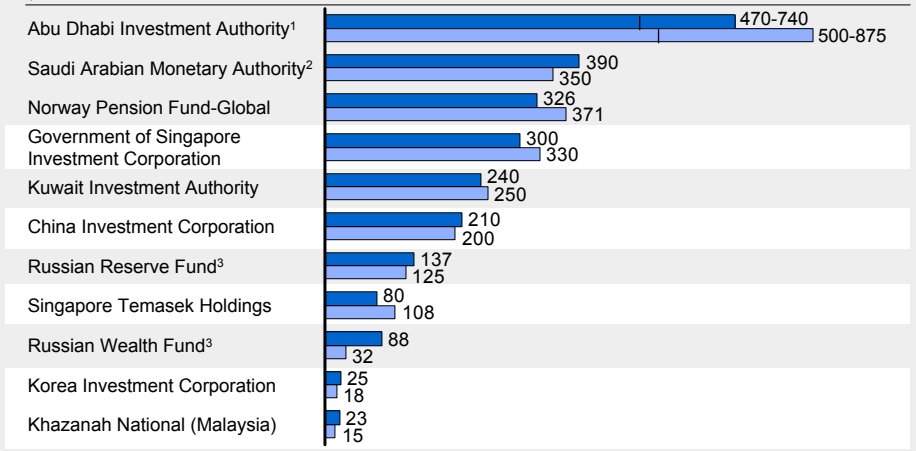
4 One rule for determining adequate foreign reserve assets, proposed by Pablo Guidotti and Alan Greenspan, states that reserves should cover all short-term foreign debt. By this measure, in 2008, China held 12 times more reserves than necessary; Taiwan held 7 times more; and Japan and India held over 2.5 times the adequacy benchmark.

To generate higher returns through more diversified investment strategies, some Asian countries have created sovereign wealth funds.[5] These funds remain far smaller than the region's central banks, with total assets of just $640 billion, of which $490 billion is invested in foreign currency assets. However, several are major foreign investors and among the world's largest sovereign wealth funds (Exhibit 2.5).

Exhibit 2.5

Asian sovereign wealth funds rank among the largest

Estimated assets of major sovereign wealth funds, 2007 and 2008
$ Billion



1 Estimates of ADIA's assets vary widely. We indicate the published range for 2007 and our estimates for 2008, based on this range.
2 SAMA is a central bank, but we include it as a sovereign wealth fund because it has a more diversified portfolio than a typical central bank and invests funds on behalf of several state pension funds. Figures here are marked-to-market estimates.
3 The former Russian Oil Stabilization Fund was split into the Reserve Fund and the National Wealth Fund in February 2008.
SOURCE: Press releases; interviews; McKinsey Global Institute analysis

Asia's war chest of foreign assets has proven useful during the financial crisis. In October and November of 2008, South Korea spent $50 billion from its foreign reserves defending its plunging currency, the won. In January 2009, Singapore announced it will use $3.3 billion from its reserves to fund part of its $13.7 billion stimulus package.

CHINA'S FOREIGN RESERVES KEEP MOUNTING, BUT ALSO POSE A DILEMMA

China accounted for the growth in Asia's sovereign foreign assets in 2008, with its sovereign foreign assets growing from $1.6 trillion to $2.1 trillion (see Exhibit 2.1). The central bank added $420 billion in foreign reserve assets, pushing its formal total to $1.9 trillion.[6] This new capital addition resulted from a $426 billion current account surplus and from $16 billion in net capital inflows.[7] The People's Bank of China also posted gains on its foreign investments in 2008, since its reserve assets are invested heavily in US government securities.

5 We use the term *sovereign wealth fund* to include many types of government-controlled investment vehicles. For more details, see sidebar, *A closer look at sovereign wealth funds*, in chapter 1 of this report.

6 The People's Bank of China also manages more than $100 billion of "other foreign assets." These are thought to comprise the mandatory reserves that China's banks hold in dollars. See Brad W. Setser and Aparna Pandey, "China's $1.5 trillion bet," Council on Foreign Relations working paper, May 2009.

7 Foreign reserve purchases do not match the sum of the current account surplus and net private capital inflows because of errors and omissions in the national balance of payments.

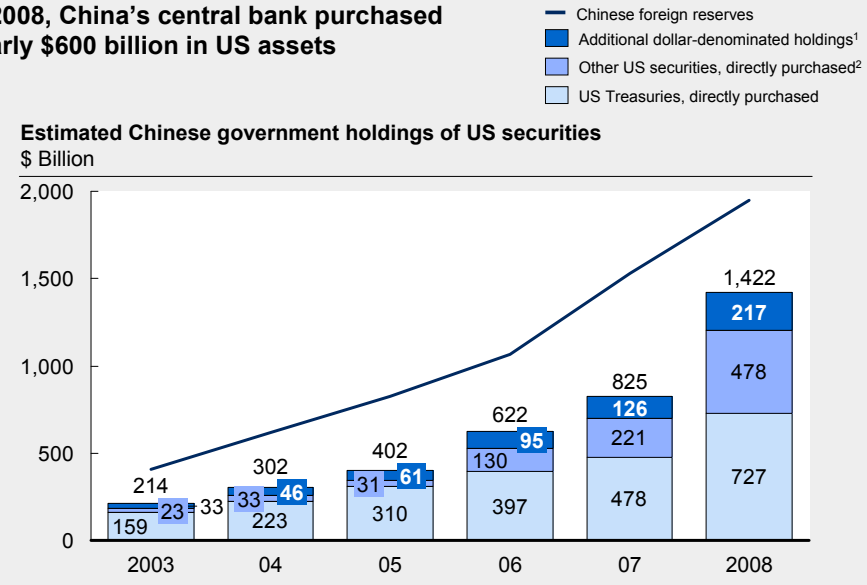
The assets of China's sovereign wealth fund, the China Investment Corporation (CIC), also grew in 2008. The CIC reportedly gained $10 billion last year, for an estimated total of $210 billion in assets.[8] This growth resulted from dividends from shares of the country's largest domestic banks and brokerages, which account for just over half of the corporation's assets.[9] These dividends, in addition to yields on its roughly $90 billion in foreign money market funds, cash, and other investments, more than offset losses on CIC's investments in Western financial institutions.

China's growing exposure to the dollar

Yet the crisis has highlighted a growing dilemma for China: how to maintain export growth without continuing to amass dollar-denominated assets. China's efforts to avoid rapid appreciation of its currency have resulted in rapidly growing foreign reserves, most of which are invested in dollar-denominated assets. This leaves China vulnerable to economic and financial turmoil in the United States. Researchers for the International Monetary Fund (IMF) and other institutions estimate that the People's Bank of China holds between 65 percent and 70 percent of its reserves in dollar-denominated assets.[10] In 2008, China increased its holdings of US securities by nearly $600 billion, surpassing Japan as the world's largest foreign holder of US Treasuries and bringing its total dollar assets to around $1.4 trillion (Exhibit 2.6).[11]

Exhibit 2.6

In 2008, China's central bank purchased nearly $600 billion in US assets



1 US securities purchased through intermediaries and additional dollar-denominated assets.
2 Includes long-term and short-term equity, debt (Treasuries, agencies, corporate).
SOURCE: Treasury International Capital System; International Monetary Fund; McKinsey Global Institute analysis

8 Eadie Chen, "China's CIC fund making near 5 pct profit," *Reuters*, February 24, 2009.

9 Roughly half of China Investment Corporation's money is invested domestically, primarily through Central Huijin, a financial company that holds the state's stakes in nine large banks and brokerages, including Bank of China, China Construction Bank, Agricultural Bank of China, and China Galaxy Securities.

10 Brad W. Setser and Aparna Pandey, "China's $1.5 trillion bet," Council on Foreign Relations working paper, May 2009.

11 Data from the US Treasury indicate that in 2008 China increased its holdings of US securities by $500 billion through direct purchases. China likely purchased an additional $100 billion—20 percent more than the official total—in US securities indirectly through intermediaries in London and Hong Kong, not including the foreign assets of state-owned banks (see Brad W. Setser and Aparna Pandey, "China's $1.5 trillion bet," Council on Foreign Relations working paper, January 2009).

This large and growing exposure to the dollar creates the potential for substantial losses if the dollar depreciates sharply. In the past, this possibility seemed remote. It seems more plausible today, however, with US banks facing massive credit losses, the economy severely contracting, and the federal government running trillion-dollar deficits. In recent months, Chinese officials sought US government assurances that their investments in Treasuries and US agency debt were secure, and they have raised the possibility of supplanting the dollar with a new global reserve currency.[12]

Yet replacing the dollar with a different global reserve currency is a long-term goal at best. The dollar has emerged as the world's primary reserve currency because of the deep and liquid financial markets for dollar assets, the strong productivity growth and innovation in the US economy, and the stable and generally effective legal and regulatory institutions in the United States. The financial crisis has undoubtedly shaken these foundations. Yet the eurozone and Japan have been weakened by the crisis as well, and the prospects for their quick recovery are even more remote.

Policy changes to slow future reserve accumulation

An alternative solution for China would be to avoid further reserve accumulation through policy changes. This could be achieved by allowing more rapid appreciation of its currency, the renminbi, or by allowing more foreign investment by corporations and private citizens. Since 2000, China has allowed a 17 percent nominal appreciation of the renminbi versus the dollar. During the crisis, however, policy makers have been reluctant to allow further appreciation, as Chinese exporters are already suffering from declining demand. The government is encouraging Chinese corporations to invest overseas. In May, the central bank's State Administration of Foreign Exchange issued draft rules to make it easier for companies to raise dollars in China to invest abroad.

Much attention has been paid to the growing volume of outward foreign direct investment by Chinese corporations, in everything from commodities to computers. Indeed, these capital flows grew from less than $1 billion in 2000 to a record $53 billion in 2008—equal to the sum from the previous six years. Still, these flows are small compared to the $420 billion of central bank reserve purchases in 2008 (Exhibit 2.7). We calculate Chinese foreign direct investment (FDI) would need to increase sevenfold over the next five years to significantly slow the pace of future central bank reserve purchases (discussed in more detail below).

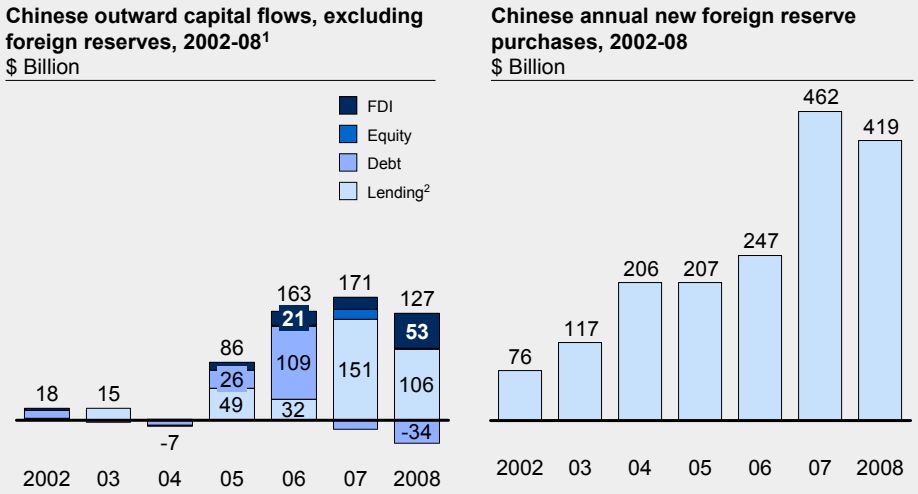
There are also opportunities to expand Chinese foreign investments beyond FDI. For instance, purchases of foreign equity securities by Chinese corporations and households grew from negligible levels in 2005 to $15.2 billion in 2007, before dropping back to just $1.5 billion during the market tumult of 2008. Purchases of foreign debt securities by Chinese entities other than the central bank have been quite volatile, ranging from more than $100 billion in 2006 to net selling of such foreign securities in 2007 and 2008. There is room for further growth of many types of capital outflows. If Chinese domestic retail and institutional investors were offered the chance to diversify into foreign equities and fixed income securities, some of China's $7 trillion in bank deposits could be shifted to higher-yielding assets. Such a move would enable Chinese households to earn higher returns on their savings and build

12 C. Fred Bergsten, "We should listen to Beijing's currency idea," *Financial Times*, April 8, 2009; Andrew Batson, "China takes aim at dollar," *Wall Street Journal*, March 24, 2009.

larger nest eggs for retirement, education, and other future needs, freeing them to consume more and save less.[13]

Exhibit 2.7

Chinese outward foreign direct investment and equities purchases have been small



1 Totals under $20 billion are not indicated.
2 Includes bank and non-bank lending as well as other miscellaneous capital flows.
SOURCE: McKinsey Global Institute cross-boarder flows database; McKinsey Global Institute analysis

THE REST OF ASIA'S SOVEREIGN FOREIGN ASSETS DECLINED

The rest of Asia was hit harder than China by the financial and economic turbulence of 2008 (Exhibit 2.8). Japan's sovereign foreign assets, which consist entirely of central bank reserves, grew by just $45 billion to slightly more than $1 trillion. While Japan remains the world's second-largest holder of foreign reserves, this 5 percent growth marked a sharp drop from the rapid 16 percent compound annual growth rate recorded from 2002 through 2007. Plunging exports and outflows of foreign capital caused this slowdown. Japan's exports dropped so sharply that the country became a net importer in the third and fourth quarters of 2008, in contrast to the average quarterly trade balance of $20 billion it has maintained since 2000.[14] As a result, Japan's current account surplus for 2008 fell to $170 billion, and foreign investors sold net investments of $120 billion in Japan.

13 In previous research, MGI found that as of 2006, Chinese households held 80 percent of their wealth in bank deposits and earned a real return of 1.3 percent annually on their total financial assets, compared to 3 percent for US households. This lower return is one reason Chinese households need to save a larger share of their income. See *Putting China's capital to work: The value of financial system reform*, McKinsey Global Institute, May 2006 (www.mckinsey.com/mgi/).

14 Economist Intelligence Unit.

Exhibit 2.8

Other than China, foreign assets of most Asian countries fell or remained constant in 2008

1 Includes central bank reserve assets and sovereign wealth funds' foreign assets.

SOURCE: Global Insight; McKinsey Global analysis

Other Asian countries' collective sovereign foreign assets dropped to $1.7 trillion in 2008 from $1.8 trillion in 2007, a 5 percent decline. This marked a significant reversal after five years of growth at a 14 percent rate. South Korea was worst hit, with sovereign foreign assets falling 18 percent after it spent down its reserves to defend its currency. The assets of India and Singapore fell by 9 percent and 4 percent, respectively. Taiwan and Hong Kong did better, with Taiwan's sovereign foreign assets rising by 6 percent and Hong Kong's holding steady. As in Japan, shrinking trade and increasing outflows of foreign capital were the primary culprits for falling foreign assets or slowed asset accumulation. The combined current account surpluses of Asian countries, excluding China and Japan, fell 53 percent in 2008. South Korea ran a trade deficit of $12.6 billion, in contrast to an average yearly trade surplus of $18 billion between 2000 and 2007. Net outflows of private capital were even more dramatic, hitting $146 billion for other Asian countries in 2008, in contrast to net inflows of $31 billion a year previously.

Outside of China, Asian sovereign wealth funds recorded losses in 2008, which contributed to the decline in foreign assets. Some of these losses were on several large investments in Western financial institutions made at the height of the market. In Singapore, the Government of Singapore Investment Corporation (GIC) publicly announced a $33 billion loss, while Temasek Holdings' investments fell nearly as much in absolute terms, or more than 25 percent. The Korean Investment Corporation (KIC) and Malaysia's Khazanah National both received new capital in 2008, which more than offset their investment losses.[15] After adding the gains and losses, Asian sovereign wealth funds collectively lost a net $32 billion, or 4 percent (see Exhibit 2.5). This performance was better than the 45 percent decline in global equities, but has drawn criticism within these countries nonetheless, and has caused the funds to postpone any new investments until financial markets stabilize.

15 Yoon Ja-young, "KIC blamed for huge investment loss," *Korea Times*, October 21, 2008; "Khazanah cautious about '09 after asset value drops," *Dow Jones International News*, January 19, 2009.

CRISIS SHIFTS INVESTMENT PRIORITIES AND CREATES OPPORTUNITIES FOR ORGANIZATION-BUILDING

Evidence suggests that Asian sovereign investors will not fundamentally change their long-term investment goals and strategies, despite their recent foreign investment losses. But a few shifts are under way. In the short term, they may seek to hedge concerns regarding the possibility of higher inflation and their overexposure to the dollar. Changes within sovereign wealth fund organizations are afoot as well. The region's main sovereign wealth funds have made progress in increasing transparency. They are also hiring new talent to enhance capabilities and eventually become less dependent on external investment managers.

Hedging potential inflation through investments in commodities

Asian sovereign investors—along with other investors around the world—are concerned about the potential for higher global inflation in the future. They may seek to hedge that risk through more aggressive investment in commodities. China, in particular, has pursued numerous natural-resource deals in Africa, Australia, Russia, and elsewhere through state-owned companies such as Chinalco and Minmetals, supported by state banks such as the China Development Bank. Moreover, the Chinese government is considering a proposal to tap its foreign reserves to buy crude oil for reserves, and is reportedly building commodity stockpiles in gold, copper, and iron ore.[16] While mitigating inflation risks, many of these investments are aimed at securing a sufficient future supply of raw materials to support China's rapid economic growth.

Reducing new exposure to the dollar

The IMF has estimated that by the end of 2008, Asian central banks together held at least $2.6 trillion, or 60 percent of their total foreign reserves, in dollar-denominated assets. To diversify currency risk, Asian central banks, especially China's, have increased investments in euro- and yen-denominated assets over the past several years. While we do not foresee wholesale rebalancing of current portfolios, our interviews suggest that Asian sovereign investors, particularly sovereign wealth funds, likely will use incremental new investments to gain exposure to other currencies. Asian central banks may also seek to channel more reserves into different vehicles that pursue more diverse investments.

Asian sovereign wealth funds are increasing transparency

Western policy makers and other observers have raised concerns in recent years about the secrecy surrounding the investments, goals, and governance of sovereign wealth funds around the world, including those in Asia. Some have worried that as the funds grew larger and more influential in capital markets, they could use their investments to pursue political objectives.

Asian sovereign wealth funds have taken steps to allay such concerns. All were signatories to the IMF's Santiago Principles, which set out common standards regarding transparency, independence, and governance.[17] Singapore's Government Investment Corporation was a key participant in the accord. Soon after, it published

16 "China said to mull buying oil with foreign reserves: Plan would offer a way to diversify holdings that are heavy in US Treasuries," *Market Watch*, March 3, 2009.

17 In May and June 2008, the International Working Group of Sovereign Wealth Funds, consisting of sovereign wealth funds from around the world, met to agree on a common set of principles and practices in response to the growing call for transparency. The outcome, known as the Santiago Principles, set the framework for clarifying the operations of sovereign wealth funds.

the first public management report on its portfolio and reported the size of its investment losses in 2008. Temasek also drew notice for releasing a more detailed annual report for 2008, including its investment performance. Several other Asian sovereign wealth funds have disclosed new information about their returns and operations as well. The China Investment Corporation released information regarding its recent organizational changes and 2008 performance, and the Korea Investment Corporation released information about new executives.

These actions are aimed at deflecting criticism and moving toward greater transparency around governance, investment strategies, and fund operations. Additionally, Asian governments may want to ensure that their future foreign investments are not blocked. In recent months, Australia's government refused to approve the initial offer by China's Minmetals to buy OZ Minerals; the government later cleared the way for Minmetals to buy most of OZ Minerals' assets after the deal was revised to exclude a mine located near an Australian military facility.

Hiring talent made available by the crisis

The global financial crisis has led to the exodus of thousands of professionals from US and European banks and other institutions. In response, Asian sovereign wealth funds are hiring experienced financial talent. For instance, in its most current restructuring, the China Investment Corporation is hiring more than 20 senior professionals from around the globe and has named a former UBS executive to oversee its Special Investments Department, which will take large, long-term positions in publicly traded companies. The Korea Investment Corporation recently picked a US hedge fund manager as its new chief investment officer.

These hires will expand the financial market expertise of Asian sovereign wealth funds, allowing better selection and monitoring of external investment managers.[18] Such hires may also highlight another trend we discussed in our initial report: the move by the funds to manage a larger portion of their portfolio directly, rather than through outside money managers. Going forward, private equity firms and other foreign asset managers may find more requests from Asian sovereign investors—like their counterparts in the Middle East—to be co-investors as well as limited partners.

ASIAN SOVEREIGN INVESTORS WILL BECOME INCREASINGLY IMPORTANT IN GLOBAL CAPITAL MARKETS

Asian governments' foreign assets will continue to grow over the next five years in all scenarios, although more slowly than in the past. Despite a substantial decline in China's current account surplus over the next five years, the projected surpluses in the region will drive further accumulation of central bank reserve assets, absent substantial policy changes. In the base-case scenario, Asian sovereign investors' assets collectively grow to $7.5 trillion by 2013. China will continue to be the largest source of growth, with sovereign foreign assets doubling in size to $4 trillion. Policy changes to allow more rapid appreciation of Asian currencies or to encourage more foreign investment from households and corporations could substantially alter this projection, however, and curtail further accumulation of foreign exchange reserves.

