



# The New Power Brokers: How Oil, Asia, Hedge Funds, and Private Equity Are Shaping Global Capital Markets

October 2007

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### **McKinsey Global Institute**

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# The New Power Brokers: How Oil, Asia, Hedge Funds, and Private Equity Are Shaping Global Capital Markets

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# Preface

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*The New Power Brokers: How Oil, Asia, Hedge Funds, and Private Equity Are Shaping Global Capital Markets* is the result of a six-month research project by the McKinsey Global Institute (MGI). It builds on MGI's previous research on global capital markets as well as on research conducted by McKinsey's private equity practice and global banking practice. In this report, we provide new data and evidence on the size, investment strategies, and future evolution of each of the four new power brokers and explore their influence on world financial markets.

Susan Lund, a senior MGI fellow based in Washington, DC, worked closely with me to provide leadership on this project. The project team included Eva Gerlemann, a McKinsey consultant from the Munich office, and Peter Seeburger, a consultant from the Frankfurt office.

This report would not have been possible without the thoughtful input and expertise of numerous McKinsey colleagues around the world. These include Dominic Barton, Eric Beinhocker, Andreas Beroutsos, Markus Böhme, Kevin Buehler, Tim Church, Kito de Boer, Vijay D'Silva, Martin Huber, Conor Kehoe, Tim Koller, Stephan Kunz, Diaan-Yi Lin, Rob Palter, Emmanuel Pitsilis, Jean-Marc Pouillet, Charles Roxburgh, Bruno Roy, Antoon Schneider, Seelan Singham, Bob Sternfels, Hans-Martin Stockmeier, and Sanoke Vishwanathan. Martin N. Baily, senior fellow at the Brookings Institution and former chief economic adviser to President Clinton, was a key adviser on this research. We also benefited from numerous interviews with external experts and practitioners in the field.

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Tim Beacom, Dirk Isert, Pamilyn Li, Jessica Nowak, Jason Rico, Manish Sharma, Moira Sofronas, Susan Sutherland, and Mario Wandsleb provided essential research. We would also like to thank the following MGI professionals for their tireless support of this project throughout its duration: Janet Bush, senior editor; Rebeca Robboy, external relations manager; Deadra Henderson, practice administrator; and Sara Larsen, executive assistant.

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 changes 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.

Diana Farrell  
Director, McKinsey Global Institute  
October 2007  
San Francisco

# Table of contents

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Executive summary	9
1. The new power brokers	19
2. Petrodollars: Fueling global capital markets	45
3. Asian central banks: The cautious giants	71
4. Hedge funds: From mavericks to mainstream	95
5. Private equity: Eclipsing public capital markets?	127
Appendix A: Private equity	157
Appendix B: Technical notes	161
Bibliography	167





## Executive summary

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Four actors—petrodollar investors, Asian central banks, hedge funds, and private equity—are playing an increasingly important role in the world’s financial markets. Although none are new, their rapid growth since 2000 has given them unprecedented clout. Research by the McKinsey Global Institute (MGI) finds that their size is likely to double over the next five years. Far from being a temporary phenomenon, the new power brokers represent a structural shift in global capital markets.

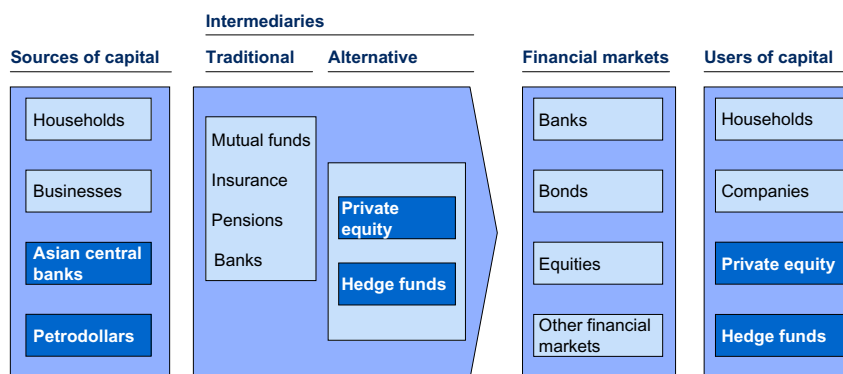
These players each have distinctive characteristics, but their growth is to an extent mutually reinforcing. By looking at them together, we shed new light on their collective impact. Petrodollar investors and Asian central banks both provide the world with very significant new sources of capital—but are also huge investors in the gray area between government and private. Hedge funds and private equity are innovative financial intermediaries that are pushing the risk-return frontier in new directions, offering investors unique diversification opportunities (Exhibit 1).

Our research shows that the new power brokers together bring significant benefits to global capital markets—but also create risks. The relative opacity of these players and a dearth of hard facts about them have compounded public concern. In this report, we do not address the regulatory issues that are on the table. We instead offer new evidence on the size of these power brokers, their growth prospects and likely future evolution, and their impact on global financial markets. In doing so, we seek to facilitate a more objective understanding of these actors and their growing influence.

## Exhibit 1

### NEW POWER BROKERS HAVE DIFFERENT ROLES AS SOURCES, USERS, AND INTERMEDIARIES OF CAPITAL

■ New power brokers



Source: McKinsey Global Institute analysis

### THE NEW POWER BROKERS WIELD \$8.4 TRILLION IN ASSETS—WHICH COULD DOUBLE IN FIVE YEARS

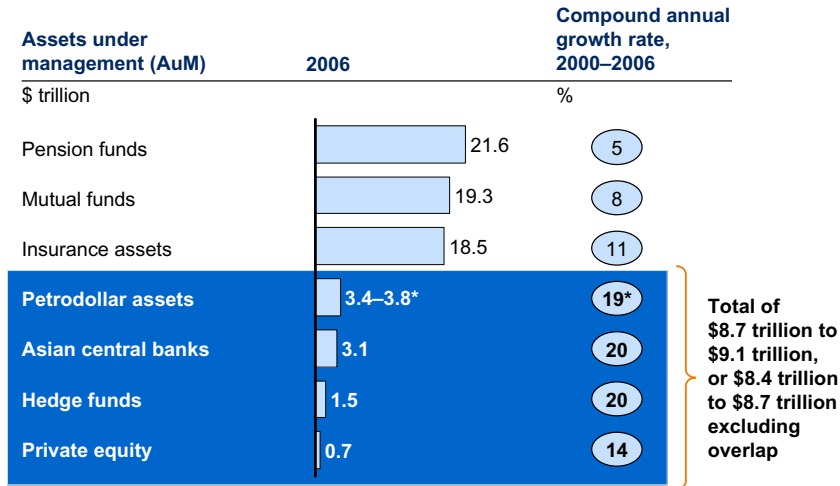
Excluding cross-investments between them, oil investors, Asian central banks, hedge funds, and private equity firms collectively held \$8.4 trillion in assets at the end of 2006 (Exhibit 2).<sup>1</sup> Their assets have tripled since 2000, making them 40 percent of the size of global mutual funds, pension funds, and insurance companies. Together, they represent some 5 percent of the world's \$167 trillion of financial assets—a considerable portion, given that five years ago they were on the fringes of the global financial system.

The financial clout of some individual players is impressive. China's central bank had \$1.1 trillion in reserve assets at the end of 2006, arguably making it the single wealthiest investor in international financial markets. The Abu Dhabi Investment Authority, the largest petrodollar investment fund, and the Bank of Japan each have estimated assets of up to \$875 billion—making them seventh and eighth among the top ten global investment managers. The five largest hedge funds each have at least \$30 billion in assets and estimated gross investments of up to \$100 billion after taking leverage into account.

<sup>1</sup> Petrodollar investors have significant investments in global hedge funds and private equity. We exclude this overlap when summing the collective assets of the new power brokers.

**Exhibit 2**

**THE NEW POWER BROKERS ARE LARGE AND GROWING RAPIDLY**



Note: E = Estimated

\* Growth rate calculated based on data reported to the International Monetary Fund (\$2.5 trillion in 2006E does not include UAE and Qatar).

Source: Hedge Fund Research; Venture Economics; PE Analyst; International Financial Services, London; McKinsey Global Institute analysis

The simultaneous rise of these actors is far from accidental. Similar structural factors have fueled the growth of hedge funds and private equity, including strong investor demand from wealthy individuals and institutions seeking portfolio diversification. Petrodollar investors have contributed to their growth as well by making direct investments in hedge funds and private equity. Together with Asian central banks, they also provide liquidity that has lowered interest rates and enabled the higher leverage that hedge funds and private equity funds employ.

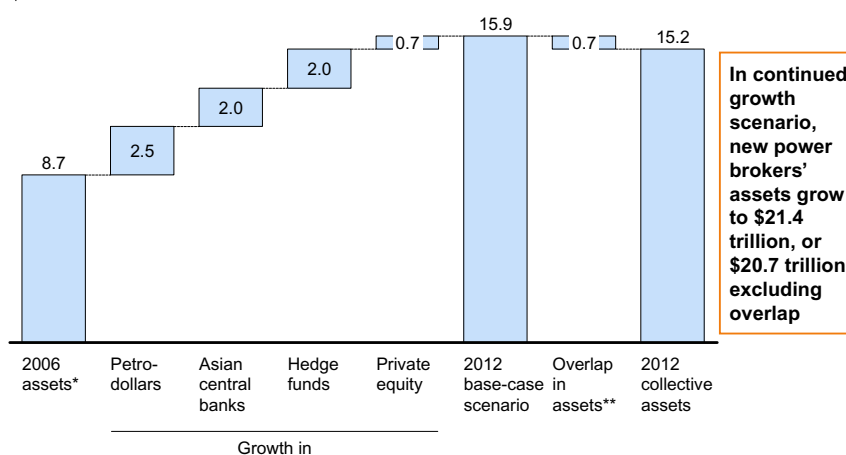
The size of the four new power brokers—and their influence on global capital markets—will continue to expand. Under current growth trends, MGI research finds that their assets will reach \$20.7 trillion by 2012, 70 percent of the size of global pension funds. But even if oil prices were to fall, China’s current-account surplus declined, and growth in hedge funds and private equity slowed, our analysis shows that the assets of these four players would nearly double over the next five years, increasing to as much as \$15.2 trillion by 2012 (Exhibit 3).<sup>2</sup> These players are now a permanent feature of global capital markets.

2 These figures exclude the overlap between the assets of the four players—for instance, petrodollar investments in hedge funds and private equity. The overlap will amount to an estimated \$720 billion in 2012.

### Exhibit 3

#### NEW POWER BROKERS' ASSETS MAY GROW TO \$15.2 TRILLION BY 2012

\$ trillion



\* Takes lower estimate for petrodollar foreign assets (\$3.4 trillion) in 2006.

\*\* Estimated petrodollar investments in hedge funds and private equity.

Source: McKinsey Global Institute analysis

### NEW POWER BROKERS INCREASE LIQUIDITY, INNOVATION, AND FINANCIAL DEVELOPMENT IN EMERGING MARKETS

The four players have broadened and diversified the global investor base significantly in terms of geographies, asset classes, and investment strategies, and boosted liquidity. Each has longer investment horizons than traditional investors, enabling them to pursue higher returns (albeit with more risk). They have brought new dynamism to private capital markets and have given a considerable boost to financial innovation. They may also catalyze financial development in emerging markets. All these developments improve the functioning of global financial markets—but also pose risks, as we discuss in the next section.

#### Petrodollars: Fueling global liquidity

With the tripling of oil prices since 2002, petrodollar investors have become the largest of the four new power brokers with an estimated \$3.4 trillion to \$3.8 trillion in foreign financial assets at the end of 2006.<sup>3</sup> Although the sovereign wealth funds of oil exporters have attracted considerable public attention, these account for just 60 percent of total petrodollar foreign assets. Wealthy private individuals own the rest. Petrodollar foreign assets will continue to grow rapidly over the next five years—even if oil prices were to fall to \$30 per barrel. In our base case with oil at \$50 per barrel,

<sup>3</sup> This includes oil exporters in the Middle East, as well as Norway, Russia, Venezuela, Nigeria, and Indonesia.

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their assets would grow to \$5.9 trillion by 2012. This entails new investments of \$387 billion per year in global capital markets, or some \$1 billion per day.<sup>4</sup>

Despite significant diversity across oil investors, on average they have a stronger preference for equity and alternative investments than traditional investors. We estimate that petrodollar investors currently have around \$1.7 trillion in global equities and another \$350 billion in hedge funds, private equity, and other alternative investment funds. They are also driving rapid growth in the currently small market for Islamic finance. In addition, oil investors allocate a large share of their portfolios to emerging markets—since 2002, 22 percent of Gulf Cooperation Council (GCC) foreign investments have gone to Asia, North Africa, and other Middle Eastern countries.<sup>5</sup> As petrodollar wealth grows, we will see a shift in liquidity to these regions, a trend that may hasten their financial system development.

#### **Asian central banks: The cautious giants**

Asian central banks had \$3.1 trillion in foreign reserve assets at the end of 2006, up from just \$1 trillion in 2000.<sup>6</sup> Even more than in the case of petrodollars, these investments are concentrated in the hands of just a few institutions. The central banks of China and Japan held \$1.1 trillion and \$875 billion of foreign reserves, respectively, at the end of 2006. The next six largest foreign reserve holders—Hong Kong, India, Malaysia, Singapore, South Korea, and Taiwan—together held most of the rest, or nearly \$1 trillion. In our base-case scenario, which assumes flat or declining current-account surpluses in Japan and China, Asian reserve assets would grow to \$5.1 trillion by 2012, with average annual investments of \$321 billion per year in global capital markets.

Together with petrodollars, Asian central banks have been an important new source of liquidity to global markets. These banks currently invest the lion's share of their assets—some \$2 trillion—in US dollar assets, particularly government bonds. As a result, we estimate that Asian central banks have lowered US long-term interest rates by as much as 55 basis points.<sup>7</sup> Going forward, some have plans to diversify their assets to earn higher returns. The governments of China, South Korea, and Singapore have announced plans collectively to shift up to \$480 billion into more

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4 In comparison, oil prices were around \$80 per barrel in September 2007, shortly before this report went to press.

5 The GCC comprises Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE). *Tracking GCC Petrodollars*, Institute of International Finance, May 2007.

6 This includes the foreign reserve assets of central banks only and excludes assets in Asian government holding corporations such as Singapore's Temasek, and sovereign wealth funds such as South Korea's Government Investment Corporation.

7 Petrodollar investors may reduce US long-term interest rates by an additional 21 basis points.

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diversified (and more risk-taking) sovereign wealth funds. This will spread liquidity to other asset classes, which will broaden the Asian “liquidity bonus” beyond US fixed-income markets to other asset classes. But given the slow pace of diversification, this shift will be unlikely to raise US interest rates much. If Asian monetary authorities allow more flexibility in their currencies, some of the investments from these funds may also stay within Asia, spurring significant development in the region’s financial systems and the nascent financial hubs.

### **Hedge funds: From mavericks to mainstream**

Hedge funds had global assets under management of \$1.5 trillion at the end of 2006, up from just \$490 billion at the end of 2000. By the end of the second quarter of 2007, their assets had grown to \$1.7 trillion. Including their leverage, hedge fund gross investments in financial markets today may be as high as \$6 trillion. The turmoil in the US subprime mortgage market that developed in mid-2007 brought several multibillion-dollar hedge funds to the brink of collapse and many funds suffered huge losses. However, unless the industry experiences several years of continuously low returns, the evidence suggests that institutional investor demand for the diversification that hedge funds offer will likely continue. In our base-case scenario, hedge fund assets grow more slowly than in recent years but still reach \$3.5 trillion by 2012. This implies leveraged investments of up to \$12 trillion—vaulting hedge funds to roughly one-third the size of global pension funds.

Hedge funds have benefits for global financial markets, but those come with risks (as we discuss later). They provide liquidity to markets, now accounting for 30 percent to 50 percent of trading in US and UK equity and bond markets—and an even larger share in other asset classes, such as distressed debt and emerging market bonds. As large buyers and sellers of collateralized debt obligations and other credit derivatives, hedge funds have enabled banks to lend more than they otherwise would. While this has potentially lowered credit underwriting standards, it has also provided companies and other borrowers around the world with broader access to financing and has helped fuel growth of private equity. Finally, hedge funds have spurred innovation in financial instruments, trading strategies and electronic trading platforms, and risk-management systems—all of which enable more efficient spreading of risk and greater liquidity.

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### **Private equity: Eclipsing public capital markets?**

Despite the intense public focus it attracts, private equity is the smallest of the four new power brokers, with \$710 billion in investors' capital at the end of 2006.<sup>8</sup> This may be two and a half times larger than in 2000, but the fact remains that private equity is a relatively small player. Private equity-owned companies are worth just 5 percent of the value of companies listed on stock markets in the United States and 3 percent of those in Europe.<sup>9</sup> Moreover, private equity funds have generated very mixed returns. In the United States, while the top-quartile funds have posted very high returns, average returns have failed to outperform equity markets on a ten-year basis—suggesting the industry may be ripe for a shakeout and consolidation.

New fund-raising in private equity may slow down after the financial market turmoil that developed in mid-2007, and firms that have relied more on leverage than skill may shut down. Nonetheless, the evidence suggests that many pension funds, oil investors, and other institutional investors have plans to increase their portfolio allocation to private equity funds in the years to come. Even with growth rates slower than in the past few years, we project that global private equity assets under management could reach as much as \$1.4 trillion by 2012.

Private equity's influence is larger than its size would suggest. It is forging a new form of corporate governance that, in the best cases, has a demonstrable ability to improve the performance of struggling companies. Although the low interest rates of recent years have allowed some poorly performing private equity firms to survive, the top-performing private equity managers can sustainably improve corporate performance. As the pace and scale of buyouts has grown, private equity is causing many public companies to review their performance, to rethink their use of equity and debt, and to reshape their growth strategies.

### **THE NEW POWER BROKERS ALSO CREATE RISKS**

For all of their benefits, the rise of the power brokers also poses new risks to the global financial system. Our research offers some evidence that should help calibrate the public debate.

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8 This figure includes only leveraged buyout funds (LBOs). In broader usage, the term *private equity* sometimes includes venture capital and mezzanine and distressed debt funds as well, which would put the industry assets at \$1.1 trillion. In this report we concentrate on LBOs because they have generated the most public attention and are the largest segment. We use the terms *private equity* and *leveraged buyout funds* interchangeably.

9 We measure this in terms of the "enterprise value" of companies; i.e., the value of their debt and equity combined.

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**Asset price inflation.** The new liquidity brought by petrodollars and Asian central banks may be inflating some asset prices and enabling excessive lending. Our research finds little evidence of an asset price bubble in public equity markets where rising valuations have mostly reflected increased corporate earnings (price-earnings ratios in the United States and Japan have actually declined over the past few years, and in Europe have increased only slightly). Concern may be more warranted in illiquid assets such as real estate. According to the Economist Intelligence Unit, real-estate values in developed countries increased by \$30 trillion between 2000 and 2005, far outstripping GDP growth.<sup>10</sup> Petrodollar investors may have contributed to this rise in some markets through their real-estate purchases. More important, Asian central banks and petrodollars together have helped lower interest rates to nearly ten-year lows prior to July 2007, thereby fueling larger mortgages, additional home-equity loans, and subprime lending.

**Noneconomic motives of state investors.** Another concern is that the government connections of Asian central banks and petrodollar sovereign wealth funds may introduce an element of political considerations in their investments. This could lower economic value creation in host economies and, moreover, distort the market signals that allow financial markets to function efficiently. So far, the evidence shows that Asian central banks and petrodollar sovereign wealth funds have focused on returns and acted cautiously and discreetly—often through external asset managers—to avoid moving prices. However, some sovereign wealth funds in oil-exporting regions have signaled their intent to shift from being largely passive investors to taking larger equity stakes in foreign companies.

**Systemic risk from hedge funds.** The enormous size, high leverage, and increasingly illiquid investments of hedge funds raise their potential to create contagion across unrelated asset classes, or trigger the failure of some of the large investment banks that lend to them. Our research suggests that several developments in the hedge fund industry have reduced—but certainly not eliminated—these risks over the past ten years. First, hedge funds have adopted more diverse trading strategies, which should lessen the risk of “herd behavior” that could amplify market downturns. Nonetheless, many quantitative “equity-neutral” funds simultaneously suffered significant losses during the subprime crisis of mid-2007—indicating that their models were less diversified than it appeared. Our analysis also suggests that the largest banks have reasonable levels of equity and collateral against their hedge fund exposures and have improved their assessment and monitoring of risk. Some of the largest hedge funds have also begun to raise permanent capital in public stock and bond markets, which will improve their ability to weather market downturns without forced selling—as well as expose them to more public scrutiny.

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<sup>10</sup> “In come the waves,” *The Economist*, June 15, 2006.



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**Credit risk from private equity.** Private equity funds are one factor behind the dramatic growth in high-yield debt in recent years and have been using their growing clout to extract looser lending covenants from banks. This may be increasing credit risk in financial markets. Our analysis shows that private equity defaults alone could prove costly to investors and could send some companies into bankruptcy, but they are unlikely to pose systemic risks to financial markets. Private equity accounts for just 11 percent of total corporate borrowing in the United States and Europe. Even if default rates in private equity loans rose 50 percent above historic highs, losses would amount to just 7 percent of syndicated loan issuance in the United States in 2006. Moreover, private equity funds tend to invest in relatively stable companies, limiting the effects of economic downturns on their performance.

In contrast to the intense media and regulatory hype, the evidence to date thus gives some reason for optimism that the risks posed by the new power brokers are manageable; nevertheless, current concerns are real and justify careful monitoring. The four players would find it in their own interest to note public anxieties and voluntarily take steps to minimize them, much as the derivatives industry did a decade ago.

For sovereign wealth funds in oil-exporting regions and in Asia, this means voluntarily increasing disclosure on their investment strategies, internal governance, and risk management to allay concerns of other investors and of regulators about their impact on the market. Norway's Government Pension Fund is one model. Policy makers in the United States and Europe, for their part, should ensure that they base any regulatory response on an objective appraisal of the facts, and differentiate between direct foreign corporate acquisitions by state-owned enterprises and investments by diversified financial market players such as sovereign wealth funds. The latter usually make passive investments through purchases of equities and debt securities.

For the risks posed by hedge funds and private equity, banks must have the appropriate tools, incentives, and oversight to accurately measure and monitor their exposures. Further development of valuation techniques for illiquid assets is needed. Banks should also ensure that lending standards do not decline as they move toward being loan originators without their own capital at risk, and they should be accountable for the long-term performance of the loans they underwrite.

In chapter 1, we describe in more detail how the rising influence of the four players is jointly shaping global financial markets. In chapters 2 to 5, we examine each of the new power brokers in turn, assessing the factors that have contributed to their growth, their impact on global financial markets, and their likely evolution.



# 1. The new power brokers

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The world's capital markets are entering a new phase of globalization. Financial wealth and power, for so long concentrated in the developed economies of the United States and Europe, are dispersing geographically. The intermediation pecking order is changing too. Just as investment banks joined once-dominant commercial banks, now a new breed of alternative asset managers is diversifying the financial landscape.

Behind this evolution are four increasingly influential new power brokers in the global capital markets: petrodollar investors, Asian central banks, hedge funds, and private equity. None of these actors is new, but their influence has never before been so far-reaching. Their assets have nearly tripled since 2000, collectively reaching \$8.4 trillion at the end of 2006.<sup>1</sup> Our research shows that over the next five years their size and influence will expand further. Moreover, their growth is to an extent mutually reinforcing. Looking at the four players together, therefore, sheds new light on them.

While the rise of hedge funds and private equity has occasioned the most comment in media, regulatory and political circles, these two groups are far smaller than investors from oil-exporting countries and Asian central banks. For instance, if publicly listed, by some estimates Saudi Arabia's state oil company Saudi Aramco would be worth twice as much as General Electric.<sup>2</sup> The People's Bank of China,

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1 This figure excludes overlap between the assets of the players, such as petrodollar investments in hedge funds and private equity.

2 General Electric was the world's largest company as of December 31, 2005, valued at \$367 billion according to *The Financial Times* and McKinsey & Company, *The FT Non-Public 150*, December 2006.

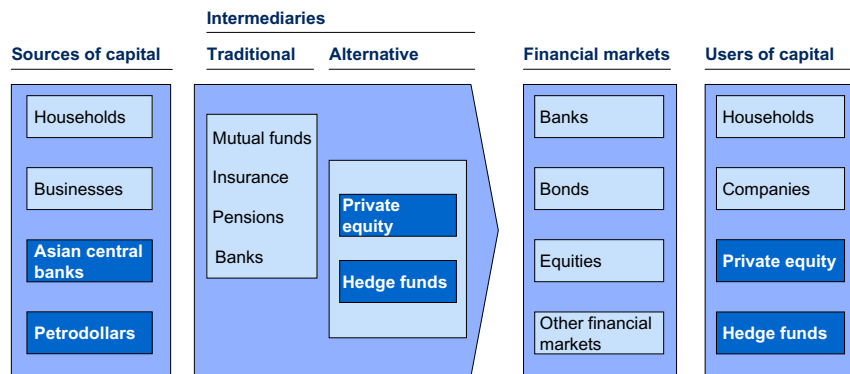
China's central bank, had accumulated \$1.1 trillion in reserve assets by the end of 2006—making it the world's fifth-biggest asset manager and three-quarters the size of the global hedge fund industry.

Each of the four rising power brokers has distinctive characteristics. Petrodollar investors and Asian central banks are not only huge investors in financial markets but also new sources of liquidity for global capital markets. Hedge funds and private equity are new types of financial intermediaries that offer investors diversification by seeking returns that are uncorrelated with returns on public equity and debt markets (Exhibit 1.1).

**Exhibit 1.1**

**NEW POWER BROKERS HAVE DIFFERENT ROLES AS SOURCES, USERS, AND INTERMEDIARIES OF CAPITAL**

■ New power brokers



Source: McKinsey Global Institute analysis

The simultaneous rise of these actors is not accidental. Similar structural factors have fueled the growth of hedge funds and private equity, including strong investor demand from wealthy individuals, pension funds and other institutions for higher returns. Asian central banks and petrodollar investors have reinforced the growth of hedge funds and private equity as well, both through direct investments in these funds and indirectly through massive flows of funds into US and European bond markets, lowering interest rates and enabling the higher leverage that hedge funds and private equity employ.

Together these four new players are reshaping global capital markets in distinctive ways. They each represent large new pools of liquidity with longer-term investment horizons than traditional investors and, with the exception of Asian central banks,

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are therefore pursuing higher risks and higher returns. They have markedly diversified the investor base and expanded private markets for capital. They are spurring financial innovation, enabling the more efficient spreading of risk, and spreading liquidity to Asia and other emerging markets.

These have largely been positive developments, but the rise of the new power brokers also creates new risks. The significant liquidity flows from Asian central banks and petrodollar investors may be fueling asset price bubbles in some markets. The state connections of both raise the possibility that political considerations may color their investment decisions. Hedge funds may be creating systemic risk through their complex and highly leveraged positions across asset classes and through banks' large exposure to them. Private equity firms may be increasing credit risk in financial markets due to their generous use of debt and to their ability to extract looser lending covenants from banks.