18 To date, the evidence suggests that most sovereign wealth funds have been poor at market timing. See Shai Bernstein, Josh Lerner, and Antoinette Schoar, "The investment strategies of sovereign wealth funds", Harvard Business School working paper 09-112, April 2009.

Despite progress in reducing global imbalances, Asian current account surpluses will result in further foreign asset accumulation

The global financial and economic crisis has brought renewed scrutiny of the huge global imbalances in savings and consumption across countries. In the years before the crisis, US consumption became an increasingly important source of global GDP growth, accounting for nearly three-quarters of US GDP growth and more than one-third of private consumption growth worldwide. The US personal saving rate has fallen steadily since 1980, turning negative in 2005 as households consumed more than they earned.[19] In Asia, the reverse situation is true. In China, for instance, consumption accounts for just 36 percent of GDP growth—one of the lowest shares in the world—while its national saving rate hovers near 50 percent. The financial crisis has prompted a reversal in these trends. The US consumer is now saving more and spending less, while Chinese policy makers are searching for ways to ensure that domestic consumption becomes a larger part of future growth.

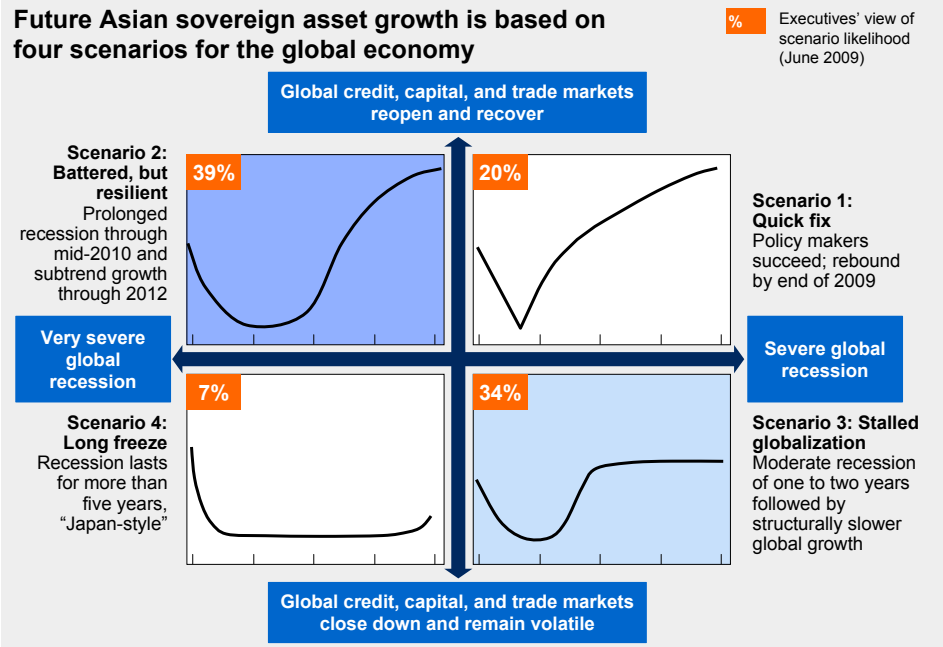
Our projections of future growth in Asian sovereign assets assume that Asian current account surpluses decline in coming years, helping reduce global imbalances. Given the uncertainties in the global economic and financial outlook, we model the growth of Asian sovereign assets in four proprietary macroeconomic scenarios developed by McKinsey & Company and Oxford Economics.[20] Exhibit 2.9 shows a stylized version of the path of global GDP over time in each scenario. For simplicity, we focus on three of the scenarios: Scenario 1, or the "quick fix," in which global GDP starts to grow again in late 2009; Scenario 2, labeled "battered, but resilient," in which GDP resumes growth in mid-2010; and Scenario 4, the "long freeze," in which GDP does not begin growing again until 2011.[21] We highlight Scenario 2 as the base case because it is viewed as the most likely to occur by a plurality, 39 percent, of respondents to the *McKinsey Quarterly* executive survey (June 2009). These scenarios lay out a range of potential outcomes for the recovery of economic growth, trade flows, and financial markets. Readers seeking more detail on our modeling assumptions are directed to the appendix.

19 See Martin N. Baily, Susan Lund, and Charles Atkins, *Will US consumer debt reduction cripple the recovery?*, McKinsey Global Institute, March 2009 (www.mckinsey.com/mgi/).

20 In addition to macroeconomic inputs from these scenarios, future central bank reserve accumulation will depend on the level of net private capital inflows and appreciation on the existing portfolio of assets. We make conservative assumptions around these factors, based on past levels. See the appendix of this report for more detail.

21 We do not discuss Scenario 3 separately because, although the economic recovery paths are very different in scenarios 2 and 3, the projected Asian current account surpluses in 2013 are similar.

Exhibit 2.9



SOURCE: McKinsey Global Institute; *McKinsey Quarterly* executive survey, June 2009

In all scenarios, China's current account surplus as a percent of nominal GDP declines substantially, from more than 10 percent of GDP in 2008 to between 5 and 6 percent in 2013. Nonetheless, China and other Asian countries continue to run current account surpluses, which means that they will continue to accumulate net new foreign assets. In the base-case scenario, China's trade surplus averages $315 billion per year over the next five years. Combined with an assumption of continued positive net private capital inflows, this results in $2 trillion of additional foreign reserve assets for China over the next five years.

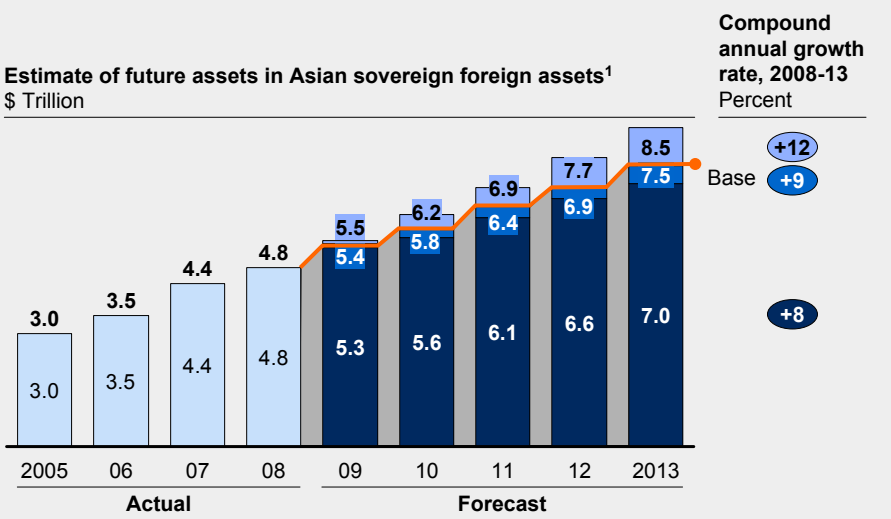
Asian sovereign assets grow to between $7.0 trillion and $8.5 trillion by 2013, depending on the scenario

In the base-case scenario, Asian sovereign foreign assets grow to $7.5 trillion by 2013 (Exhibit 2.10). This reflects a compound annual growth rate of 9 percent, or less than half the 21 percent pace from 2002 through 2007. Over this period, China's sovereign foreign assets double, reaching $4 trillion in 2013 (Exhibit 2.11). This growth is slower than in the past, but still twice the rate projected for global pension funds and other institutional investors. Asian sovereign investors will thus become an increasingly important player in global financial markets.

In Scenario 1, the global recession is less severe and capital markets recover more quickly. Asian sovereign foreign assets grow 12 percent annually to reach $8.5 trillion in 2013. China would hold $4.7 trillion in government foreign assets, more than half of all Asian sovereign assets. Even in this scenario, however, we do not assume that Asian current account surpluses grow as rapidly as in recent years. If they did, they would reach implausible levels. For instance, if China's trade surplus continued on its 2006-08 trajectory, it would reach $1.1 trillion in 2013—an outcome that would not be politically feasible given global concern about trade imbalances. We therefore project slower growth in Asian trade surpluses than in the past. China's trade surplus grows at a compound annual rate of 5 percent from 2008 to 2013, compared with an astonishing 60 percent pace from 2002 through 2007.

Exhibit 2.10

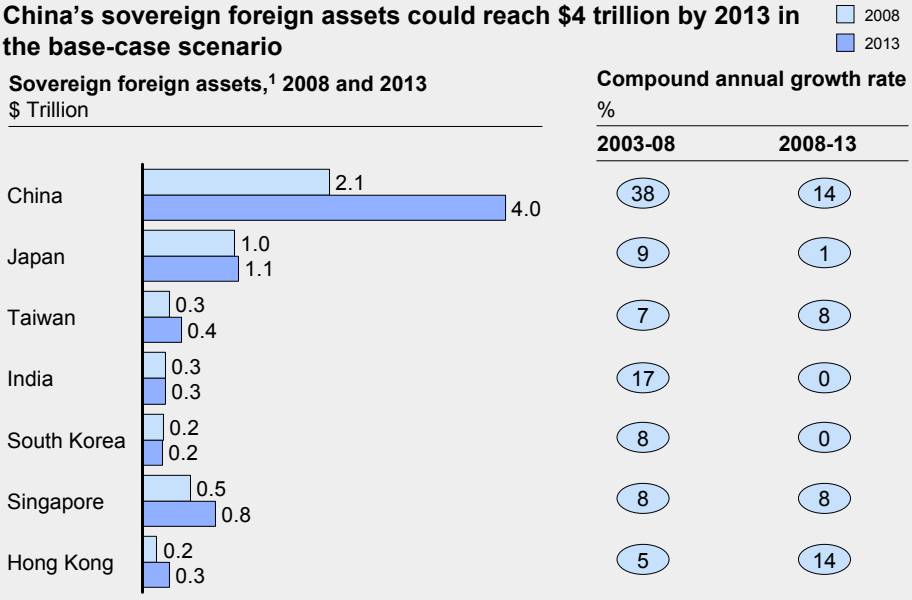
Asian sovereign foreign assets are projected to grow to $7.5 trillion in the base-case scenario



1 Other Asia: Bangladesh, Cambodia, Hong Kong, India, Malaysia, Pakistan, Philippines, Singapore, South Korea, Sri Lanka, Thailand, and Vietnam.
Source: McKinsey Global Institute Cross-Border Holdings Database; McKinsey Global Institute analysis

Exhibit 2.11

China's sovereign foreign assets could reach $4 trillion by 2013 in the base-case scenario



1 Includes central bank reserve assets and sovereign wealth funds' foreign assets.
SOURCE: Global Insight; McKinsey Global Institute analysis

In Scenario 4, the global economy remains weak for several years and global trade remains well below its peak. Our macroeconomic forecasts in this case show China's trade surpluses dropping to 2007 levels and remaining flat in nominal terms through 2013, although they decline as a percent of GDP. We assume that net private capital inflows drop to zero as cross-border investment activity declines. Even in this case, however, Asian sovereign investors would see their assets grow to $7.0 trillion by 2013, at a compound annual growth rate of 8 percent. This is because although global trade declines, hitting Asian exports, the region's imports decline even more.

Policy changes could significantly slow the pace of Asian sovereign foreign asset accumulation

These projections assume there will be no major changes in Asian monetary policy that could substantially reduce the accumulation of foreign reserves. Changes in exchange rate policies that allow more currency appreciation, or changes in foreign investment policies that enable more private investment abroad from households and companies, could slow foreign reserve accumulation sharply in coming years, making our projections of sovereign asset growth too high.

China's policy makers might consider such policies, given their concern about exposure to the dollar. One option would be to encourage more Chinese foreign investments directly in companies and in publicly listed shares abroad.[22] Such investments totaled just $53 billion in 2008 (see Exhibit 2.7). Yet if they increased at a much faster rate than in the past, such as reaching $330 billion per year in 2013, China's central bank foreign reserves would grow to $3 trillion rather than $4 trillion by that time. Encouraging more investments in foreign debt securities could have a similar effect. This would allow the government to curb its growing exposure to dollar assets while creating more diversified portfolios of financial assets for households and businesses.

* * *

The financial crisis and economic recession have slowed, but not stopped, the growth of Asian sovereign investors' wealth and clout. Although it is uncertain how the turmoil will play out, all scenarios we consider envision Asian governments' foreign financial assets continuing to increase. China remains the primary engine of that growth, even if its large current account surplus steadily declines. Asian sovereign investors will therefore remain significant "power brokers" in global financial markets in future years, establishing themselves alongside traditional institutional investors as large pools of capital and major players.

22 Accommodating this would require China to further liberalize its capital account and move toward less restricted convertibility of the renminbi.

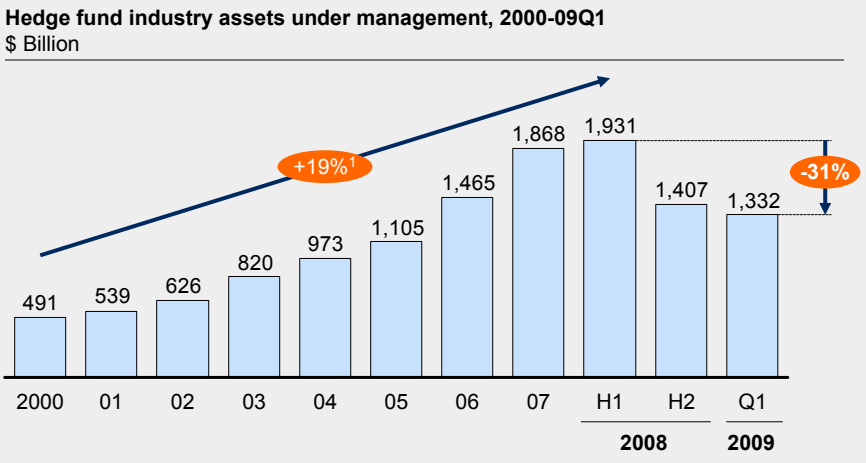
3. Hedge funds: Can they rebound?

The hedge fund industry hit an inflection point in 2008. Since 2000, hundreds of billions of dollars flowed into hedge funds as a growing number of investors around the world sought higher returns in an alternative asset class. New funds sprouted to meet the growing demand, and the size of established funds multiplied. With interest rates low and capital plentiful, hedge funds added leverage to their assets to gain unprecedented influence in global capital markets. Their total assets under management soared to an all-time high of $1.9 trillion in the second quarter of 2008—nearly four times their value in 2000.

But the breakdown of global credit and capital markets in September 2008 sparked a dramatic reversal of fortune. Liquidity dried up and investors fled to cash and other safe assets. Several major prime brokers that provided financing and other services for hedge funds curtailed their lending dramatically, while one major player—Lehman Brothers—went bankrupt, disrupting the funds' operations. Many hedge fund trading strategies suddenly became unworkable. Hundreds of hedge funds have closed, and total hedge fund assets fell to $1.4 trillion by year-end, reflecting both large investment losses and heavy investor redemptions (Exhibit 3.1). Hedge funds' leveraged assets have fallen from $6.6 trillion to $2.4 trillion, reducing the industry's clout in financial markets.

Exhibit 3.1

Hedge fund assets have dropped sharply from their June 2008 peak



1 Compound annual growth rate.
SOURCE: Hedge Fund Research; McKinsey Global Institute analysis

Yet despite the disruptions of 2008, investors in hedge funds have fared better than many others. Our research shows that a significant portion of hedge funds has delivered higher and less volatile returns than investments in public equities and bonds over time, and investor commitment to such funds remains high. To be sure, the industry's assets may shrink further in 2009 as investor redemptions continue and funds that are far below their high-water marks close. But a core of the industry

will emerge from this crisis. In the base-case scenario, grounded in a conservative outlook for global economic recovery and the size of investor portfolios, the industry will have assets under management of $1.5 trillion in 2013. While this would be less than we projected a year ago, when the industry was at its peak, hedge funds will remain an influential force in financial markets.

THE HEDGE FUND INDUSTRY PEAKED IN 2008—BUT THEN CONTRACTED SHARPLY

The financial turmoil in late 2008 wreaked havoc on hedge funds' performance and their businesses. Although the industry's assets under management soared in the first half of the year, peaking at nearly $2 trillion, they declined by a quarter in the second half of the year. An industry shakeout has ensued, with a record number of hedge funds closing. One fund manager we interviewed called this "the dot-com bust" for hedge funds. But just as the dot-com bust hardly spelled the end of Internet business, the challenges of the past 18 months will not cause the collapse of the hedge fund industry.

Negative hedge fund industry returns for 2008 account for two-thirds of the drop in assets

Poor hedge fund performance accounted for two-thirds of the decline in hedge fund assets under management in 2008 (Exhibit 3.2). The Hedge Fund Research Index, a broad measure of industry performance, fell 18 percent in 2008.[1] Nearly all major hedge fund strategies—referred to by their shorthand names as equity hedge, event-driven, and relative value—posted negative returns. The one exception was the category known as macro strategies, which was up 7 percent for the year.[2]

At the writing of this report, hedge funds are beginning to recover from the losses of 2008. Through the first quarter of 2009, aggregate industry returns were up 0.5 percent, and the best-performing strategy (relative value) generated gains of 4.7 percent. By the end of May, an index of hedge fund returns was up 9.4 percent for the year.[3] Many individual funds, including some of the best known, have reported double-digit gains for the year to date.[4]

Investors seeking liquidity made unprecedented withdrawals

For the first time in hedge fund history, investors made major net withdrawals in 2008. The net asset outflow totaled $183 billion from the peak in the second quarter through the fourth quarter, and an additional $103 billion was withdrawn by investors in the first quarter of 2009 (see Exhibit 3.2). This is equivalent to about half of the net new money that flowed into hedge funds since 2003. Asset outflows would have been even more

1 Based on the Hedge Fund Research Index, which tracks the composite performance of the more than 2,000 funds in the Hedge Fund Research database. Performance is equally weighted so that large funds do not dominate this average. An index weighted by assets under management in each strategy produced a -16 percent return for the year.

2 We use the Hedge Fund Research major strategy categories, each of which has multiple subcategories that can vary substantially in terms of market exposure, investment focus, and leverage. "Equity hedge" refers to strategies that invest primarily in equities and equity derivatives. "Event-driven" strategies bet on anticipated corporate transactions, such as mergers and acquisitions. "Relative value" strategies exploit inefficiencies in pricing of related assets. "Macro" refers to investing based on expectations about global macroeconomic events such as commodity futures and currency trends.

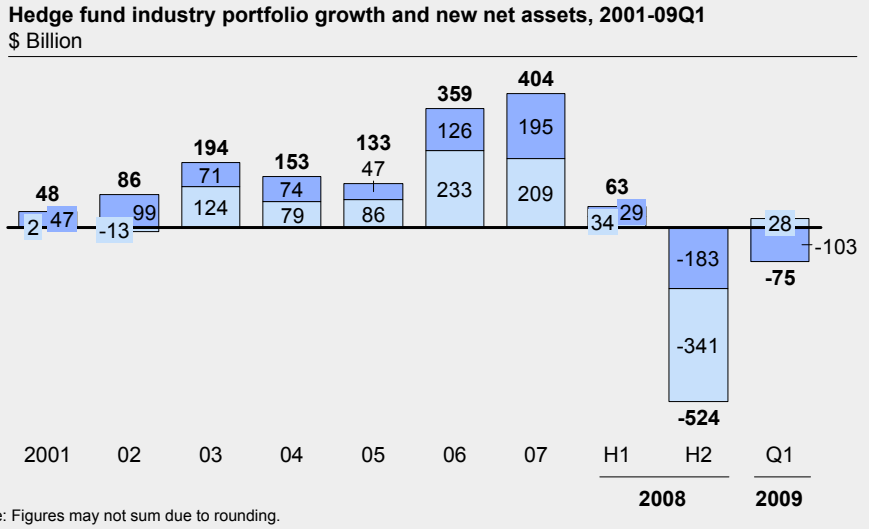
3 Hedge Fund Research Index.

4 For examples, see Zachery Kouwe, "Hedge funds rebound, gaining 5% in a month," *New York Times*, June 8, 2009.

severe in 2008 if not for the fact that many hedge funds temporarily stopped or limited investors' withdrawals to prevent the hedge fund version of a bank run.

Exhibit 3.2

Poor hedge fund performance accounts for two-thirds of industry decline



Note: Figures may not sum due to rounding.
SOURCE: Hedge Fund Research; McKinsey Global Institute analysis

Wealthy individuals proved to be the most fickle hedge fund investors. One report finds that 80 percent of withdrawals were made by high-net-worth individuals, while pension funds increased their investments over the year.[5] If accurate, this would imply that wealthy investors reduced their hedge fund investments by 20 percent—in addition to losses on their remaining hedge fund assets. The financial crisis is thus accelerating a shift in the hedge fund investor base that was already under way.[6]

Investors withdrew money from all strategies regardless of 2008 performance. Macro, which had the highest returns in 2008, had investor redemptions equal to 12 percent of its peak assets under management; equity hedge, 2008's worst performing strategy, experienced withdrawals worth about 10 percent of peak assets under management.[7] This suggests that withdrawals were driven by investors' general need for liquidity and perhaps their heightened risk aversion. It is also possible that withdrawals within each strategy were largest from the worst-performing funds, although our data set does not allow us to assess this hypothesis.[8] Academic research has found that in the past, hedge fund inflows of capital have closely followed hedge fund performance, with some lag.[9] This was confirmed

5 The Bank of New York Mellon reports that 80 percent of withdrawals in 2008 were from high-net-worth and retail investors, particularly those from Europe. It projects future growth will come predominantly from North American institutions. "The hedge fund of tomorrow: Building an enduring firm," Casey Quirk and BNYM, April 2009.