A lack of information about these players—most of which operate in the private and government arenas and therefore are relatively opaque—only serves to heighten such concerns. Our research provides new facts and analysis to ground the debate. In this first chapter of the report, we assess the collective impact of the four new power brokers.

### **THE NEW POWER BROKERS' ASSETS SURPASS \$8.4 TRILLION**

These four players are arguably more powerful than many people realize. Their combined assets grew from just \$3.2 trillion in 2000 to an estimated \$8.7 trillion–\$9.1 trillion in 2006 (Exhibit 1.2).<sup>3</sup> Excluding the overlap in assets between the players, they collectively have total assets of \$8.4 trillion to \$8.7 trillion.<sup>4</sup> This was equal to 5 percent of total global financial assets at the end of 2006 (\$167 trillion). Although the combined assets of the four are equal to just 40 percent of the assets of global pension funds or mutual funds, their growth rate is two to three times as rapid.

Looking at the four players together puts their size—and potential impact—into perspective. Despite all the public scrutiny of private equity, it is by far the smallest of the four, with \$710 billion in assets under management (see “Meet the new power brokers”). Petrodollar investors, in contrast, have five times as many assets—we estimate between \$3.4 trillion and \$3.8 trillion. Hedge funds' assets under management reached \$1.7 trillion by the middle of 2007, smaller than Asian central banks

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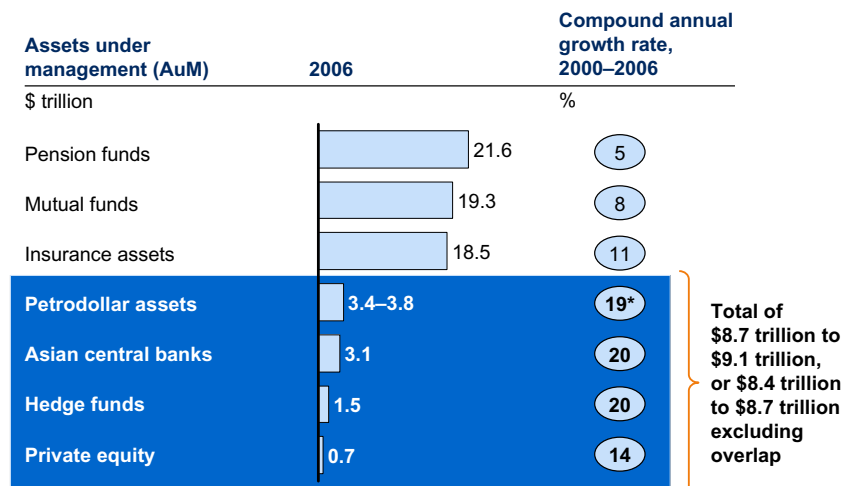
3 The range stems from our estimates for petrodollar foreign assets. Because there are no publicly available figures on their wealth, we developed our own estimates based on a variety of public information sources and expert interviews in the region.

4 We estimate that petrodollar investors have \$350 billion in global hedge funds, private equity, and other alternative investment vehicles.

or petrodollars. But accounting for the leverage used by hedge funds, their gross investments in financial markets could be as high as \$6 trillion—which would make them the largest of the four.

### Exhibit 1.2

#### THE NEW POWER BROKERS ARE LARGE AND GROWING RAPIDLY



\* Growth rate calculated based on data reported to the International Monetary Fund (\$2.5 trillion in 2006E does not include UAE and Qatar).

Source: Hedge Fund Research; Venture Economics; PE Analyst; International Financial Services, London; McKinsey Global Institute analysis

Individual institutions among the new power brokers wield significant financial clout. Petrodollars and Asian central banks, for instance, are each bigger than Barclays Global Investors, the world’s largest asset manager (Exhibit 1.3). Six of the world’s ten largest public and private companies are state-owned oil production companies from petrodollar countries (Exhibit 1.4). The top private equity companies and hedge funds also have significant market power. By some estimates, Kohlberg Kravis Roberts & Co. (KKR) and the Carlyle Group, the two largest private equity firms, would have comfortably made it into the top 100 of companies (public and private) worldwide if they listed publicly. The three largest hedge fund companies—JP Morgan Highbridge, Goldman Sachs Asset Management, and Bridgewater Associates—manage between \$32 billion and \$35 billion in assets each—and by our estimates could have gross investments of more than \$100 billion after accounting for leverage.<sup>5</sup>

<sup>5</sup> “Top 100 Hedge Funds,” *Alpha Magazine*, 2007.

**Exhibit 1.3**

**PETRODOLLARS AND ASIAN CENTRAL BANKS ARE EACH BIGGER THAN THE WORLD'S LARGEST ASSET MANAGER**

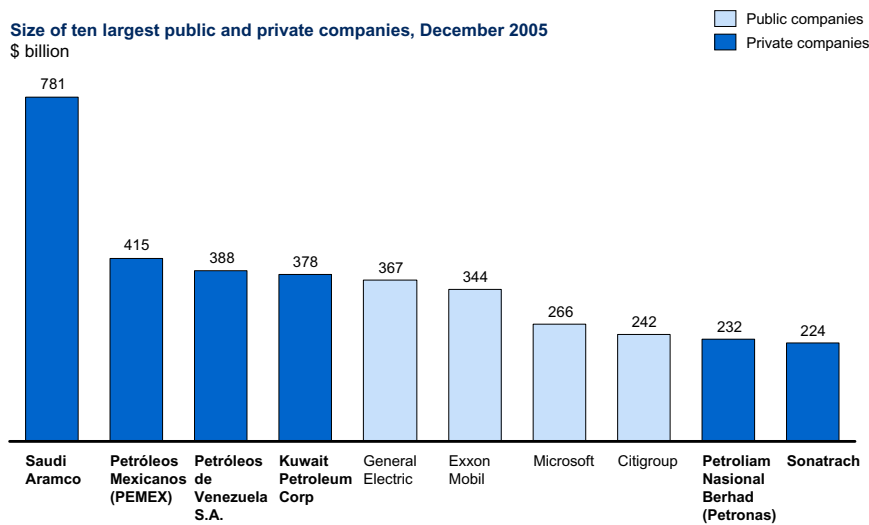


\* Asset managers' 2005 assets extrapolated to 2006E using historical growth from 2004 to 2005; new participants' assets are 2006 actual.

Source: World IPE Ranking; Morgan Stanley; McKinsey Global Institute analysis

**Exhibit 1.4**

**SIX OF THE TOP TEN GLOBAL COMPANIES ARE PRIVATE OR STATE-OWNED OIL COMPANIES FROM MIDDLE EAST AND ASIA**



Source: Research Insight; Financial Times & McKinsey, The FT Non-Public 150; McKinsey Global Institute analysis

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### **Meet the new power brokers**

**Petrodollar investors** comprise the largest of the four rising players with between \$3.4 trillion and \$3.8 trillion in foreign financial assets. Their rise is due to the tripling of world oil prices since 2002. They are a diverse group, including sovereign wealth funds, private wealthy individuals, and central banks. Geographically, the six countries of the Gulf Cooperation Council—Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE)—are the largest source of petrodollars with \$1.6 trillion to \$2.0 trillion in foreign assets. But other large oil exporters around the world—including Norway, Russia, Nigeria, Venezuela, and Indonesia—are nearly as significant, holding \$1.5 trillion in assets. The growth of petrodollars has boosted liquidity in global financial markets. Because of their long-term investment horizons and higher preference for risk, they have also spurred the growth of hedge funds and private equity. In the years ahead, growth in oil investors will spark faster financial market development not only in their domestic financial systems, particularly in the Middle East, but also in Asia and other emerging markets. The rise in petrodollars will also drive growth in the currently small market for Islamic financial products.

**Asian central banks** are the cautious giants of global financial markets with \$3.1 trillion in foreign reserve assets at the end of 2006. The major drivers of the growth in their assets have been soaring trade surpluses in the region, combined with government monetary policies. Even more than petrodollars, these assets are highly concentrated in the hands of just a few players. The central banks of China and Japan had \$1.1 trillion and \$875 billion of foreign reserves, respectively, at the end of 2006. The next six largest foreign reserve holders—Hong Kong, India, Malaysia, Singapore, South Korea, and Taiwan—together held nearly \$1 trillion. Asian central banks have invested nearly all their reserve assets in conservative fixed-income securities with an estimated \$2 trillion in US government and agency bonds, corporate debt, and other dollar assets. As a result, we estimate that these players have lowered US long-term interest rates by as much as 55 basis points. Over the next several years, Asian governments have announced plans to shift up to \$480 billion of their reserve assets into sovereign wealth funds that invest in a diversified portfolio of assets. This will slowly spread liquidity to other asset classes and is likely to be a significant catalyst to the development of nascent financial centers in the region.

**Hedge funds'** global assets under management reached \$1.5 trillion at the end of 2006 and \$1.7 trillion as of the second quarter of 2007. This is more than triple their size at the end of 2000 (\$490 billion). After accounting for the leverage that hedge funds use to amplify their trades and boost returns, their gross investments



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in financial markets today are an estimated \$6 trillion, which would make them the largest of the four new power brokers.<sup>6</sup> Hedge funds represent a structural shift in the traditional asset management model. They are distinct from mutual funds in several ways, including their high use of leverage, their highly active and diverse trading styles that cover a wider range of asset classes and instruments, and the fact that they are subject to less onerous regulatory constraints than traditional institutional investors (in the United States, for instance, hedge funds are allowed to “go short” but mutual funds are typically not) and are limited to wealthy and institutional investors. In normal market conditions, hedge funds increase trading liquidity and catalyze financial innovation. But some observers worry that in turbulent market conditions, hedge funds could act to destabilize broader financial markets. Our research finds that the risks of systemic contagion spreading from hedge funds have declined over the past decade as the hedge fund industry has become more diversified and mature. But the question of whether these funds pose systemic risk has clearly not been eliminated and needs to be tested over a full credit cycle.

**Private equity**, the name commonly applied to leveraged buyout funds, is the smallest of the new power brokers, managing \$710 billion in investor’s assets at the end of 2006. Despite rapid growth since 2000, the value of private equity-owned companies is just 5 percent of the value of companies listed on stock markets in the United States and just 3 percent of the enterprise value of companies listed on stock markets in Europe. Like hedge funds, private equity firms are financial intermediaries that invest the money of institutional investors—mainly pension funds, foundations and endowments, insurance companies, and wealthy individuals. But private equity’s small size belies its influence on a broader set of companies and on financial markets. It is forging a new form of corporate governance that is well suited to some types of underperforming companies. Because private equity owners have a unified voice in management and strong financial incentives to improve returns, they can take long-term investment horizons that allow root-and-branch restructuring. Adding debt to the company’s balance sheet forces managers to hit tough financial targets. As the pace and scale of private equity buyouts has grown, the industry is influencing public companies of all sizes to rethink their views on the appropriate levels of debt and equity, scrutinize performance, and craft new growth strategies.

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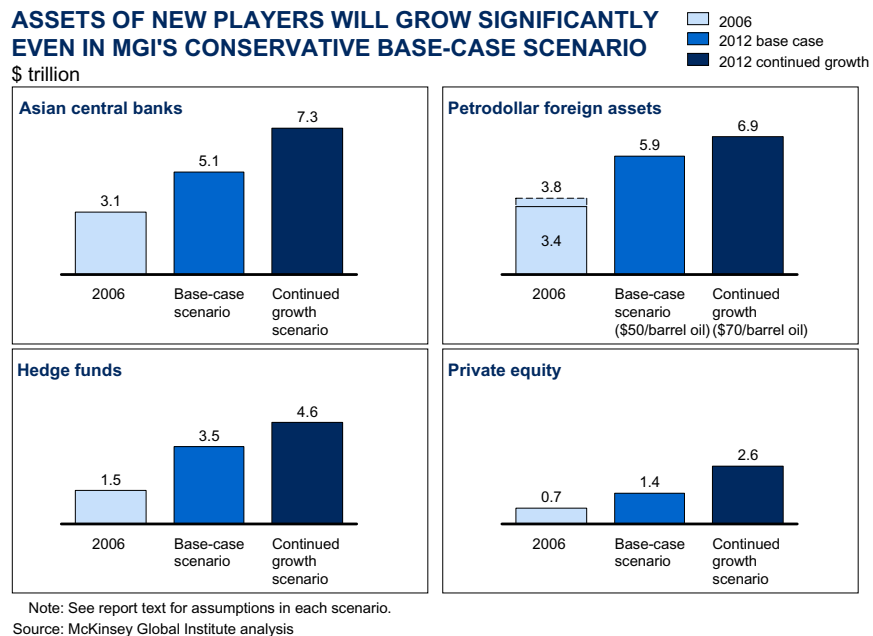
<sup>6</sup> We estimate hedge funds use on- and off-balance-sheet leverage of 2.5 to 3.5 times their capital. This would make their gross assets total as much as \$6 trillion at the end of 2006.

## THE NEW POWER BROKERS COULD GROW TO \$15.2 TRILLION BY 2012

The emergence of these four players is not a temporary phenomenon that will vanish when interest rates rise or when oil prices decline. In August 2007, credit markets tightened significantly; several large hedge funds suffered massive losses that required recapitalization, and funding for private equity deals dried up. Nonetheless, the factors fueling the growth of these four groups will persist for at least another five years, and even under conservative assumptions, our research shows all the new power brokers growing in size and influence in the years ahead.

Consider Asian central banks. The rapid growth in their reserve assets has been due to rising current-account surpluses, combined with exchange rate policies designed to prevent rapid appreciation of their currencies. Taking a relatively conservative view that assumes that China's current-account surplus will decline significantly from \$180 billion in 2006 to \$61 billion in 2012 and that Japan's surplus remains constant, we see Asian foreign reserves increasing to \$5.1 trillion by 2012 (Exhibit 1.5). If we assume instead that Asian surpluses continue to expand (with some limits) at the rates seen between 2000 and 2006, foreign reserves would reach \$7.3 trillion by 2012.

### Exhibit 1.5



Petrodollar assets, heavily driven by oil prices, would continue to experience significant growth even if oil prices were to fall to \$30 a barrel. The McKinsey Global Institute's research on global energy demand assumes a base case of \$50 per

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barrel; in this case, we calculate that petrodollar foreign financial assets would grow by \$389 billion annually—more than \$1 billion per day—to total \$5.9 trillion in 2012.<sup>7</sup> At \$70 per barrel, the price in August 2007, petrodollar foreign assets would grow by \$2 billion per day to reach a total of \$6.9 trillion in 2012.

Projecting the future size of hedge fund and private equity assets is subject to more uncertainty. Assuming no changes in regulations that limit their growth, investor demand will be the most important factor. The current evidence broadly suggests that investor demand for hedge funds and private equity will likely continue in years to come. We base this judgment on projected continued growth in the wealth of high-net-worth investors as well as to evidence that institutional investors intend to increase the share of hedge funds and private equity in their portfolios. A recent survey shows that global pension funds are planning to increase their allocation to hedge funds from 6 percent to between 8 percent and 9 percent and that their allocation to private equity is also rising.<sup>8</sup> Even if investor allocation shares were to remain constant, flows into hedge funds and private equity would still rise since institutional assets are growing.

On the other hand, if hedge funds and private equity were to experience low returns over several years (perhaps because of higher interest rates), investors will become increasingly unwilling to pay the high fees charged by both types of funds. Moreover, the financial market turmoil that started in mid-2007 will likely produce a shakeout in both industries, as funds that survived mainly because of luck and leverage—rather than distinctive skills—fold.

In our base-case scenario, we therefore assume slower growth rates for hedge funds and private equity than we have seen over the past five years. Nevertheless, this still leaves hedge fund assets reaching \$3.5 trillion in 2012—implying leveraged assets of \$9 trillion to \$12 trillion—and private equity assets growing to as much as \$1.4 trillion.

The combined assets of the four new power brokers grow to \$15.9 trillion by 2012 in our base case (Exhibit 1.6), a compound annual growth rate of 10.6 percent that would be significantly slower than the 18.1 percent rate seen in 2000–2006.<sup>9</sup> However, if that past growth rate were to continue, the players' combined assets

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7 *Curbing Global Energy Demand: The Energy Productivity Opportunity*, McKinsey Global Institute, May 2007.

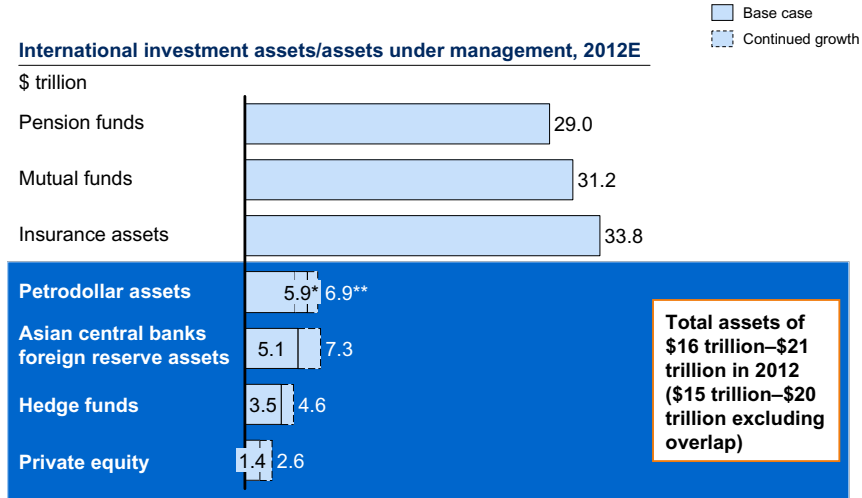
8 *Preqin Hedge Special Report: Institutional Investors Set to Invest \$85 Billion into Hedge Funds*, Private Equity Intelligence, May 2007; and *Private Equity Spotlight*, Private Equity Intelligence, June 2007.

9 See the following chapters of this report for more detail on the projections for each player.

would reach \$21.4 trillion, becoming more than two-thirds the size of global pension funds at the same point. Eliminating the overlap in assets between the players, their collective size would total between \$15.2 trillion and \$20.7 trillion.<sup>10</sup> However, size is by no means the only important feature of these players.

**Exhibit 1.6**

**NEW POWER BROKERS COULD HAVE \$15.2 TRILLION BY 2012**



\* At oil price of \$50 per barrel. If oil prices fell to \$30 per barrel, petrodollar foreign assets would grow to \$4.8 trillion in 2012.

\*\* At oil price of \$70 per barrel.

Source: Hedge Fund Research; Venture Economics; PE Analyst; IFSL estimates; Hennessee Group data; McKinsey Global Institute Cross-Border Claims Database; McKinsey Global Institute analysis

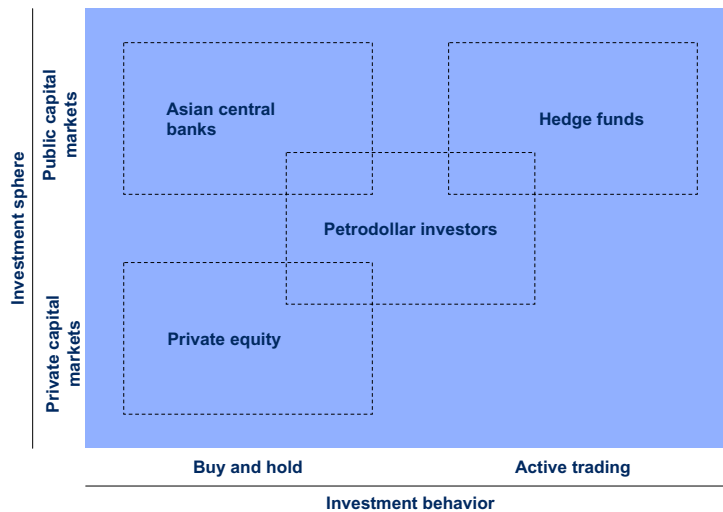
**NEW POWER BROKERS HAVE LONGER-TERM INVESTMENT HORIZONS AND CAN TAKE HIGHER RISK**

The four groups of players jointly cover a broad spectrum of investment styles (Exhibit 1.7). While Asian central banks invest heavily in fixed-income markets in the United States, petrodollar investors have weighted their portfolios toward global equities, alternative asset classes such as private equity and hedge funds, and emerging markets.<sup>11</sup> Hedge funds are typically very active traders and heavy users of derivatives and synthetic products, while private equity funds take a longer-term buy-and-hold approach predominantly in private capital markets. The new players thus have substantially diversified the global investor base, which should contribute to greater market efficiency and lower volatility.

10 In the base-case scenario, this includes \$650 billion of petrodollar investments and \$70 billion of investments by Asian sovereign wealth funds in hedge funds, private equity, and other alternative investment funds.

11 See the following chapters of this report for more detail on the investment styles of each of the players.

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**Exhibit 1.7****THE NEW POWER BROKERS JOINTLY COVER THE SPECTRUM OF INVESTOR TYPES, FROM VERY CONSERVATIVE TO HIGH RISK-TAKING**

Source: McKinsey Global Institute analysis

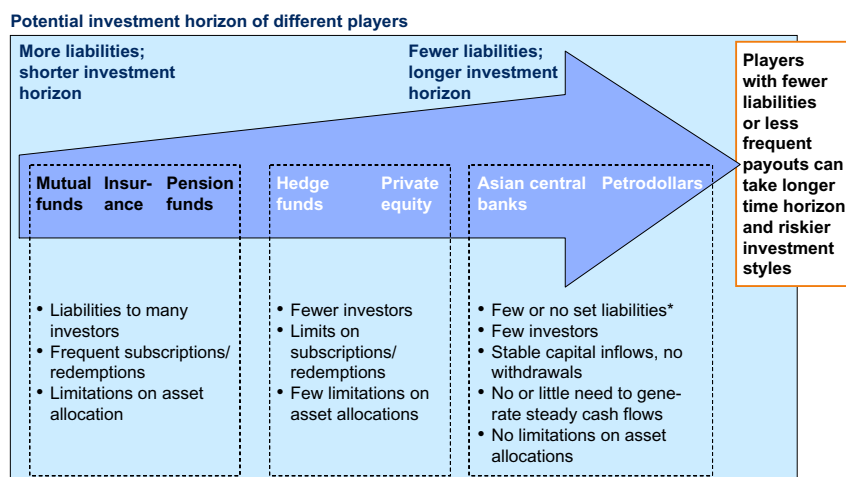
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For all the different investment styles they pursue, the four actors have one factor in common: they all have a longer investment time horizon than traditional investors, enabling them to pursue higher returns (Exhibit 1.8). Asian central banks and petrodollar investors are not financial intermediaries and therefore lack the liabilities and the need to generate cash that pensions and insurance companies face. Unlike mutual funds, they have no shareholders who can withdraw capital at a moment's notice. Although hedge funds and private equity firms must have enough liquidity to satisfy investor withdrawals of capital, they have far fewer individual investors than pension funds or mutual funds. Hedge funds also protect themselves from hasty redemptions through the use of investor "lock-up" periods after their initial investment and advance notification before they can withdraw funds. Private equity funds require investor commitments up front for the life of the fund, typically three to five years.

Overall, all four groups have longer-term capital to invest and therefore the potential to take on higher levels of risk in the search for higher returns. Hedge funds and private equity funds have already exploited this advantage, both in their investment strategies and through their use of leverage to amplify returns. Petrodollar investors are a diverse group and not all have yet realized this potential. Some private oil investors and sovereign wealth funds pursue more aggressive portfolio allocations than traditional investors (such as pension funds), while others are relatively

## Exhibit 1.8

### NEW PARTICIPANTS HAVE LONGER-TERM INVESTMENT PERSPECTIVE, ENABLING HIGHER-RISK STRATEGIES



\* Although Asian central banks are required to hold some portion of their assets in risk-free securities.

Source: McKinsey Global Institute analysis

conservative. Asian central banks have so far remained squarely in the camp of very conservative investing.

But the evidence suggests that all four players are starting to shift toward more risk-taking. Asian governments, for instance, have plans to shift up to \$480 billion of reserve assets into sovereign wealth funds that will diversify investments across asset classes. China's first investment in this arena was a \$3 billion stake in the US private equity firm Blackstone Group. Even Asian central banks' reserve assets are thought to be moving to slightly higher risk—from short-term US government securities to longer-dated government bonds and debt securities issued by the US mortgage agencies, Fannie Mae and Freddie Mac.

Among petrodollar investors, some of the traditionally more conservative sovereign-wealth funds and government investors in oil-exporting countries are allocating more capital to equity investments and higher-risk debt securities. Norway's \$300 billion Government Pension Fund, for instance, plans to increase its portfolio allocation to equity to 60 percent, from the current 40 percent, while reducing its allocation to fixed income. The more aggressive sovereign wealth funds and private wealthy oil investors are increasing their allocation to alternative asset classes such as real estate, private equity, and hedge funds, and to emerging market investments.

For their part, hedge funds are increasingly seeking permanent sources of capital, through IPOs, for instance, to enhance their ability to carry high levels of risk but

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at the same time withstand market downturns without forced selling. They have been large investors in collateralized loan obligations (CLOs) and collateralized debt obligations (CDOs)—often in the riskier tranches—and are also searching for higher returns by taking stakes in illiquid assets such as oil rigs. Private equity firms are beginning to offer their investors coinvestment opportunities that enable them to buy ever-larger companies.<sup>12</sup>

Amid all these strands of change, the aggregate picture is one in which the investment strategies of each of these four groups of actors are becoming more diversified and more risktaking. In their search for higher returns, they are collectively pushing outward the risk-return frontier. They are also beginning to cross into each other's investment territory (Exhibit 1.9). Hedge funds are buying up companies, while private equity firms are branching out to other types of investment funds. Asian central banks are starting to replicate the sovereign wealth funds of oil exporters, while oil exporters are creating more sophisticated investment vehicles, such as private equity funds. Given the lack of transparency around the new power brokers' investment strategies and objectives, this diversification will make their actions even more opaque to other investors and regulators, perhaps heightening concerns.

### **NEW PARTICIPANTS INCREASE LIQUIDITY—BUT MAY FUEL ASSET BUBBLES**

Falling interest rates and narrowing risk spreads in recent years have caused many observers to note that there appears to be a “global savings glut”—a marked rise in liquidity in financial markets. The new capital provided by petrodollars and Asian central banks are part of this story (Exhibit 1.10).<sup>13</sup>

The tripling of oil prices since 2002 has worked like a tax on consumers around the world. Much of the incremental price that they pay has ended up in the investment funds and private portfolios of investors in oil-exporting countries. Most of these funds are then recycled out to global financial markets. For their part, Asian central banks are absorbing savings in their economies that would otherwise have flowed to local banks and stock markets and are instead investing these savings in US and European government bonds. Both trends, while not literally raising world savings rates, have increased the capital available in global financial markets.

In fixed-income markets, this added liquidity has significantly lowered interest rates. We estimate that total foreign net purchases of US bonds have lowered long-term interest rates by approximately 130 basis points, 75 of which are attributed to oil-

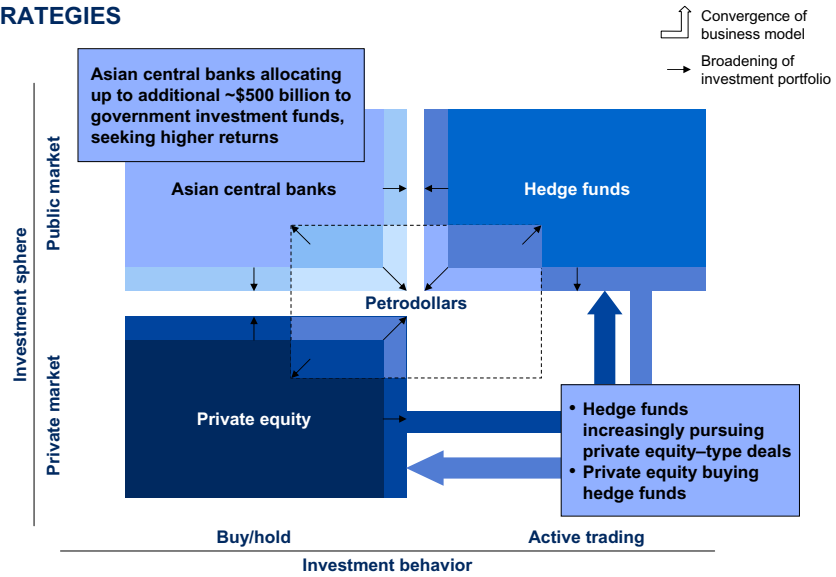
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12 Coinvestments allow investors to increase their stakes without being charged fees by private equity managers.

13 Other factors have also contributed, such as the rise in retirement savings by aging workers in industrial countries.

**Exhibit 1.9**

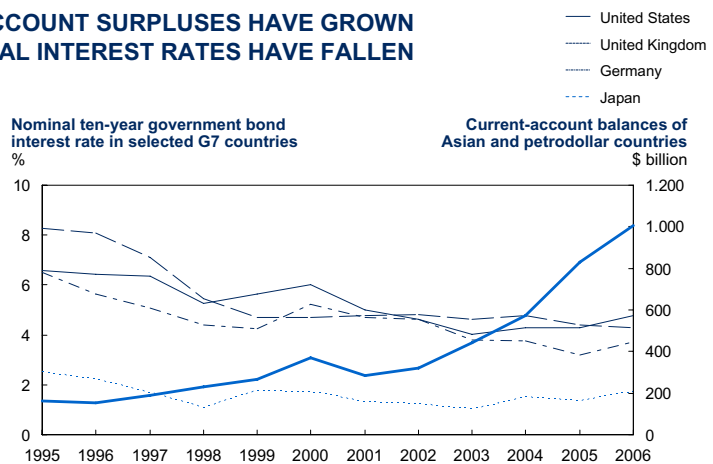
**THE NEW POWER BROKERS ARE EXPANDING THEIR INVESTMENT STRATEGIES**



Source: McKinsey Global Institute analysis

**Exhibit 1.10**

**CURRENT-ACCOUNT SURPLUSES HAVE GROWN WHILE GLOBAL INTEREST RATES HAVE FALLEN**



Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Asia*	133	98	156	224	206	189	163	214	280	346	433	521
Petro-dollars	30	56	35	6	59	180	120	105	160	227	399	484

\* China, Hong Kong, Japan, Korea, Malaysia, Singapore, Taiwan.

Source: McKinsey Global Institute Capital Flows Database; Dealogic

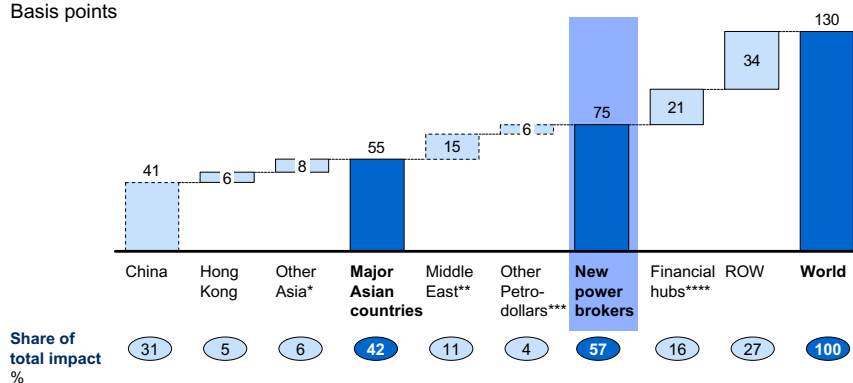


exporting countries and Asian central banks (see Technical Notes in appendix B for details on our methodology) (Exhibit 1.11).<sup>14</sup>

### Exhibit 1.11

#### ASIAN BANK AND PETRODOLLAR FLOWS INTO US BONDS LOWERED INTEREST RATES BY AN ESTIMATED 75 BASIS POINTS

Estimated impact of foreign purchases of US long-term bonds on US long rates  
Basis points



Note: Figures do not sum due to rounding.

\* Japan, Malaysia, Singapore, South Korea, Taiwan.

\*\* Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates (UAE).

\*\*\* Indonesia, Norway, Russia, Venezuela.

\*\*\*\* Luxembourg, Cayman Islands, Switzerland, United Kingdom

Source: US Department of the Treasury; McKinsey Global Institute Capital Flows Database; McKinsey Global Institute analysis

The four actors are adding to liquidity in other ways as well. Hedge funds account for as much as one-third of the market for credit derivatives and, as we have noted, are major buyers of CDOs and CLOs. This allows banks to shift credit risk off their balance sheets to hedge funds, enabling them to originate more loans than they would have done otherwise. Hedge funds also boost market liquidity through their high trading turnovers. We calculate that they account for 30 percent to 50 percent of trading volumes in US and UK equity and bond markets and an even higher share in some other asset classes such as emerging market bonds. Along with petrodollar investors, hedge funds have also spurred growth in derivatives.

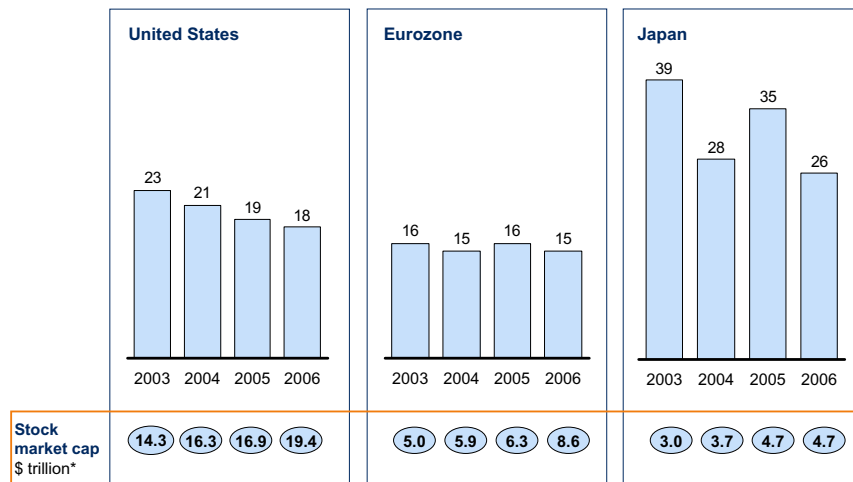
But is all this liquidity beneficial for global markets? On one hand, higher liquidity has expanded access to financing for companies and other borrowers around the world and has lowered their cost of raising funds. The resulting additional investment and consumption has likely been a factor in the robust economic growth rates seen over the past five years. Moreover, the added liquidity from derivatives has enabled more efficient spreading of risk across many investors.

<sup>14</sup> This is based on a methodology developed by Francis. E. Warnock and Veronica Cacadac Warnock, *International capital flows and U.S. interest rates*, September 2005.

On the other hand, the rise in liquidity may also be having an inflationary effect on asset prices and enabling excessive lending. Our research finds little evidence of an asset bubble in public equity markets where rising valuations have mostly reflected increased corporate earnings. In the United States and Japan, price-earnings ratios for listed companies have actually declined in recent years, while in Europe they have risen only slightly (Exhibit 1.12).

**Exhibit 1.12**

**PRICE-EARNINGS RATIOS HAVE FALLEN AS EQUITY MARKETS HAVE SOARED**



\* Market exchange rates during the year.  
 Source: Datastream; McKinsey Global Institute Financial Stock Database; McKinsey Global Institute analysis

Concern may prove to be more well grounded in markets for illiquid assets, such as real estate. According to research by the Economist Intelligence Unit, real-estate values in developed countries increased by \$30 trillion between 2000 and 2005, far outstripping GDP growth.<sup>15</sup> Petrodollar investors have been large purchasers of real estate in some markets. More important, petrodollars and Asian central banks have indirectly helped fuel price increases by playing a key role in lowering interest rates and credit risk spreads. In the leveraged buyout market, the acquisition price of companies has steadily risen over the past five years. The average ratio of purchase price over earnings has risen 25 percent since 2002 in both Europe and the United States (Exhibit 1.13). These increases suggest the inflationary effect of more investment dollars chasing a limited supply of opportunities.

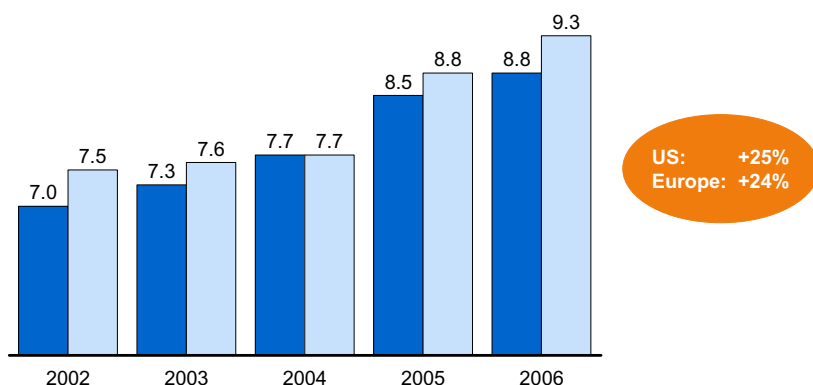
<sup>15</sup> "In come the waves," *The Economist*, June 15, 2006.

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### Exhibit 1.13

#### LEVERAGED BUYOUT ACQUISITION PRICES HAVE INCREASED AS COMPETITION RISES

Average purchase price/adjusted EBITDA\* multiple  
LBOs >\$500 million, includes fees/expenses



\* Earnings before interest, taxes, depreciation, and amortization.  
Source: Standard and Poor's M&A statistics; McKinsey Global Institute analysis

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### BREATHING NEW LIFE INTO PRIVATE CAPITAL MARKETS

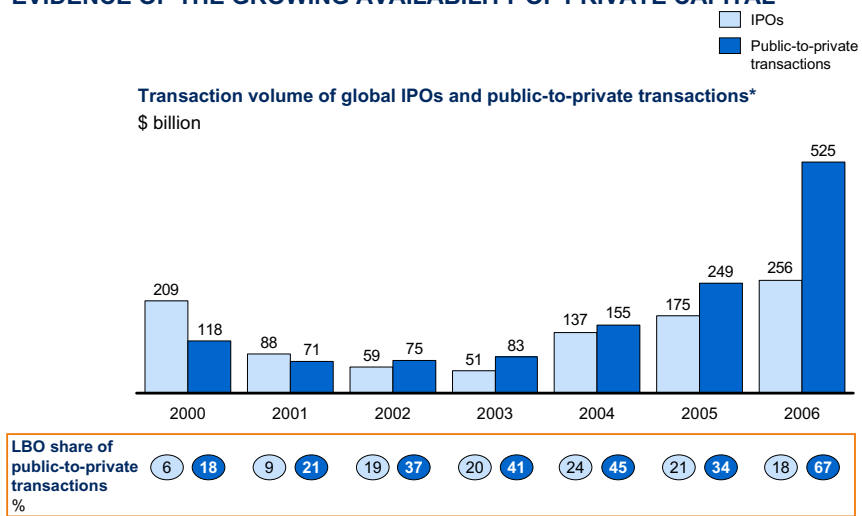
The four new power brokers are also in the vanguard of another dynamic market development: the evolution of private capital markets. Unlike traditional institutional investors, which invest mostly in publicly traded securities, petrodollars, private equity, and hedge funds are far more active in the private market for funding. Private equity, which uses privately raised funds from relatively small groups of investors to buy companies and delist them from public stock exchanges, is the clearest example of this. But hedge funds are starting to buy companies—or take private stakes in them—as well. Some petrodollar investors are also active in buying companies, real estate, and art. Kingdom Holding Corporation, a large Saudi conglomerate that is partially owned by Prince Alwaleed Bin Talal Al Saud, has bought private companies and large stakes in publicly listed companies all over the world that are worth tens of billions of dollars. Even Asian central banks may cautiously venture into private investments: witness the \$3 billion nonvoting stake that China's China Investment Corporation (CIC) recently took in Blackstone, the private equity group.

Evidence of this new liquidity in private funding comes from the significant number of companies that have delisted from major stock exchanges. In recent years, global public-to-private transactions have exceeded global IPOs (Exhibit 1.14). Similarly, private placements of equity, although still very small with a volume of \$7.4 billion in 2006, have been growing at an annual average rate of 60 percent since 2002 while

initial public offerings on stock exchanges have grown at a comparatively modest rate of 17 percent. Private placement of debt has expanded by 26 percent a year, outstripping growth in public corporate-debt issues and the leveraged-loan market, which have both grown at 15 percent a year (Exhibit 1.15). Private capital is increasingly becoming an alternative to public capital.

**Exhibit 1.14**

**PUBLIC-TO-PRIVATE DEALS HAVE RECENTLY OUTSTRIPPED IPOs, EVIDENCE OF THE GROWING AVAILABILITY OF PRIVATE CAPITAL**



\* Defined as transactions where target is public, the acquirer is not public, and the acquirer's final stake is >= 90%; excluding asset swaps.  
Source: Dealogic; McKinsey Global Institute analysis

The rise in private sources of capital is expanding the funding options available to companies and enabling new forms of governance. Private investors may allow some companies to take longer-term investments and restructuring than public shareholders, with their focus on quarterly earnings, might tolerate. The rise of private capital is therefore an important complement to public equity and debt markets and may mark the beginning of a new phase of financial system evolution.

**INCREASED ACTIVISM WILL BE A HALLMARK OF INVESTMENT**

With the notable exception of Asian central banks, the new power brokers are increasingly using their power to force improvements in corporate governance, management, and performance in the companies they own. Private equity funds have a direct say in management through their seats on the board. Some petrodollar investors are also pursuing more activist strategies. Government investment funds in the Middle East are setting up dedicated vehicles to invest directly in an active, private equity style. Examples of these new funds include Abu Dhabi's Mubadala

fund, Dubai International Capital, and Dubai's Istithmar. Hedge funds, too, are starting to push for changes in the companies they invest in.

### Exhibit 1.15

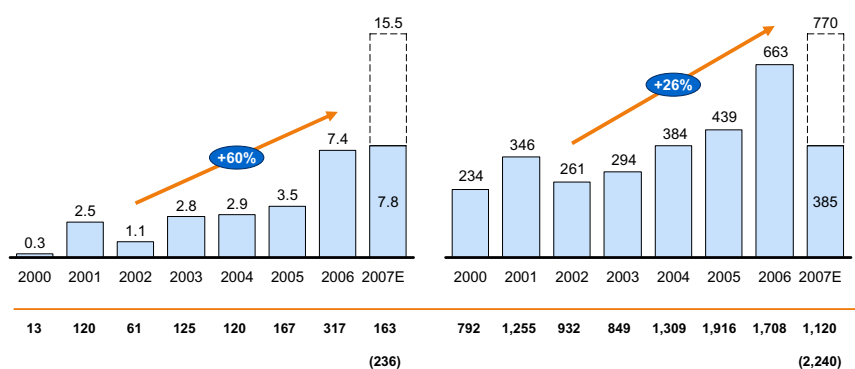
#### PRIVATE EQUITY AND DEBT PLACEMENTS ARE RISING

##### US private-placement transaction volume\*

\$ billion

Equity

Debt



\* Direct private offering of securities to limited number of sophisticated investors (insurances, pension funds, mezzanine funds, stock funds, trusts); transactions are usually organized and carried out by a bank as intermediary.

Source: Dealogic; McKinsey Global Institute analysis

There is some evidence that this increased activism—particularly on the part of private equity firms—measurably raises the performance and productivity of companies.<sup>16</sup> In a study of 60 leveraged buyouts, for instance, McKinsey & Company found improved company performance in two-thirds of them and that risk-adjusted returns on the deals were twice the industry average performance.<sup>17</sup> A different study found that the stock price of private equity-owned companies that later relisted on public stock markets (known as “reverse leveraged buyouts”) performed better than the industry average.<sup>18</sup> At least one study has also found that activist behavior by hedge funds sustainably improves the share price and performance of targeted firms.<sup>19</sup>

16 Oliver Gottschalg, Ludovic Phalippou, and Maurizio Zollo, *Performance of Private Equity Funds: Another Puzzle?* September 2004; Steve Kaplan and Antoinette Schoar, *Private Equity Performance: Returns, Persistence and Capital Flows?* November 2003; and Oliver Gottschalg and Alexander Groh, *The Risk-Adjusted Performance of US Buyouts*, 2006.

17 Joachim Heel and Conor Kehoe, “Why some private equity firms do better than others,” *The McKinsey Quarterly*, 2005.

18 Jerry Cao and Josh Lerner, “The performance of reverse leveraged buyouts,” 2006.

19 A. Brav, W. Jiang, F. Partnoy, and R. Thomas, *Hedge fund activism, corporate governance, and firm performance*, November 2006.

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But more conclusive research is needed to judge whether private equity firms and activist hedge funds sustainably improve corporate performance. If they do, it will undoubtedly have a ripple effect on other companies. We already have anecdotal evidence that a growing number of companies are starting to scrutinize their performance more closely and rethink their strategies in response to the rise of private equity and, to a lesser degree, activist hedge funds. At its most effective, the activism of these four players could contribute to a new wave of corporate productivity improvements.

### **SPREADING LIQUIDITY TO ASIA AND EMERGING MARKETS**

The growing influence of the new power brokers will increasingly spread liquidity to financial markets in Asia, the Middle East, North Africa, and other emerging markets, perhaps hastening financial system development in those regions.

Petrodollar investors already allocate a larger share of their investments to emerging markets than do US and European retail or institutional investors. Asia, for instance, has received one in ten dollars of new investment from the Gulf Cooperation Council (GCC) since 2002, while other Middle Eastern countries and North African nations received another one in ten. In the search for higher returns, this share will likely grow in the years to come. We estimate that cross-border capital flows between GCC countries and Asia will climb from \$15 billion today to as much as \$290 billion annually by 2020.<sup>20</sup> This could ultimately lead to more rapid growth and greater financial depth of Asian financial markets as increased liquidity lowers risk premiums and gives more companies access to debt and equity capital.

The shift of Asian central bank reserve assets into sovereign wealth funds may also contribute to more substantial intra-Asian investment. Whichever city China chooses as the headquarters of its new government investment corporation, for instance, will receive a significant boost in its bid to become a regional financial center, as an army of other asset managers, traders, analysts, and other financial institutions will cluster around the new corporation. In the longer term, if Asian currencies become more flexible—thereby diminishing the need to purchase US dollar assets—Asian sovereign wealth funds will over time be more at liberty to invest a greater share of their assets within their home region. Today, the huge flow of reserve assets into US, and to a lesser extent European, fixed-income markets is arguably diverting funds away from the development of Asia's domestic financial markets.

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<sup>20</sup> Dominic Barton and Kito de Boer, "Tread lightly along the new Silk Road," *The McKinsey Quarterly*, March 2007.

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Hedge funds and private equity are also increasingly looking globally for new opportunities as competition increases in the United States and Europe. Worldwide, private equity funds that focus on investing in emerging markets raised more than \$33 billion of new capital in 2006, more than five times the amount raised in 2004. Asian markets such as South Korea, China, and India are key new prospects, accounting for nearly 60 percent of that \$33 billion.<sup>21</sup>

As the four new power brokers continue to grow in size and expand their influence, financial markets outside the United States and Europe will increasingly benefit.

### **THE NEW POWER BROKERS ALSO CREATE RISKS**

The rise of oil investors, Asian central banks, hedge funds, and private equity firms has created a rich and complex new financial landscape with many positive elements. But the growing influence of these players may amplify risks as well. Beyond the possible inflationary impact of higher liquidity, several concerns are paramount.

**Noneconomic motives of state investors.** A growing concern among policy makers in the United States and Europe is that the government connections of sovereign wealth funds in Asia and oil-exporting countries may distort their investment motives. The fear is that rather than investing solely for commercial pursuit of returns, their state connections may introduce an element of political or mercantilist considerations in their investments. This has the potential to distort market signals and hamper the ability of other investors to make rational decisions, as well as dampen the performance of the companies themselves.

But there has been considerable confusion in the public debate over the very different investments of central banks, sovereign wealth funds, and state-owned companies from Asia or other oil-exporting countries. The most acute public concern has thus far centered on proposed direct investments by state-owned companies such as Dubai World Ports or the China National Offshore Oil Corporation (CNOOC). Sovereign wealth funds and central banks, in contrast, typically invest passively in a diversified portfolio of public debt and equity securities. The evidence so far shows that they invest cautiously, often through external intermediaries. Asian central banks have been careful to not surprise markets or move prices, despite their power to do so. Oil sovereign wealth funds have for the most part invested very discreetly through professional external

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<sup>21</sup> *Emerging Market Private Equity Fundraising Review 2006*, Emerging Market Private Equity Association, March 2007.

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asset managers, an arrangement that creates an arm's-length relationship with companies they take stakes in.

Going forward, some sovereign wealth funds are showing signs of investing more directly in global financial markets. As they do so, these actors may consider it worthwhile to respond to public concern by voluntarily disclosing more information about their strategies, internal governance, and risk management.

**Systemic risk from hedge funds.** The enormous size, complex trading strategies, and high use of leverage have increased the potential of hedge funds to destabilize global financial markets. In 1998, the hedge fund Long Term Capital Management (LTCM) suffered catastrophic losses that led the Federal Reserve Bank of New York to coordinate a \$3.6 billion bailout of the fund by several large banks. The Fed justified its actions on the grounds that the fund's collapse threatened systemic financial market failure. In the first half of 2007, many smaller and midsized funds failed and half a dozen large hedge funds worth billions of dollars each suffered very significant losses due to the US subprime mortgage crisis and the resulting turbulence in debt and equity markets.<sup>22</sup> The question is once again on the table: could hedge funds trigger a broad crisis in global capital markets?

Systemic risk from hedge funds stems from two sources: banks' large exposure to them and their potential to create contagion across unrelated asset classes. If several large hedge funds were forced simultaneously to unwind their positions, asset prices might plummet and banks might suffer heavy losses. Our research suggests that several developments within the hedge fund industry have reduced—but certainly not eliminated—these risks over the past ten years. First, hedge fund managers have adopted more diverse trading strategies which should reduce “herd behavior”. In the subprime crisis of mid-2007, many quantitative equity arbitrage funds simultaneously lost a significant portion of their value over a short period of time—indicating that their strategies and models were less diversified than it appeared. Nonetheless, other hedge funds profited significantly during the subprime crisis. And some of the largest “quant” funds—such as Renaissance and DE Shaw—by September 2007 were raising money for large new funds to profit from the reduced asset prices in the market. This diversification across hedge funds does not protect individual investors in

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22 Examples of smaller hedge funds that have been closed include the hedge fund firms Braddock Financial Corporation (\$300 million assets under management), United Capital Asset Management (\$500 million assets under management), Caliber Global Investments (\$908 million assets under management), and Queen's Walk Investments (400 million assets under management).



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funds that lose money, but it does reduce the likelihood of a widespread market meltdown.

Moreover, banks have improved their assessment and monitoring of risk, and our analysis suggests that the largest banks have reasonable levels of collateral and equity against their hedge fund exposures. Some of the largest hedge funds have also begun to raise permanent capital in public stock and bond markets, which should improve their ability to weather market downturns without forced selling. These funds will likely survive the turmoil of 2007 while some of the smaller and more highly leveraged funds that relied on luck—rather than skill—will fold. The risk of systemwide disruption from hedge fund activities has clearly not been eliminated, but the industry trends point to a gradual decline in such risk.

**Credit risk from private equity.** Private equity's heavy use of debt may be increasing financial market credit risk. It is true that private equity's use of leverage in buyouts has increased and that these funds have used their growing clout to extract looser lending covenants from banks. However, our analysis shows that private equity defaults alone are unlikely to have broader financial market implications. Private equity firms account for just 11 percent of the total market for corporate borrowing in the United States and Europe. Even if default rates in private equity loans rose 50 percent above historic highs, losses would amount to just 7 percent of syndicated loan issuance in the United States in 2006. Moreover, private equity funds tend to buy companies with strong cash flows in relatively stable industries, limiting the effects of economic downturns on their performance.

The concerns raised by the emergence of the new power brokers are quite real: their activities could have negative consequences for both the global financial system and the world economy. These risks should be monitored in the years to come. Nonetheless, the evidence to date gives some reason for optimism that much of the public hype and anxiety being expressed today is at odds with the facts about these players.

## **REDUCING UNCERTAINTIES IN THE NEW FINANCIAL LANDSCAPE**

Heightened anxiety invariably accompanies periods of significant evolution in financial markets. However, there are useful steps that each of the new actors—as well as policy makers—can take to ease the transition to a new financial landscape.

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Central banks and sovereign wealth funds in Asia and oil-exporting countries can voluntarily increase disclosure to allay public concerns about their motives. Central banks, for instance, could provide more information on the mix of currencies and instruments in their reserve holdings and any planned changes in the mix. Sovereign wealth funds could publish more information about their investment strategies, target portfolio allocations, and their internal governance and risk-management procedures. Norway's Government Pension Fund is a model in this area. By publicly stating their investment goals, sovereign wealth funds can ease concerns that politics will play a role in their decision making—and reduce the likelihood that regulators will take the matter into their own hands. Many funds use external asset managers for a portion of their portfolio, which also demonstrates their focus on returns and removes potential political influence on the companies in which they buy stakes.

Policy makers—particularly those in the United States and Europe who are currently contemplating a regulatory response to the rise of foreign government investors—should ensure that they base any decisions on an objective appraisal of the facts. It would be useful, for instance, to be clear about the differences between corporate purchases by state-owned companies and diversified financial market investors, such as sovereign wealth funds. Sovereign wealth funds typically do not make direct investments in companies but rather invest in a diversified portfolio of public equity and debt markets, as well as alternative investment vehicles such as hedge funds, private equity, and real estate.

For the risks posed by hedge funds and private equity, the challenge lies not so much in transparency—as is often called for in the public debate—but rather in ensuring that banks are adequately protected against the risks. Banks need both the tools and the incentives to accurately measure and monitor their exposure to hedge funds and private equity, and to maintain sufficient capital and collateral against these risks. It is currently not easy to assess the risk stemming from CDOs and CLOs given their illiquidity, and better techniques are needed.

Moreover, with the growth of credit derivatives and collateralized debt obligations, banks have in many cases removed themselves from the consequences of poorly underwritten loans. Regulators should find ways to ensure that lending standards for all borrowers do not decline even as banks move toward being loan originators without their own capital at risk for the long-term performance of the loan.