6 See our original report, *The new power brokers: How oil, Asia, hedge funds, and private equity are shaping global capital markets*, McKinsey Global Institute, October 2007 (www.mckinsey.com/mgi/).

7 A closer look by sub-strategy also finds no clear correlation between redemptions and performance.

8 Our data on industry-wide withdrawals are not sufficiently granular to confirm this conjecture conclusively.

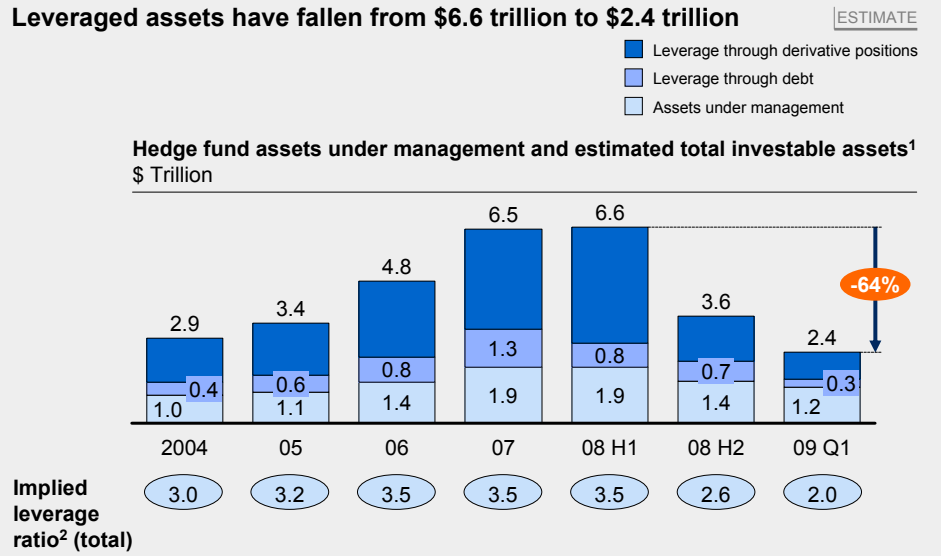
9 See, for example, Vikas Agarwal, Naveen D. Daniel, and Narayan Y. Naik, "Flows, performance, and managerial incentives in hedge funds," EFA 2003 Annual Conference Paper 501, July 22, 2004.

anecdotally through our interviews with hedge fund managers, who report that investors have remained committed to the best-performing funds.

Leverage dried up, reducing hedge fund total investable assets by 65 percent

Hedge funds' influence in capital markets grew during the financial bubble of 2002 through 2007, in part because of the leverage they employ. But the escalation of the financial crisis in 2008 tightened credit sharply. We estimate that total investable assets of the hedge fund industry—consisting of assets under management, borrowing, and leverage gained through derivatives—fell from $6.6 trillion at the industry's peak after the first half of 2008 to $2.4 trillion by the end of the first quarter of 2009 (Exhibit 3.3). This could, however, bode well for the hedge funds that survive, since the competition for "alpha," or uncorrelated returns, has been thinned.

Exhibit 3.3



1 Includes leverage from debt and off-balance sheet leverage through derivatives and other instruments.
2 Leverage ratio is the sum of total leverage and assets under management divided by assets under management.

SOURCE: Global Capital Markets Survey; Dresdner Kleinwort Equity Research; International Financial Services London; Financial Risk Management, Ltd.; Financial Services Authority; McKinsey Global Institute analysis

Credit is likely to remain costlier and harder to get for at least several years as financial institutions work through as much as $4 trillion in credit losses and asset write-downs in the United States and Europe.[10] At this writing, less than half of these losses have been recognized, and defaults are still rising on many loan categories. These conditions may prompt hedge funds to shift away from the most highly leveraged strategies.

Up to 30 percent of remaining hedge funds may be at risk of liquidation

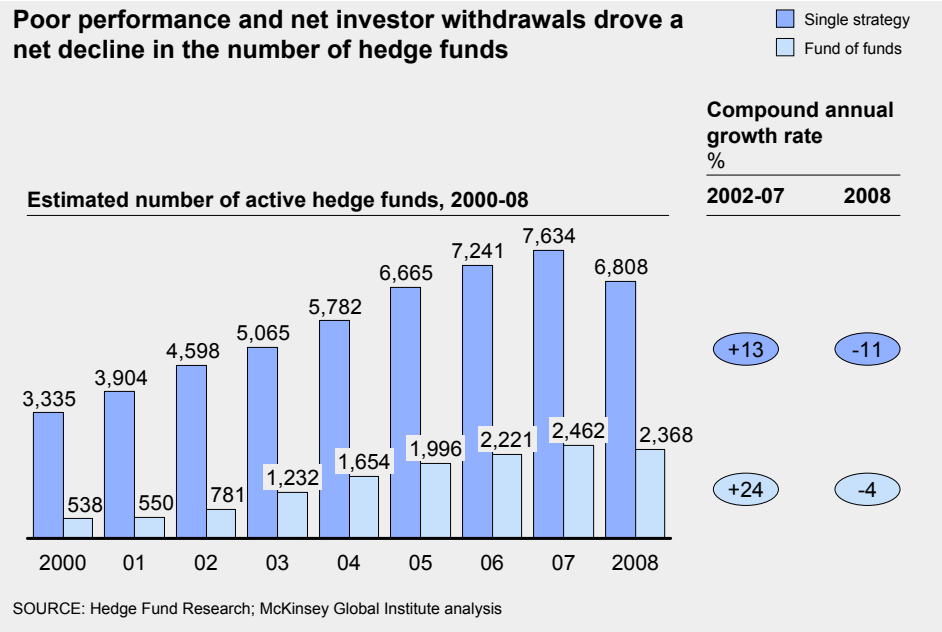
A record number of hedge funds closed in 2008, with the total falling by 11 percent (Exhibit 3.4). This caused the industry to become slightly more concentrated: 73 percent of remaining assets under management are controlled by approximately 200 hedge fund firms, each with assets greater than $1 billion.[11]

10 The International Monetary Fund estimates that global credit losses could total $4.1 trillion. See its *Global financial stability report*, April 2009.

11 Many of these large firms may operate multiple funds. Of these 200 megafirms, 70 have assets greater than $5 billion each, and 30 manage assets worth between $10 billion and $40 billion each.

Our analysis suggests that more hedge funds may close in 2009 because their assets under management have fallen far below their peak, or "high-water mark." Using a database with 1,000 hedge funds, we found that 30 percent—representing 35 percent of assets under management—will not regain their peak for at least two years if they continue to earn their past average returns (Exhibit 3.5). Most of these funds will not earn the 20 percent or more performance fees over this period, so managers may choose to shut down these funds rather than operate solely for the 2 percent management fee. Some of these managers, however, may start new funds. For hedge funds with strong track records, investors may be willing to renegotiate more favorable performance fee structures to increase incentives.[12] But newer funds with a shorter history of performance, or those that have not performed well, could become casualties of the industry shakeout.

Exhibit 3.4

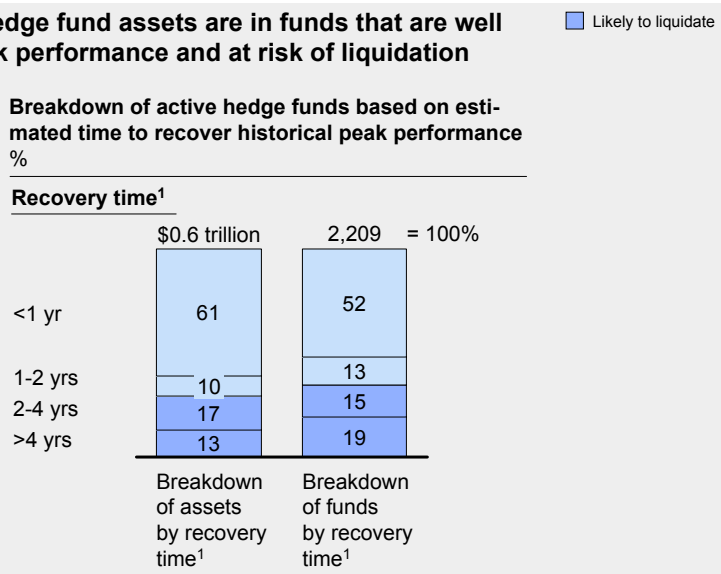


SOURCE: Hedge Fund Research; McKinsey Global Institute analysis

12 Some academic research has found that managers earning performance fees perform better than those who are not, even after controlling for possible selection biases. See, for example, Vikas Agarwal, Naveen D. Daniel, and Narayan Y. Naik, "Flows, performance, and managerial incentives in hedge funds," EFA 2003 Annual Conference Paper 501, July 22, 2004.

Exhibit 3.5

30 percent of hedge fund assets are in funds that are well below their peak performance and at risk of liquidation



1 Recovery time is calculated as the number of months that a fund will take to reach its high-water mark from its position at end of year 2008. Recovery time is based on an individual fund's average monthly return from 2003 to 2007.
Note: Some figures do not sum due to rounding.

SOURCE: HedgeFund Intelligence; McKinsey Global Institute analysis

DESPITE A DISMAL 2008, MANY HEDGE FUNDS HAVE DELIVERED ON THEIR PROMISE

Hedge funds' aggregate performance in 2008 raises questions about whether they have delivered on their promise to provide investors with a liquid investment vehicle that produces positive returns uncorrelated to the broader market. The best way to assess this claim is by looking at the industry's long-term returns, particularly because 2008 was a year of extreme market upheaval.

Judging the industry's long-term performance is difficult because of limited data, and because hedge funds are a very diverse group whose performance differs by strategy, time horizon, and geographic focus. Nonetheless, our analysis finds that hedge funds have provided higher and less volatile returns than equities and bonds over long periods of time, and that many funds outperformed them even in 2008. This suggests that after the current turbulence subsides, the funds with demonstrated records of good performance will emerge and perhaps grow as investors abandon underperforming funds.

Over a long time horizon, the hedge fund industry has delivered higher returns than a portfolio of equities and bonds

Our analysis finds that since 1990 investors in hedge funds have earned higher returns than investors whose portfolios contain only equities and bonds. Between 1990 and 2008, we find that an index of hedge fund industry returns outperformed a range of blended portfolios of US bonds and equities.[13] The hedge fund index produced 12 percent average annual returns over the period, compared with 7.8 percent for a portfolio of only equities and 7.2 percent for a portfolio of only bonds.[14] All individual

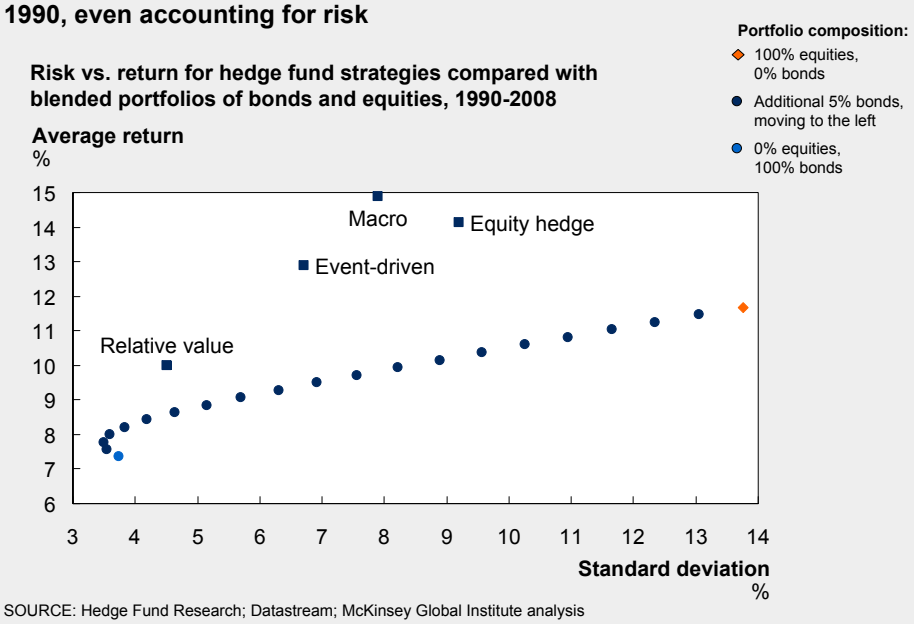
13 For hedge funds, we use the Hedge Fund Research Composite Return, which weights each hedge fund equally. For bonds and stocks, we constructed a simple blended portfolio using the Lehman US Aggregate Bond Index and the S&P 500.

14 The hedge fund index also generated higher returns than a portfolio of global equities and bonds. The Lehman Global Aggregate Bond Index posted 7.2 percent returns from 1990 to 2008, and MSCI World Index posted 5.5 percent returns.

hedge fund strategies have posted higher returns than equities and bonds over this period as well, even after adjusting for risk (Exhibit 3.6).

Exhibit 3.6

Hedge fund strategies have outperformed both bonds and equities since 1990, even accounting for risk



SOURCE: Hedge Fund Research; Datastream; McKinsey Global Institute analysis

Of course, hedge fund performance varies across funds. We find that 45 percent of all hedge funds in one database performed better than an aggregate portfolio of US bonds between 2001 and 2007, and 65 percent performed better than the S&P 500.[15] In addition to producing good relative performance, many hedge funds generate attractive returns: we find that 26 percent produced returns of 10 percent or more, net of fees, from 2001 through 2007; and 12 percent generated returns of 15 percent or higher over that period.

The top quartile of hedge funds produces outsized returns (Exhibit 3.7). Between 2001 and 2007, for example, the top quartile of global macro funds returned an average of 31 percent, net of fees, while the top quartiles for equity hedge and event-driven strategies returned 19 percent. Nevertheless, even second- and third-quartile hedge funds in each strategy outperformed the S&P on both a nominal and a risk-adjusted basis.

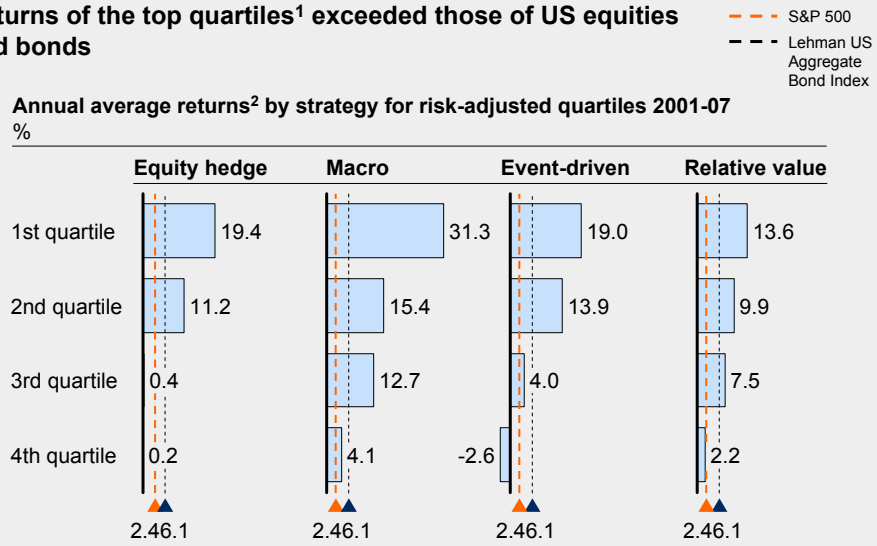
However, when it comes to delivering positive returns regardless of broad market conditions—which is sometimes stated as the industry's true value proposition—hedge funds fall short. Since 1990, industry returns have suffered in all down markets (Exhibit 3.8).

Still, hedge funds have limited losses when public equity markets have fallen sharply. In 2002, for instance, the S&P 500 fell 23 percent, but no hedge fund strategy lost more than 7 percent.

15 This analysis was performed on a data set from HedgeFund Intelligence that covers 2,000 funds representing $500 billion in assets under management. These data suffer from selection bias and are therefore likely to overstate the returns earned by the entire industry.

Exhibit 3.7

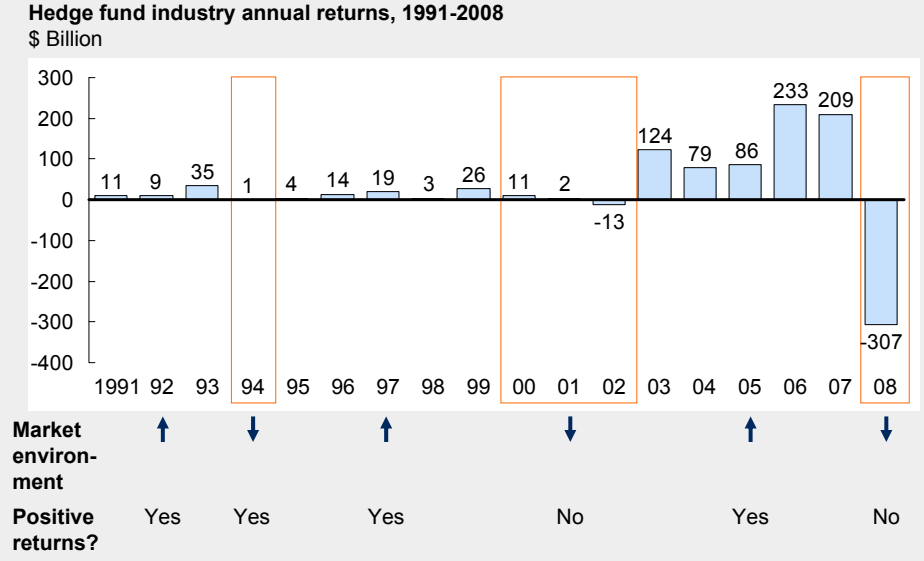
Returns of the top quartiles[1] exceeded those of US equities and bonds



1 Quartiles are defined based on risk-adjusted performance, defined using fund Sharpe ratio between 2001 and 2007. The Sharpe ratio is given by Average(R-Rf)/Standard deviation (R), where R is the return and the benchmark rate Rf is the S&P average between 2001 and 2007 (2.43%).
2 Performance is net of fees.

Exhibit 3.8

In aggregate, the hedge fund industry has not consistently delivered positive returns, uncorrelated with the equities market



SOURCE: Hedge Fund Research; McKinsey Global Institute analysis

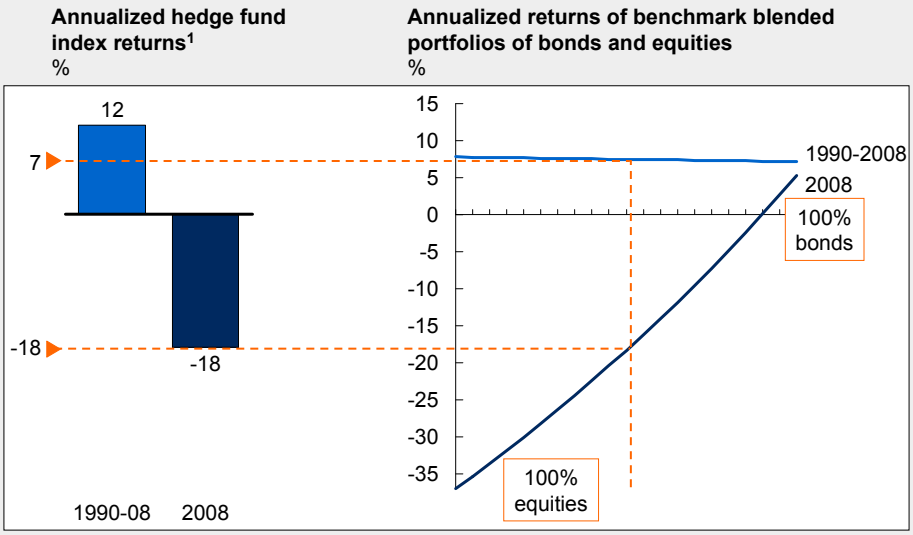
Even in 2008, hedge funds performed comparatively well and many posted positive returns

Even though many hedge funds posted negative returns in 2008, an investor in the hedge fund index would have emerged better off than many other investors. The hedge fund industry's aggregate loss was 18 percent,[16] in contrast to the 37 percent decline in the S&P 500. While a broad index of US bonds showed a 5 percent gain, an investor with a portfolio of US bonds and equities would have had to have at least 50 percent of the assets in bonds to outperform the hedge fund index (Exhibit 3.9).

16 The Fund Weighted Composite index from Hedge Fund Research (each fund weighted equally). The Credit Suisse-Tremont Index, also commonly quoted, lost 19 percent of its value in 2008.