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Petrodollars, Asian central banks, hedge funds, and private equity are having a marked impact on global capital markets. In the years ahead, our analysis shows that these players are likely to post continued growth and will exert a growing influence on the dynamics of financial markets. In the following chapters, we analyze each of the new power brokers in turn, looking at their current impact and the role they are likely to play in future years.



## 2. Petrodollars: Fueling global capital markets

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The tripling of oil prices since 2002 has created an effective tax on consumers around the world but a windfall for oil-exporting nations. The majority of these revenues have been recycled into global financial markets, making petrodollar investors increasingly powerful players.

In 2006, oil-exporting nations became the largest source of net global capital flows in the world, surpassing Asia for the first time since the 1970s (Exhibit 2.1). We estimate that petrodollar investors—including both government and private—have between \$3.4 trillion and \$3.8 trillion in foreign financial assets, making them the largest of the four new power brokers (Exhibit 2.2).<sup>1</sup> If oil prices stay at their current level of around \$70 per barrel, our analysis shows that \$628 billion of new petrodollars will enter world financial markets each year, or nearly \$2 billion per day.

Without doubt, this flood of oil money is creating new dynamics—as well as new concerns—in global financial markets. Facts about these powerful new investors have been scarce, and their rise is fueling growing concern about their state connections and potential influence on markets. The goal of this research is to provide new data and analysis to ground the debate.

Our research shows that on one hand, petrodollars represent a large and rapidly growing pool of new savings that have been a significant factor in the rise in liquidity in world financial markets. This has lowered interest rates, compressed risk spreads, and boosted demand for financial assets across the board. At the same time, oil

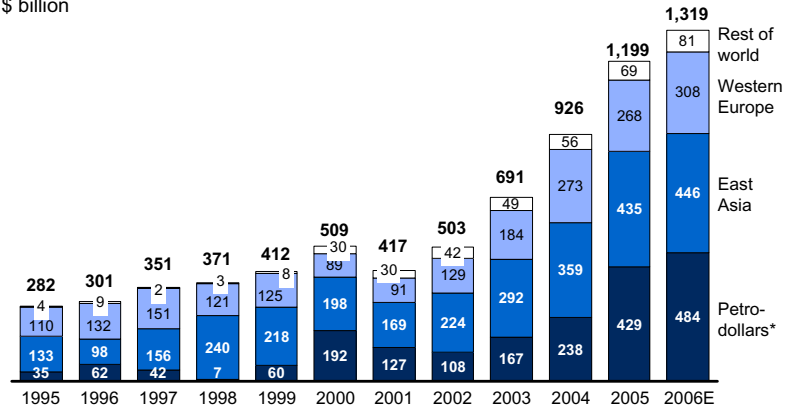
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1 As we explain later, this figure includes oil exporters from the Middle East as well as Norway, Russia, Venezuela, Indonesia, and Nigeria. It covers assets held by sovereign wealth funds, central banks, and private wealthy individuals.

## Exhibit 2.1

### PETRODOLLARS BECAME THE LARGEST SOURCE OF NET CAPITAL OUTFLOWS IN 2006

Net capital outflows from countries with current-account surpluses  
\$ billion



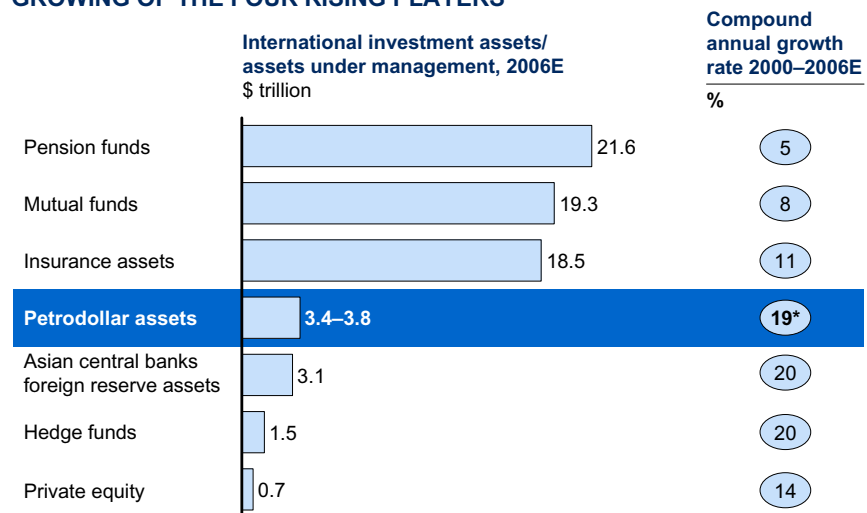
Note: Figures may not sum due to rounding.

\* Includes Algeria, Indonesia, Iran, Nigeria, Norway, Kuwait, Libya, Russia, Saudi Arabia, Syria, United Arab Emirates, Venezuela, and Yemen.

Source: International Monetary Fund; Global Insight; McKinsey Global Institute Capital Flows Database

## Exhibit 2.2

### PETRODOLLARS ARE THE LARGEST AND FASTEST-GROWING OF THE FOUR RISING PLAYERS



\* Growth rate calculated based on 2006 estimated data reported to the International Monetary Fund (\$2.5 trillion).

Source: International Financial Services, London; Hedge Fund Research; Venture Economics; McKinsey Global Institute analysis

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investors have unique investment preferences that are shaping new trends in financial markets. They are spurring growth of hedge funds, private equity, and other financial innovations. With their very long investment time horizons and penchant for investing in emerging markets, oil investors will likely contribute to more rapid financial deepening in emerging markets in the years to come, particularly in Asia and North Africa, and they are already sparking rapid growth in the nascent market for Islamic financial products.

Yet the rise of oil investors is also provoking anxieties. Although the boost to global liquidity has been beneficial, it may also have an inflationary effect on some assets, particularly illiquid ones such as real estate. The lack of transparency around huge government investment funds opens the possibility that they could use their financial heft for political purposes.<sup>2</sup> Although our research finds that most oil investors are sophisticated, are aware of their size, and have so far consciously employed strategies aimed at ensuring that their activities do not move markets in a disruptive way, these concerns cannot be easily dismissed.

A new era of financial globalization has begun. For the first time since Japanese investors gained financial clout in the 1980s, investors outside the United States and Europe are shaping trends in financial markets—and petrodollar investors are the largest and fastest-growing component of this story. Understanding the unique and growing influence of petrodollar investors on financial markets is critical for investors, policy makers, and companies around the world.

## **PETRODOLLAR FOREIGN INVESTMENTS APPROACH \$4 TRILLION**

So how big is the petrodollar phenomenon? By our estimate, investors from oil-exporting nations collectively own between \$3.4 trillion and \$3.8 trillion in foreign financial assets, measured at the end of 2006. Determining the true size of oil exporters' foreign assets is difficult because no comprehensive official figures exist. Only four of the states that make up the Gulf Cooperation Council (GCC) publish any data with International Financial Statistics (IFS) of the International Monetary Fund (IMF), for instance, and these data are almost certainly underestimated. We have therefore constructed our own estimates of petrodollar foreign investments based on a variety of published data sources, McKinsey research, and interviews with banking experts in the region (see appendix B for more detail).

We divided oil exporters into three groups. The first and largest group is made up of

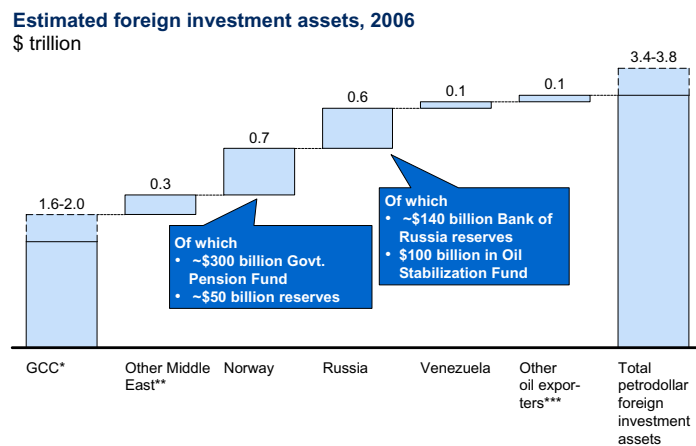
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<sup>2</sup> Lawrence Summers, "Sovereign funds shake the logic of capitalism," *The Financial Times*, July 30, 2007; Jeffrey Garten, "We need rules for sovereign wealth funds," *The Financial Times*, August 7, 2007.

the GCC states—Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE). Investors from these countries have foreign investment assets of \$1.6 trillion–\$2.0 trillion (Exhibit 2.3). The second group includes other Middle East states that have oil: Algeria, Iran, Libya, Syria, and Yemen. These countries hold about \$330 billion in foreign assets. The third group is other major oil exporters around the world, which include Norway, Russia, Nigeria, Venezuela, and Indonesia. Together they hold a combined \$1.5 trillion in foreign assets.

### Exhibit 2.3

#### PETRODOLLAR FOREIGN INVESTMENT ASSETS AMOUNT TO \$3.4 TRILLION–\$3.8 TRILLION



\* Gulf countries include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and UAE.

\*\* Includes Algeria, Iran, Libya, Syria, and Yemen.

\*\*\* Indonesia and Nigeria.

Source: McKinsey Global Institute Cross-Border Claims Database; McKinsey research; press; Setser and Ziembra; expert interviews; McKinsey Global Institute analysis

### Six types of petrodollar investors

Despite the growing focus on sovereign wealth funds, these are not the only petrodollar investors. Our interviews reveal that petrodollars eventually end up in the accounts of six types of players that then invest overseas (Exhibit 2.4). This diversity means that the petrodollars entering the global financial system are the result of investment decisions made by hundreds of individual investors and investment funds (unlike Asian central banks). The six specific categories of petrodollar investors are:

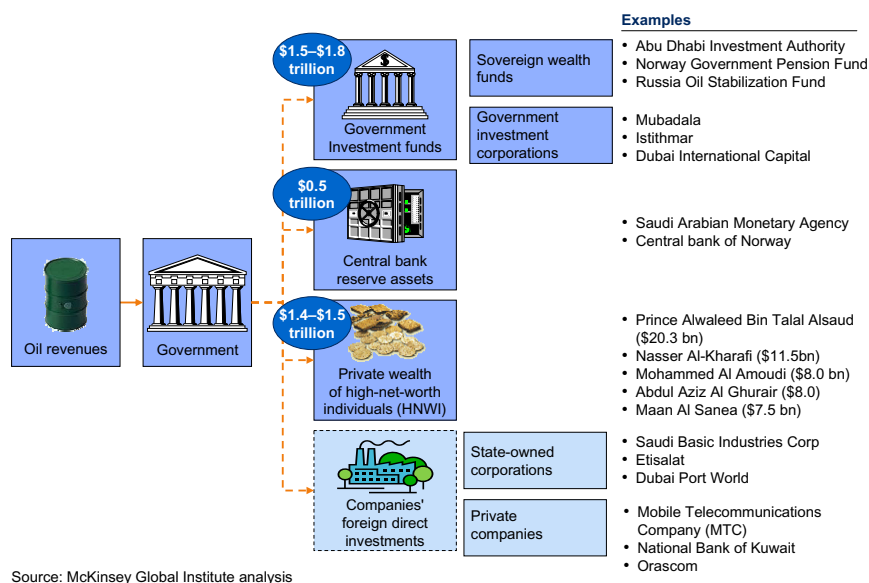
**Central banks.** Some petrodollars end up as resources held by central banks, which invest in foreign assets in the interest of stabilizing their currencies against balance of payment fluctuations. Their primary investment objective is stability, not the maximization of returns. They hold foreign reserves mainly in the forms of cash and long-term government debt, currently largely US Treasury bills. Among



oil exporters, Saudi Arabia has the largest central bank funds with an estimated \$250 billion in 2006.

## Exhibit 2.4

### THERE ARE SIX SOURCES OF PETRODOLLAR FOREIGN INVESTMENT



**Sovereign wealth funds.** Most oil exporters have set up state-owned investment funds, often called sovereign wealth funds, to invest oil surpluses in global financial assets. Unlike central bank reserves, these funds have diversified portfolios that range across equity, fixed income, real estate, bank deposits, and alternative investments, such as hedge funds and private equity. Most allocate their portfolios in a relatively traditional way across asset classes, often using external global asset managers to manage their portfolio. Direct investments by these funds have been rare. The largest sovereign wealth fund among oil exporters is the Abu Dhabi Investment Authority (ADIA), which reportedly has total assets of up to \$875 billion (Exhibit 2.5).

**Government investment corporations.** Increasingly, oil exporters channel some of their wealth into smaller, more targeted investment funds, which invest directly into domestic and foreign corporate assets, shunning the portfolio investment approach of sovereign wealth funds. Many of these funds operate like private equity funds that actively buy and manage companies, either alone or with consortia of other investors. These funds include Dubai International Capital (DIC), Istithmar, and Mubadala. Among their investments have been the purchase of the Tussauds Group (owner of London's wax museum) by DIC in 2006 and the

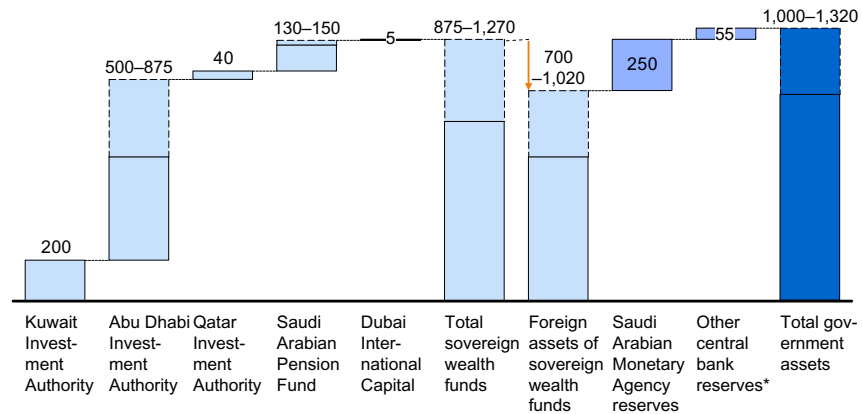
2007 purchase of Barney's New York by Istithmar. Some of these funds also invest on behalf of external investors. A different type of government investment corporation is the Abu Dhabi Investment Council, which was created to manage all the domestic holdings that formerly belonged to ADIA.

**Exhibit 2.5**

**GULF SOVEREIGN WEALTH FUNDS AND CENTRAL BANKS HOLD \$1.0 TRILLION–\$1.3 TRILLION IN FOREIGN ASSETS**

Legend: Sovereign wealth funds (light blue), Central banks (dark blue)

**Estimated assets of major Middle East government investment companies**  
\$ billion, 2006



Note: Figures may not sum due to rounding.  
\* Estimates of Kuwait, Oman, Qatar, and UAE foreign reserve assets.  
Source: Interviews; press; Setser and Ziemba; McKinsey Global Institute analysis

**High-net-worth individuals.** Wealthy and ultrawealthy private individuals are another important category of petrodollar investor. With the exception of Norway, private wealth is highly concentrated in almost all petrodollar countries. These investors place a large portion of their wealth abroad, often using financial intermediaries in London, Switzerland, and other financial hubs, and most have highly diversified asset allocations.<sup>3</sup> They also have some unique investment preferences, with a penchant for equity and alternative investments.

**Government-controlled companies.** Some state-owned companies in oil-exporting nations receive government funding directly or indirectly and then invest in companies abroad. This is particularly true in the Middle East, given the limited size of its domestic markets. Some of these mergers and acquisitions (M&A) deals have received a great amount of public attention—notably the recent acquisition

3 Some of the wealth generated by oil exports also ends up in middle-class and mass-affluent households. However, these investors are less sophisticated and generally keep the majority of their wealth in the domestic financial system. In the Middle East, these investors have an estimated \$200 billion to \$250 billion in assets. Because our focus is on the impact of petrodollars on global financial markets, we exclude middle class and mass affluent investors from our analysis.

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of General Electric's plastics unit by Saudi Basic Industries for \$11.6 billion, or the purchase by Dubai's DP World of British ferry conglomerate P&O for \$8.2 billion. In 2005 and 2006 alone, GCC acquirers spent more than \$70 billion on international M&A. The total value of such foreign acquisitions by all petrodollar companies is likely to be much higher than that, and thus could easily add another few hundred billion dollars to the total pool of petrodollar foreign assets. However, we do not include the value of these corporate acquisitions in our calculation of petrodollar wealth because these investments are exclusively in companies and not in portfolios of financial assets, and because it is difficult to calculate their value, given that the acquirers are typically not public companies and thus report limited information.

**Private companies.** Finally, private companies in oil-exporting nations also invest in foreign markets. These companies operate like private companies anywhere, using retained earnings and capital increases to finance investments overseas. Examples from the GCC include Kuwait's Mobile Telecommunications Company (MTC), National Bank of Kuwait, Egypt's Orascom Group, and Agility, the Kuwait-based logistics company. Like government-controlled companies, we do not include the value of private companies' foreign acquisitions in our estimates of petrodollar wealth.

Across all oil exporters, we estimate that governments (central banks, sovereign wealth funds, and government investment corporations) control 59 percent of petrodollar foreign investments while individuals hold 41 percent (Exhibit 2.6). However, this split varies among oil exporters, with the government being a larger share in the GCC than in other oil exporters. Across the GCC, UAE has the largest share of government foreign assets, while Saudi Arabia has the largest share of private foreign wealth (Exhibit 2.7).

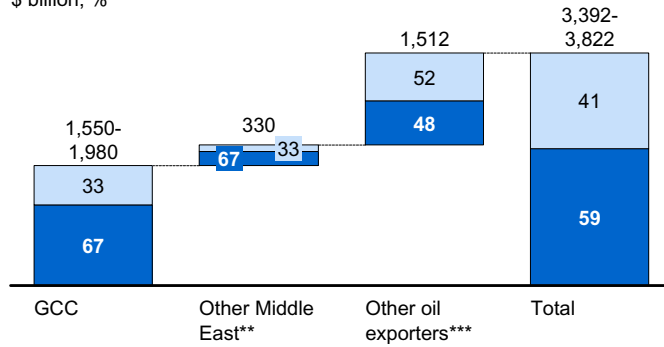
Among oil exporters in other geographies, government and private wealth are roughly equal. Of Norway's \$675 billion in foreign assets, the government's pension fund (which invests exclusively abroad) holds some \$300 billion while the central bank holds another \$50 billion. Of Russia's \$565 billion in foreign assets, the country keeps some \$140 billion in the form of central bank reserves and approximately \$100 billion in an Oil Stabilization Fund.

**Exhibit 2.6**

**TOTAL PETRODOLLAR FOREIGN ASSETS ARE 41 PERCENT PRIVATE AND 59 PERCENT GOVERNMENT**

Private  
Government\*

Estimated assets of petrodollar countries, 2006  
\$ billion, %



\* Includes sovereign wealth funds and central banks.

\*\* We assume the private-government split is the same as for GCC.

\*\*\* Includes Norway's reserves and Government Pension Fund, Russia's Bank of Russia reserves and Oil Stabilization Fund, Nigeria's reserves, and Venezuela's reserves.

Source: McKinsey Global Institute Cross-Border Claims Database; Setser and Ziemba; expert interviews; McKinsey Global Institute analysis

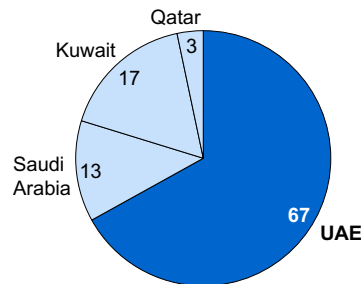
**Exhibit 2.7**

**GOVERNMENT WEALTH IS HIGHEST IN THE UNITED ARAB EMIRATES, WHILE INDIVIDUAL WEALTH IS CONCENTRATED IN SAUDI ARABIA**

\$ billion, %

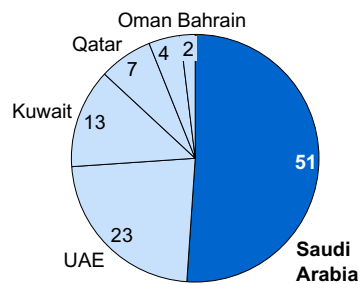
GCC government foreign assets, 2006

100% = 1,000–1,320



GCC private\* foreign assets, 2006

100% = 735–880



\* Includes high-net-worth individuals only; excludes mass affluent and middle class.

Source: Market Wealth Report; Merrill Lynch; Platts; McKinsey Global Institute analysis

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### **Asset allocation is diversified, but with emphasis on equity**

Unlike petrodollar portfolios during the last oil boom in the 1970s, which consisted mainly of central bank reserves and foreign bank deposits, oil portfolios today are generally diversified across debt and equity securities as well as alternative asset classes, such as hedge funds, private equity, real estate, and commodities.

Of course, the portfolios of different petrodollar investors vary. The Saudi Arabian Monetary Agency (SAMA) and ADIA are examples of a relatively conservative government fund and of a more adventurous and diversified investor, respectively (Exhibit 2.8). Our interviews suggest that SAMA holds an estimated 75 percent of its portfolio in fixed-income securities and bank deposits, and allocates only 25 percent of assets to equities. It has no allocation to real estate or private equity, although some reports suggest that SAMA invests a very small portion of its portfolio in hedge funds through fund-of-hedge funds. The equity portion of its portfolio is mainly in long-only investments in Organisation for Economic Co-operation and Development (OECD) countries, and is managed primarily through external asset managers. The portfolio of ADIA is more diversified and more risktaking. It allocates an estimated 5–8 percent to real estate, up to 10 percent each to private equity and other alternative asset classes, another 50–60 percent to equity, and only 20–25 percent to fixed income and bank deposits together.<sup>4</sup> Interviews suggest that wealthy Middle Eastern investors have portfolios at ADIA's end of the investment spectrum, although unlike ADIA, they often have significant ownership stakes in private foreign companies as well.

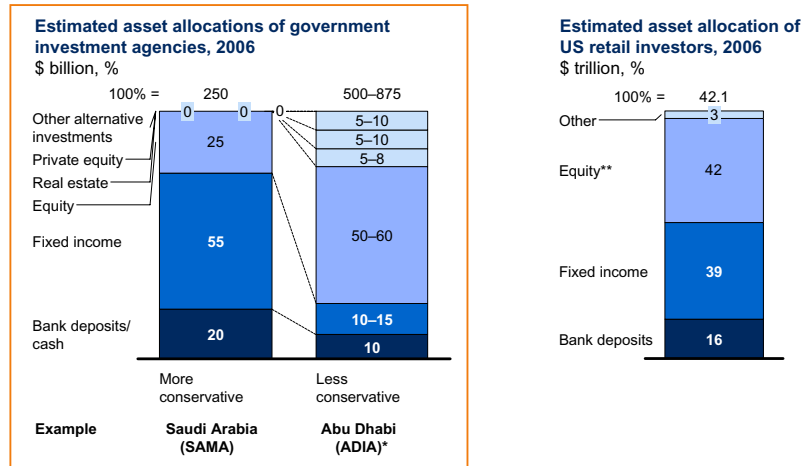
In general, however, petrodollar portfolios place more emphasis on equity and equity-like investments than do other investors. Aggregating across different petrodollar investors, we find that 46 percent of assets overall—by far the largest share—is allocated to equities, and just 42 percent to low-risk, low-return assets (fixed income and bank deposits) (Exhibit 2.9). The remaining 12 percent of the total allocation is in high-risk, high-return investments (foreign direct investment [FDI]), alternative assets, and real estate). In contrast, US retail investors hold more than half of their investments in fixed-income securities and bank deposits and just 3 percent in alternative asset classes (including ownership of small businesses).

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<sup>4</sup> We base these estimates on interviews with financial experts in the region and on *Tracking GCC petrodollars: How and where they are being invested around the world*, Institute for International Finance, May 2007.

## Exhibit 2.8

### MOST GULF GOVERNMENT INVESTMENT IS WEIGHTED TOWARD EQUITY, FDI, AND REAL ESTATE



\* The Abu Dhabi Investment Council was recently separated from ADIA and was given all the direct corporate holdings of ADIA. Most of these are investments in local companies.

\*\* Includes equity in noncorporate business. We assume mutual funds have 50% equity share, pension funds 20%, and life insurance companies 10%.

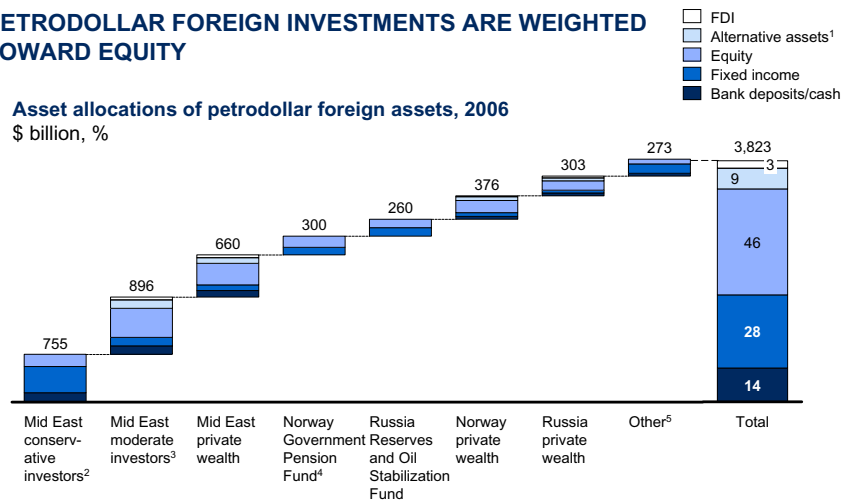
Source: Interviews; Institute for International Finance; US Federal Reserve; McKinsey Global Institute analysis

## Exhibit 2.9

### PETRODOLLAR FOREIGN INVESTMENTS ARE WEIGHTED TOWARD EQUITY

#### Asset allocations of petrodollar foreign assets, 2006

\$ billion, %



<sup>1</sup> Private equity, hedge funds, and real estate.

<sup>2</sup> Includes SAMA (\$250 bn), Saudi public pension fund (\$105-120 bn), other conservative Mid East (Algeria, Iran, Libya, Syria, Yemen, \$330 bn), other central banks (estimates of Kuwait, Oman, Qatar, and UAE reserves, \$55 bn).

<sup>3</sup> Includes ADIA (\$400-875 bn), KIA (\$160 bn), QIA (\$32 bn), DIC (\$4 bn).

<sup>4</sup> Norwegian government recently announced a shift to a future private allocation of 60% equity/40% fixed income.

<sup>5</sup> Conservative "other oil exporters" including Venezuela, Indonesia, and Nigeria.

Source: Interviews; McKinsey Global Institute analysis

The current wave of M&A by Gulf investors also reflects a penchant for taking large equity stakes (particularly by more aggressive government investment funds and wealthy individuals). For instance, Kingdom Holding Corporation, a large Saudi conglomerate of which 95 percent is owned by Saudi Arabia's Prince Alwaleed Bin Talal Al Saud, has stakes in public and private companies all over the world that, taken together, are worth several tens of billions of dollars (Exhibit 2.10). Kingdom Holding completed an initial public offering in July 2007, which valued the corporation at an estimated \$17.2 billion.