Exhibit 3.9

In 2008, blended portfolios with more than 50 percent bonds outperformed hedge funds, but historically they have far underperformed



1 Hedge Fund Research composite return, which weights each hedge fund equally.
2 Portfolios are composed as a blend of the S&P 500 and the Lehman US Aggregate Bond Index.
SOURCE: Hedge Fund Research; Datastream; McKinsey Global Institute analysis

Many individual hedge funds delivered positive returns in 2008. At the level of individual funds, we find in one database that nearly 40 percent of funds posted positive returns and that 70 percent outperformed the S&P 500 (Exhibit 3.10).[17] As with all hedge fund databases, this one reflects a selection bias because only a sample of funds choose to join it. Nonetheless, even discounting the results for this bias, it is clear that a significant portion of the industry did manage to produce positive returns, even in the midst of an extreme global financial market crisis.

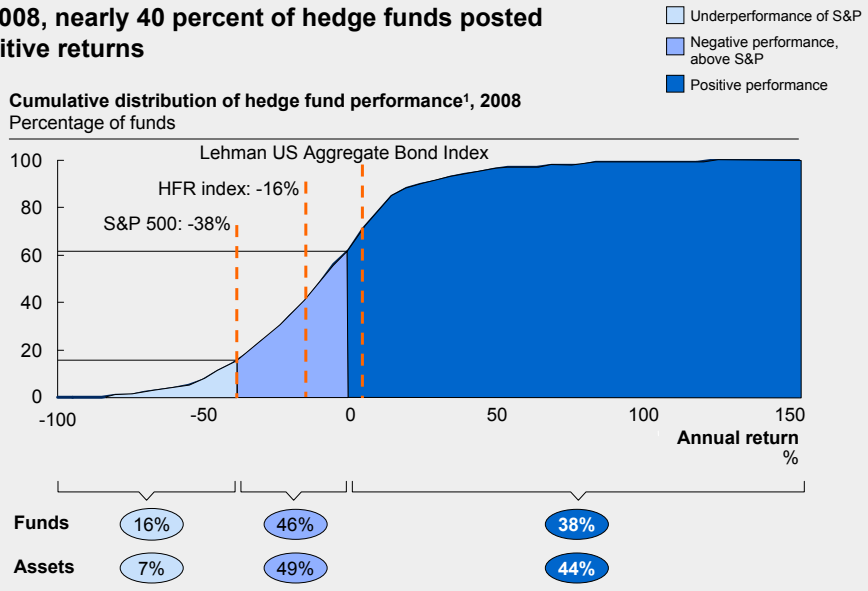
It is tempting to think that 2008 weeded out weaker funds and that the funds that did particularly well might continue as top performers in the future. Our analysis indicates, however, that the very top performers in a given year rarely deliver outsized returns in consecutive subsequent years. We find that although a fund that has been in the top quartile has an increased probability of staying there the next year, fewer than 10 percent of funds have been able to remain in the top quartile of performance for three consecutive years or longer (Exhibit 3.11). Nonetheless, over longer periods of time, the best funds deliver strong enough performance with enough consistency to significantly outperform market indices.[18] (see sidebar: *Academic research on hedge fund performance*.)

17 The HedgeFund Intelligence database of 2,000 funds.

18 This is consistent with the findings of academic research, which indicates that funds produce top-quartile returns over periods of several months to just over a year. However, several recent papers provide some evidence that firms with high alpha are more likely to generate high alpha over the next two to three years. See, for example, William Fung, David A. Hsieh, Narayan Y. Naik, and Tarun Ramadorai, "Hedge funds: Performance, risk, and capital formation," AA 2007 Chicago Meetings Paper, July 2006; and Ravi Jagannathan, Alexey Malakhov, and Dimitry Novikov, "Do hot hands exist among hedge fund managers?: An empirical evaluation," AFA 2007 Chicago Meetings Paper, 2007.

Exhibit 3.10

In 2008, nearly 40 percent of hedge funds posted positive returns

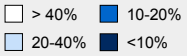


1 Underlying database contains 2,209 funds, with $0.6 trillion under management. The breakdown by number of funds is 46% Equity hedge, 17% Macro, 14% Event-driven, 12% Relative value, 8% Emerging markets, and 2% Fund of funds.

SOURCE: HedgeFund Intelligence; McKinsey Global Institute analysis

Exhibit 3.11

Very few funds stay in the top quartile for more than 2 consecutive years



Distribution of maximum number of consecutive years funds remain in the top quartile[1], by strategy, 2001-08
%

Consecutive years in top quartile	Equity hedge n = 1,028	Macro n = 379	Event-driven n = 314	Relative value n = 276
Never	46	42	51	42
1	34	39	21	37
2	14	12	21	13
3	4	4	6	7
4	2	2	1	1
5	0	1	0	0

1 Quartiles are defined for each year based on annual fund returns.

SOURCE: HedgeFund Intelligence; McKinsey Global Institute analysis

Academic research on hedge fund performance

There is a growing academic literature on hedge funds, although a clear assessment of performance remains elusive because of data limitations.

Most research shows that hedge fund industry returns in aggregate are slightly higher and less volatile than public equity markets and that the best hedge funds far outperform equities. Less clear is whether hedge funds deliver on their promise of absolute returns or "alpha," the portion of returns that is uncorrelated to broader markets. Some researchers have found that over some time periods, funds of funds delivered zero alpha.[1] At the other extreme, others have found that for the hedge fund industry in aggregate, annual returns of 3 percent were attributable to alpha.[2] In any case, the choice of a particular fund matters: Top quartile funds can have alphas as large as 15 percent annually, at least over a period of a few years.[3]

But the research also shows that a substantial portion of hedge fund performance is correlated to broader markets. One analysis found that for many hedge fund strategies, more than 70 percent of total performance mirrors easily tradable market indices.[4] This suggests that investing in these indices may be a reasonable and far less expensive alternative to hedge funds, even if they cannot match the performance of the very best hedge funds.

Any analysis of hedge fund performance is beset by data limitations. No database has full records of the performance of all hedge funds, and the data in even the best databases contain biases that increase reported returns. These include selection bias, which arises because database inclusion is voluntary; survivorship bias, which occurs because funds that were unsuccessful and went out of business are not contained in most hedge fund databases; backfill bias, which arises because once funds register, databases include return histories from before the date of fund inclusion, coming from the period when the fund amassed a track record good enough to merit inclusion in a database; and, finally, liquidation bias, which arises because managers cease reporting returns before final fund liquidation. While researchers do not have good measures of the net effect of all these biases, some estimate that together survivorship and backfill biases may inflate reports of average hedge fund returns by as much as 4 percent.[5]

1 William Fung, David A. Hsieh, Narayan Y. Naik, and Tarun Ramadorai, Hedge funds: Performance, risk, and capital formation, AFA 2007 Chicago Meetings paper, July 19, 2006.

2 Roger G. Ibbotson and Peng Chen, "The A,B,Cs of hedge funds: Alphas, betas, and costs," Yale ICF working paper, September 2006.

3 Robert Kosowski, Narayan Y. Naik, and Melvyn Teo, "Do hedge funds deliver alpha? A Bayesian and bootstrap analysis," *Journal of Financial Economics*, Volume 84, Number 1, April 2007, pp. 229–64. Also see the technical appendix for more discussion on which hedge fund features might explain superior performance.

4 Jasmina Hasanhodzic and Andrew W. Lo, "Can hedge-fund returns be replicated?: The linear case," *Journal of Investment Management*, Q2 2007, Volume 5, Number 2.

5 William Fung and David A. Hsieh, "Hedge funds: An industry in its adolescence," Federal Reserve Bank of Atlanta, Economic Review, Q4 2006, Volume 91, Number 4.

A MORE MATURE HEDGE FUND INDUSTRY WILL EMERGE

The fact that many hedge funds performed strongly over time suggests that a core of the industry will emerge from this crisis. There may be a continued shakeout in 2009, marked by the exit of funds that generated returns mainly through leverage and rising equity markets. The more sophisticated fund managers with established track records of good returns will survive and may attract more assets as investors reassess their portfolios. But the environment in which they operate will be different in many ways. We discuss these changes in this section; in the next section, we discuss the impact of potential regulatory changes.

Consolidation of assets

As the industry's assets under management have declined, nearly all hedge funds have gotten smaller. Some brand-name, high-performing funds that have experienced minimal investor withdrawals and performance losses may survive intact and are positioned to attract more investor capital in the future. But there will be a shakeout of the poorer-performing hedge funds. Many small, startup hedge funds have already exited. Some of the proposed regulatory changes could increase overhead costs, thereby raising the minimum economic size of hedge funds. And there is anecdotal evidence that investors are looking to hedge funds with demonstrated track records of good returns as safer investment options. The funds that survive will be those with a strong record of attractive returns and a clear value proposition. They may gain additional assets as other funds shut down.

Pressure on fee structure

As the balance of power has shifted to investors, there is some evidence of changes in the structure and amount of hedge fund fees—at least for some funds. The typical fee structure is often described as "2 and 20," or 2 percent management fees and 20 percent performance fees. In practice, management fees range from 1 percent to 3 percent and higher, and performance fees range from 10 percent to 30 percent or more. Some hedge funds are reducing fees to keep their investor base intact. For example, in March 2009, one large hedge fund announced a temporary reduction in both management fees (from 2 percent to 1.5 percent) and performance fees (from 20 percent to 10 percent). One fund manager we interviewed shared that the fund had recently reduced its fee structure from "3 and 30" to "2 and 20." Ospraie Management announced that it will open two new commodity funds in July 2009 with fees of just 1 percent and 10 percent. This may be necessary to attract investors; in September 2008, Ospraie closed a $3.8 billion fund that had lost 39 percent of its value.

Whether such fee changes are permanent or temporary remains to be seen. Moreover, interviews with both fund managers and investors suggest that the best-performing hedge funds with long track records will continue to be able to charge higher fees. What could emerge is a bifurcated fee structure in the industry.

One change that some investors and fund managers are discussing is how to improve the alignment between the period over which managers are paid performance fees and the period over which investors realize their returns. The financial market declines in late 2008 created a situation in which some fund managers were paid large performance fees on a fund year that differed from the calendar year, during which investors experienced losses. Some investors are calling for better alignment of the two periods.

Clearer liquidity terms

One lesson vividly illustrated by the financial crisis was the extent to which many investors and fund managers ignored or discounted liquidity risk. Hedge funds' liquidity profiles vary widely. A fund's "liquidity period" is the time it takes to liquidate its assets. Some hedge funds have liquidity periods of a month or less; others measure liquidity periods in quarters or years. In principle, the liquidity period should be less than the redemption period, so managers have plenty of time to raise sufficient cash to satisfy redemption requests. However, the opposite situation has become very common, with investments shifting toward more illiquid assets but with redemption policies staying the same. Many fund managers were forced to limit redemption requests at the end of 2008 either because they didn't have sufficient liquid positions to satisfy all requests or because they did not want to sell into a falling market.

Going forward, investors are likely to pay more attention to hedge funds' liquidity structure and redemption policies. Traditionally, investors with longer lockup periods have been rewarded with lower fees. Two hedge funds managers with whom we spoke have explicitly created longer-term, less liquid investment strategies. In return, managers have altered the fee structure so all performance fees are paid at the end of the investment period, as in a private equity fund.

REGULATORY CHANGES ARE BEING CONSIDERED

Although hedge funds were not at the heart of the financial crisis, many policy makers argue that their size and activities can affect the financial system and that their lack of transparency blocks an accurate assessment of their risks. So both international bodies and several national governments are considering proposals to regulate hedge funds more closely in a variety of ways. While the details have not yet been worked out, some changes may be enacted. A more mature industry may emerge. The most important regulatory proposals include:

Registration and reporting requirements

Many hedge fund regulation proposals include some form of registration and reporting requirements. While details vary, most proposals would require that hedge funds with assets above a certain amount register and report to regulators so they can gauge the funds' potential risk to the larger financial system.[19] Institutions that are deemed of sufficient importance would be subject to higher levels of oversight. Some proposals require hedge funds above a certain size to report their strategy and their debt and risk levels, as well as some information about their investors. Other proposals would require all hedge fund managers to register with their local regulatory authority as investment advisers. The European Commission (EC), for example, recently proposed registration and disclosure rules for hedge funds and private equity firms managing more than €100 million in assets.[20] Firms would be permitted to offer their services to European investors only if they have an office in the European Union and have registered with EU regulators.

All such registration and reporting requirements would impose new administrative costs on hedge funds—putting the larger, more established funds at an advantage.

19 In March, the Obama administration proposed that hedge funds and other large pools of capital be required to register with the Securities and Exchange Commission and to report sufficient information for assessing whether they pose a systemic risk.

20 An exception would be made for firms that don't use leverage and that lock in investors for at least five years. These firms would be subject to the registration and disclosure rules only if their assets exceeded €500 million.

Indeed, many large funds already register with the US Securities and Exchange Commission (SEC) to comply with the requirements of institutional investors and funds of funds. Such rules might prompt smaller funds to join with others to share administrative overhead costs while maintaining management independence. The new requirements, if adopted at the national level, could also drive some hedge fund activity offshore to places with lighter regulation. However, offshore locations would lose their appeal if the new rules were coordinated across the major markets and enforced internationally.

Limits on leverage or collateral requirements

Policy makers also are discussing whether to impose limits on the leverage that hedge funds can employ or to require funds to hold capital reserves. For example, the new EC proposal would require the most highly levered funds to report to the European Systemic Risk Council information on their borrowing, liquidity, and risk profile. The Obama administration is considering whether to create a similar systemic risk regulator for the United States. Such a body might have the authority to require detailed information from any participant in financial markets, including hedge funds; set capital and leverage ratios for particular institutions; examine and supervise levels of risk; and take control of institutions at risk of bankruptcy. The administration has proposed increasing collateral requirements for firms that purchase derivatives, which would affect hedge funds as well.

Any explicit limits may curb the most excessive use of leverage in the industry and make some hedge fund investment strategies less attractive. But it is not likely to be a binding constraint for most hedge funds. We estimate that total hedge fund industry leverage at its peak was not more than 3.5 to 4.5 times assets under management—far below the leverage ratios of banks.

Restrictions on short selling

Many hedge fund strategies use short selling as a key tool. Short sellers attempt to profit from an anticipated decline in the price of a financial instrument, and hence short selling can be an important to constructing a hedged strategy. As markets fell sharply in September 2008, the US Securities and Exchange Commission imposed a temporary ban on short sales of 800 individual securities, primarily in the financial services industry, in an effort to protect investors and bolster confidence in the markets. The ban contributed substantially to 2008 losses for some hedge funds. At the writing of this report, the SEC is considering whether to adopt two permanent restrictions—a prohibition on the short selling of securities not owned by the seller (so-called naked shorts) and a less severe "circuit breaker" approach that would halt the short selling of a specific security during substantial declines in its market price. Such short-selling restrictions would create major challenges for many hedge fund strategies, and could curb the efficiency of capital market functioning.

Changes in taxation and regulation of pay

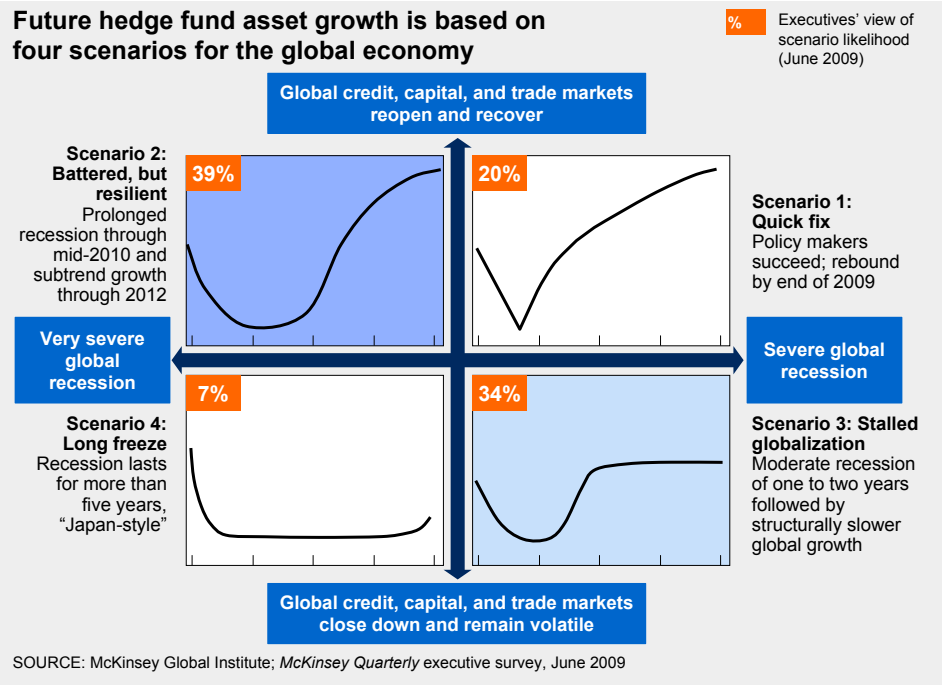
US lawmakers are considering proposals to change the taxation of hedge fund managers' income. Managers receive compensation both from management fees, based on assets managed, as well as from their share on profits made on investments, so-called carried interest, or "carry." Hedge fund managers typically pay ordinary income tax rates on management fees and lower capital gains tax rates on carry. In the United States, for example, the highest marginal individual income tax rate is 35 percent (and high-income individuals often pay an effective top rate of 36 percent), while the capital gains rate is 15 percent. Under President Obama's

proposed federal budget, carry would be taxed as income, not as capital gains, beginning in 2011. Combined with other proposed increases in top tax rates, most carried interest would be taxed at a rate of 39.6 percent. Other things being equal, such a change could sharply reduce the total after-tax compensation of hedge fund managers. This could affect where fund mangers choose to live and where funds are registered, prompting some to move offshore.[21]

HEDGE FUNDS ASSETS UNDER MANAGEMENT MAY NOT REGAIN PEAK OVER THE NEXT 5 YEARS

The hedge fund industry has continued to shrink in 2009, but we expect it to recover and resume growth after that. Given the uncertainties in the global economic and financial outlook, we model hedge fund growth in four proprietary macroeconomic scenarios developed by McKinsey & Company and Oxford Economics. Exhibit 3.12 shows a stylized version of the path of global GDP over time in each scenario. (See the appendix for more detail on our scenarios and projection methodology.) For simplicity, we focus on three of the scenarios: Scenario 1, or the "quick fix," in which global GDP starts to grow again in late 2009; Scenario 2, labeled "battered, but resilient," in which GDP resumes growth in mid-2010; and Scenario 4, the "long freeze," in which GDP does not begin growing again until 2011.[22]

Exhibit 3.12



SOURCE: McKinsey Global Institute; *McKinsey Quarterly* executive survey, June 2009

Exhibit 3.13 lists the assumptions in each case. We highlight Scenario 2 as the base case because it is viewed as the most likely to occur by a plurality, 39 percent, of respondents to the *McKinsey Quarterly* executive survey (June 2009). In Scenario 2, in which the global recession lasts through mid-2010, hedge fund assets under management continue to decline through 2009. Then, when growth picks up, it is at a slower pace than from 2000 through 2007. As a result, hedge fund assets under

21 Thomas J. Brennan and Karl S. Okamoto, "Measuring the tax subsidy in private equity and hedge fund compensation," *Hastings Law Journal*, November 2008.

22 We do not discuss scenario 3 separately because although the recovery paths are very different in scenarios 2 and 3, the size of investors' portfolios in 2013 is similar.

management reach $1.5 trillion by 2013—less than in our earlier projections, but still a significant force in financial markets.

Exhibit 3.13

Macroeconomic scenario assumptions

Scenario 1: Quick fix	• More moderate economic recession, with GDP growth resuming in late 2009 • Investor portfolio recovery within three years • Increased investor commitment to the hedge fund asset class, with allocation returning to peak 2007 levels, or 2.1% on average across investors
Scenario 2: Battered, but resilient	• Severe economic recession, with GDP growth resuming in mid-2010 • Investor portfolio recovery after four to five years • Continued investor commitment to the hedge fund asset class, with allocation remaining at its 2003-08 average, or 1.6% on average across investors
Scenario 4: Long freeze	• Extremely severe economic recession, with GDP growth not resuming until 2011 • Investor portfolios do not fully recover within the next five years • Reduced investor interest in the hedge fund asset class, with allocation remaining at pre-2003 levels, or 1.0% for all investors

SOURCE: McKinsey Global Institute analysis

Future growth depends on the pace of macroeconomic recovery

Hedge funds have continued to lose assets in 2009 as lockup periods expire and investors withdraw funds. One survey of hedge fund investors finds that most expect net withdrawals in 2009 to exceed those in 2008 as investors seek liquidity.[23] In addition, hedge funds well below their high-water mark are likely to exit. All in all, hedge fund industry assets under management in 2009 could shrink to between $900 billion and $1.2 trillion.

Beyond 2009, each of the scenarios envisions unique GDP and equity market trajectories, which in turn determine the size of investor portfolios. In the investor universe, we include pension funds, insurance companies, sovereign wealth funds, and high-net-worth individuals. In 2007, these investors had $91 trillion in assets. By the end of 2008, their wealth had shrunk to an estimated $75 trillion. Given the magnitude of this decline, it will take some time for their assets to recover. In Scenario 2, investor portfolios will require four to five years to return to 2007 levels.