The Gulf is not the only oil-exporting region that is shifting toward equity investments. Norway's Government Pension Fund—the only oil fund that makes its portfolio allocation public—currently allocates 40 percent of its assets to equity and 60 percent to fixed income. But the fund has recently signaled its intention to reverse this split (Exhibit 2.11). With the growth in the fund's capital that we expect, this new allocation will mean that the liquidity flow into the global equity markets from this source will double by January 2010.

## Exhibit 2.10

### KINGDOM HOLDING CORPORATION HAS \$23 BILLION WORTH OF PUBLIC COMPANIES AND LARGE STAKES IN PRIVATE COMPANIES

#### Kingdom Holding Corporation public holdings

Company	Stake	Value*
	%	\$ million
Citigroup	4	10,166
News Corporation	4	2,826
Procter & Gamble	1	1,995
Samba Financial Group	5	1,166
Hewlett-Packard	1	1,083
PepsiCo	1	1,039
AOL Time Warner	1	764
The Walt Disney Company	1	716
Kingdom Hotel Investment Group	47	709
Four Seasons Hotels & Resorts	22	670
National Industrialization Company	15	573
eBay Inc	1	439
Motorola	1	418
Priceline.com	5	112
Kodak Corporation	1	68
Saks Inc	2	66
Hotel Plaza Ltd	10	57
International Financial Advisors	5	54
Kuwait Invest Holding	5	22
Ballast Nedam Group	3	15
<b>Total</b>		<b>22,959</b>

#### Kingdom Holding Corporation private holdings

Company	Stake
	%
Arab Palestinian Investment Company Ltd.	4
Azizia Commercial Investment Company	20
Canary Wharf	2
Consulting Clinics Beirut	40
Disneyland-Paris	17
Fairmont Hotels and Resorts	5
Four Seasons at Nile Plaza	50
Four Seasons London	100
George V Hotel, Paris	100
Kingdom Centre	33
Kingdom City	39
Kingdom Hospital	65
Kingdom Schools	47
Kingdom Zephyr Africa Management Company	50
Lebanese Broadcasting Center	49
Mövenpick Hotels and Resorts	33
Palestine Real-estate Investment Company	5
Plaza Hotel	10
Rotana Video & Audio Visual Co.	100
Savola Group Company	18
<b>Total</b>	<b>N/A</b>

Public and private investments together are likely to be worth ~\$50 billion

\* As of April 2007.

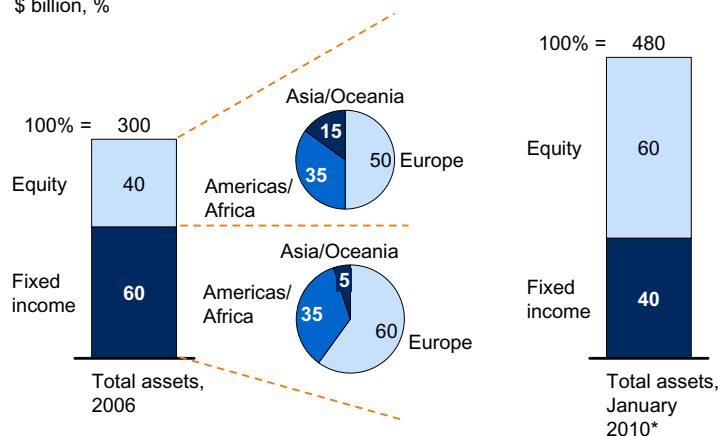
Source: Kingdom Holding Corporation; Bloomberg; Forbes

## Exhibit 2.11

### NORWAY'S GOVERNMENT PENSION FUND IS PLANNING TO ALLOCATE MORE TO EQUITIES

Asset allocation of Norway's Government Pension Fund, 2006 vs. 2010E

\$ billion, %



\* 2010 assets are based on Norway Government Pension Fund estimate (converted into \$ at current exchange rate).

Source: Norway Government Pension Fund Web site; Setser and Ziemba; McKinsey Global Institute analysis

### PETRODOLLAR FOREIGN ASSETS WILL TOP \$7 TRILLION BY 2012 AT CURRENT OIL PRICES

The influence of oil investors in global capital markets is likely to continue to grow over at least the next five years. The exact size of future petrodollar foreign investments will depend on oil prices, which are subject to considerable uncertainties. Rather than forecasting the world oil price, we modeled petrodollar current-account surpluses and the resulting stocks of foreign petrodollar assets in three oil-price scenarios. We exclude the effects of asset appreciation on petrodollar wealth, making our forecast a conservative one. For a description of our methodology, see appendix B.

Our base-case scenario, based on MGI's research on global energy demand, assumes an oil price of \$50 per barrel.<sup>5</sup> At this price, petrodollar countries' annual net capital outflows would amount to \$387 billion per year through 2012 (Exhibit 2.12).<sup>6</sup> This represents an extraordinary infusion of capital into global financial markets at a rate of more than \$1 billion per day. We estimate it would result in \$1.4 trillion going into global equities, another \$800 billion invested in fixed income securities, and \$300 billion going into private equity, hedge funds, and

5 *Curbing Global Energy Demand: The Energy Productivity Opportunity*, McKinsey Global Institute, May 2007.

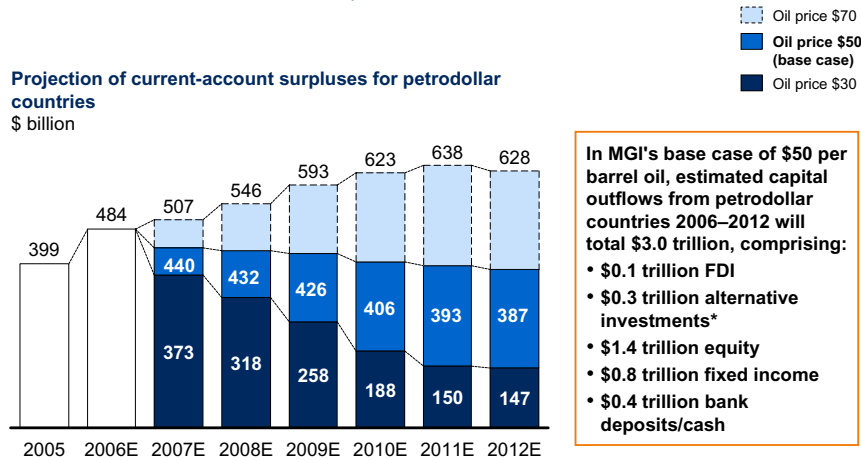
6 Net capital outflows are equal to current-account surpluses, less errors and omissions.



real estate. The total foreign assets of oil exporters would grow to \$5.9 trillion in 2012 (Exhibit 2.13).

### Exhibit 2.12

#### PETRODOLLAR CURRENT-ACCOUNT SURPLUSES IN OUR BASE CASE WILL DECLINE SLIGHTLY TO \$378 BILLION ANNUALLY BY 2012

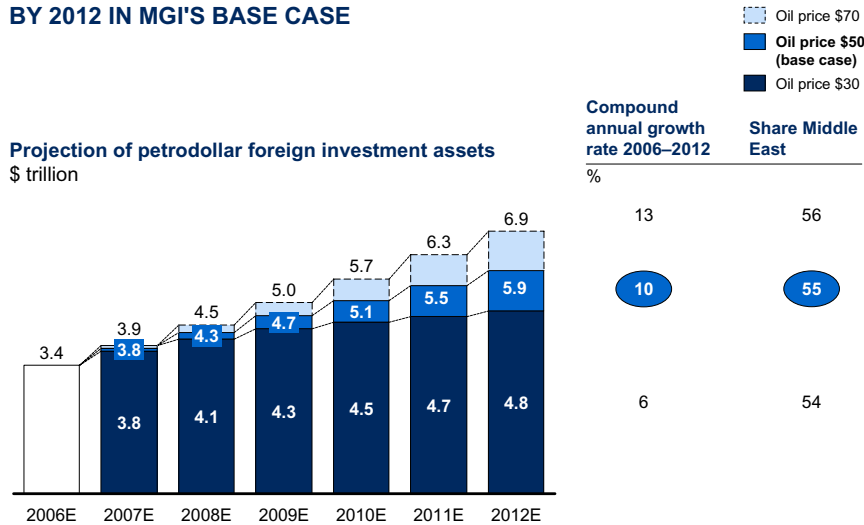


\* Includes hedge funds, private equity, real estate.

Source: McKinsey Global Institute Capital Flows Database; Global Insight; McKinsey Global Institute analysis

### Exhibit 2.13

#### PETRODOLLAR FOREIGN ASSETS REACH \$5.9 TRILLION BY 2012 IN MGI'S BASE CASE



Source: BP World Energy Report; Global Insight; McKinsey Global Institute Energy Demand Model; McKinsey Global Institute Capital Flows Database; McKinsey Global Institute analysis

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If the price of oil averages \$70 per barrel over coming years (higher than the 2002–2006 average price but lower than the level when we wrote this report), then petrodollar flows into global markets would grow even larger, reaching \$628 billion annually by 2012. This implies new petrodollar investments of nearly \$2 billion a day. The total stock of petrodollar foreign assets would grow to \$6.9 trillion in 2012.

Even if oil prices were to decline to \$30 per barrel, petrodollar foreign assets would still grow at a robust average rate of 6 percent annually to reach \$4.8 trillion in 2012. This would add \$147 billion per year to the global financial system in 2012—a figure that is still larger than petrodollar surpluses throughout the 1990s.

Several factors could slow the growth of petrodollars in global financial markets. One is if oil exporters started to spend a larger portion of oil reserves on domestic investments or on consumption. Another is if world oil prices decline as alternative fuels become more widespread, or as higher-energy-efficiency technologies are more widely adopted. Over the next 10 to 20 years, both factors will almost certainly reduce the flow of petrodollars into global financial markets. But neither is likely to be significant over the next five years. Currently, the domestic economies and financial systems of most oil exporters are too small to absorb the petrodollar windfall, as we demonstrate later in this report, and they will take time to develop. Moreover, MGI's research on global energy demand shows that it will take ten years or more for the full effects of higher fuel efficiency among oil consumers to significantly affect demand. The shift to alternative fuel sources will also take time. The more likely factor to slow petrodollar growth over the next five years is if high oil prices slow global economic growth, thus lowering energy demand. So far, however, this has not happened.

Thus, petrodollar foreign investors will likely become increasingly important players in global financial markets over at least the next five years.

### **FUELING GLOBAL LIQUIDITY—BUT POSSIBLY ASSET BUBBLES AS WELL**

The growing importance of petrodollar investors in terms of sheer size is not in doubt; but what does this phenomenon mean for global financial markets?

One important effect that petrodollars are having on global financial markets is in boosting liquidity in markets. Rising oil prices are effectively a tax on consumers around the world. Since 2002, world oil prices have tripled. Much of the incremental price that consumers are paying has ended up in the investment funds and private portfolios of investors in oil-exporting countries. Most of these funds are then

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recycled out to global financial markets. The result is similar to an increase in the world's savings rate.

Petrodollars are thus a significant part of the explanation for the “global savings glut” that has boosted liquidity. (The other main factors are the growing reserves of Asian central banks and the aging baby boomers in the United States and Europe who are saving for retirement.)

In fixed-income markets, this added liquidity has significantly lowered interest rates. We estimate that total foreign net purchases of US bonds have lowered long-term interest rates by approximately 130 basis points, 21 of which we can attribute to oil-exporting countries' central banks.<sup>7</sup> This is as large as the impact on interest rates of capital flows from financial hubs such as Luxembourg, the Cayman Islands, Switzerland, and the United Kingdom, although it is less than half of the impact that Asian central banks have had on US interest rates (see Exhibit 3.8 in chapter 3).

Petrodollars have also added liquidity to international equity markets. Taking the investment allocation of GCC investors described previously, we estimate that the annual flow of petrodollars into global equity markets is around \$200 billion, about \$2 trillion—or 4 percent—of global equity market capitalization.

Some observers, however, worry that this new liquidity is having an inflationary effect on asset prices, perhaps fueling bubbles in some markets. In public equity markets, our analysis shows such concerns are not justified. Although equity-market capitalization has risen rapidly since the 2000 stock market decline, we find that this is due mainly to rising corporate profitability and share buybacks (often using debt). In the United States, price-earnings ratios have declined in recent years, while in Europe they have risen only incrementally (see Exhibit 1.12 in chapter 1).

However, the story is different in global real-estate markets. According to research by the Economist Intelligence Unit, real-estate values in developed countries have increased by \$30 trillion since 2000, reaching \$70 trillion in 2005 and far outstripping GDP growth over the same period.<sup>8</sup> This rise reflects not only the preference of petrodollar investors for putting money into global real estate but also the additional home-equity loans and larger mortgages that low interest rates and risk spreads have enabled.

Indeed, petrodollars have contributed to an increase in global leverage in many

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<sup>7</sup> We based this on a methodology developed by Francis E. Warnock and Veronica Caccdac Warnock, *International capital flows and U.S. interest rates*, September 2005. See appendix B for more details.

<sup>8</sup> “In come the waves,” *The Economist*, June 15, 2006.

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forms. Low interest rates and credit spreads have enabled the boom in private equity (which as of August 2007 appeared to have stalled) and the rise of hedge funds. They have created ample liquidity in consumer credit in the United States, the United Kingdom, and many other countries around the world. The risk is that a reassessment of risk appetites will burst this global credit bubble, causing pain to lenders and borrowers alike. In mid-2007, we saw a repricing of credit risk and a credit crunch, sparked by problems in the US subprime mortgage market. Despite the bullish impact that petrodollars are having on world financial market liquidity, therefore, a cautionary note is warranted.

### **PETRODOLLAR INVESTORS CONTRIBUTE TO GROWTH OF GLOBAL HEDGE FUNDS AND PRIVATE EQUITY**

Petrodollar investors are also helping push outward the risk-return frontier for investors and are driving growth in hedge funds and private equity around the world. This is because of their long-term investment horizons and ability to take risk.

Unlike investment vehicles such as mutual funds, pension funds, and insurance companies, petrodollar sovereign wealth funds have no urgent need for either income from their investments or liquidity. They typically do not have external investors who may withdraw capital at short notice, nor do they have liabilities that they are obligated to pay out in the future. The same is true for private petrodollar investors. They consequently have the leeway to take a very long view in their investments—and could potentially take higher levels of risk than traditional investors can, in the hope of securing larger returns (Exhibit 2.14).

To date, most petrodollar investors have not fully exploited this ability. As already noted, the portfolios of some are more heavily weighted toward equities and alternative investments than others, but they are still fairly conventional. But there is evidence that a shift toward more risktaking among petrodollar investors is already under way. A recent study by the Institute of International Finance showed that even the relatively conservative SAMA has started to shift its investment portfolio away from bank deposits and toward debt securities.<sup>9</sup> More adventurous sovereign wealth funds use derivative contracts to gain exposure to underlying asset classes and seek higher-yielding forms of investment.

As a result, petrodollars are driving growth in alternative asset classes such as private equity and hedge funds. An estimated \$350 billion of petrodollar foreign assets is held in alternative asset classes. The majority of this is in externally managed

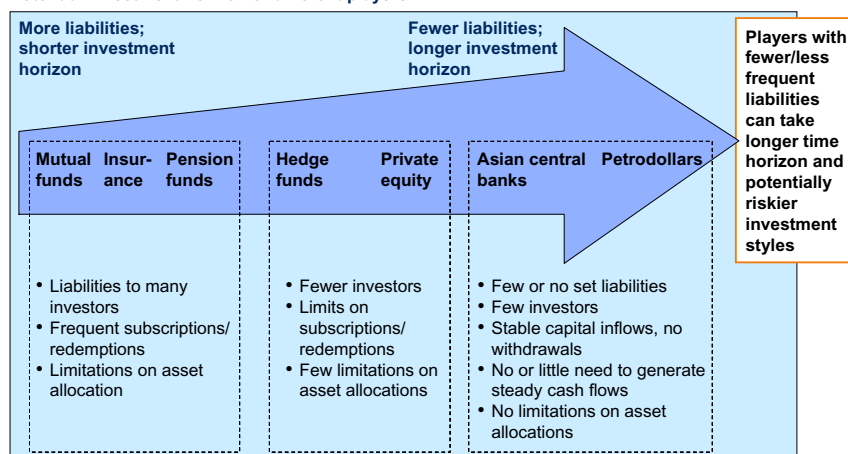
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<sup>9</sup> *Tracking GCC petrodollars: how and where they are being invested around the world*, Institute for International Finance, May 2007.

**Exhibit 2.14**

**PETRODOLLAR INVESTORS CAN TAKE LONG-TERM INVESTMENT PERSPECTIVE AND MORE RISK**

Potential investment horizon of different players



Source: McKinsey Global Institute analysis

hedge funds and private equity groups around the world. For instance, ADIA has been investing in hedge funds since the mid-1980s and is now one of the biggest single investors—possibly the biggest—in global hedge funds and private equity.<sup>10</sup> Some hedge funds estimate that about 25 to 50 percent of their invested funds are petrodollar wealth. Local private equity funds are also growing. Private equity funds managed in the Middle East and North Africa region raised a total of \$7.1 billion in 2006, up more than 60 percent from the previous year, according to the Gulf Venture Capital Association. Total private equity assets of funds managed in the region stood at \$14 billion by the end of 2006.

Sovereign wealth funds in the Middle East are also setting up dedicated funds to invest directly in a more active, private equity style, as we have noted. One example of these new funds is Abu Dhabi’s Mubadala fund, estimated to have more than \$10 billion in assets under management. Another example is Dubai International Capital, which currently controls about \$6 billion in assets but plans to expand significantly by taking on third-party capital. If these plans come to fruition, Dubai International Capital could be larger than most existing private equity funds.

By investing directly in companies, this new kind of petrodollar fund will add liquidity to the private market for corporate control, helping it to develop as an even stronger

10 S. Roy, “Money and mystery: ADIA unveils its secrets,” *EuroMoney*, April 1, 2006.

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alternative to public stock markets. Currently, the volume of such transactions is small compared with that of equity bought by petrodollar investors in public stock markets. Nonetheless, it is clearly growing.

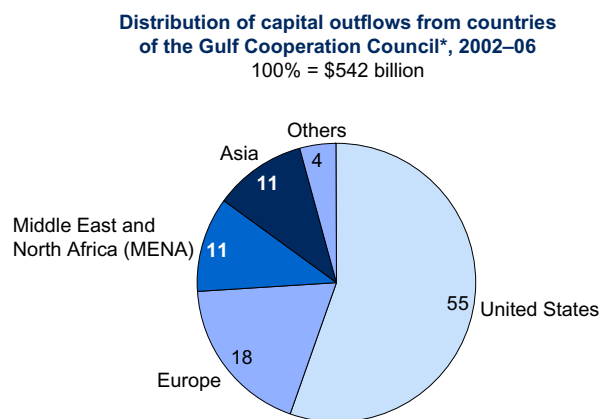
### **ACCELERATING FINANCIAL-MARKET GROWTH IN ASIA AND OTHER EMERGING MARKETS**

The rise in petrodollars will increasingly be a boon to financial markets in Asia, the Middle East, North Africa, and other emerging markets. Because of the long time horizons of their investments, petrodollar investors are keenly interested in long-term growth potential—and they are more willing than other investors to design their investment portfolios in light of this potential.

Asia already receives one in ten dollars of total capital outflows from the Middle East, while other Middle Eastern countries and North African nations receive another one in ten (Exhibit 2.15). The ADIA estimates that at least one-third of global growth will come from emerging markets in coming years and, for its own part, allocates 14 percent of its portfolio to emerging-market equities.<sup>11</sup> This is a larger weighting toward such securities than that of a typical North American or European pension fund (normally less than 5 percent).

#### **Exhibit 2.15**

### **22 PERCENT OF GULF FOREIGN ASSETS ARE IN ASIA AND MIDDLE EAST/NORTH AFRICA**



Note: Numbers may not add up to 100% due to rounding.  
\* GCC countries include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, UAE.  
Source: Institute of International Finance

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11. S. Roy, "Money and mystery: ADIA unveils its secrets," *Euromoney*, April 1, 2006.

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In coming years the flow of capital between the Middle East and Asia is likely to grow further. Consider the trends in foreign direct investment between the two regions. For instance, Emirates Telecommunications (Etisalat), UAE's partially state-owned telecommunications group, paid \$2.6 billion in 2005 for a 26 percent stake in Pakistan Telecommunications (PTCL) and now plans to increase this stake to 51 percent. Egypt's Orascom bought 19 percent of Hong Kong's Hutchison Telecommunications for \$1.3 billion in December 2005, and in June 2007, Saudi Basic Industries and China's Sinopec Corporation agreed to invest more than \$1 billion in a petrochemicals plant in northern China. Other deals include Qatar Telecom's purchase of a stake in Asia Mobile Holdings of Singapore, and Dubai Investments' acquisition of Bank Islam Malaysia.

We estimate that cross-border capital flows between the GCC and Asia will climb from an annual \$15 billion today to as much as \$290 billion by 2020, if the growth rate from 2001 to 2005 (22 percent) persists. This could ultimately lead to more rapid growth and greater financial depth of Asian financial markets, as the increase in liquidity lowers risk premiums and gives more companies access to debt and equity capital.<sup>12</sup> It could also stem from improved performance of Asian companies, to the extent that petrodollar investors bring better management techniques and/or new technologies.

Moreover, Gulf capital is also likely to contribute to the growth of Middle Eastern and adjacent markets, such as those in Egypt and Jordan. Privatization and the flotation of Gulf companies in regional—as opposed to international—stock markets will likely reinforce this trend. In 2006 and 2007, Dubai's Emaar Properties has invested heavily in Morocco, and Dubai's telecom operator Tecom-Dig has made acquisitions in Turkey and Tunisia.

The financial markets of oil-exporting countries themselves will also benefit. The domestic financial systems of many oil-exporting countries are currently relatively undeveloped, a major reason why those petrodollar investors who can afford to pursue sophisticated investment strategies—including governments and wealthy individuals—channel a significant portion of their wealth overseas. Investors from GCC countries, for instance, invest on average 80 percent of their wealth offshore (Exhibit 2.16). This is in part because petrodollar foreign investments dwarf the size of domestic securities markets (Exhibit 2.17). In the Gulf region, the \$733 billion stock market capitalization of regional markets was less than half of the \$1.8 trillion in foreign investment assets of GCC investors at the end of 2006.

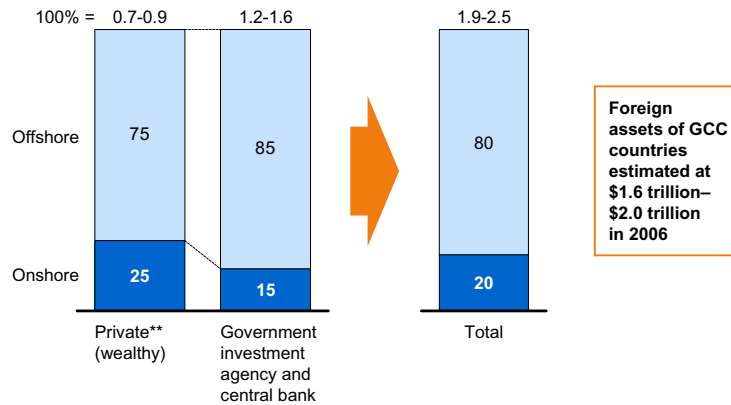
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12 Dominic Barton and Kito de Boer, "Tread lightly along the new Silk Road," *McKinsey Quarterly*, March 2007.

**Exhibit 2.16**

**GULF COUNTRIES INVESTED 80 PERCENT OF THEIR ASSETS OVERSEAS IN 2006**

**Estimated assets of GCC countries\*, 2006**  
\$ trillion, %



\* GCC countries include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and UAE.

\*\* Excludes GCC mass-affluent and middle class.

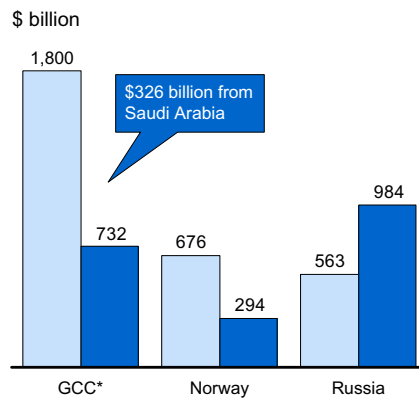
Source: Expert interviews; McKinsey Global Institute analysis

**Exhibit 2.17**

**DOMESTIC FINANCIAL SYSTEMS FOR MOST OIL EXPORTERS ARE TOO SMALL TO ABSORB PETRODOLLARS**

Foreign assets  
Domestic equity market capitalization

**Estimated size of petrodollar foreign assets compared with domestic equity markets, 2006**



\* Gulf countries include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, UAE.

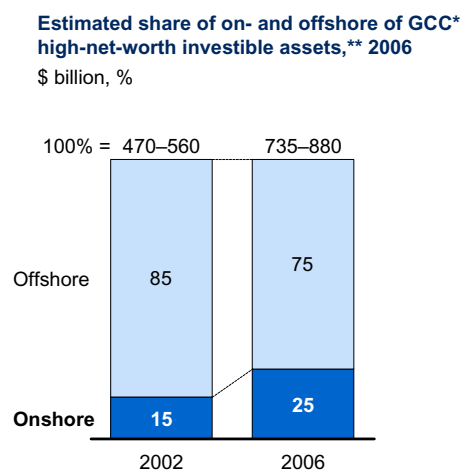
Source: McKinsey Global Institute Financial Stock Database; McKinsey Global Institute analysis



As domestic financial systems develop further, however, more petrodollars are likely to be invested at home. This process will be a long-term evolution given the huge gap between the size of foreign investments and that of domestic financial systems today. However, we can already see evidence that a gradual shift is beginning to occur. The proportion of assets invested offshore by Middle Eastern private investors has, in fact, already declined from 85 percent of total assets in 2002 to 75 percent in 2006 (Exhibit 2.18).

### Exhibit 2.18

#### SHARE OF PRIVATE GULF WEALTH INVESTED ONSHORE IS INCREASING



\* Gulf countries include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and UAE.

\*\* We start with the 2002 distribution, apply 50/50 onshore/offshore net inflow of assets under management, apply performance per category, and cross check resulting 2005 distribution with interviews.

Source: Cap Gemini and Merrill Lynch–World Wealth Report 2006; expert interviews; McKinsey Global Institute analysis

#### SPURRING GROWTH IN ISLAMIC FINANCE

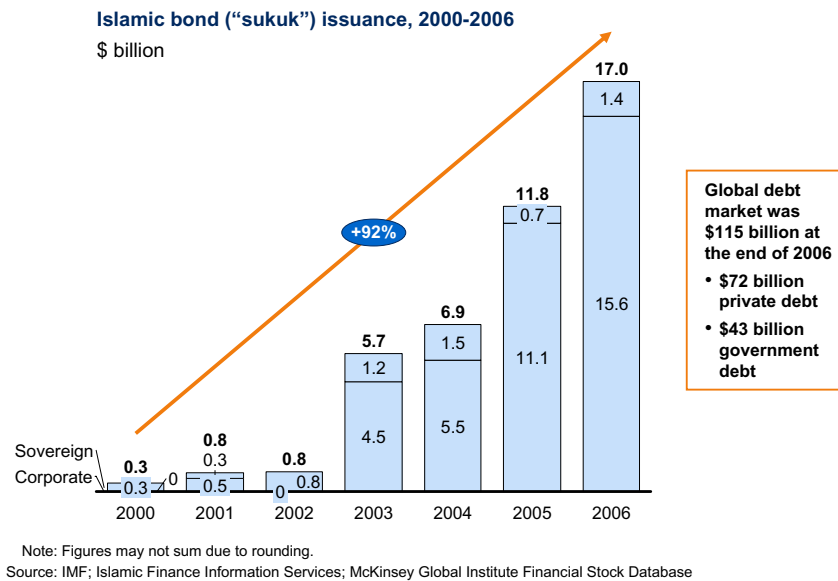
Another effect of the petrodollar boom has been rapid growth in the nascent market for Islamic finance, or investment products that comply with Shariah laws. With increasing demand for Islamic finance products, global financial institutions are now entering this growing market. This will attract some liquidity now in conventional financial markets and also spur growth of local and regional financial markets in the Middle East.