In modeling future growth of hedge funds, we also include assumptions about investor allocations to hedge funds in each scenario. In Scenario 2, we assume that investors maintain their precrisis allocation to hedge funds.[24] This is consistent with recent investor surveys, which suggest most investors will hold their long-term percentage allocation to hedge funds constant.[25] For our assumptions in scenarios 1 and 4, see Exhibit 3.13 or the technical appendix.

23 PrimNews, *Fund of hedge funds review*, April 2009.

24 Weighted average allocation to hedge fund industry across all investor categories was 1.6 percent from 2003 to 2008, though allocation by individual investors can be significantly higher.

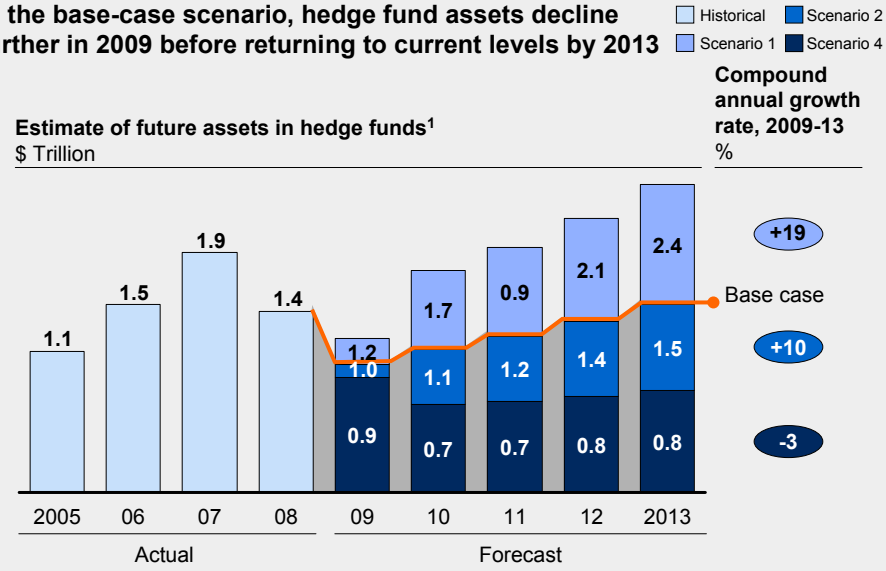
25 Preqin, *Private Equity Spotlight*, March 2009, Volume 5, Number 3.

In the base-case scenario, hedge fund assets in 2013 remain below their mid-2008 peak

In Scenario 2, the base case, hedge fund industry assets under management grow to approximately $1.5 trillion by 2013, well below their peak in mid-2008 (Exhibit 3.14). After declining further in 2009, hedge fund assets grow at a compound annual rate of 10 percent from 2010 through 2013, compared with their 23 percent annual growth rate from 2003 to 2007. The industry's growth is constrained by a severe global recession, with recovery not beginning until 2010, and by no change in investor allocations to hedge funds.

Exhibit 3.14

In the base-case scenario, hedge fund assets decline further in 2009 before returning to current levels by 2013



1 Assumes constant allocation to hedge funds at average historical levels in 2002-08, except for predicted drop in 2009.

SOURCE: U.S. Federal Reserve; International Financial Services London; Hedge Fund Research; Bloomberg; Capgemini; Merrill Lynch; Watson Wyatt; National Association of College and University Business Officers; Foundation Center; Conference Board; McKinsey Global Institute analysis

In Scenario 1, which envisions a quicker economic recovery, hedge fund assets could grow to $2.4 trillion by 2013—or 26 percent above their 2008 peak. This outcome would depend on a rapid economic recovery starting at the end of 2009, with continued GDP growth through 2013. Equity market recovery would follow, with global equities appreciating faster than 10 percent per year through 2013. Moreover, this scenario assumes that investors' allocation to hedge funds, as a share of their portfolios, would return to the peak level reached in mid-2008.

In Scenario 4, which assumes a longer recession, hedge fund industry assets could shrink further, falling to $800 billion in 2013, or nearly 60 percent below their peak. This outcome would reflect continuing decline or stagnation in the global economy with no substantial growth in investor portfolio assets. Moreover, this scenario assumes a reduction in investor allocations to hedge funds by about one-third, or back to levels not seen since 2003. While investors have not expressed any intention of retreating from hedge funds to this extent, new regulations limiting allocations by public institutional investors such as pension funds would have a similar effect.

* * *

Hedge funds experienced unprecedented growth from 2002 through 2007—a time when they went from being niche investment vehicles to dominant players in many corners of the financial markets. But now a shakeout is under way in which many funds are closing and wealthy individual investors are retrenching. The next several years will challenge the industry as credit remains tight and investors have less wealth to allocate. But we expect the hedge fund industry to recover. Funds with strong track records of good performance will survive—and may gain scale and thrive. Ultimately, a more consolidated, mature industry will emerge.

4. Private Equity: Beyond buyout

The global financial crisis has thrown into reverse the forces that had fueled the growth and success of leveraged buyout (LBO) funds in recent years. From 2002 through 2007, rising equity markets and cheap credit helped buyout firms generate high returns, while the ensuing flood of investor capital boosted buyout assets under management more than threefold. But now, with credit tight and equity markets far below their peaks, buyout funds are struggling. Funding for the "megadeals" (greater than $3 billion) that accounted for most buyouts has disappeared. Many companies acquired at the top of the market are performing poorly. And new fundraising has dried up as private equity investors assess their portfolio losses and face large capital commitments to the industry.

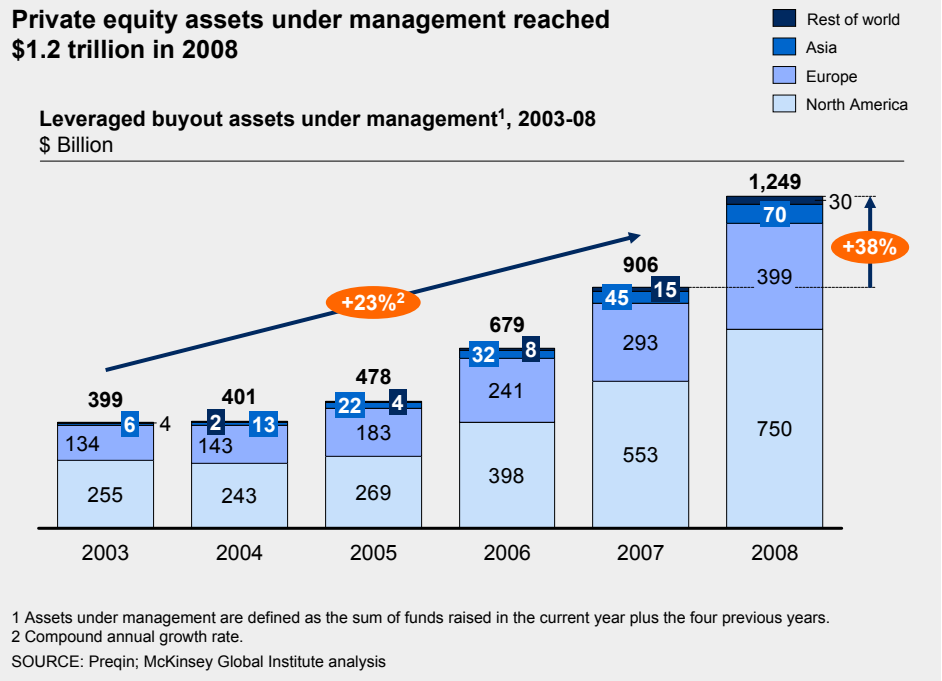
These conditions create significant challenges for the private equity industry. Over the next few years, private equity firms will look for opportunities in other forms of investment, including distressed debt and infrastructure funds, and to other regions, such as Asia. The buyout industry will likely go through a shakeout, marked by the exit of the firms that had relied heavily on leverage and rising equity markets to generate returns. The firms that do endure will be skilled managers that fundamentally improve company operations, or that have unique industry insight. Our base-case projections show assets in leverage buyout funds remaining at their current level over the next five years due to the absence of funding for the very largest deals. Assets under management of the broader private equity industry are projected to grow over that period, albeit less rapidly than before. This would accelerate a longer-term trend in which leveraged buyout funds have accounted for a declining share of the industry.

TROUBLED WATERS

At first glance, the leveraged buyout industry appears to be weathering the financial crisis relatively well. Buyout assets under management, measured in the standard way as the cumulative sum of the past five years of fundraising, rose to $1.25 trillion in 2008 from $900 billion in 2007 (Exhibit 4.1). Assets managed by the broader private equity industry—which includes venture capital, distressed debt, infrastructure, real estate, and other types of investment funds—also rose, reaching $2.9 trillion at the end of 2008, compared with $2 trillion at the end of 2007.

However, these figures significantly overstate the current health of the buyout industry. Values of most portfolio companies have almost certainly fallen sharply as global equity indices have declined by half. Accounting for this, assets in the buyout industry today may be worth less than $900 billion. New fundraising in 2009 is also down sharply, and many private equity investors—called limited partners—are struggling to fulfill their capital commitments. Furthermore, it is unclear how buyout funds will deploy their current unspent capital now that credit for the largest buyouts—the LBOs that accounted for most deal volume in recent years—has dried up.

Exhibit 4.1

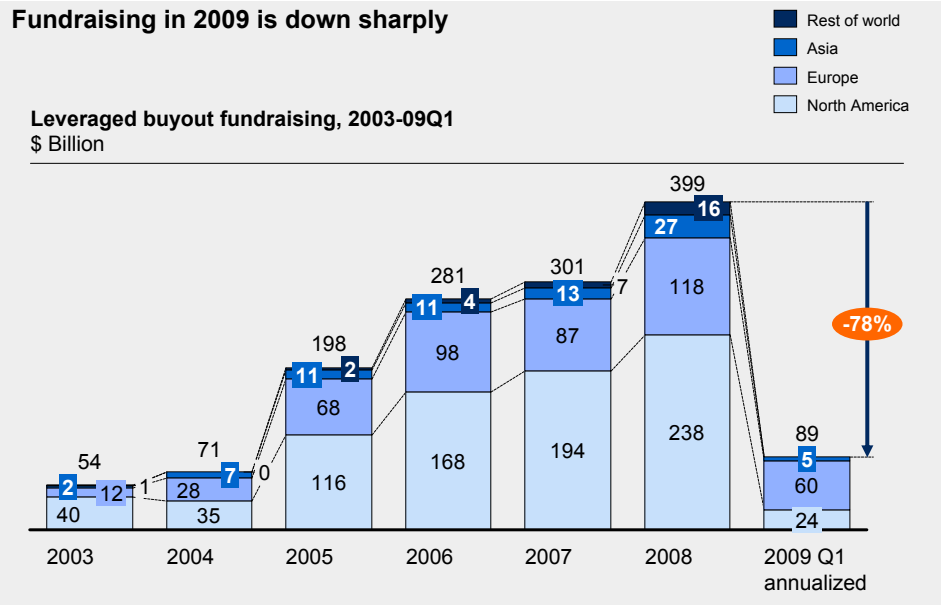


1 Assets under management are defined as the sum of funds raised in the current year plus the four previous years.
2 Compound annual growth rate.
SOURCE: Preqin; McKinsey Global Institute analysis

New fundraising is down sharply

Some of the apparent increase in fundraising in 2008 may actually reflect industry weakness, not strength. By our estimates, at least one-third of the total fundraising was either in funds that were going to close in 2007 but were held open into 2008 in the hope that they would meet their target size, or in 2009 funds that were closed early and below target as investor interest waned. Excluding these funds, new fundraising in 2008 would have been $230 billion—below the 2007 level—rather than the reported $400 billion. Fundraising has weakened further this year, falling to $89 billion at an annualized rate in the first quarter of 2009, down 78 percent from the prior year (Exhibit 4.2).

Exhibit 4.2

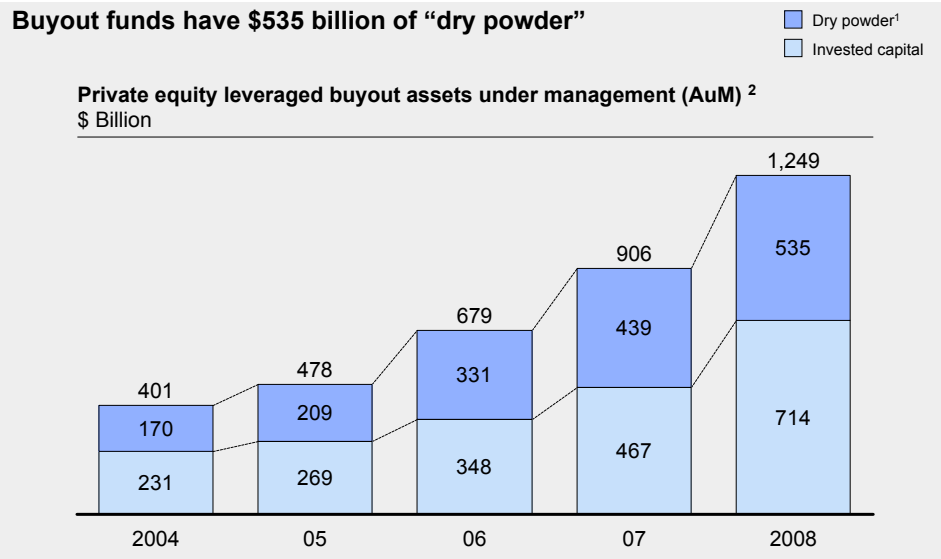


SOURCE: Preqin; McKinsey Global Institute analysis

The drop in 2009 fundraising reflects a deeper problem for the industry: investors' wealth has plunged while the size of their commitments to private equity funds has not. In recent years, many institutional investors, particularly pension funds, ramped up private equity investments to reach higher portfolio allocation targets. But much of the capital they committed to buyout funds has not yet been called in by the fund managers. By our calculations, the "dry powder," or capital committed by investors but not yet deployed, reached $535 billion in 2008, or 43 percent of total assets under management (Exhibit 4.3). When the value of investors' financial portfolios shrank in 2008, these uncalled capital commitments ballooned relative to their wealth; for some investors, the commitments of many investors far exceed their targeted allocations.[1] Some investors have discussed increasing their private equity allocation targets in response. Other investors may have planned to fund new commitments with cash from payouts by previous funds that were expected to close in 2008 or 2009, but that didn't.[2]

Exhibit 4.3

Buyout funds have $535 billion of "dry powder"



1 Dry powder is defined as funds that have been committed by investors but not called or invested by the general partners.
2 Dry powder percentages were calculated on second-quarter estimates for each year and then applied to fourth-quarter total AuM estimates.
SOURCE: Preqin; McKinsey Global Institute analysis

As a result, sales in the secondary market for private equity commitments have increased, driving their value down to 50 cents on the dollar, the lowest point in five years (Exhibit 4.4). According to one survey, 10 percent of investors said they are "very likely" to sell their private equity fund interests on the secondary market within the next 24 months.[3] In another survey, the share of investors who expect to reduce their future allocation to private equity has risen to more than one-third, up from negligible levels prior to the crisis (Exhibit 4.5).

Anecdotal evidence suggests some investors are seeking to renegotiate their uncalled capital commitments, even though they are legally obligated to honor them. Fund managers may be willing to negotiate with some of their largest investors. In recent months, for example, the Pennsylvania Public School Employees' Retirement System and the New Jersey Division of Investment pulled back from roughly $100

1 The large write-downs taken across the industry may help these investors formally balance their portfolios.

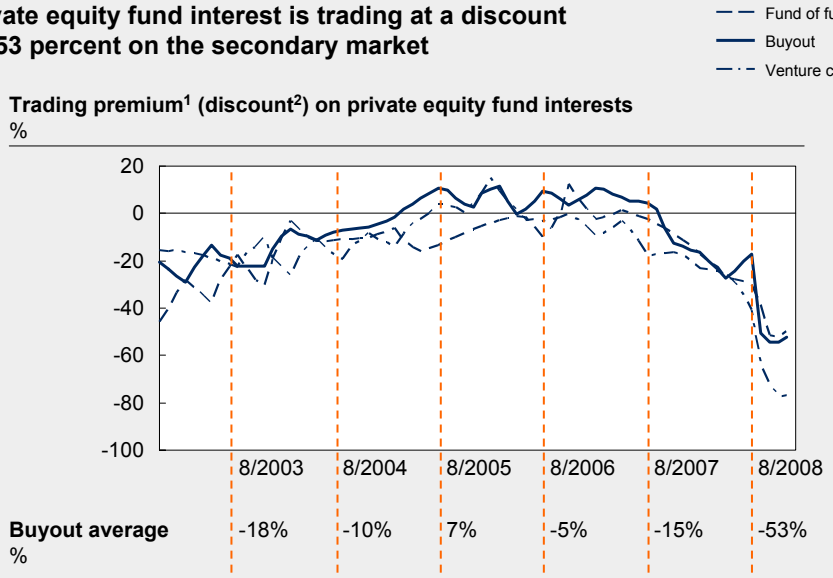
2 Preqin, *Private Equity Spotlight*, April 2009, Volume 5, Issue 4.

3 Preqin, *Private Equity Spotlight*, March 2009, Volume 5, Issue 3.

million in private equity commitments.[4] And in February, London buyout firm Candover said it was expecting reductions in investors' funding commitments to its Candover 2008 Fund.[5]

Exhibit 4.4

Private equity fund interest is trading at a discount of -53 percent on the secondary market

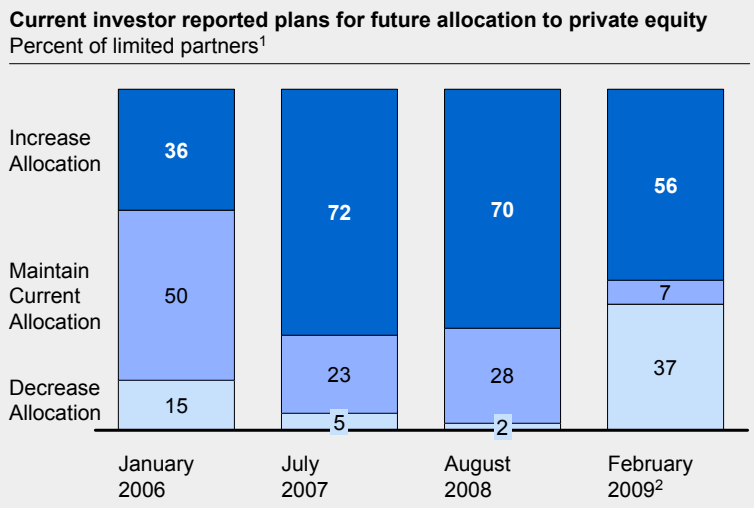


1 This is the difference between the trading price and the nominal value of the fund interest divided by the nominal value.
2 In the case that this is negative, this is a discount.

SOURCE: Preqin

Exhibit 4.5

The portion of private equity investors that plan to decrease their future allocation has jumped



1 Some figures do not sum to 100 because of rounding.
2 Estimate amount. Assumes same allocation percent as 2008.

SOURCE: Preqin; Private Equity Intelligence, February 2009; McKinsey Global Institute analysis

4 Sabrina Willmer, Private Equity Analyst, Dow Jones, February 26, 2009.

5 This is in part because Candover's major investor is a publicly traded investment vehicle that uses leverage to fund its commitments. Thomson Reuters, *Buyouts*, March 2, 2009.

Write-downs on portfolio companies could total $300 billion

A large portion of the $700 billion of buyout assets that have already been invested in companies may be in trouble. In the past, most private equity funds have not reported the marked-to-market value of portfolio companies, waiting instead until the company was sold. But one rough approximation of the equity value in private equity-owned companies is the market value of publicly listed companies.[6] By this measure, the value of private equity deployed assets would be reduced by more than $300 billion.

In addition, the returns on the 2005-07 vintage buyouts may be substantially lower than in the past. In this unprecedented economic downturn, many portfolio companies are reportedly not hitting their target numbers.[7] Expectations of poor returns may be one reason that secondary market stakes for private equity commitments are valued at such a steep discount.

Some major private equity firms have begun writing down the value of their current investments to reflect their portfolio companies' performance. This enables investors to more accurately calculate their portfolio allocation.[8] For example, TPG wrote down the value of investments in its latest buyout fund by 29 percent at the end of 2008. In Europe, the UK firm Terra Firma has reported a 42 percent drop in the value of its investments,[9] and the Nordic firm EQT Partners has written down its Fund IV by 50 percent.[10]

Some fund managers may try to extend the life of a fund to wait for equity markets to recover. But this may be a risky strategy. In December 2008, despite a 48 percent drop in the S&P 500 index from its peak, price-earnings ratios for US equities were at their long-term historic average (Exhibit 4.6). So equity markets may not return to their peak levels soon. Moreover, the increased holding time of portfolio companies will decrease the internal rate of return of the investment even if the exit value returns to a reasonable threshold.