The Islamic bond—“sukuk”—market is one of the most prominent new financial segments to emerge (see How Islamic bonds (“sukuks”) work). At the end of 2006, the total Islamic finance market worldwide was worth an estimated \$500 billion, of which \$70 billion were sukuks (the remainder was in Shariah compliant bank deposits and investment funds). Although this market is tiny compared with conventional financial markets, sukuk issuance has tripled in value over the past four years, and future potential growth is significant (Exhibit 2.19). We find that petrodollar inves-

tors holding at least \$430 billion in foreign-investment assets today have at least a moderate desire for these products (Exhibit 2.20). Standard & Poor's estimates that the sukuk market will grow to \$170 billion by 2010 and that the overall Islamic financing market will reach \$4 trillion.

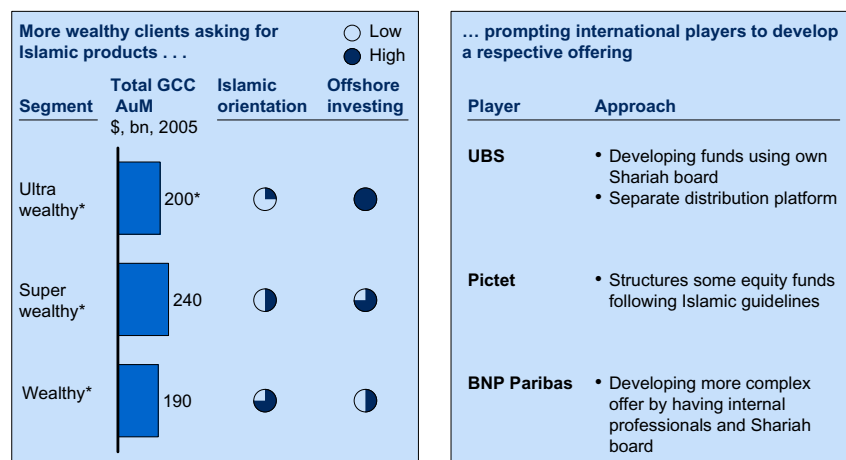
### Exhibit 2.19

#### SUKUK ISSUANCE HAS RISEN DRAMATICALLY IN PAST YEARS



### Exhibit 2.20

#### DEMAND FOR ISLAMIC FINANCIAL PRODUCTS HAS ATTRACTED GLOBAL BANKS



\* Ultrawealthy households have liquid financial assets of \$30 million or greater, superwealthy have liquid financial assets of \$5 million to \$30 million, and wealthy households have liquid financial assets of \$1 million to \$5 million.  
Source: Merrill Lynch & Cap Gemini—World Wealth Report 2006; McKinsey Global Institute analysis

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### **How Islamic bonds (“sukuks”) work**

Popularly referred to as “Islamic bonds,” sukuks are fixed-income securities that are compliant with Islamic—Shariah—law. Shariah law prohibits the payment or receipt of interest and permits financing only for trading in or the construction of specific and identifiable assets. Therefore, the sukuk is an asset-backed trust certificate that shows evidence of ownership of an asset or the earnings derived from the asset. The most comparable instruments to sukuks in the conventional financial system are asset-backed securities, in which a special purpose vehicle (SPV) is set up to acquire assets and to issue financial claims on the assets.

Several important differences exist between sukuk and conventional bond securities. The holder of a sukuk is entitled to proportional ownership in the underlying asset and a share of the income that it generates, whereas the holder of a conventional bond is entitled to interest and principal on certain specified dates. The sukuk holder also has rights and obligations for the maintenance of the asset.

Sukuks are tradable capital market products, which, in many cases, international ratings agencies now assess and rate. There are many different kinds of sukuks, all of which are based on the principle of Mudaraba (trust financing). The most common sukuks include the Ijara sukuk, which gives holders the title deeds of equal shares in a leasing project—usually equipment or real estate; the Salam sukuk, essentially a commodity futures contract, in which the seller undertakes to supply a specific commodity to the buyer at a future date in return for an advanced price paid in full at the time of purchase; and the Musharaka sukuk, in which investors share equally in the profits and losses of a joint business venture.<sup>13</sup>

Islamic finance is affecting trends far beyond the Middle East. British banks, for instance, have been at the forefront of innovation in Islamic finance products. The United Kingdom’s Financial Services Authority (FSA) recently licensed the European Islamic Investment Bank, created expressly to recycle the massive liquidity from Gulf governments and high-net-worth individuals into Shariah-compliant Western-originated securities. And non-Islamic borrowers are also starting to raise capital through Islamic bonds to tap petrodollar wealth. Recent issuers include the Asian Development Bank, Nestlé, and the German federal state of Saxony-Anhalt.

In spring 2007, a true landmark was the first Islamic finance-backed, leveraged buyout of Ford’s struggling brand Aston Martin for £479 million by a consortium led

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<sup>13</sup> This description is drawn from *London: The new souk for Sukuk*, Mondaq Business Briefing, April 17, 2007, and *IMF Regional Economic Outlook: Middle East and Central Asia*, May 2007.

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by British motor-racing entrepreneur Dave Richards. Islamic investors are showing every sign of wanting more sophisticated products that comply with Shariah law but still push the boundaries of traditional ways of doing business. Innovation is therefore proceeding rapidly and bringing a fresh dynamism to financial product design.

### **GROWTH OF PETRODOLLAR SOVEREIGN WEALTH FUNDS IS CAUSING CONCERN**

Despite the many beneficial effects that petrodollars have had in increasing global liquidity and spurring growth in different financial asset classes and across geographies, their rise has also created concerns about potential negative effects on financial markets.

One concern is that the huge size of petrodollar sovereign wealth funds, coupled with their higher risk appetite, could make global capital markets more volatile. The limited transparency of these funds amplifies this anxiety. However, our research finds that the investment portfolios of these funds are widely diversified across asset classes and regions and through multiple intermediaries and investors. This reduces the risk that the actions of these funds could create financial market volatility. Moreover, petrodollar investors have a track record of sensitivity about the broader market impact of large flows and use derivatives and intermediaries to lessen their market impact. ADIA, for instance, reportedly invests 70 percent of its funds through external asset managers. These intermediaries know they must move slowly in markets to avoid adverse price adjustments. Direct petrodollar investors themselves tend to adopt a relatively low profile.

A second worry that has attracted growing attention among financial-market regulators in the United States and Europe is that sovereign wealth funds could use their growing financial heft for political or other noneconomic motives. The rise of large government investors in financial markets is a new phenomenon—and one that is at odds with the shrinking role of state ownership in real economies. Given the limited transparency and enormous size of these investors, some observers question the motivations underlying their investment strategies. How will state actors behave as public shareholders or owners of companies in foreign markets? Will they seek to maximize value creation and long-term growth? Or will their investments reflect their governments' political objectives and a desire to benefit local competitors? Financial markets require a free flow of information to function efficiently. The presence of huge, opaque players with other motivations could distort pricing signals that other investors need. A growing number of economists and policy makers in the United States and Europe are calling for the creation of disclosure standards for government investors.

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To allay these anxieties, it would be in the interest of sovereign wealth funds to voluntarily increase disclosure around their size, investment objectives, target portfolio allocation, and internal risk-management and governance procedures. This would allow the well-managed sovereign wealth funds to stand out and demonstrate a spirit of cooperation. Norway's Government Pension Fund is considered by some observers as a model for other funds, as it publishes its asset allocation, investment criteria, and investments publicly on its Web site. Most sovereign wealth funds have historically invested at least part of their assets through external asset managers, which should also help ease anxieties in foreign markets about their objectives.

Regulators in the United States and Europe, on the other hand, should ensure that they base any policy decisions on an objective appraisal of the facts. Differentiating between the direct corporate acquisitions by state-owned companies and government investment companies in oil-exporting regions and the passive investments of sovereign wealth funds in debt and equity markets is essential. The latter typically hold a diversified portfolio of assets in public debt and equity securities rather than large stakes in foreign companies.

A final concern relates to the long-term economic impact of higher oil prices. In the 1970s, the rise in oil prices sparked inflation in the major oil-consuming economies and sent global banks on a lending spree in Latin America, fueled by petrodollar deposits. Both ended up inflicting significant economic pain on the economies involved. Today, we are in a paradoxical situation in which higher oil prices have been a boon for global financial markets but have not caused inflation to rise by much. But can higher oil prices really be good for the world economy? The concern already noted, is that petrodollars are instead creating inflationary pressure in markets for illiquid investments, such as real estate, art, and companies. If so, these potential asset price bubbles also have the potential to burst and end with losses. So far the world economy has been able to accommodate higher oil prices without a notable rise in inflation or an economic slowdown—but this may change in the future.

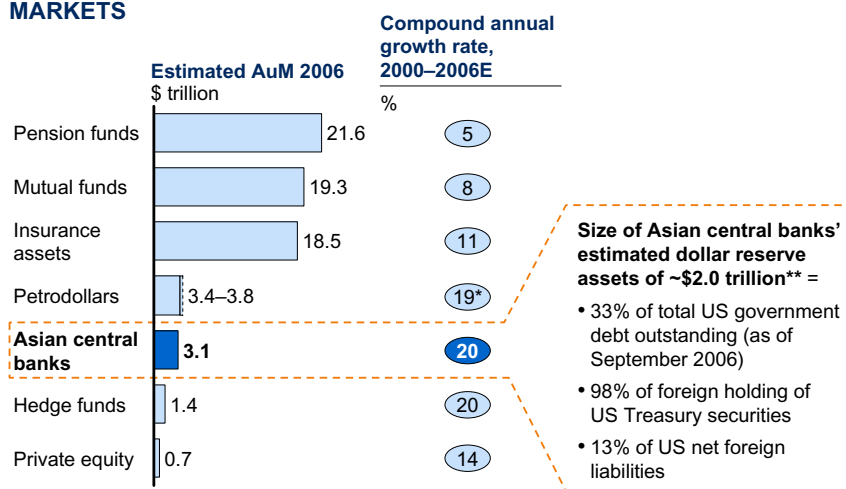


### 3. Asian central banks: The cautious giants

Asian central banks are the cautious giants in global capital markets. Among the new power brokers described in this report, Asia’s central banks are second in size to only petrodollar investors (Exhibit 3.1). So far, they have invested the fruits of mounting trade and current-account surpluses very conservatively, mainly in US government bonds. But the future is about to get more interesting, as Asian central banks diversify their investments and slowly expand into more adventurous territory.

**Exhibit 3.1**

**ASIAN CENTRAL BANKS ARE HUGE PLAYERS IN GLOBAL CAPITAL MARKETS**



\* Growth rate calculation based on data reported to the International Monetary Fund (\$2.5 trillion in 2006E, does not include UAE, Qatar).

\*\* Based on share of dollars in global reserve holdings, as reported to the COFER database at the International Monetary Fund.

Source: International Financial Services, London; Hedge Funds Research; Venture Economics; McKinsey Global Institute analysis

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In 2006, Asian central banks held \$3.1 trillion in foreign reserves—64 percent of the global total and nearly three times the amount they had in 2000. Short of a major global recession, Asian reserve assets will grow even larger. If recent growth rates continued, they would reach \$7.3 trillion in 2012. Even if current-account surpluses start to decline, our analysis finds that Asian reserve assets would still increase to \$5.1 trillion by 2012.

As they invest these reserves, Asian central banks are providing significant liquidity to the global capital markets. They have invested around 65 percent to 70 percent of their reserves in dollar-denominated assets, particularly US government bonds. We estimate that these investments may have lowered US long-term interest rates by as much as 55 basis points. Most of the remainder of their portfolios has gone into euro-denominated government bonds.

The massive accumulation of reserve assets is creating a large opportunity cost for Asia, however. Our analysis shows that this cost is as much as \$100 billion annually, or 1.1 percent of GDP. A broad diversification that will reduce this cost is now under way, as Asian governments seek higher returns on their mounting wealth. China, South Korea, and Singapore have stated their intention to shift as much as \$480 billion into state-owned sovereign wealth funds that will invest in a diversified portfolio of assets. The first investment by China's new China Investment Corporation (CIC) was a \$3 billion nonvoting stake in Blackstone, the US private equity group.

This diversification will have significant implications for global capital markets. On the positive side, the Asian "liquidity bonus" will spread beyond US fixed-income markets to equities and other asset classes. The slow pace of the diversification means it will be unlikely to raise US interest rates significantly. Over time, a greater share of investment by these sovereign wealth funds may stay within Asia, spurring development of the region's financial markets. The shift to more diversified portfolios will also create new opportunities for banks, asset managers, hedge funds, and private equity around the world.

But concern is growing among policy makers and regulators in the United States and Europe about the possible ramifications of large government investors taking stakes in foreign companies, either through direct investment or through public equity purchases. Asian governments must be aware of these concerns as they diversify into sovereign wealth funds.

Asian sovereign wealth funds can reduce anxiety by voluntarily disclosing more information about their investment strategies, risk-management mechanisms, and internal governance. Funds that invest through external intermediaries, as many do,



will also help clarify their intentions to other investors.

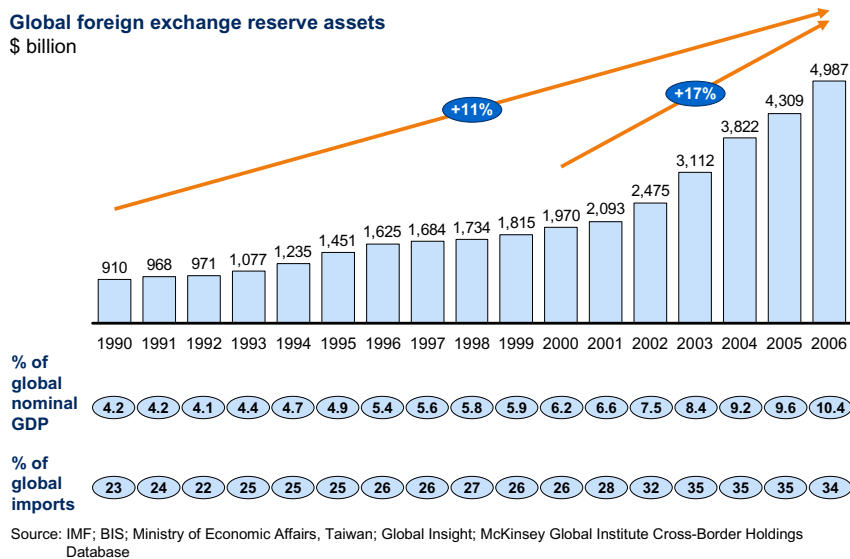
In this chapter, we explore the reasons behind Asia's accumulation of foreign currency reserves and different scenarios for future growth. We also assess the impact of this reserve accumulation on global capital markets, and the likely consequences of the diversification that is getting under way.

### ASIAN FOREIGN RESERVE ASSETS TOP \$3.1 TRILLION

The global stockpiling of central bank reserve assets in recent years has been unprecedented not only in its speed but also in its geographic concentration in Asia. Since 2000, global foreign reserve holdings have more than doubled, reaching \$5 trillion at the end of 2006 (Exhibit 3.2).<sup>1</sup> Asia accounted for nearly 70 percent of the growth over this period, adding \$2.1 trillion to its reserves since 2000.

#### Exhibit 3.2

#### GLOBAL FOREIGN EXCHANGE RESERVES REACHED \$5 TRILLION IN 2006



Together, Asian central banks' foreign reserve assets totaled \$3.1 trillion at the end of 2006. To put this in perspective, it is twice as many assets as global hedge funds manage and four times the size of global private equity.

China and Japan are by far the largest holders of foreign reserve assets in Asia

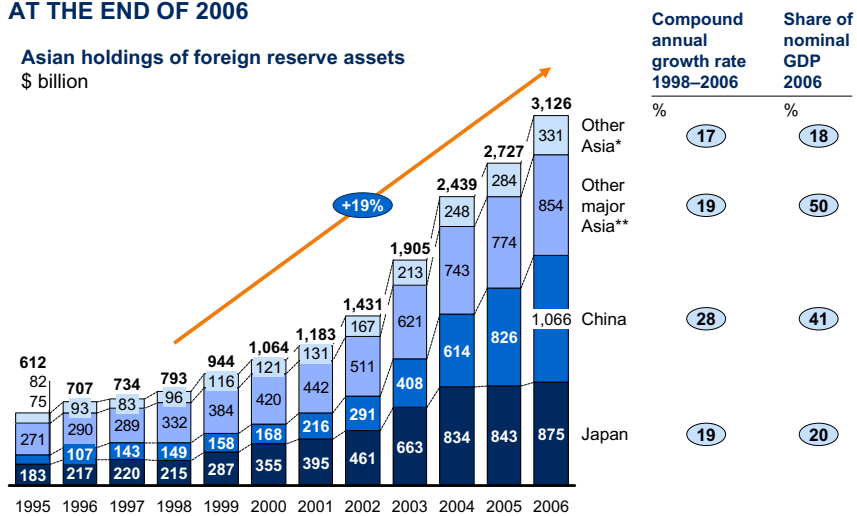
1 For simplicity, we also use the term "foreign reserve assets" or simply "foreign reserves" in this document when we are referring to foreign currency reserve assets or holdings. This definition of reserves explicitly excludes a country's reserve position at the International Monetary Fund, special drawing rights (SDRs), and gold reserves.

(Exhibit 3.3). China’s central bank alone had \$1.1 trillion in reserves at the end of 2006—equivalent to 80 percent of the assets of all 7,000 hedge funds around the world. The Bank of Japan had \$875 billion, or as much financial clout as the largest oil sovereign wealth fund, the Abu Dhabi Investment Authority. Put starkly, the central banks of China and Japan are among the world’s wealthiest investors.

**Exhibit 3.3**

**ASIAN FOREIGN EXCHANGE RESERVES WERE \$3.1 TRILLION AT THE END OF 2006**

Asian holdings of foreign reserve assets  
\$ billion



Note: Figures may not sum due to rounding.  
 \* Bangladesh, Cambodia, India, Indonesia, Lao PDR, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Vietnam.  
 \*\* Hong Kong, South Korea, Malaysia, Singapore, Taiwan.  
 Source: IMF; Ministry of Economic Affairs, Taiwan; McKinsey Global Institute Cross-Border Holdings Database

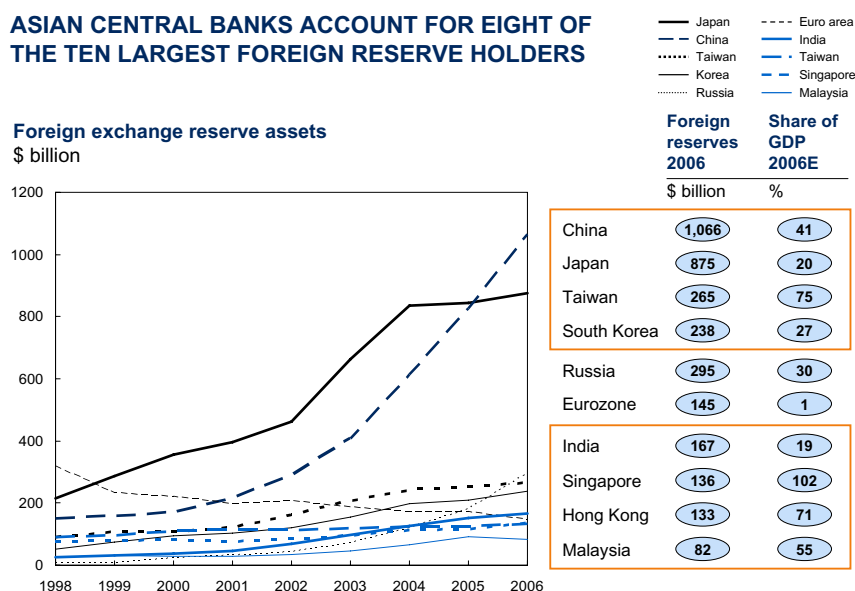
But Asia’s reserve accumulation has not been limited to China and Japan. One of the most striking features of the current trend is how widespread it is. Central banks in Hong Kong, India, Malaysia, Singapore, South Korea, and Taiwan are among the ten largest foreign reserve holders in the world (Exhibit 3.4). Together they have roughly \$1 trillion in foreign reserve assets, making them significant players in global financial markets in their own right.

Asian central banks have accumulated such large stocks of foreign reserves for two major reasons. The first motive is precautionary. During the Asian financial crisis of 1997 several economies in the region experienced sharp declines in their currencies, pushing their economies into severe recessions. Some Asian central banks since then have built up substantial reserves as a precaution against a repeat of this crisis. By building up net levels of liquid foreign assets, reserve holdings act as a type of “self-insurance”, allowing a central bank to intervene in the currency market by selling foreign reserves and buying domestic assets if its currency were

to come under unwanted pressure.<sup>2</sup> Large stocks of reserves also serve as a public demonstration of commitment to exchange rate stability for investors.

### Exhibit 3.4

#### ASIAN CENTRAL BANKS ACCOUNT FOR EIGHT OF THE TEN LARGEST FOREIGN RESERVE HOLDERS



Source: IMF; Ministry of Economic Affairs, Taiwan; McKinsey Global Institute Cross-Border Holdings Database

However, Asian central banks today have reserves far in excess of the level that precautionary motives would imply. A traditional measure of a prudent level of foreign reserves is the ratio of foreign reserves to imports—or the number of months a country could sustain its current import level if all other capital flows were to stop. The general rule is that countries should cover their imports for three to four months. By this measure, the seven major Asian central banks would need to hold only about \$0.7 trillion in reserve to cover three months of imports—far less than the \$2.6 trillion they actually had accumulated by the end of 2006 (Exhibit 3.5).<sup>3</sup> Using another adequacy standard—the Greenspan-Guidotti rule, which says that foreign reserves should equal foreign liabilities coming due within one year—the conclusion is the same. Asia has gone far beyond reserve adequacy: China’s reserve assets, for instance, were 12.5 times the size of its short-term foreign debt at the end of 2006 (Exhibit 3.6).

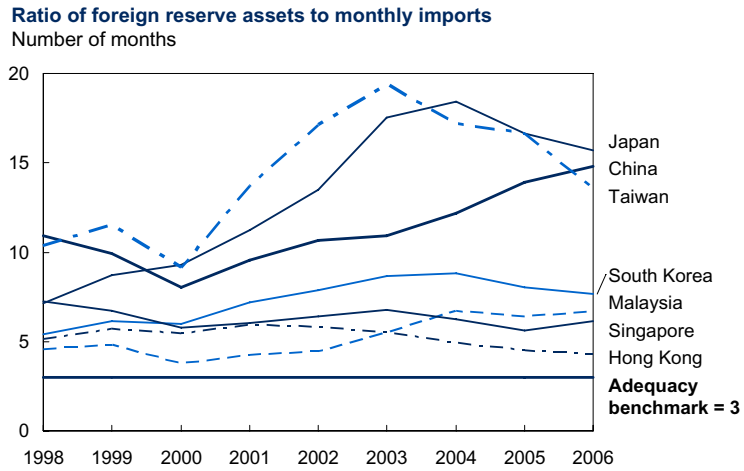
Although precaution may have been a factor in Asia’s buildup of foreign reserves, it

2 Martin Feldstein, “A self-help guide for emerging markets: Fighting the Asian flu,” *Foreign Affairs*, March/April 1999.

3 These are China, Hong Kong, Japan, Malaysia, Singapore, South Korea, and Taiwan. Although India’s reserve assets exceed those of Hong Kong, Singapore, and Malaysia, we exclude India from this analysis because it does not run a persistent current-account surplus.

**Exhibit 3.5**

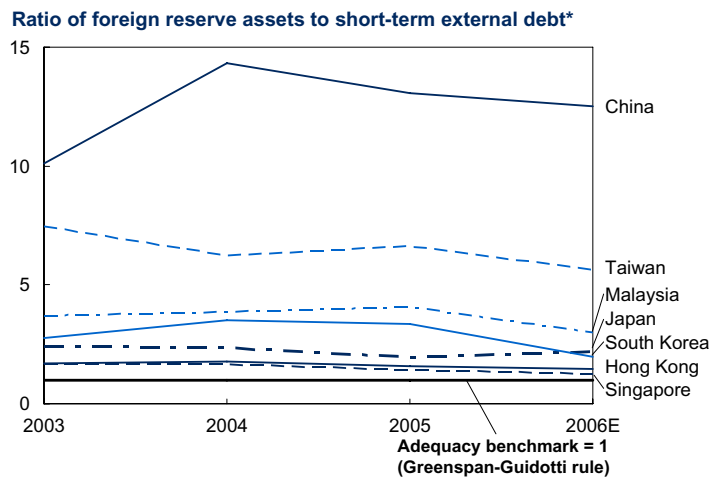
**ASIAN RESERVES ARE FAR ABOVE THE TRADITIONAL RESERVE-TO-IMPORT THRESHOLD**



Source: McKinsey Global Institute Cross-Border Holdings Database; McKinsey Global Institute Capital Flows Database; Ministry of Economic Affairs, Taiwan; World Trade Organization; McKinsey Global Institute analysis

**Exhibit 3.6**

**ASIAN RESERVES ARE HIGHER THAN THE LEVEL NECESSARY TO COVER SHORT-TERM DEBT**



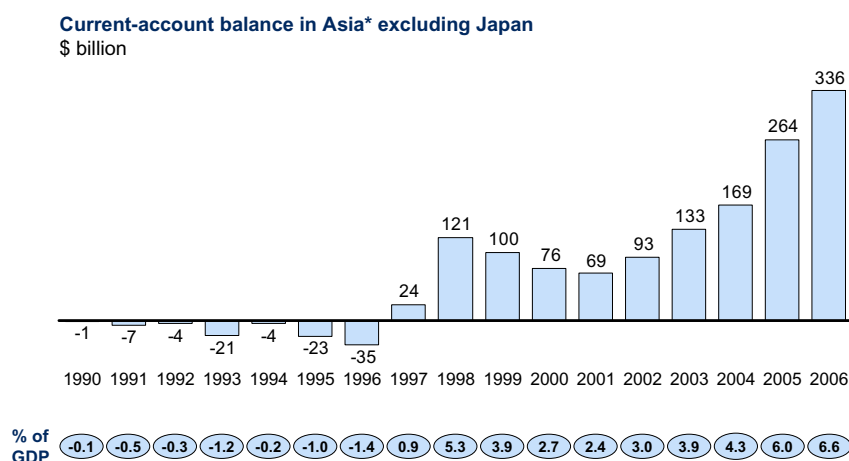
\* Short-term external debt calculated as the sum of external bank claims and international debt securities; non-bank trade credits not included.

Source: Ministry of Economic Affairs, Taiwan; Joint BIS-IMF-OECD-WB Statistics on External Debt; *BIS Quarterly Review*; McKinsey Global Institute Cross-Border Holdings Database; McKinsey Global Institute analysis

is not the core driver of this process today. Instead, exchange rate management has been key. Since the Asian financial crisis, the region's economies have benefited from rapidly growing exports and, apart from Japan, have switched from running current-account deficits to large current-account surpluses (Exhibit 3.7).<sup>4</sup> The logical long-run corollary of these surpluses, combined with foreign capital inflows, would normally be the appreciation of the currencies of the surplus countries. However, to preserve the competitiveness of the region's exports, Asian central banks have intervened in the foreign exchange markets to prevent rapid appreciation, buying foreign currencies (mainly the dollar) while selling domestic currency. Although a debate persists among economists about whether Asian currencies are below their "equilibrium" value, it is clear that reserve purchases have served to dampen appreciation of their currencies.<sup>5</sup> Some economists have characterized this situation as a "Bretton Woods II" system because, in effect, Asian economies have pegged their currencies to the dollar (see Bretton Woods II).

### Exhibit 3.7

#### SINCE 1998, ASIA HAS RUN A CURRENT-ACCOUNT SURPLUS



4 This excludes Japan, which ran significant current-account surpluses throughout the 1990s.

5 Two IMF economists, Steven Dunaway and Xiangming Li, examined eight different estimates of the yuan's supposed undervaluation and found that estimates range from zero to almost 50 percent, depending on the methods and assumptions used. See "Estimating China's 'equilibrium' exchange rate," 2005; and "Economics focus: Misleading misalignments," *The Economist*, June 23, 2007.

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## **Bretton Woods II**

Three economists from Deutsche Bank coined the concept Bretton Woods II.<sup>6</sup> The economists argued that the United States and Asian economies have entered into an implicit contract that has effectively revived the postwar system of exchange rate management agreed on at the Bretton Woods conference of 1944 and unilaterally dissolved by President Nixon in 1971. They opted for the arrangement, the economists argue, because it delivered net benefits to both the sides.

For Asia, the system has ensured the success of its export-led model and continuous and growing current-account surpluses. For the United States, the benefit has been twofold. American consumers have the advantage of being able to buy a huge range of cheap goods manufactured in Asia. But of even more importance is the fact that the United States has been able to sustain a large and growing current-account deficit—while at the same time maintaining significantly lower interest rates than would normally prevail with a large deficit position—because Asia has provided relatively low-cost funds to finance the shortfall.<sup>7</sup> Supporters of the Bretton Woods II system argue that despite the fact that the arrangement has entailed massive and growing global imbalances, the mutual benefits make it fundamentally stable and sustainable.

Critics of this theory argue the opposite—that the system is highly unstable and further that it puts in play the wrong incentives and a faulty development strategy for emerging economies, particularly that of China. The continued accumulation of foreign reserves to a level that is far above what is economically necessary is hard to completely sterilize, these voices argue, and this leads to increasing inflation pressure and rising risks for the stability of Asia’s financial system. Moreover, they argue, the massive buildup of foreign reserve assets implies significant capital, fiscal, and opportunity costs for the respective Asian countries, especially China.<sup>8</sup> In the United States, Bretton Woods II has distinct disadvantages, notably a higher dollar that hinders the economy’s export-sensitive sectors and the potential hazards of an overreliance on foreign capital to finance the current-account deficit.

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6 Michael P. Dooley, David Folkerts-Landau, and Peter Garber, “The revived Bretton Woods system,” March 2004.

7 For a detailed discussion of the US current-account deficit, see *The US Imbalancing Act: Can the Current Account Deficit Continue?* McKinsey Global Institute, June 2007.

8 Nouriel Roubini and Brad Setser, “Will the Bretton Woods 2 regime unravel soon? The risk of a hard landing in 2005–2006,” February 2005.

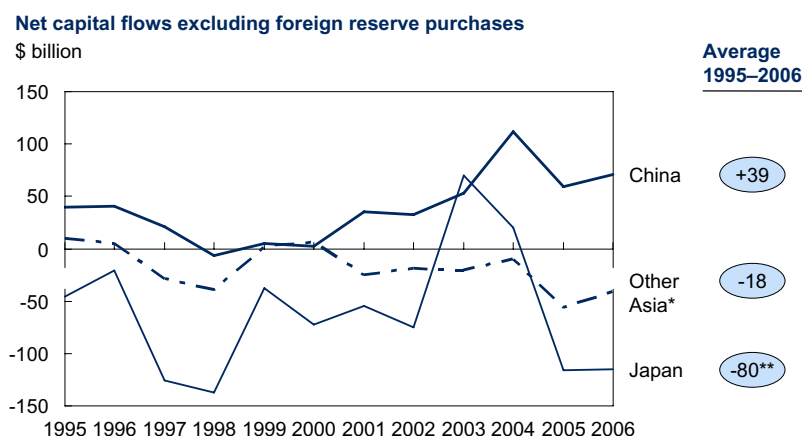
## ASIAN RESERVE ASSETS REACH \$5.1 TRILLION BY 2012 IN MGI'S BASE CASE

Asian central bank reserve assets are likely to grow even larger over the next five years. The factors underlying their growth—large current-account surpluses and, particularly in China’s case, substantial net private capital inflows—are likely to continue. Exports are growing steadily, and domestic consumption in the region is a relatively small share of GDP, limiting imports. Meanwhile, foreign investments in Asia show no signs of slowing. Oil investors already hold a larger share of their portfolios in Asia than do traditional institutional investors, and we project that their wealth will increase significantly in coming years.<sup>9</sup> Far from being a temporary phenomenon, the financial clout of Asian central banks will grow.

To model the growth of Asian foreign reserve assets, we project its two underlying components separately: the nation’s current-account surplus and its net private capital inflows. To project the future development of net private capital flows, we use the 1995–2006 average for each country, since they have historically been very volatile and displayed no clear trend (Exhibit 3.8).

### Exhibit 3.8

#### NET CAPITAL INFLOWS ARE VOLATILE, SO WE USE THE 1995–2006 AVERAGES TO PROJECT FUTURE INFLOWS



\* Hong Kong, South Korea, Malaysia, Singapore, Taiwan.

\*\* Excludes sharp swing in 2003–04.

Source: McKinsey Global Institute Capital Flows Database; BEA; McKinsey Global Institute analysis

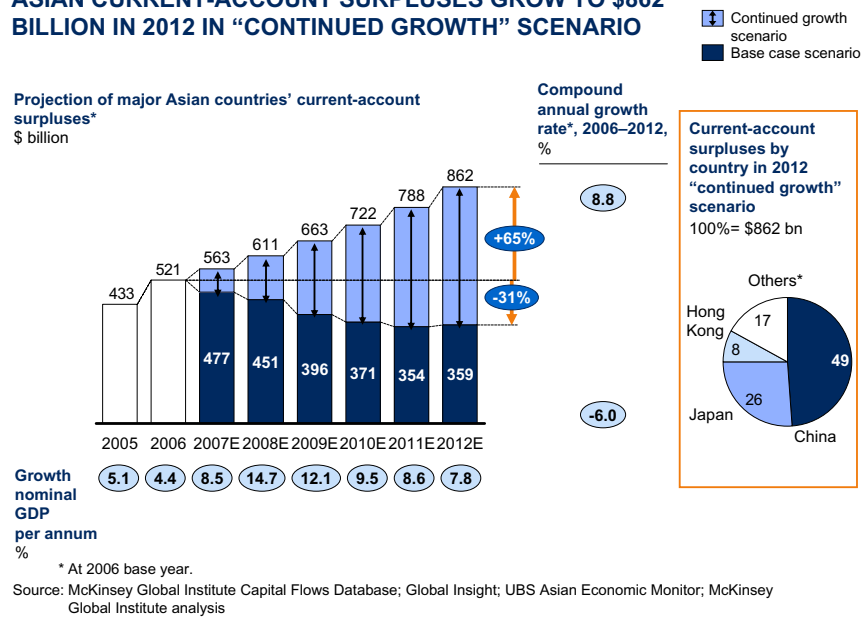
To project future current-account surpluses, we consider two scenarios. In the first scenario, we assume that each country’s current-account surplus continues to grow at the compound annual growth rate (CAGR) that prevailed between 1998—the year

9 See chapter 2 of this report for more details on growth forecasts for petrodollar wealth and on its portfolio allocation.

following the Asian financial crisis—and 2006. For some countries, such as China, the implied surpluses become implausibly large, so we limit current-account surpluses to 10 percent of real GDP (see appendix B for more detail). In this scenario, the current-account surpluses of the seven major Asian economies grow from \$521 billion in 2006 to \$862 billion in 2012 (Exhibit 3.9).<sup>10</sup>

### Exhibit 3.9

#### ASIAN CURRENT-ACCOUNT SURPLUSES GROW TO \$862 BILLION IN 2012 IN “CONTINUED GROWTH” SCENARIO



In this “continued growth” scenario, Asian foreign reserves would reach almost \$7.3 trillion in 2012 (Exhibit 3.10). China’s foreign reserve assets alone would total \$3.3 trillion by 2012, or 52 percent of its projected nominal GDP. Japan’s reserve assets would reach \$1.6 trillion, or 25 percent of the country’s nominal GDP. Reserve assets of Hong Kong, Malaysia, Singapore, South Korea, and Taiwan would grow to \$1.7 trillion, or 64 percent of their accumulated GDP.

An alternative scenario is that Asia’s current-account surpluses—and hence the accumulation of reserves—decline rather than continue to grow. This could happen for several reasons. One is if a major global recession dampened consumption in the United States and Europe, thereby reducing Asian exports and foreign capital inflows. Alternatively, current-account surpluses would shrink if Asian countries—particularly China—allowed more rapid appreciation of their currencies. Asian reserve accumulation would also slow if private-capital outflows increased. China has recently

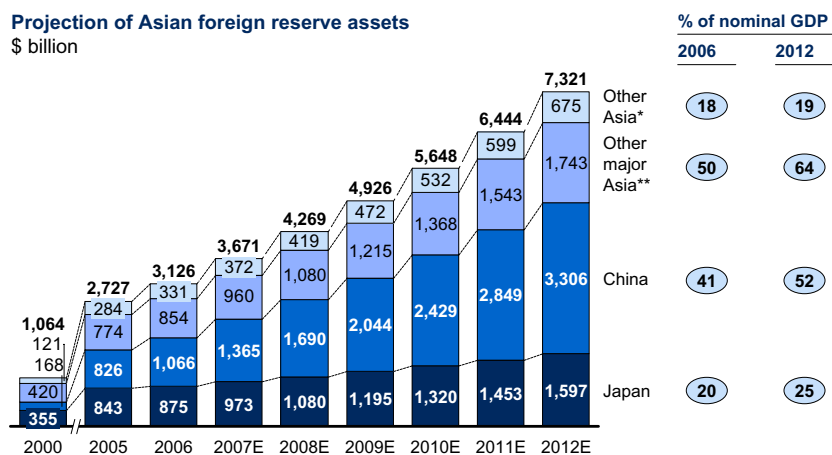
<sup>10</sup> These economies are China, Japan, Hong Kong, Malaysia, Singapore, South Korea, and Taiwan.



liberalized its capital-account regulations to give private investors greater access to foreign financial markets. If private-capital outflows increase, central bank reserve

**Exhibit 3.10**

**ASIAN CENTRAL BANK RESERVES WOULD REACH \$7.3 TRILLION IN 2012 IN THE “CONTINUED GROWTH” SCENARIO**



Note: Figures may not sum due to rounding.

\* Bangladesh, Cambodia, India, Indonesia, Lao PDR, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Vietnam.

\*\* Hong Kong, South Korea, Malaysia, Singapore, Taiwan.

Source: IMF; Ministry of Economic Affairs, Taiwan; Global Insight; UBS Asian Economic Monitor; McKinsey Global Institute Cross-Border Holdings Database; McKinsey Global Institute analysis

accumulation will slow.

We use this more conservative scenario as our base case. In this scenario, we use Global Insight’s forecast for China, which has its current-account surplus declining from \$237 billion in 2006 to \$61 billion in 2012 (Exhibit 3.11). This implies a 15 percent appreciation of the yuan, from 7.62 to the dollar (as of June 30, 2007) to 6.48 in 2012. Japan’s surplus remains more or less stable in the Global Insight projection. We model current-account surpluses in other Asian countries as growing more slowly than in the past, in line with Global Insight’s projections. Altogether, Asia’s current-account surplus declines by 6 percent annually, to \$359 billion in 2012.

In our base-case scenario, we find that Asian foreign reserves would still reach \$5.1 trillion by 2012, representing an average annual growth rate of 8.3 percent (Exhibit 3.12). This occurs because of continued net private capital inflows and the fact that surpluses are large today, so even a decline implies continued reserve purchases in the years to come. Chinese foreign reserve assets would grow to \$2.0 trillion by 2012, or 32 percent of its projected nominal GDP, while Japan’s reserve assets would increase to \$1.4 trillion, or 21 percent of GDP.

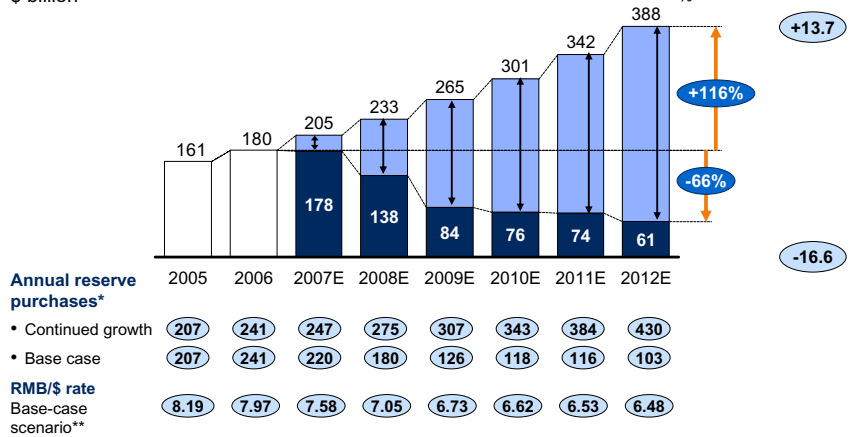
### Exhibit 3.11

#### IF THE YUAN APPRECIATED BY 15 PERCENT, CHINA'S CURRENT-ACCOUNT SURPLUS WOULD DECLINE TO \$61 BILLION IN 2012

Projection of China's current-account surplus  
\$ billion

Continued growth scenario  
Base-case scenario

Compound annual growth rate 2006–2012  
%



\* McKinsey Global Institute projection.  
\*\* Taken from Global Insight; year average.

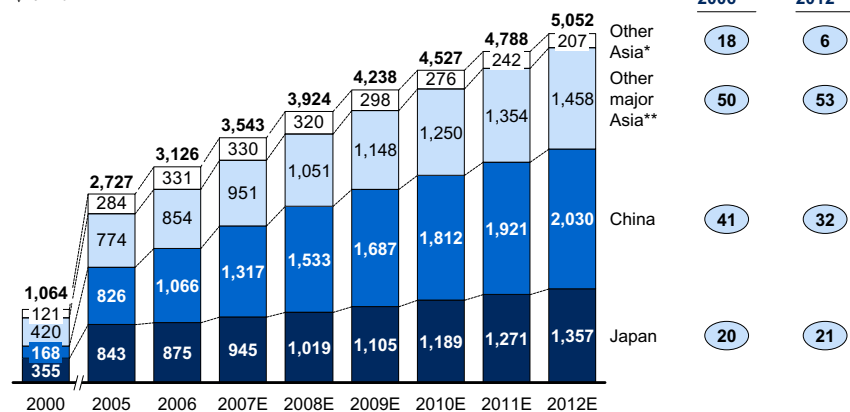
Source: McKinsey Global Institute Capital Flows Database; Global Insight; McKinsey Global Institute analysis

### Exhibit 3.12

#### ASIAN FOREIGN RESERVES WOULD REACH \$5.1 TRILLION IN 2012 IF CHINA'S CURRENT-ACCOUNT SURPLUS DECLINED

Asian holdings of foreign reserve assets  
\$ billion

% of nominal GDP  
2006 2012



Note: Figures may not sum due to rounding.

\* Bangladesh, Cambodia, India, Indonesia, Lao PDR, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Vietnam.

\*\* Hong Kong, South Korea, Malaysia, Singapore, Taiwan.

Source: IMF; Ministry of Economic Affairs, Taiwan; Global Insight; UBS Asian Economic Monitor; McKinsey Global Institute Cross-Border Holdings Database; McKinsey Global Institute analysis

Asian central banks will thus become even larger players in global financial markets. What implications does this have for global capital markets—and for Asia itself?

### ASIAN CENTRAL BANKS ARE A MAJOR SOURCE OF GLOBAL LIQUIDITY

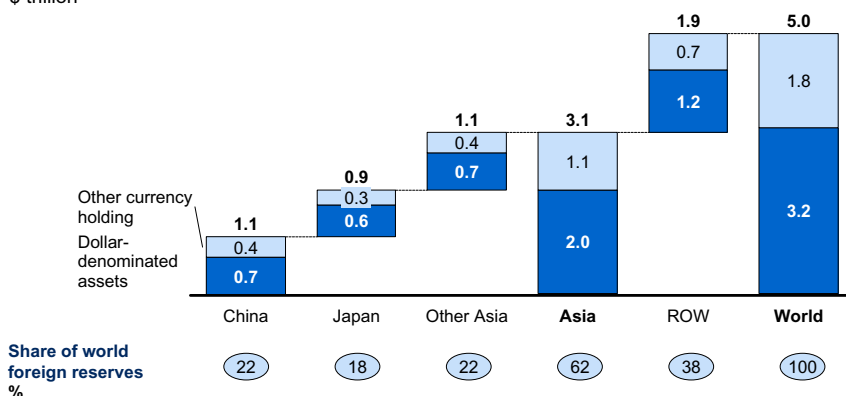
Along with growth in petrodollars and the retirement savings of aging workers in the United States and Europe, Asian central banks have been a significant contributor to rising liquidity in global financial markets in recent years. This has put downward pressure on interest rates and, until recently, compressed credit risk spreads.

The impact of Asian central bank reserves has been especially marked in US government bond markets. At the end of 2006, Asian central banks together held an estimated \$2 trillion in dollar-denominated assets—some 70 percent of their total foreign reserve assets (Exhibit 3.13). Most of these assets are in US Treasury and other government securities. We estimate that China had \$635 billion of reserve assets in US Treasury and agency bonds at the end of 2006, while just \$60 billion of reserve assets were in US corporate bonds and \$35 billion in US equity and bank deposits.<sup>11</sup>

#### Exhibit 3.13

### ASIAN CENTRAL BANKS HOLD ~\$2 BILLION IN DOLLAR-DENOMINATED ASSETS

Global foreign exchange reserve assets and estimated currency composition  
\$ trillion



Note: For China we use a detailed estimate by asset classes; all other countries'/regions' shares are calculated based on IMF COFER database estimates of global foreign reserve currency composition, estimating a 65% share of dollar-denominated assets in 2006

Source: IMF; Brad Setser; McKinsey Global Institute analysis

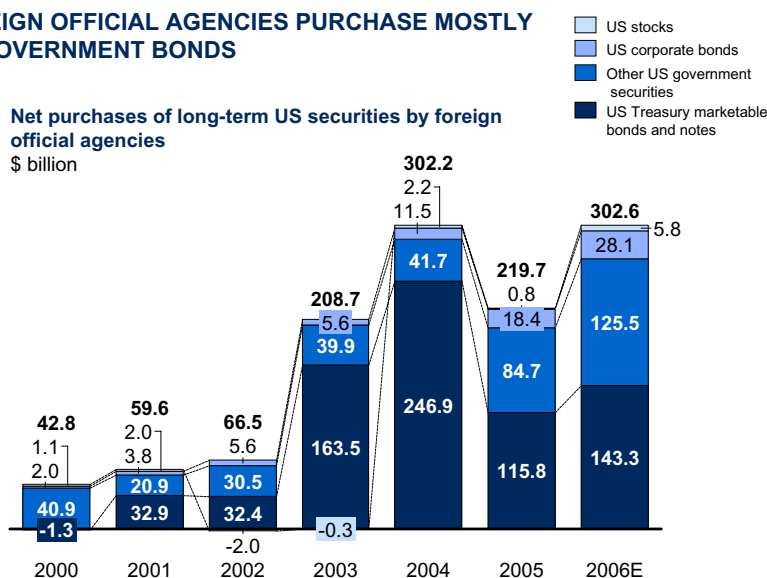
The US Treasury and the US Bureau of Economic Affairs track net purchases of long-

<sup>11</sup> In addition, China had an estimated \$200 billion in euro-denominated bonds and \$150 billion in bonds denominated in yen and other currencies.

term US securities by foreign official agencies (which are mainly central banks).<sup>12</sup> These data clearly show that the bulk of reserve asset purchases by central banks are in US government or quasi-government bonds (Exhibit 3.14). Given the large share of foreign reserves in Asia, it is likely that this fact holds for Asian central banks as well. The data also show that the purchases of long-term US securities by foreign official agencies picked up in 2003, in parallel with an acceleration in the growth of Asian central bank reserve assets. By the end of 2006, foreign official institutions held 37 percent of the total outstanding volume of US Treasury securities, up from 25 percent in 2002.

### Exhibit 3.14

#### FOREIGN OFFICIAL AGENCIES PURCHASE MOSTLY US GOVERNMENT BONDS



Note: Figures may not sum due to rounding.  
Source: BEA; BIS; McKinsey Global Institute analysis

As a result of foreign central banks' purchases of US government securities, interest rates have been lower than they probably otherwise would have been. We estimate that total foreign central bank purchases lowered overall US long-term interest rates by up to 130 basis points in 2006 and lowered rates on US Treasury securities and agency bonds by as much as 68 basis points (Exhibit 3.15).<sup>13</sup> Asia has contributed a large proportion of this effect, accounting for 55 basis points, or 42 percent of the total (Exhibit 3.16). The bulk of this "Asian effect" on interest rates—41 basis points—was the result of Chinese purchases.

<sup>12</sup> These data underestimate the foreign purchases of US securities but are a good starting point for understanding the types of securities that foreign official agencies are purchasing.

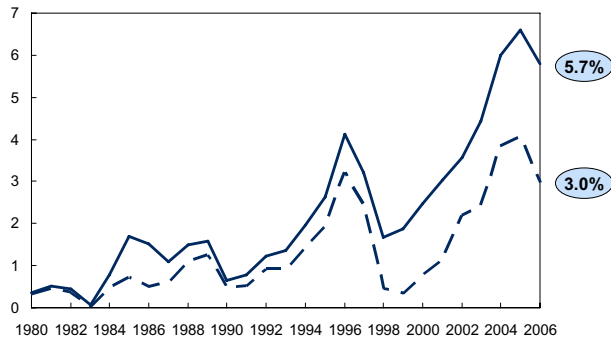
<sup>13</sup> We base this methodology on research by Francis E. Warnock and Veronica Cacdac Warnock, *International capital flows and U.S. interest rates*, 2005. See appendix B for more details.

**Exhibit 3.15**

**FOREIGN PURCHASES OF US LONG-TERM SECURITIES LOWERED INTEREST RATES BY 130 BASIS POINTS**

— Total foreign purchases of US bonds  
 - - Total foreign purchases of US government bonds (Treasury and agency bonds)

**Estimated annual net foreign purchases of long-term US bonds**  
 % of GDP



**Estimated impact on US interest rates 2006\***

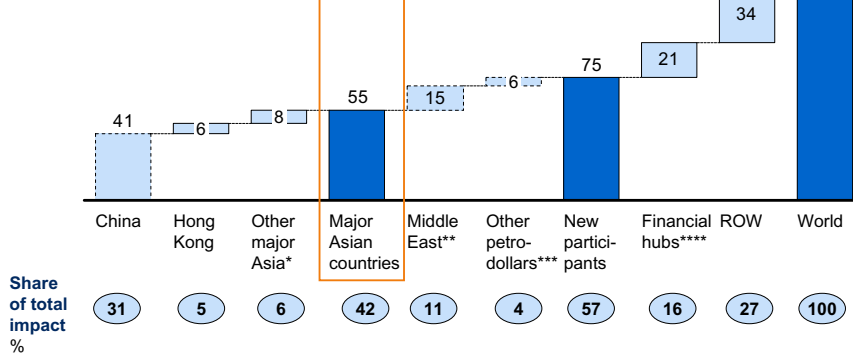
- 130 bps
- 68 bps

\* See Technical Notes at the end of the report for details on methodology. Regression coefficient calculated by Warnock and Warnock, *International capital flows and U.S. interest rates*, 2005.  
 Source: US Department of the Treasury; McKinsey Global Institute Capital Flows Database; McKinsey Global Institute analysis

**Exhibit 3.16**

**ASIAN CENTRAL BANKS LOWERED US LONG-TERM INTEREST RATES BY AN ESTIMATED 55 BASIS POINTS**

**Estimated impact of foreign purchases of US long-term bonds on US long-term interest rates**  
 Basis points



Note: Figures may not sum due to rounding.  
 \* Japan, Malaysia, Singapore, South Korea, Taiwan.  
 \*\* Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates.  
 \*\*\* Indonesia, Norway, Russia, Venezuela.  
 \*\*\*\* Luxembourg, Cayman Islands, Switzerland, United Kingdom.  
 Source: US Department of the Treasury; McKinsey Global Institute Capital Flows Database; McKinsey Global Institute analysis

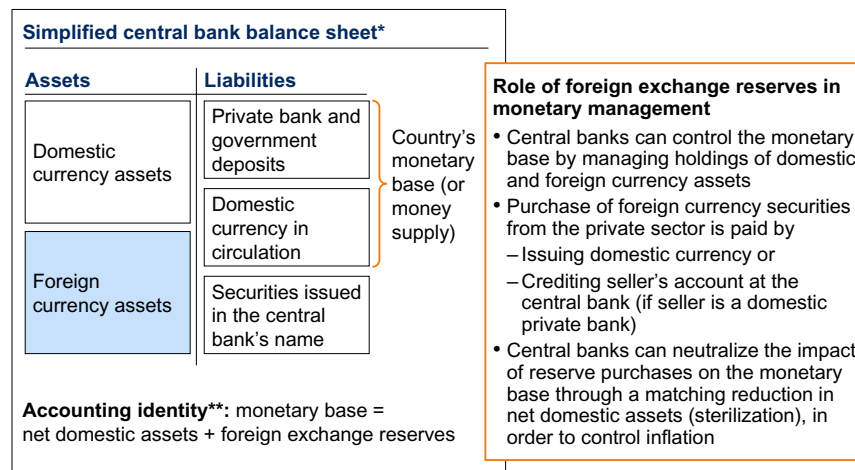
Lower interest rates have enabled a rapid expansion of lending to both consumers and companies in the United States. Although the credit market correction that began in July 2007 indicates that lending had likely gotten too lax, it also contributed to robust US economic growth in recent years as well as to rising Asian exports. Lower interest rates also helped fuel the growth of global private equity and hedge funds, both of which use considerable leverage to enhance returns.