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6 The buyout industry traditionally has been concentrated in sectors with more stable earnings and less volatility. However, the lower riskiness of these companies is offset by the higher leverage employed by the private equity firms that purchase them. Other McKinsey research has shown that these two effects roughly offset each other, making it reasonable to use the broader market indices as guideposts.

7 Preqin, for example, reports that the one-year internal rate of return (IRR) on buyout funds for 2008 was -13.3 percent. (This includes total industry assets, not just deployed capital.) Although this is much better than public equity market indices, it is far below the one-year returns before the crisis, which were between 25 percent and 30 percent for each of the five previous years. *Private Equity Spotlight*, April 2009, Volume 5, Issue 4.

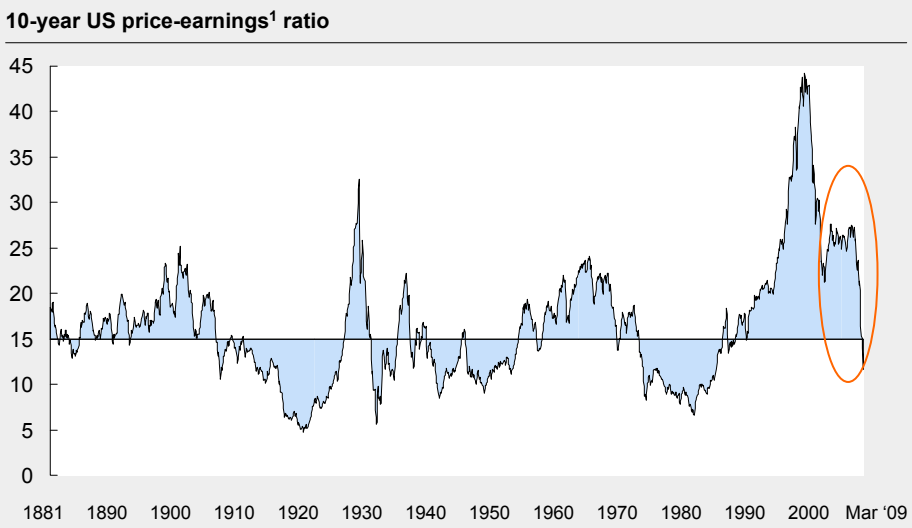
8 Because the public equity portion of investment portfolios declined dramatically, private equity would look like a dramatically larger share if not marked to market. The primary motivation for these write-downs is to help investors meet their private equity allocation targets, so they will contribute to new fundraising.

9 Oliver Smiddy, "Firms unveil write-downs as deal multiples decline," *Private Equity News*, March, 9, 2009.

10 Toby Lewis, "EQT writes down fourth fund by 50%," *PE Analyst*, January 26, 2009.

Exhibit 4.6

US equity valuations as of March 2009 were not far below the historic average



1 This is retrospective price-earnings ratio, with earnings computed as the ten-year average of the period prior to the price.
SOURCE: Robert Shiller; McKinsey Global Institute analysis

Buyout volume has fallen by 75 percent, driven by the disappearance of megadeals

The credit crisis has put a sharp dent in global mergers and acquisitions, particularly those involving leveraged buyouts. The cost of credit for buyout funds has spiked, with one measure—the spread of a ten-year BBB industrial-bond index over swap rates—increasing sixfold in the United States and eightfold in Europe between June 2007 and December 2008.[11] New syndicated debt issuance to private equity funds fell to just $12 billion in the fourth quarter of 2008, down 96 percent from its peak of $283 billion in the first quarter of 2007 (Exhibit 4.7).

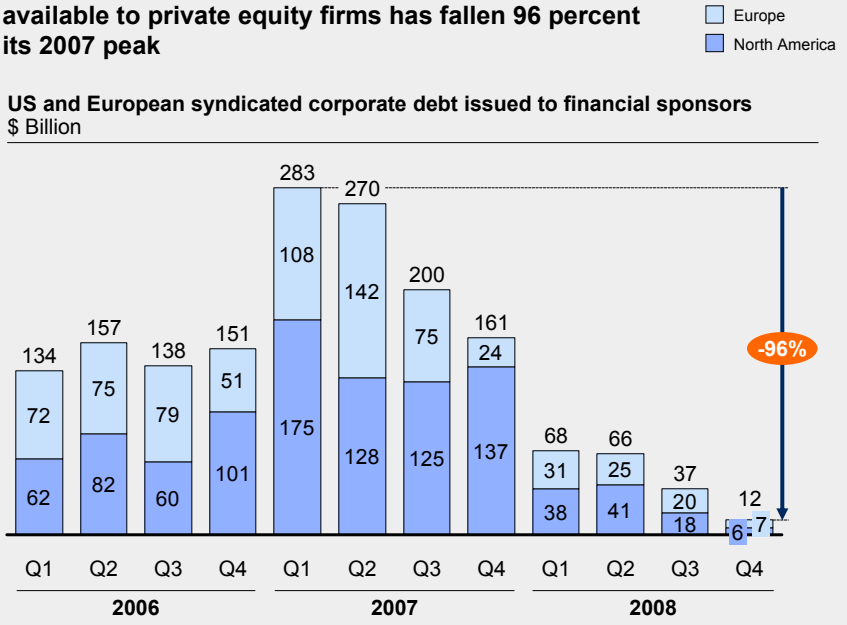
New leveraged buyout activity has declined across all deal sizes and regions. Globally, the value of buyout deals fell from $580 billion in 2007 to just $150 billion in 2008, of which just $18 billion occurred in the final quarter of the year. The number of LBOs declined 70 percent in Europe and nearly 80 percent in North America from 2007 levels (Exhibit 4.8).

The largest buyouts, or "megadeals" worth more than $3 billion each, were hardest hit because they require the most debt to fund. These deals were the centerpiece of the buyout boom from 2005 to 2007 when LBOs hit their peak, accounting for 55 percent of the total capital deployed during that period. However, such deals dropped from 20 transactions in the second quarter of 2007 to just one in the fourth quarter of 2008: the purchase of failed US mortgage lender IndyMac by a consortium of private equity firms and hedge funds. The disappearance of megadeals accounts for 64 percent of the decline in deal volume in 2008 (Exhibit 4.9).

11 The difference between the US Bloomberg ten-year BBB Industrial Composite Bond Index and swap rates rose from 67 basis points in June 2007 to 405 basis points in December 2008. In Europe, the spread between the Bloomberg Euro ten-year BBB Industrial Composite Bond Index and swap rates increased from 52 basis points to 459 basis points over the same period.

Exhibit 4.7

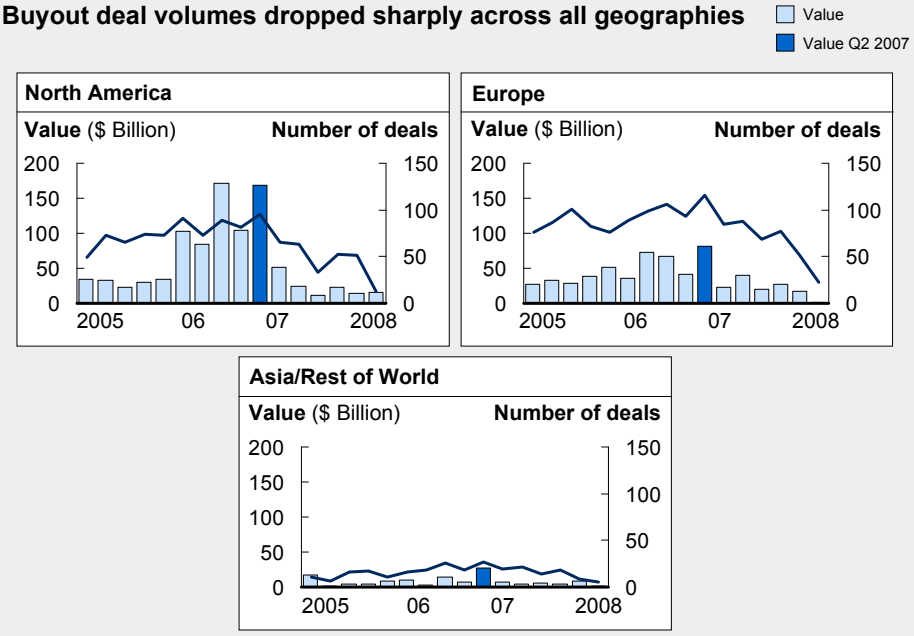
Debt available to private equity firms has fallen 96 percent from its 2007 peak



SOURCE: Dealogic; McKinsey Global Institute analysis

Exhibit 4.8

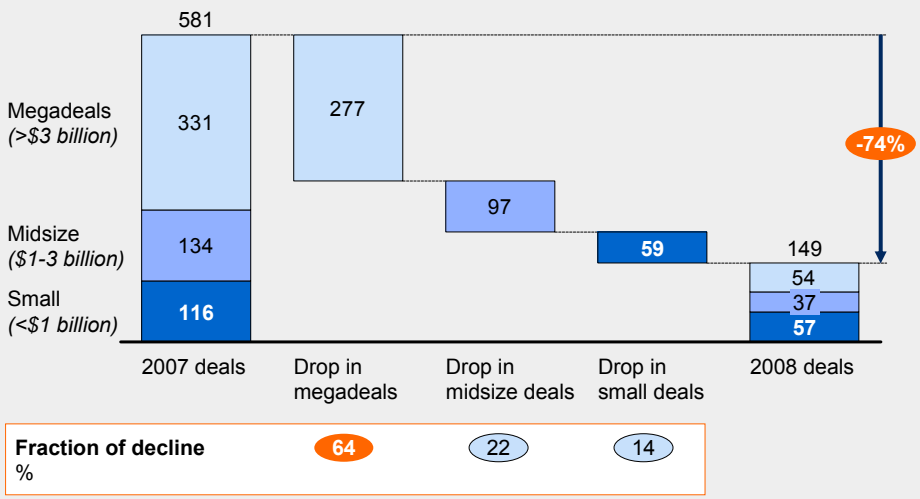
Buyout deal volumes dropped sharply across all geographies



SOURCE: Capital IQ; McKinsey Global Institute analysis

Exhibit 4.9

Two-thirds of the decline in buyout deal volume was for the largest deals



SOURCE: Capital IQ; McKinsey Global Institute analysis

At the writing of this report, it is uncertain when credit markets will thaw enough to finance large buyouts. Spreads on credit for investment-grade companies in the United States have begun to ease a bit. But total credit losses in the United States and Europe could exceed $4 trillion if the global recession drags on.[12] So far, banks have written down less than half of the losses they may actually face; full credit market recovery could be a long way off. Until then, megadeal buyouts are not likely to be an option. The last peak of megadeal activity was in the 1980s, with companies such as RJR Nabisco. After the buyout market collapsed at that time, it took more than two decades for megadeals to return.

This situation poses questions about how buyout funds will deploy their dry powder. At the market's peak in 2007, the combined value of all buyouts worth $1 billion or less totaled just $100 billion. At that rate, it could take the next five years to deploy buyout funds' uncalled capital, even if some investors renegotiate their commitments. And until that dry powder is deployed, private equity firms are unlikely to open many new buyout funds.

ADAPTING TO THE NEW ENVIRONMENT

The private equity industry that emerges from the crisis may be different in several ways. Buyout funds that survive will have strong skills in operational improvement and active management. Investors will gain more power relative to fund managers, at least for the next few years, and may put pressure on fees. For now, private equity firms will need to look beyond buyout for investment opportunities. In the long term, when buyout resumes, fund managers' focus will return to mid-market deals rather than the megadeals of recent years. Regulatory changes could also prompt shifts in the industry, which we address in the next section.

12 IMF Global financial stability report, April 2009.

Firms that survive will have strong management skills or unique industry insight

With credit tight, the ability of buyout funds to deliver strong returns to their investors will depend more than ever on their approach to managing their portfolio companies.[13] Firms will need to differentiate themselves through unique industry insights that give them an advantage in choosing or strategically managing companies, or through strong operational skills in turning around the business and improving profitability. Firms that lack these skills, and which have relied on leverage and financial engineering to generate returns, will likely fail.

This process could be a healthy development. Our earlier research found that the top quartile of buyout funds have generated returns (net of fees) that far exceeded public equity markets, but the bottom half of funds did no better than investments in public equities.[14] Other research has shown that the best fund managers consistently generated superior performances through operational and strategic improvements.[15] Funds that have performed at the bottom of the industry will face difficulty in new fundraising and will eventually close down as investors become more discriminating. This will prompt further consolidation of the industry's assets.

Investors may put pressure on fees

As buyout industry returns fall during this difficult economic environment, the industry's relative bargaining power is likely to shift to investors. In recent years, during the boom, private equity general managers could name their price and command unprecedented fees and freedom to operate. Going forward, the new value proposition to investors may involve alternatives to the traditional fee structure of "2 and 20," or a 2 percent management fee and 20 percent of fund performance. Our interviews suggest some management fee adjustments have already occurred. However, renegotiation of fee structures is unlikely to occur immediately. Rather, they will probably evolve over the next few years, as the performance of recent vintage funds becomes clearer.

Searching for opportunities beyond buyout

With credit markets frozen and megadeals not an option, buyout fund managers will look for other ways to deploy capital over the next few years. Although there will be plenty of opportunities in mid-market and smaller buyouts, these deals are unlikely to absorb the LBO funds' $535 billion of dry powder. Some managers are therefore looking beyond buyouts to other opportunities. One is distressed debt. Notable examples include Goldman Sachs shifting two-thirds of its uninvested capital ($6 billion) to distressed debt and TPG shifting $2.3 billion of the uninvested capital in its buyout fund to distressed debt. Other private equity funds are providing "debtor-in-possession" (DIP) financing for companies in bankruptcy. Some are taking minority stakes in publicly traded companies; these deals are called PIPEs, for public investment in public equity. The crisis has also created abundant opportunities in the financial sector, as shown by private equity firms' purchases of several failed

13 Conor Kehoe and Robert N. Palter, "The future of private equity," *McKinsey on Finance*, Spring 2009 (www.mckinsey.com).

14 See McKinsey Global Institute, *The new power brokers: How oil, Asia, hedge funds, and private equity are shaping global capital markets*, October 2007 (www.mckinsey.com/mgi/).

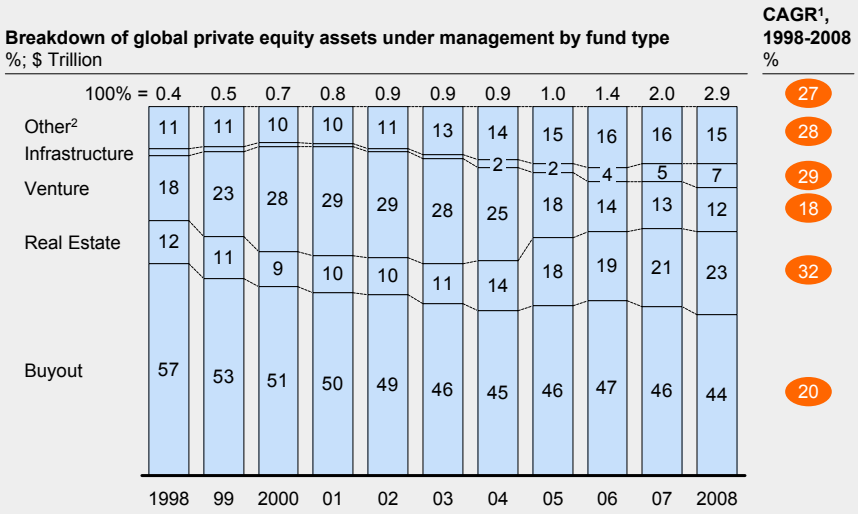
15 Joachim Heel and Conor Kehoe, "Why some private equity firms do better than others," *The McKinsey Quarterly*, Number 1, 2005 (www.mckinseyquarterly.com).

US banks.[16] An open question is whether buyout fund managers will generate the same kinds of returns as they did in past. If not, investors will need to lower their expectations.

Over the past decade, assets in buyout funds have grown less rapidly than assets in other types of private equity funds—including distressed debt, high-yield debt, infrastructure, energy, venture capital, and real estate. As a result, the share of buyout funds in the broader industry has declined from 57 percent in 1998 to 44 percent in 2008 (Exhibit 4.10). This trend will continue—if not accelerate—over the next few years. Although some of these other funds use as much leverage as LBOs, they typically pursue much smaller deals and therefore are easier to fund than buyouts. And when the buyout market does revive, more activity will shift back to mid-market deals rather than megadeal buyouts.

Exhibit 4.10

Buyout funds account for a declining share of the overall private equity industry



1 Compound annual growth rate.
2 Other: mezzanine, distressed debt, natural resources, balanced, special situations, turnaround, bridge, venture debt, direct secondaries, hybrid, and forestry.
SOURCE: Preqin; McKinsey Global Institute analysis

REGULATORY ACTIONS COULD SHAPE THE PRIVATE EQUITY INDUSTRY

Potential changes in financial regulation may further shape the private equity industry. As we write this report, there is still a great deal of uncertainty around the degree and mechanics of any future regulatory changes. The possibilities under consideration include changes in US capital gains tax laws, new potential reporting and registration requirements, and limits on leverage. Yet despite the intense debate, such changes are likely to cause just marginal adjustments in the industry.

Changes in taxation

Private equity managers receive compensation from management fees, based on assets under management, and from their share of profits made on investments, so-called carried interest, or "carry." Carry constitutes a large portion of their compensation. Private equity fund managers typically pay ordinary income tax rates on management fees and lower capital gains tax rates on carry. In the United States, for example, the highest marginal individual income tax rate is 35 percent (and many

16 For instance, the IndyMac sale in 2008, and the purchase in May 2009 of Florida's failed BankUnited FSB by a group of buyout firms.

high-income individuals pay an effective top rate of 36 percent), while capital gains are taxed at 15 percent. In President Obama's proposed federal budget, carry would be taxed as income, not as capital gains, beginning in 2011. Combined with other proposed increases in top tax rates, most carried interest would be taxed at a rate of 39.6 percent. Other things being equal, such a change could significantly reduce the total after-tax compensation of private equity managers. At least one study concludes that in the United States, private equity managers earn more than other executives or entrepreneurs almost entirely because of the advantageous tax treatment of their income.[17] Regulatory changes that curtail income could potentially diminish the flow of talent to private equity firms. Even if this were to occur, however, it is unclear whether the supply of talent would be a constraint on future industry growth.

Registration and reporting requirements

Policy makers in the United States, United Kingdom, and European Commission (EC) are considering whether to impose new registration and reporting requirements on alternative investment vehicles, including private equity funds. The EC, for example, recently proposed new registration and disclosure rules and minimum capital requirements for private equity firms and hedge funds managing more than €100 million in assets.[18] Firms would be permitted to offer their services to European investors only if they have an office in the European Union (EU) and have registered with EU regulators. If enacted, such rules would increase overhead costs, and thus favor the larger private equity firms. In April the G-20 created the Financial Stability Board to oversee global financial stability in coordination with the International Monetary Fund (IMF).[19] The board's purview explicitly covers the largest private equity funds.

Limits on leverage

Additionally, policy makers are considering possible limits on the leverage used by the largest alternative investment funds, including private equity. Leverage limits could come through the discretionary powers of a new "systemic risk regulator." The EU and United States are considering creating such bodies, with powers that could include requiring banks or investment funds to increase capital or decrease leverage if deemed necessary to ensure financial market stability. The largest private equity firms would almost certainly fall under the purview of such a regulator. Still, it is unclear how such limits would affect private equity firms. Although they often use as much as 70 percent debt in buyouts, the leverage ratios of banks are much higher.

PRIVATE EQUITY PROJECTED TO GROW OVERALL, BUT LEVERAGED BUYOUT DECLINES

Given the high degree of uncertainty over when the global economy and financial markets will recover, we base our analysis of future growth of private equity on four macroeconomic scenarios developed by McKinsey & Company and Oxford Economics. Exhibit 4.11 shows a stylized version of the path of global GDP over time in each scenario. (See the appendix for more detail on our scenarios and projection methodology.) For simplicity, we focus on three of the scenarios: Scenario 1, or the "quick fix," in which global GDP starts to grow again in late 2009; Scenario 2, labeled

17 Thomas J. Brennan and Karl Okamoto, "Measuring the tax subsidy in private equity and hedge fund compensation," *Hastings Law Journal*, November 2008.

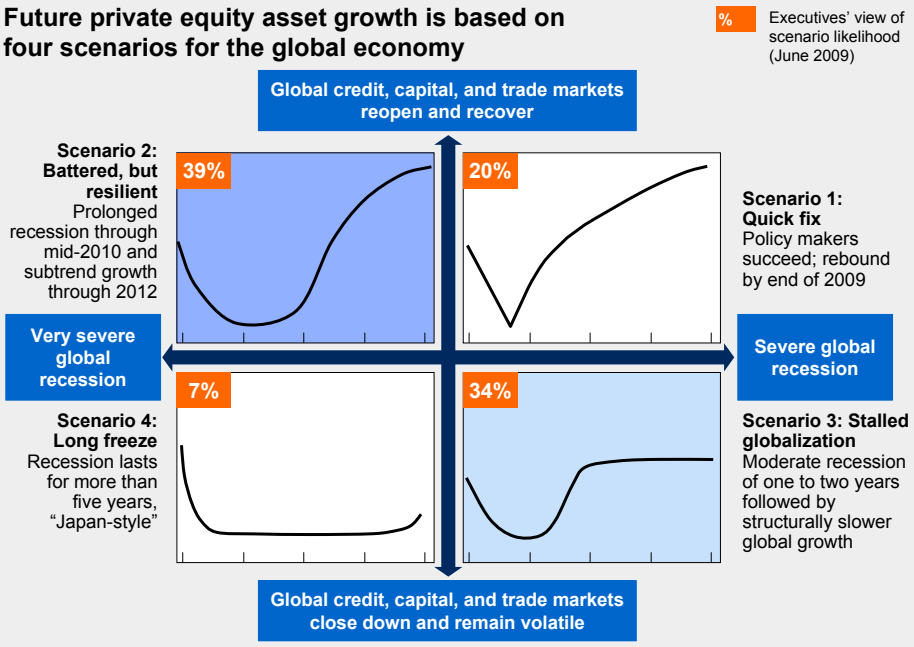
18 An exception would be made for firms that do not use leverage and that lock in investors for at least five years. These firms would be subject to the registration and disclosure rules only if their assets exceeded €500 million.

19 The Financial Stability Board includes all G-20 countries, Spain, and the European Commission.

"battered, but resilient," in which GDP resumes growth in mid-2010; and Scenario 4, the "long freeze," in which GDP does not begin growing again until 2011.[20] Exhibit 4.12 lists the assumptions in each case. We highlight Scenario 2 as the base case because it is viewed as the most likely to occur by a plurality, 39 percent, of respondents to the *McKinsey Quarterly* executive survey (June 2009).

Exhibit 4.11

Future private equity asset growth is based on four scenarios for the global economy



SOURCE: McKinsey Global Institute; *McKinsey Quarterly* executive survey, June 2009

Exhibit 4.12

Macroeconomic scenario assumptions

Scenario 1: Quick fix	• More moderate economic recession, with GDP growth resuming in late 2009 • Investor portfolio recovery within three years • Increased investor commitment to the hedge fund asset class, with allocation returning to peak 2007 levels, or 2.1% on average across investors
Scenario 2: Battered, but resilient	• Severe economic recession, with GDP growth resuming in mid-2010 • Investor portfolio recovery after four to five years • Continued investor commitment to the hedge fund asset class, with allocation remaining at its 2003-08 average, or 1.6% on average across investors
Scenario 4: Long freeze	• Extremely severe economic recession, with GDP growth not resuming until 2011 • Investor portfolios do not fully recover within the next five years • Reduced investor interest in the hedge fund asset class, with allocation remaining at pre-2003 levels, or 1.0% for all investors

SOURCE: McKinsey Global Institute analysis

These scenarios determine how quickly the assets of institutional investors recover. We also make assumptions about investor appetite for private equity investments. Together, these factors determine the projected growth in the assets under management in buyout funds and in the broader private equity industry through 2013.

20 We do not discuss Scenario 3 separately because although the economic recovery paths are very different in scenarios 2 and 3, the size of investors' portfolios in 2013 is similar.

In our base-case projection, total private equity industry assets under management increase to $3.4 trillion by 2013, while leveraged buyout assets remain below their 2008 peak.

Future private equity growth will depend on the recovery of the economy and financial markets

One key to the future of private equity will be the wealth of its potential investors, which in turn will depend on the timing and strength of economic recovery. Private equity investors—including pension funds, insurance companies, sovereign wealth funds, endowments, and high-net-worth individuals—have suffered massive investment losses that will take years to recoup. We estimate this group's combined assets declined from $91 trillion in 2007 to $75 trillion at the end of 2008. This decline in wealth will limit their ability to invest in future private equity funds, particularly given the large capital commitments they made in recent years but have yet to fulfill. To model the future increase in investors' wealth, we use the GDP and financial market projections of the macroeconomic scenarios. In our base case, for example, the global economy suffers a severe recession, with growth resuming in mid-2010. In this case, we project that institutional investors' assets will not return to their 2007 peak until 2012 or 2013.

Another factor that will affect private equity's future growth will be investor allocation to the industry. There is no conclusive evidence yet on whether investor allocations will continue to increase, as in recent years, or whether the financial crisis and poor industry returns will cause a retreat from risk-taking. We therefore assume in all scenarios that institutional investor allocation to the private equity industry broadly defined (including buyout funds and other types of funds) will remain constant at 3.9 percent.[21] For buyout funds, we assume investor allocation declines to around 1 percent from 1.6 percent, given the dearth of credit for buyout and the decline in new fundraising.

Finally, the growth and size of the LBO category of private equity will depend on whether and when megadeals resume. In the base-case scenario, we assume there will be very few leveraged buyouts worth more than $3 billion over the next five years due to the high cost and limited availability of credit for such large deals. Investor skepticism about the returns that fund managers can generate from such LBOs may also play a role: the most recent megadeals were made at the peak of the equity market and could prove to be unprofitable, and the enterprises involved may prove to be too large to be turned around quickly. Buyout funds will still find opportunities in medium-sized companies and all-equity deals, and they continue to explore new, albeit unproven, avenues such as PIPEs and financial institutions. However, these new avenues are unlikely to absorb all of the current dry powder in the industry ($535 billion), much less large amounts of new capital.

Base-case projection sees buyout assets flat through 2013, while the broader private equity industry grows

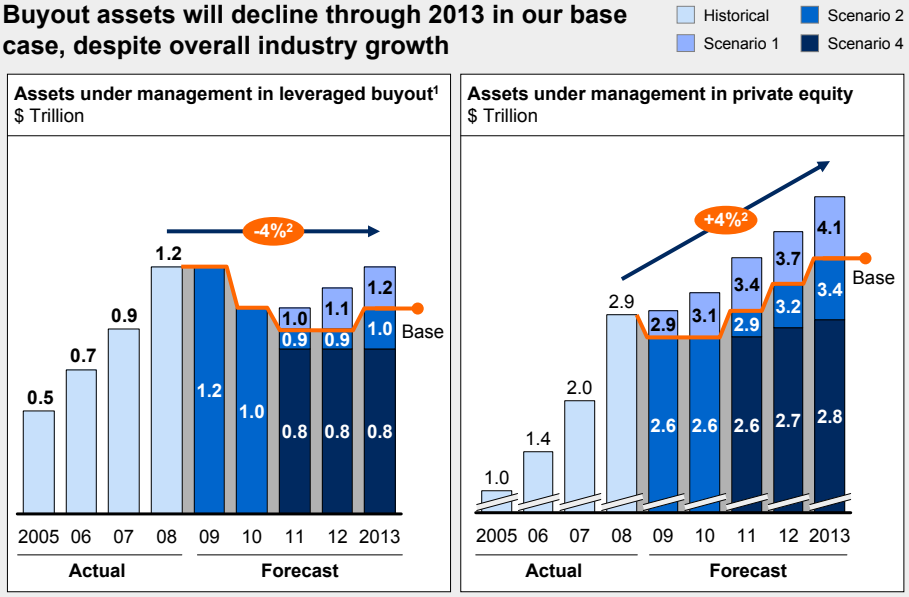
In our base-case scenario, total private equity industry assets under management rise to $3.4 trillion in 2013, at a compound annual growth rate of 4 percent. Assets under management of leverage buyout funds, however, will decline from $1.2 trillion to $1 trillion over the same period (Exhibit 4.13). Buyout funds will therefore represent

21 We calculate the allocation figures by dividing assets under management by total institutional investor wealth, both measured at the end of 2008. The actual allocation for specific types of investors, such as pension funds, is much higher.

a shrinking share of the global industry's total assets under management over the next five years, decreasing from 44 percent in 2008 to less than 30 percent in 2013. Other categories of private equity funds, including distressed debt, infrastructure funds, and real estate, are projected to grow from $1.7 trillion in 2008 to $2.8 trillion by 2013 in the base-case scenario.

Exhibit 4.13

Buyout assets will decline through 2013 in our base case, despite overall industry growth



1 Measured as cumulative funds raised in the current year plus over the previous four years.
2 Compound annual growth rate.
SOURCE: Capital IQ; Preqin; McKinsey Global Institute analysis

Other scenarios demonstrate a broader range of potential results

Given the uncertainty about the global macroeconomic recovery, we also examined how private equity would fare under different recovery scenarios.

In Scenario 1, a faster global economic recovery spurs equity market growth sooner, with robust growth from 2010 through 2013. Credit markets return to health more quickly, enabling buyout deals—including some megadeals—to resume by 2011. Investor portfolios also turn to their 2007 peak by 2011. In this scenario, assets under management in the broader private equity industry increase to $4.1 trillion by 2013, at a compound annual growth rate of 7 percent (see exhibit 4.13). Still, this is far slower than the 26 percent pace between 2003 and 2008. This is because even in the best scenario, new fundraising for private equity will be limited until investor portfolios recover. The assets of buyout funds grow to $1.2 trillion in 2013, returning to their 2008 peak. The share of buyout in the broader industry remains the same.

In Scenario 4, the global economy stagnates. Equity markets decline further in 2009 before slowly increasing through 2013. Investor portfolios are slow to recover, limiting new investments. Credit markets will remain constrained throughout the period, limiting available leverage to buyouts. In this case, private equity assets in the broader industry remain below the 2008 peak, and assets in leveraged buyout funds shrink to $800 billion.

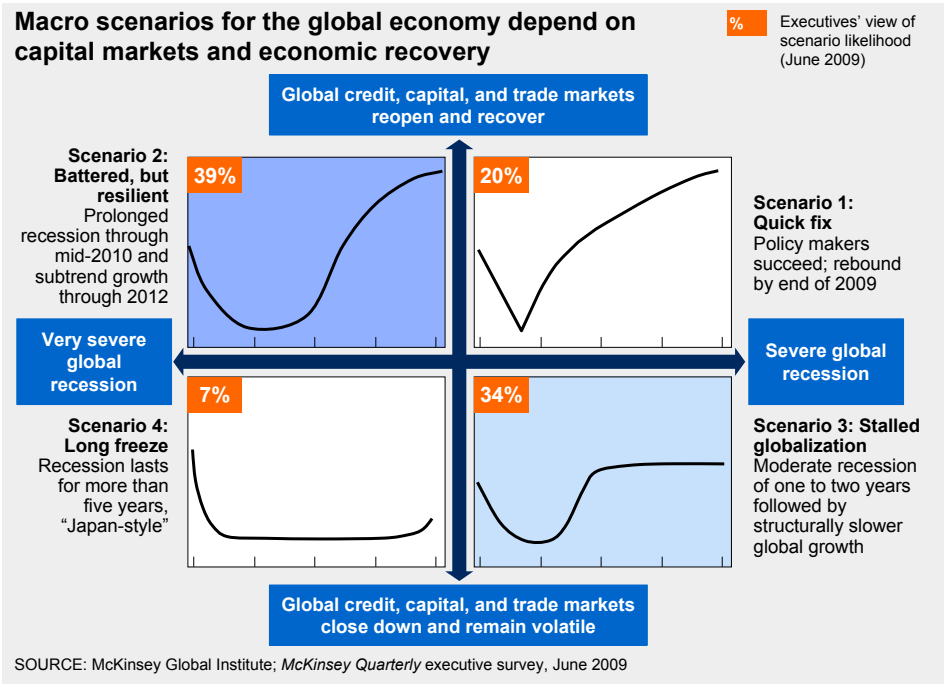
* * *

The leveraged buyout boom of 2005 through 2007 is over, and it remains unclear whether or when big LBOs will make a comeback. So, buyout funds' assets may well remain flat over the next few years. However, the rest of the private equity industry is retooling and evolving, seeking opportunities in new forms of investment and in new regions. Therefore, while buyout funds' influence will wane, the broader private equity industry will grow.

Appendix: Technical notes

These technical notes provide more detail on some of the methodologies employed in this report. To model future financial assets for each of our power brokers, we use four proprietary macroeconomic scenarios developed by the McKinsey & Company and Oxford Economics. The four scenarios are based on different expectations for capital market and economic recovery in the years ahead. Exhibit A.1 shows a stylized version of the path of global GDP over time in each scenario. For simplicity, we focus on three of the scenarios: Scenario 1, or the "quick fix," in which global GDP starts to grow again in late 2009; Scenario 2, labeled "battered, but resilient," in which GDP resumes growth in mid-2010; and Scenario 4, the "long freeze," in which GDP does not begin growing again until 2011. We do not discuss Scenario 3, "stalled globalization," separately because although the paths of economic recovery are very different in scenarios 2 and 3, the effects on the power brokers' assets by 2013 are similar. We highlight Scenario 2 as the base case because it is viewed as the most likely to occur by a plurality, 39 percent, of respondents to the *McKinsey Quarterly* executive survey (June 2009).

Exhibit A.1



SOURCE: McKinsey Global Institute; *McKinsey Quarterly* executive survey, June 2009

We discuss the following topics in more detail:

1. Methodology for projection of petrodollar assets
2. Methodology for projection of Asian sovereign investor assets
3. Methodology for projection of sovereign wealth fund assets
4. Methodology for projection of hedge fund assets
5. Calculation of Sharpe ratios for hedge funds
6. Examination of which hedge fund features might explain superior performance
7. Methodology for projection of private equity assets

1. METHODOLOGY FOR PROJECTION OF PETRODOLLAR ASSETS

We model petrodollar foreign asset growth based on three factors: the value of oil produced, the fraction of this oil value invested abroad, and investment returns. For each of these factors, we base our predictions on the McKinsey / Oxford Economics macroeconomic scenarios.

First, the future value of oil produced by each petrodollar country is determined by projections for the price of crude and the volume of oil produced. Our projections for oil prices and volumes are made with the aid of McKinsey Global Institute research on energy demand and oil production.[1] We consider three scenarios for the global economy. In the base case, which envisions GDP starting to grow again in mid-2010, crude prices rise slowly in the coming years as the economy recovers, surpassing $70 per barrel by 2013. In Scenario 1, which assumes a faster recovery, oil prices rise steadily to $100 per barrel by 2013. In Scenario 4, in which GDP growth does not resume until 2011, oil prices remain below $50 per barrel for several years before rising to $60 per barrel in 2013.

Second, the fraction of the value of oil produced that is invested abroad is projected based on the historical relationships between oil production, foreign investment, and domestic investment. In the past, all oil exporters have increased and decreased their annual new foreign investments in proportion to the value of oil they produced that year. From 1997 through 2007, we find that the correlation coefficient between new foreign investments and oil production is quite high for all major oil-producing countries.[2] We assume this historical correlation will continue in the oil-exporting nations outside the Gulf Cooperation Council (GCC) states of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.

However, in the GCC states, domestic spending and investment have been growing linearly over time since 2002 as these countries seek to diversify their economies. Collectively, GCC domestic investment has increased by around $27 billion each year. We calculate the slope of the line for each country independently and assume that the past trend will continue in all scenarios, regardless of oil prices. We make

1 See *Averting the next energy crisis: The demand challenge*, McKinsey Global Institute, March 2009 (www.mckinsey.com/mgi/).

2 In a regression of capital outflows against oil production, we find the fit of regression is very good for all major oil exporters, with an R2 greater than 0.9 for all countries.

this assumption based on information gathered from future government budgets, domestic construction projects under contract, and expert interviews.

Future new petrodollar foreign investment is calculated as the difference between the value of oil production and domestic spending each year. In Scenario 2, the base case, petrodollar countries' new foreign investment will decrease through 2010 before resuming growth and nearing 2007 levels—or more than $800 billion per year—by 2013. In Scenario 1, which envisions a faster economic recovery, foreign investment will decrease in 2009 but surpass 2007 levels by 2011. In Scenario 4, which involves a longer recession, it will remain below 2006 levels for the next five years. In GCC countries, it remains particularly low in this scenario, since we assume that domestic spending levels remain elevated.

The final key assumption on future petrodollar foreign asset growth is the rate of appreciation on existing foreign investments. We take a conservative view on future returns, based on the global macroeconomic scenarios and past returns. In the base-case scenario, average investor rates of return range between 1 percent and 6 percent, with more conservative investors outperforming aggressive ones through 2009. In Scenario 1, investor rates of return range higher, between 3 percent and 8 percent, with aggressive investors performing better. In Scenario 4, investor rates of return range lower, between -1 percent and 2 percent, with all investors seeing negative or near-zero returns through 2010. In all scenarios, we assume that oil revenue will be allocated as it has been in the past, both across investors—sovereign wealth funds, central banks, and private individuals—and across asset classes in each investor's portfolio.

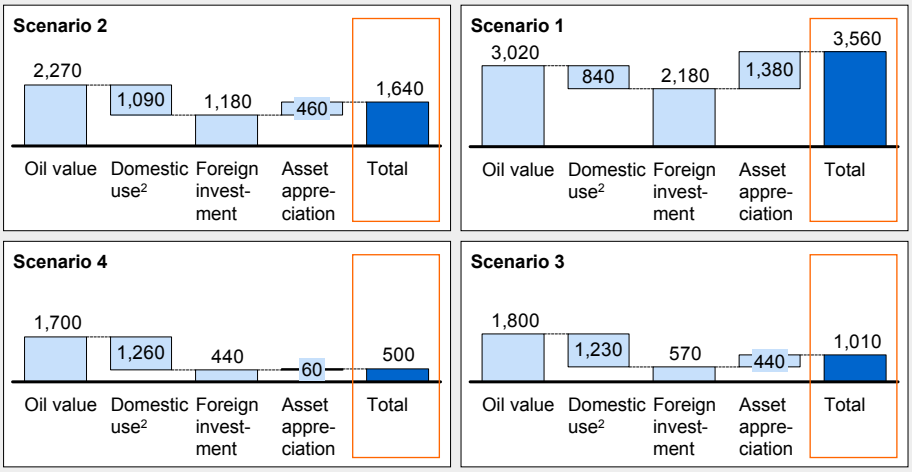
See Exhibits A.2, A.3, and A.4 for the projected foreign asset growth for the GCC countries, Russia, and Norway in each of the four macroeconomic scenarios.

Exhibit A.2

Foreign asset accumulation in GCC countries between 2008 and 2013

Build up of the change in foreign assets held by GCC countries from 2008-13[1]

$ Billion



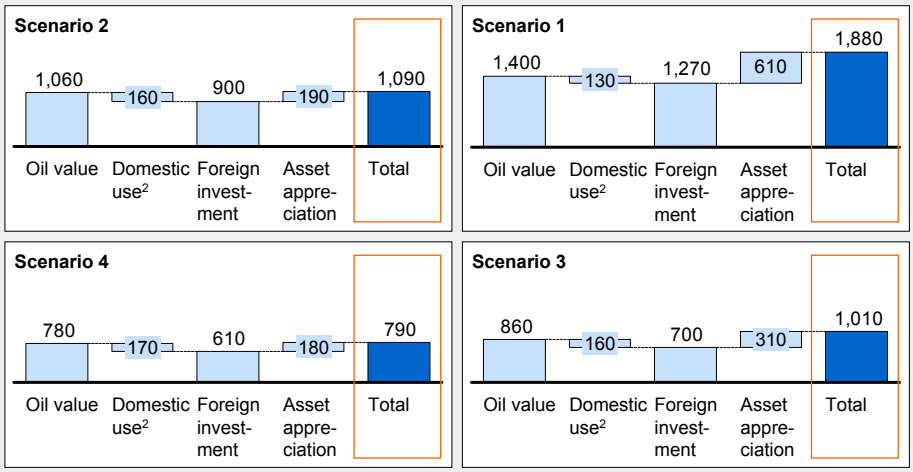
1 In 2008, the Gulf Cooperation Council states (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates) together held an estimated $2,150 billion in foreign assets.

2 Domestic use includes both oil consumed domestically and oil revenue spent or invested domestically, minus non-oil net foreign investment.

SOURCE: International Monetary Fund; British Petroleum statistical review; Platts; International Energy Agency; Brad Setser; Edwin M. Truman; expert interviews; press releases; McKinsey Global Institute analysis

Exhibit A.3

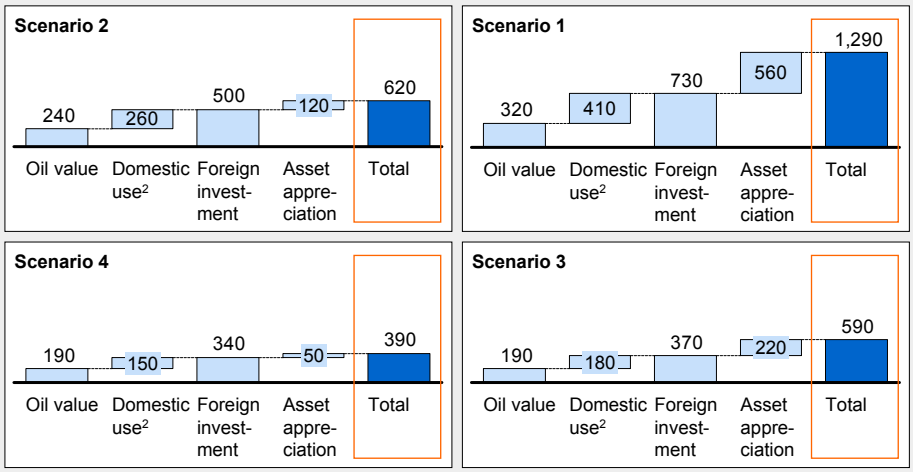
Foreign asset accumulation in Russia between 2008 and 2013
Build up of the change in foreign assets held by Russia[1] from 2008-13
$ Billion



1 In 2008, Russia held an estimated $1,120 billion in foreign assets.
2 Domestic use includes both oil consumed domestically and oil revenue spent or invested domestically, minus non-oil net foreign investment.
SOURCE: International Monetary Fund; British Petroleum statistical review; Platts; International Energy Agency; Russian Ministry of Finance; expert interviews; press releases; McKinsey Global Institute analysis

Exhibit A.4

Foreign asset accumulation in Norway between 2008 and 2013
Build up of the change in foreign assets held by Norway[1] from 2008-13
$ Billion



1 In 2008, Norway held an estimated $854 billion in foreign assets.
2 Domestic use includes both oil consumed domestically and oil revenue spent or invested domestically, minus non-oil net foreign investment, which in Norway is large.
SOURCE: International Monetary Fund; British Petroleum statistical review; Platts; International Energy Agency; Edwin W. Truman; expert interviews; press releases; McKinsey Global Institute analysis

2. METHODOLOGY FOR PROJECTION OF FUTURE ASIAN SOVEREIGN INVESTOR ASSETS

We model future Asian sovereign foreign asset growth based on two main factors: new central bank foreign reserve accumulation, the main source of growth in most countries; and foreign asset appreciation, which is relatively small.[3] Central bank

3 Singapore is an exception, in which future returns on its sovereign assets are a larger portion of growth. This reflects the fact that most of Singapore's sovereign assets are held in sovereign wealth funds rather than as central bank reserves.

foreign reserve accumulation is calculated as the sum of the country's net trade balance, net transfers, and net private capital inflows.[4]

Projections of future Asian trade surpluses, or the difference between the value of exports and imports, are taken from the proprietary macroeconomic scenarios explained at the beginning of this appendix. In China, trade surpluses as a percent of GDP are projected to decline over the next five years in all scenarios, as China seeks to stimulate domestic consumption. Its trade surplus falls from 7 percent in 2008 to a range of 4 percent to 5 percent, depending on the scenario. However, the nominal value of China's trade surplus grows in all scenarios, which will result in further central bank reserve accumulation unless its exchange rate policies are changed or its restrictions on private foreign investment are lifted. In the base-case scenario, China's trade surplus increases from $287 billion in 2008 to $330 billion in 2013. In Scenario 1, which envisions a faster rebound in the global economy, China's trade surplus rises to $372 billion in 2013. In Scenario 4, which assumes a longer recession, the surplus declines to $262 billion.

In the rest of Asia, excluding Japan, trade surpluses grow from $36 billion in 2008 to $69 billion in 2013 in the base case; this reflects a compound annual growth rate of 14 percent, compared with 8 percent in the past. Japan's trade surplus fell sharply in 2008 and was negative in the fourth quarter on an annualized basis. Some of the macroeconomic scenarios project continuing trade deficits in Japan, due to an aging population and the global recession. We assume that the government does not run down reserves in these cases, however, and that reserves remain constant.

The other two components that determine future central bank reserve accumulation are net transfers and net private capital inflows for each country. Net transfers include interest and dividends from investments abroad, foreign aid, remittances, and the correction of errors and omissions from previous years. Over the past five years, this quantity has been increasing linearly; we assume this trend will continue. Net private capital inflows are the difference between investments made by foreigners in Asia and Asian private foreign investments in the rest of the world. These include foreign direct investment (FDI) by companies, purchases of debt and equity securities, and foreign lending by banks and nonbank institutions. In Scenario 1, we assume that net private capital flows (in dollar amount) remain at their average level from 2002 through 2007. In the base case, we assume that net private capital flows decline in absolute size as Asian companies and households invest more abroad. In Scenario 4, we also assume that net private capital flows decline, but at a much faster rate.

Finally, some growth will come from the appreciation of Asian sovereign foreign assets. As explained in Chapter 2, central banks hold 90 percent of Asia's sovereign foreign assets, and the bulk of these are invested in liquid government securities and cash. The returns paid on these investments are already accounted for as net transfers in the balance of payments (discussed above). Some foreign reserves are also held in cash, in a variety of currencies. To be conservative, we assume these reserves will not appreciate. Therefore, in our model, we assume that just the investments in Asian SWFs appreciate in value. We assume that allocations to sovereign wealth funds and across asset classes within SWFs will stay at historical levels. As explained above for petrodollar investors, projected returns on SWF assets are calculated in each macroeconomic scenario based on returns on equities, fixed income, and alternative investments. The return of each asset class varied by scenario, and we calibrated these returns against historical levels in those asset

4 The current account balance is the sum of the balance of trade and net transfers.

classes. In the base-case scenario, average investor rates of return are between 1 percent and 6 percent. In Scenario 1, investor rates of return range from 3 percent to 8 percent, with aggressive investors performing better. In Scenario 4, rates of return are between -1 percent and 2 percent, with all investors seeing negative or near-zero returns through 2010.

3. METHODOLOGY FOR PROJECTION OF SOVEREIGN WEALTH FUND ASSETS

Estimates of sovereign wealth fund assets are subject to significant uncertainty because total assets under management are not publicly disclosed by many funds. Our estimates of 2008 SWF assets are based on official reports, press reports, and expert opinions of their size in 2007. We then estimated portfolio losses for each SWF based on our understanding of its investment portfolio. In the sidebar to Chapter 1, we explain our segmentation of different investment styles. Our resulting estimate of $3.2 trillion in SWF foreign assets at the end of 2008 is within the range of what other experts report.[5]

We model future growth for Asian and the major oil-based SWFs based on two factors: an assumed rate of portfolio appreciation and new fund inflows. We project annual portfolio appreciation based on the estimated asset allocation of each fund in equity, corporate bonds, treasuries, cash, and alternative assets. The return of each asset class varied by scenario, and we calibrated these returns against historical levels in those asset classes. This calculation is the same as described above for the petrodollar investors and Asian SWFs. In the base-case scenario, average investor rates of return are between 1 percent and 6 percent. In Scenario 1, investor rates of return range from 3 percent to 8 percent, with aggressive investors performing better. In Scenario 4, rates of return are between -1 percent and 2 percent, with all investors seeing negative or near-zero returns through 2010.

We derived our estimates of new capital inflows into each SWF from our forecasts of the foreign assets of Asian sovereign investors and petrodollar investors. We assumed that the past allocation between central bank foreign reserves and sovereign wealth funds remains constant.

4. METHODOLOGY FOR PROJECTION OF HEDGE FUND ASSETS

Future hedge fund assets under management are modeled based on the size of investor portfolios (including those of pension funds, insurers, sovereign wealth funds, endowments, and wealthy individuals) and the allocation of that portfolio to hedge funds. We do not assume any asset appreciation on hedge fund assets; our projection is therefore very conservative.

We start with an assumption that hedge fund assets under management will decline in 2009 as lockup periods expire and investors withdraw funds. In the first quarter of 2009, investor net withdrawals continued, equaling $103 billion for the quarter. One survey of hedge fund investors finds that most expect net withdrawals in 2009 to exceed those in 2008 as investors seek liquidity.[6] In addition, many hedge funds that are well below their high-water mark are likely to exit. All in all, hedge fund industry

5 See, for example, Edwin M. Truman, "Do sovereign wealth funds pose a risk to the United States?" Remarks at the American Enterprise Institute, Washington DC, February 25, 2008; and *Sovereign wealth funds—A work agenda*, International Monetary Fund, February 28, 2008.

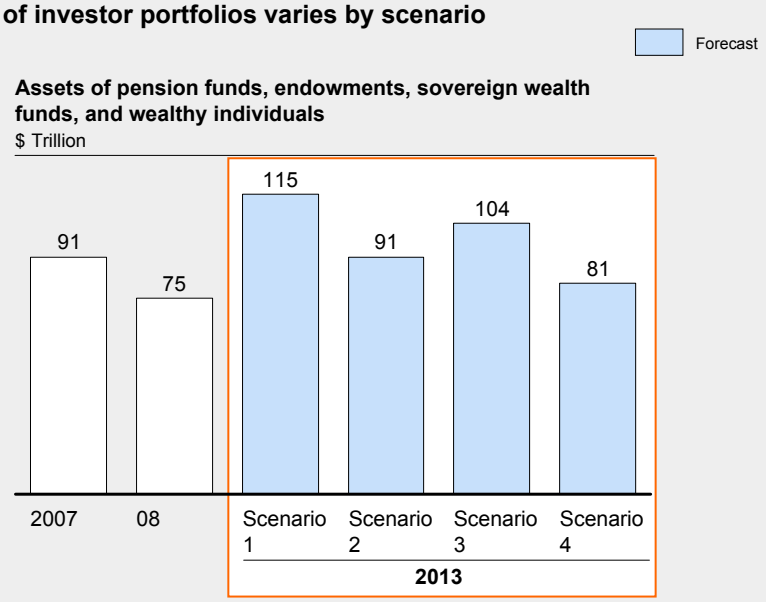
6 PrimNews, *Fund of hedge funds review*, April 2009.

assets under management in 2009 could shrink further, falling from $1.3 trillion at the end of the first quarter of 2009 to between $900 billion and $1.2 trillion by year-end.

Beyond 2009, we model hedge fund growth based on the recovery of investor portfolios and allocations to hedge funds. First, we project the full size of investor portfolios in each of the four macroeconomic scenarios. In the investor universe, we include pension funds, insurance companies, sovereign wealth funds, and high-net-worth individuals. In 2007, these investors had $91 trillion in assets. By the end of 2008, their wealth had shrunk to an estimated $75 trillion. Given the magnitude of this decline, it will take some time for their assets to recover. In our base-case projection, investor portfolios will require four to five years to recover to their 2007 peak (Exhibit A.5). This calculation supplies the total portfolio assets that investors will have available to allocate to all asset classes. This same calculation is used in the projection of future private equity assets.

Exhibit A.5

Recovery of investor portfolios varies by scenario

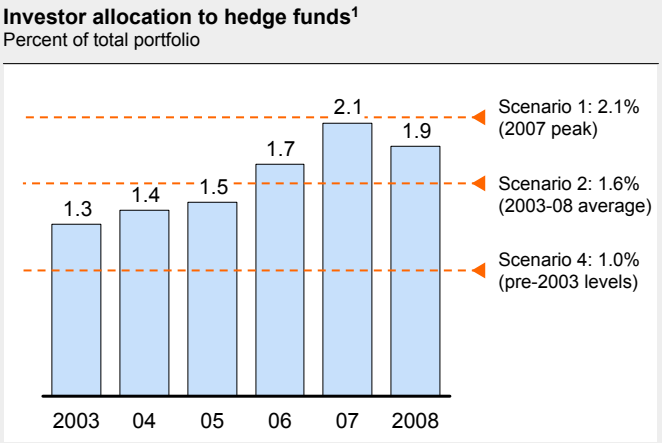


Source: McKinsey Global Institute analysis

We also assume that investor allocation to hedge funds varies by macroeconomic scenario, with exact percentages based upon historical allocation levels. Each year, the aggregate allocation to hedge funds can be found by dividing hedge fund assets under management by total investor assets in that year. For example, in 2007, the allocation was 2.1 percent ($1.9 trillion divided by $91 trillion) (Exhibit A.6).

Exhibit A.6

We use historical levels of investor allocation to hedge funds for projections



1 Calculated as hedge fund industry assets under management divided by total investor assets. Investors include pension funds, insurance companies, endowments, sovereign wealth funds, and wealthy individuals.

Source: US Federal Reserve; International Financial Services, London; Hedge Fund Research; Bloomberg News; Capgemini; Merrill Lynch; Watson Wyatt; National Association of College and University Business Officers; Foundation Center; Conference Board; McKinsey Global Institute analysis

5. CALCULATION OF SHARPE RATIOS FOR HEDGE FUNDS

To examine risk-adjusted returns of hedge funds over time and by strategy, we calculated Sharpe ratios for individual hedge funds in a database that contains more than 2,000 funds.[7] The Sharpe ratio is a measure of the excess return per unit of risk in an investment asset. For hedge funds, we define this to be the average of (R-Rf), or the excess return, divided by the standard deviation of returns. In the equation, R is rate of return generated by each hedge fund and Rf is the S&P average annual return between 2001 and 2007, or 3 percent. A Sharpe ratio greater than 1 indicates that even as hedge fund returns vary around their average, they will not dip below the benchmark return most of the time. A Sharpe ratio that is less than 1 but greater than 0 (say ½) indicates that even though average hedge fund returns are positive, they will be smaller than the benchmark fairly regularly. For a Sharpe ratio of 0, hedge fund returns will be below the benchmark half of the time. A negative Sharpe ratio indicates that hedge fund returns will be lower than the benchmark returns most of the time.

For each hedge fund, we calculate the Sharpe ratio for monthly returns and then convert that into an annualized figure; we do this by separately annualizing the monthly average return and the monthly standard deviation of returns. The Sharpe ratio for a given hedge fund strategy is calculated as the average of the annualized Sharpe ratios of all funds in the strategy.

We also calculate an adjusted Sharpe ratio that corrects for correlation between monthly returns. Given that our data cover only the years from 2001 through 2008, large correlations in monthly returns will make the standard deviation in returns appear smaller than actual variation that would appear over a longer time window. Conversely, low correlations on monthly returns would make the standard deviation seem larger. Correlations in monthly returns occur for two main reasons. First, hedge funds often hold illiquid positions in their investments, and there is no good way to assess the value of those positions on a monthly basis. Second, some hedge funds may smooth their

7 The database was supplied by HedgeFund Intelligence. It covers hedge funds with assets under management of approximately $500 billion, with data from 2001 through 2008.

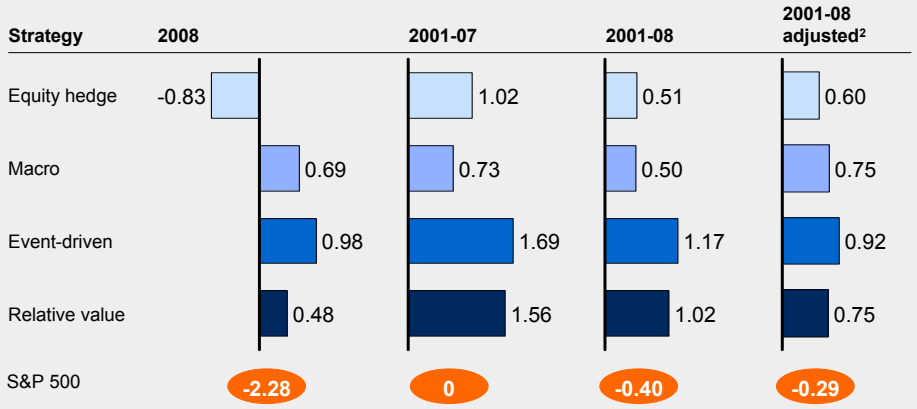
returns across months so the returns appear less volatile. The adjusted Sharpe ratio corrects for such correlations by multiplying the standard deviation of returns by a factor[8] that depends on correlations between returns over time.

Our analysis indicates that all hedge fund strategies have generated higher risk-adjusted returns than equities over long periods of time (Exhibit A.7). Between 2001 and 2007, all hedge fund strategies except macro have Sharpe ratios greater than 1, indicating that they do not often post returns that are lower than the S&P 500.

Exhibit A.7

Over long time periods, hedge funds have generated higher risk-adjusted returns than equities

Average annualized Sharpe[1] ratios by time horizon
Percent



1 Sharpe ratios are the average fund-level Sharpe ratio, which is given by Average(R-Rf)/Stdev(R), where R is fund-level rate of return and the risk-free rate Rf is taken to be the S&P average return between 2001 and 2007.
2 Adjusted Sharpe ratios account for correlations between monthly returns and hence can capture some of the liquidity risk.

SOURCE: HedgeFund Intelligence; McKinsey Global Institute analysis

6. EXAMINATION OF WHICH HEDGE FUND FEATURES MIGHT EXPLAIN SUPERIOR PERFORMANCE

Investors and fund managers we interviewed suggested that individual fund managers are the key to superior performance. While we cannot directly verify these claims, we eliminated several other factors that could explain returns net of fees, including hedge fund size, age, and institutionalized firm skills.

We found no statistically significant correlation between fund size (assets under management) and returns delivered. The lack of consistent correlation may arise because when funds are relatively small, they see some returns to scale. However, once they become too large, they find decreasing marginal returns to their strategy. This trend was inconclusive in our data but has been reported in some academic studies.[9] Similarly, we find that fund age (months of operation) does not affect average performance. If older funds benefit from "tried and tested" strategies, this is

8 Annualized Sharpe ratios corrected for correlations are obtained by multiplying the monthly Sharpe ratio by a factor where is the k^{th} order autocorrelation of returns—the correlation between returns separated by k months. See Andrew W. Lo, "The statistics of Sharpe ratios," *Financial Analysts Journal*, Volume 58, Number 4, July/August 2002.

9 See, for example, Mila Getmansky, Andrew W. Lo, and Shauna X. Mei, "Sifting through the wreckage: Lessons from recent hedge-fund liquidations," *Journal of Investment Management*, Fourth Quarter, 2004. They find that for most strategies, performance begins to decrease once funds hold between $10 billion and $20 billion. However, size may actually benefit funds that have limited market impact, holding primarily nonliquid positions.

not apparent from their returns net of fees.[10] However, younger funds do show larger variance in performance, suggesting that they are either hitting it big and staying in the industry, or losing quickly and exiting. There is no evidence that funds held by firms operating more than one hedge fund strategy have better performance than single funds. In fact, we find that funds in such multistrategy firms are slightly less likely than others to be in the top quartile.

However, talented and motivated managers may influence returns. One study finds that funds with stronger managerial incentives tend to perform better, and that longer lockup periods are also associated with stronger performance.[11] If fund managers are indeed the key to performance, this suggests that the industry will be limited by the availability of fund manager talent. During the recent years of rapid hedge fund growth, investor demand may have outstripped increases in manager talent. The current outflow of talent from investment banks may be a boon to the hedge fund industry.

7. METHODOLOGY FOR PROJECTION OF PRIVATE EQUITY ASSETS

Total private equity assets under management (AuM) are measured as the sum of new fundraising over the past five years. We model future growth based on the size of investor portfolios (including those of pension funds, insurers, sovereign wealth funds, endowments, and high-net-worth individuals) and the allocation of that portfolio to private equity.

First, we project the size of investor portfolios in each of the four macroeconomic scenarios. This same calculation is used in the projection of hedge fund assets, and is described above. In the investor universe, we include pension funds, insurance companies, sovereign wealth funds, and high-net-worth individuals. These investors have seen significant portfolio losses in 2008, with total assets declining from $91 trillion in 2007 to $75 trillion by the end of 2008. Given the magnitude of this decline, it will take some time for their assets to recover. In our base-case projection, investor portfolios will require four to five years to recover to their 2007 peak (see Exhibit A.5).

Second, we project that investors' percentage allocation to private equity will remain at December 2008 levels and will not vary by scenario. Our reasoning is threefold. First, private equity is considered a long-term investment, so investors do not change their target allocations often. In addition, the latest surveys of investors indicate a continued commitment to the asset class. Moreover, the current allocations to private equity were well below target levels for many of the largest investors before the crisis. Although the apparent private equity allocation has risen sharply as investor portfolios have shrunk, the recent write-downs of some private equity funds have helped address this situation. We calculate December 2008 percentage allocation levels for each investor type (pension funds, endowments, and so on) and find an industry-weighted average based on the size of each investor group in private equity. The result is a 3.9 percent investor allocation to the private equity industry broadly defined (including buyout funds and other types of funds).[12]

10 One recent paper does argue, however, that high-performing smaller and younger funds are more likely to continue to perform well above average than are high-performing larger, older funds. See Nicole M. Boyson, "Hedge fund performance persistence: A new approach," *Financial Analysts Journal*, 2008, Volume 64, Number 6.

11 Vikas Agarwal, Naveen D. Daniel, and Narayan Y. Naik, "Flows, performance, and managerial incentives in hedge funds," EFA 2003 annual conference paper 501, July 22, 2004.

12 We calculate the allocation figures by dividing assets under management by total institutional investor wealth, both measured at the end of 2008. The actual allocation for specific types of investors, such as pension funds, is much higher.

Given the projection of total private equity assets under management, we then model assets in buyout funds for each major region (North America, Europe, and Asia) based on two factors: (1) the elimination of megadeals, defined as deals valued at more than $3 billion; and (2) the reduction in available leverage. To account for the absence of megadeals, we assessed the volume of smaller buyouts over the past five years. To project the equity needed to fund future deals, we assumed reduced leverage for future deals, given our assumption that credit market funding for the largest buyouts will not be available for several years or more. Based on these two factors, we determine growth of buyout assets under management for the base-case scenario. We assume that buyouts will be the same proportion of total private equity AuM in scenarios 1 and 4.

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