### RESERVE ACCUMULATION CREATES A SIGNIFICANT OPPORTUNITY COST FOR ASIA

Despite the benefits to global liquidity, the accumulation of such large foreign reserve assets poses costs and risks to Asia itself. One potential cost stems from the “sterilization” of reserve purchases. Since foreign reserve purchases increase the monetary base, central banks often offset purchases by issuing government bonds (Exhibit 3.17). If the domestic interest rate paid on sterilization bonds is higher than the returns earned on the foreign reserve assets, the government incurs a direct fiscal cost. In Asia, domestic interest rates in most countries are quite low, so central banks are instead earning money on their foreign reserve assets (Exhibit 3.18).

#### Exhibit 3.17

### PURCHASES OF FOREIGN RESERVE ASSETS CAN BE OFFSET BY ISSUING DOMESTIC CURRENCY SECURITIES



\* Assumptions: the central bank has no foreign currency liabilities and zero net worth.

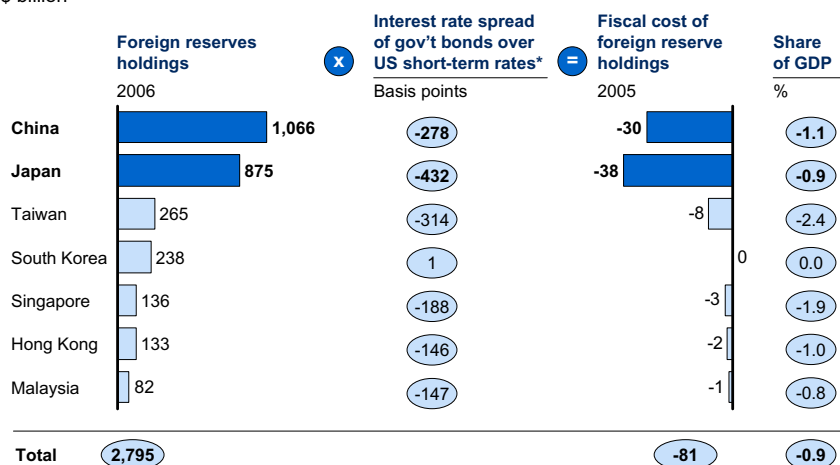
\*\* Technically, the equation should read: monetary base = net domestic assets + net foreign assets - net worth.

Source: McKinsey Global Institute analysis

### Exhibit 3.18

#### DUE TO LOW DOMESTIC INTEREST RATES, ASIAN CENTRAL BANKS TODAY ARE NOT RUNNING FISCAL COSTS

\$ billion



\* Calculated as the spread of domestic one-year maturity government bonds over US Treasury securities at one-year constant maturity.

Source: IMF; Ministry of Economic Affairs, Taiwan; Global Insight; McKinsey Global Institute Cross-Border Holdings Database; McKinsey Global Institute analysis

There is also a social opportunity cost to the buildup of excessive foreign reserves. By the end of 2006, we calculate that Asian central banks had \$1.9 trillion more in foreign reserves than they needed for precautionary motives (using the Greenspan-Guidotti rule, which states that foreign reserve assets should equal foreign short-term debt). Rather than investing this \$1.9 trillion in low-yielding foreign government bonds, governments or private investors could have invested this money in higher-yielding opportunities. Assuming that alternative investments in a higher-yielding capital market portfolio or domestic economic development might net a relatively conservative return of 5 percent, the opportunity cost for the major Asian economies in 2006 alone was almost \$100 billion, or 1.1 percent of their GDP (Exhibit 3.19).<sup>14</sup> This cost will grow as Asia accumulates even more reserves in the years to come.

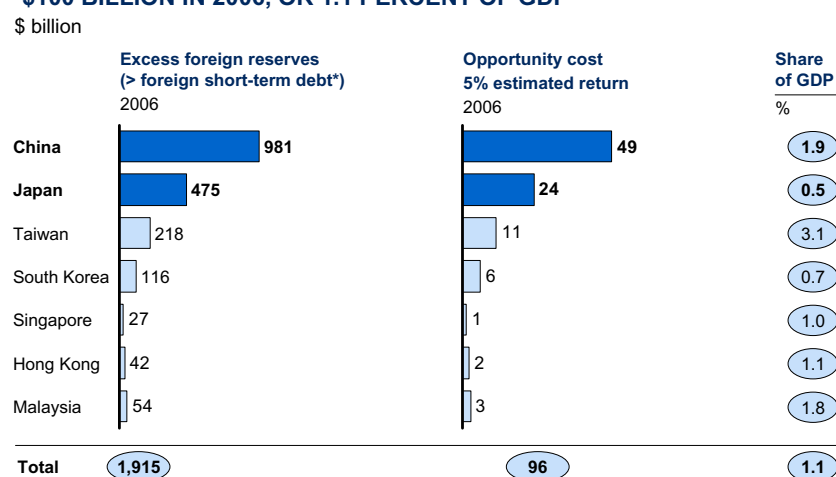
Excessive reserve accumulation also entails some well-known macroeconomic risks. When central banks “sterilize” reserve purchases by issuing domestic currency assets, they run the risk of loosening monetary policy too much and sparking overinvestment and perhaps inflation. China’s inflation rate, for instance, has risen over the past year, reaching 5.6 percent by mid-2007. Part of the reason for this is that the central bank has been unwilling to raise interest rates significantly, thereby curtailing investment, for fear of attracting foreign capital inflows. This harms Chi-

<sup>14</sup> This builds on analysis by Lawrence Summers, *Reflections on global account imbalances and emerging markets reserve accumulation*, speech to the Reserve Bank of India, Mumbai, 2006.

nese households that are earning very low returns on their savings.<sup>15</sup> Another risk is that central banks could face capital losses if their domestic currency were to appreciate against the dollar and other major currencies. Although such losses may not entail real costs to the government and taxpayers, with an estimated \$2 trillion in US dollar assets, Asian central banks are highly exposed to changes in the value of the dollar and could see their bank equity substantially reduced if the US dollar were to depreciate.<sup>16</sup>

### Exhibit 3.19

#### THE OPPORTUNITY COST OF EXCESS ASIAN RESERVES WAS ~\$100 BILLION IN 2006, OR 1.1 PERCENT OF GDP



\* Short-term external debt calculated as the sum of external bank claims and international debt securities; non-bank trade credits not included.

Source: IMF; Ministry of Economic Affairs, Taiwan; Global Insight; McKinsey Global Institute Cross-Border Holdings Database; McKinsey Global Institute analysis

### PORTFOLIO ALLOCATION WILL BECOME MORE DIVERSIFIED, WITH POTENTIAL FOR MORE RISK-TAKING

In part because of the growing opportunity cost of investing massive reserves in relatively low-yielding government debt, the conservative investment strategy of Asian central banks is giving way to a more diversified investment approach. This is occurring both within their portfolios of reserve assets and through the creation of sovereign wealth funds, both of which will increase returns.

In 2005, US data show that foreign central banks started shifting their purchases from US Treasury bills into other US government securities, such as bonds issued

15 Marvin Goodfriend and Eswar Prasad, *Monetary policy implementation in China*, December 2006.

16 *The US Imbalancing Act: Can the Current Account Deficit Continue?* McKinsey Global Institute, June 2007.



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by the secondary mortgage agencies, Fannie Mae and Freddie Mac—a sign that they are searching for higher yields.<sup>17</sup> There has also been a shift from very liquid short-term bonds to longer-term government bonds. Given that Asia accounts for the majority of global reserve assets, it is likely that they are part of these trends. Some of China’s reserve assets, as previously noted, are also in US corporate bonds, generating higher returns still.

A more dramatic development is that Asia’s governments are starting to shift a portion of central bank reserve assets to sovereign wealth funds, similar to those in oil-exporting nations (see “Comparison of sovereign wealth funds and government holding corporations”). Government of Singapore Investment Corporation (GIC) is one such fund. Established in 1981, the fund is estimated to have around \$150 billion of assets under management.<sup>18</sup> It announced in 2007 that it will double this amount, putting its AuM near \$300 billion. South Korea set up the Korea Investment Corporation (KIC) in 2005. Although the corporation currently has only \$20 billion in assets, the government announced in 2007 that it would add \$80 billion more. China is now in the process of creating the China Investment Corporation (CIC), with a reported \$200 billion to \$300 billion of seed capital. In total, currently available plans show that up to \$480 billion in additional capital will be allocated to Asian sovereign wealth funds in coming years (Exhibit 3.20). This would bring their total assets under management to \$700 billion.

It is unclear exactly what the portfolio mixes of Asian sovereign wealth funds will be. To date, Singapore’s GIC and South Korea’s KIC have been relatively conservative investors, with GIC holding a widely diversified portfolio of assets that includes equities, fixed-income, foreign-exchange, commodities, and alternative investments, and KIC targeting returns in range of inflation in the major economies. There are competing proposals on how China’s new CIC should invest its capital. In late May 2007, the government purchased a \$3 billion nonvoting stake in Blackstone, the US private equity group. But some reports suggest that CIC will also take over the assets of the Central Huijin Investment Co., the vehicle the central bank has used to inject capital into the largest banks, and may use some of its funds to recapitalize other banks.

Sovereign wealth funds have the potential to take more risk in the search for higher returns than traditional institutional investors. Unlike traditional investors such as

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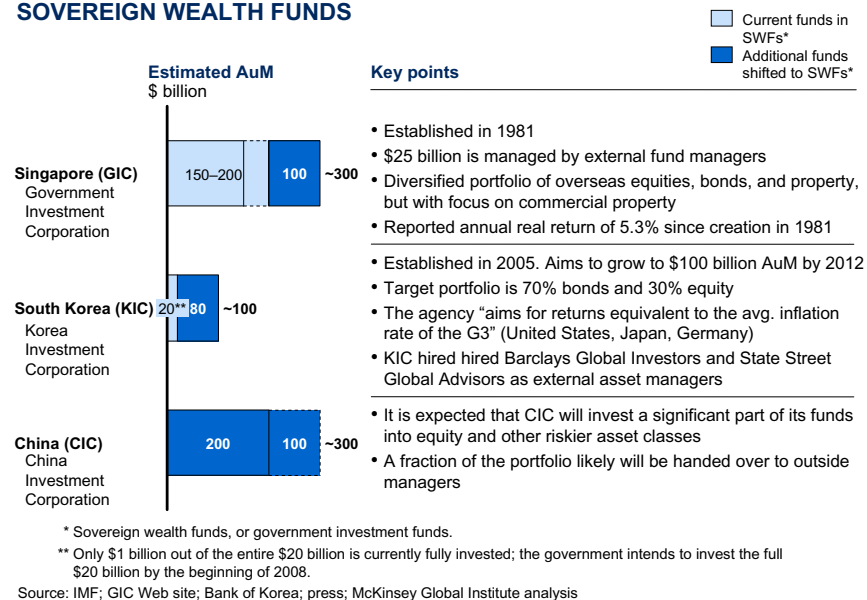
17 A significant part of reserves is also held in time deposits, but the US Treasury does not report data on these official investments.

18 The GIC’s Web site puts assets at \$100 billion. However, Brad Setser, senior economist at Roubini Global Economics, estimates the figure could be several times as large; see *The extent of the government’s control of China’s economy and its impact on the United States*, testimony before the US-China Economic and Security Review Commission, May 24, 2007.

pension funds that have fixed liabilities they must pay out, or mutual funds that have a diverse investor base that can withdraw funds at a moment's notice, sovereign wealth funds have no set liabilities and face no withdrawal of their capital. However, while they have more scope to invest in higher risk-reward opportunities, sovereign wealth funds are also constrained by the need to preserve capital. Particularly in the case of Asia, sovereign wealth funds are seen as the "people's money" with a fiduciary responsibility to invest wisely.

### Exhibit 3.20

#### ASIAN GOVERNMENTS PLAN TO SHIFT UP TO \$480 BILLION INTO SOVEREIGN WEALTH FUNDS



Any shift to greater risk-taking will therefore most likely be gradual. Asian central banks to date have been cautious and careful to not disrupt global financial markets as they have invested their enormous reserve assets. Moreover, many existing Asian sovereign wealth funds outsource a portion of their assets to external asset managers, a trend that China's CIC will likely follow until they acquire the required investment-management skills. If Asian sovereign wealth funds follow those in oil-exporting nations, over time they will invest a substantial share of their assets in equity, as well as in alternative asset classes such as hedge funds, private equity, and real estate.<sup>19</sup>

19 See chapter 2 of this report for more on petrodollar sovereign wealth funds.

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### **Comparison of sovereign wealth funds and government holding corporations**

There is considerable confusion in the current public debate over differences between sovereign wealth funds and government holding corporations. While both are government-owned investment entities that seek to generate financial returns for the nation, their funding, operations, and objectives differ.

Sovereign wealth funds are usually funded by the nation's central bank reserves and have the objective of maximizing financial returns within certain risk boundaries. These funds are typically passive investors that hold a diversified portfolio of foreign financial assets, such as equities, debt securities, and investments in alternative vehicles such as private equity funds, hedge funds, and real-estate funds. External asset-management firms often handle a portion of these portfolios.

In contrast, government holding corporations are created to centralize the management of government's shareholding in domestic companies. Asian examples include Singapore's Temasek, Malaysia's Khazanah, and more recently Vietnam's State Capital Investment Corporation (SCIC).<sup>20</sup> These entities usually have objectives similar to those of conglomerates or private equity firms—to be active shareholders and to maximize the long-term value of their portfolio. They therefore closely monitor the performance of their portfolio companies. In companies in which they have a seat on the board of directors, they can influence strategy, operations, and performance targets—just as other large institutional shareholders would do. Recently, some government holding corporations have also started to make new direct investments in both domestic and foreign markets, although most retain a strong focus on improving the return of their domestic investee companies. Ninety percent of Khazanah's portfolio is in Malaysia, and 100 percent of SCIC's in Vietnam. The most international of the Asian government holding corporations, Singapore's Temasek, still retains 40 percent of its portfolio in domestic assets and two-thirds of its international portfolio is invested in the Asian region. The impact of these government holding companies on global financial markets thus remains far more limited than Asian sovereign wealth funds, and they are more akin to large private equity firms.

Finally Asian government holding corporations have so far offered more transparency about their investment objectives than Asian sovereign wealth funds. Temasek, for instance, publishes a comprehensive annual review, Khazanah discloses details on its objectives, financials and portfolio performance through an in-depth annual briefing, and SCIC publishes details of its portfolio on its Web site.

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<sup>20</sup> Petrodollar examples include the recently formed Abu Dhabi Investment Council, which holds the government stakes in several domestic banks and other companies.

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## **DIVERSIFICATION WILL SPREAD LIQUIDITY TO OTHER ASSET CLASSES**

The implications of the shift in investment strategies of Asian central banks are potentially far-reaching. The “liquidity bonus” in US bond markets will, over time, spread to other asset classes. Although this shift has the potential to raise US interest rates, the evidence suggests it will not. The current rapid pace of China’s reserve accumulation will allow a gradual shift of assets into CIC without selling US government securities. Depending on the pace of the shift, it might not even require much of a slowdown in purchases of US debt securities.

Moreover, Asian investment assets will remain largely in dollar assets as long as current exchange rate-management practices continue. To avoid rapid currency appreciation against the dollar, Asian governments have little choice but to continue to buy US dollar assets, either through purchases by central bank of reserve assets or through investments by their sovereign wealth funds. In the short term, we are consequently likely to see Asian sovereign wealth funds invest in US dollar assets such as equities, higher-yielding debt, or alternative investment vehicles.

In the longer term, if Asian currencies become more flexible, the diversification of assets could help spur development of Asia’s financial systems. Today, the significant flow of central reserve assets into US, and to a lesser extent European, fixed-income markets is arguably diverting funds away from Asia’s domestic financial markets. The financial depth—or the value of domestic financial assets relative to GDP—is generally lower in Asia than in the United States and Europe, especially when one excludes the larger financial markets of Japan and Singapore. Capital flows between Asian financial markets are very small (Exhibit 3.21).<sup>21</sup> Asian sovereign wealth funds have the potential to contribute to more substantial intra-Asian investment and the region’s financial deepening.

The emerging sovereign wealth funds will also give a boost to the region’s financial hubs. China’s choice of cities in which to headquarter CIC, for instance, will give an important advantage to one of the contenders trying to become a regional financial center. Wherever it goes, an army of asset managers, traders, analysts, and other financial institutions are likely to follow.

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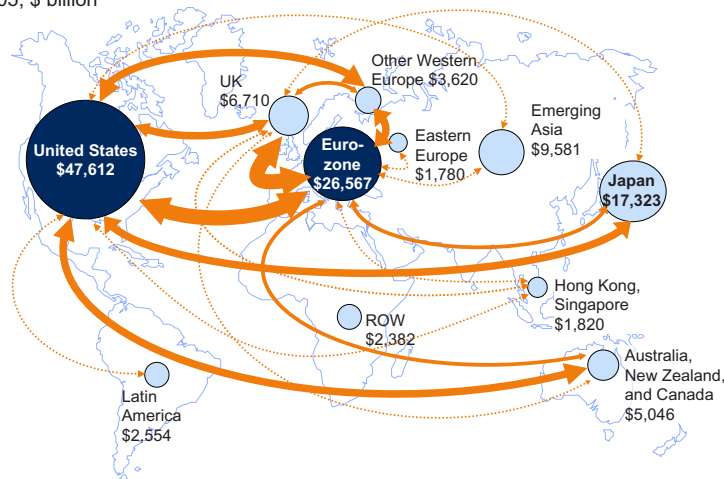
21 *Mapping the Global Capital Markets*, Third Annual Report, McKinsey Global Institute, January 2007.

### Exhibit 3.21

#### ASIAN FINANCIAL MARKETS ARE NOT INTEGRATED

##### Map of cross-border financial holdings, 2004\*

Figures in bubbles show size of total domestic financial assets 2005, \$ billion



\* Includes cross-border equity, debt, lending and foreign direct investment.  
Source: McKinsey Global Institute Capital Flows Database; McKinsey Global Institute analysis

### APPRAISING CONCERNS ABOUT ASIAN SOVEREIGN WEALTH FUNDS

The rise of potentially very large sovereign wealth funds in Asia—as well as in oil-exporting countries—is causing concern among policy makers in the United States and Europe. Central banks have long been passive investors in foreign government debt markets without raising alarm. But the prospect of sovereign wealth funds taking stakes in foreign companies, either through purchases of public equity shares or through direct investments, is fundamentally different. The fear expressed by some commentators is that government investors may have motives beyond maximizing shareholder value and could potentially use their position as corporate owners for political ends. For instance, will they act in ways to ensure that their own national companies can compete effectively, or try to gain access to new technologies? Will they bargain for subsidies or tax breaks from foreign host governments in exchange for political support?

The limited transparency about the size, investment strategies, and objectives of the rapidly growing sovereign wealth funds around the world heightens these concerns. An increasing number of prominent economists and policy makers in the United States are now calling for the creation of disclosure standards for government investors, including both sovereign wealth funds and central banks.<sup>22</sup> One example that observ-

<sup>22</sup> Truman, Edwin M., *Sovereign wealth funds: The need for greater transparency and accountability*, Peterson Institute for International Economics, August 2007; Jeffrey Garten, “We need rules for sovereign wealth funds,” *The Financial Times*, August 7, 2007.

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ers often consider to be best practice is Norway's Government Pension Fund, which publishes all of its investments on its Web site and explicitly states its asset allocation and investment criteria. The justification offered for regulatory action is that public financial markets require a free flow of accurate information to function properly. Investors using non-economic criteria in their investment decisions can distort the price signals on which other investors rely.

The evidence suggests that thus far Asian central banks have been conservative investors that are clearly aware of their size as they have invested their enormous foreign reserve assets abroad. Although they have the potential to move financial markets single-handedly, they have operated cautiously to minimize their impact on prices. There is little reason to expect that Asian sovereign wealth funds will act differently. GIC has been operating for nearly 30 years and is respected in the global investment community as a professional and sophisticated investor. The CIC's purchase of *nonvoting* shares in the US private equity firm Blackstone suggests that it is interested in earning higher returns, not a say in management.

Still, it would be in the interest of both Asian central banks and Asian sovereign wealth funds themselves to increase levels of disclosure, as many industries have done in the face of growing regulatory threats.<sup>23</sup> For central banks, this might include reporting public information about the composition of their reserve assets by currency and instrument and any planned changes in the mix. For sovereign wealth funds, this could include reporting their investment objectives, target asset mix, and internal governance and risk-management mechanisms. Many sovereign wealth funds hire external asset-management companies to handle part of their portfolios. This should also help allay concerns around potential conflicts of interest by demonstrating an arms-length relationship to investments.

For their part, policy makers in the United States and Europe should ensure that they base any regulatory response on an objective appraisal of the facts, differentiating between direct foreign corporate acquisitions by state-owned enterprises and investments by diversified financial-market players such as sovereign wealth funds. The latter typically take passive investments through purchases of equities and debt securities.

Asian central banks have increased global liquidity and proved themselves to be cautious, thoughtful participants in global financial markets. Even as they diversify, there is little reason to expect this to change. Voluntarily increasing their disclosure will help demonstrate this to investors and policy makers around the world.

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<sup>23</sup> In the early 1990s, for instance, there was growing concern about the impact of derivatives on financial markets, which led to self-regulation in the industry.

## 4. Hedge funds: From mavericks to mainstream

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Hedge funds first made an appearance in the 1940s, but it is only in recent years that these alternative investment vehicles have come to prominence. Hedge fund assets under management (AuM) have tripled since 2000, reaching an estimated \$1.5 trillion at the end of 2006 and \$1.7 trillion by the middle of 2007, driven by a combination of record inflows and high returns. If we were to include the considerable leverage that hedge funds employ to boost returns, the industry's gross investment assets rise to as much as \$6 trillion—making hedge funds the biggest of the four new power brokers we describe in this report (Exhibit 4.1). And they are set to become even larger. In our base-case projection, hedge fund assets under management could reach \$3.5 trillion by 2012, which would imply leveraged assets of between \$9 trillion and \$12 trillion.

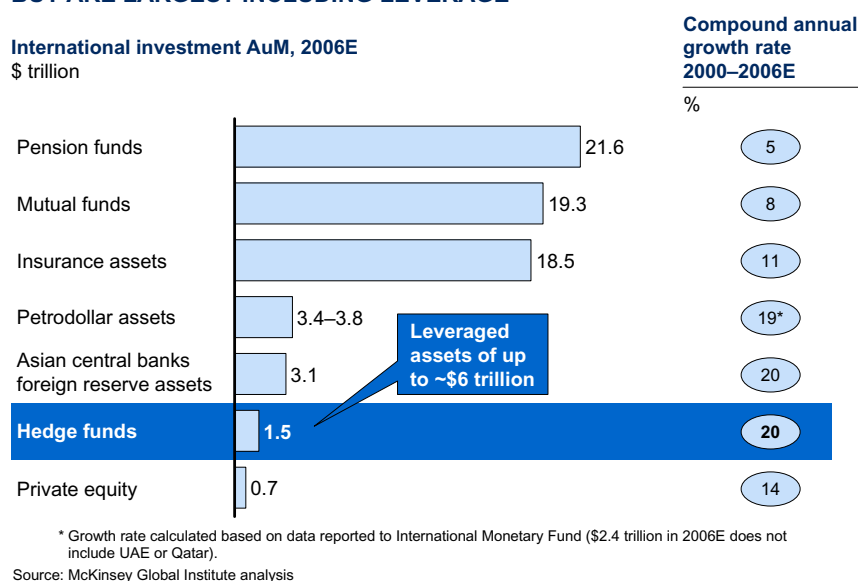
Hedge funds' unique investment activities are having a broad and undeniable influence on global financial markets. In recent years, the evidence suggests that hedge funds have played a positive role in improving market liquidity and efficiency and catalyzing financial innovations that spread risk. Hedge funds have significantly diversified the investor base in financial markets, pushing outward the risk-return frontier.

Yet hedge funds' growing size and high leverage could destabilize financial markets. In 1998, the hedge fund Long Term Capital Management (LTCM) suffered catastrophic losses that led the Federal Reserve Bank of New York to coordinate a \$3.6 billion bailout of the fund by several large banks, on the grounds that the fund's collapse threatened systemic financial market failure. In the subprime mortgage crisis that began in mid-2007 and resulted in debt and equity market volatility, half a dozen large hedge funds worth billions of dollars each suffered significant losses.

Many smaller and midsize funds have closed.<sup>1</sup> The question is once again on the table: could hedge funds trigger a broad crisis in global capital markets?

#### Exhibit 4.1

### HEDGE FUNDS ARE SMALLER THAN OTHER NEW POWER BROKERS— BUT ARE LARGEST INCLUDING LEVERAGE



Systemic risk from hedge funds could stem from two sources: banks' large exposure to them and their potential to create contagion across unrelated asset classes. Our research suggests that several developments within the industry may have reduced—but certainly not eliminated—these risks over the past ten years. Hedge fund managers have adopted more diverse trading strategies, which should reduce “herd behavior”. Although many quantitative “equity-neutral” hedge funds suffered huge losses in August 2007, indicating that their models were more correlated than previously thought, other hedge funds have stepped in to buy distressed assets. At the same time, banks have improved their assessment and monitoring of risk, and our analysis suggests that the largest banks have reasonable levels of collateral and equity against their hedge fund exposures. Finally, the largest hedge funds have begun to raise permanent capital in public stock and bond markets and to impose more restrictions on investor withdrawals of capital. Both of these developments will improve funds' ability to weather market surprises.

1 Examples of smaller hedge funds that have been closed include the hedge fund firms Braddock Financial Corporation (\$300 million assets under management), United Capital Asset Management (\$500 million assets under management), Caliber Global Investments (\$908 million assets under management), and Queen's Walk Investments (\$400 million assets under management).



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Once considered mavericks, hedge funds are joining the mainstream. It remains to be seen whether or not the industry can continue to generate attractive uncorrelated returns at its current size. The credit market turmoil of 2007 may cause more hedge funds to close. Nonetheless, hedge funds are a permanent and significant feature of financial markets. In this chapter, we describe the empirical research we have undertaken to provide hard facts on this increasingly important—but little understood—industry.

### **HEDGE FUND ASSETS TOP \$1.5 TRILLION**

Alfred W. Jones started the first hedge fund in 1949, pursuing a strategy of investing in common stocks and hedging the positions with short sales.<sup>2</sup> But hedge funds gained prominence on the financial landscape only in the late 1980s with the rise of star traders such as George Soros, with his Quantum Fund, and Julian Robertson, with the Tiger Management Funds. Soros made hedge funds big news in 1992 when Quantum made a large bet that the pound was overvalued—and won. At that time, total hedge fund assets amounted to around \$100 billion.

Since then, hedge funds have grown steadily, reaching \$490 billion in assets under management in 2000, \$973 billion in 2004, and \$1.7 trillion at the end of the second quarter of 2007 (Exhibit 4.2).<sup>3</sup> At the same time, the hedge fund universe has expanded to more than 7,300 funds, although the 200 largest firms account for three-quarters of hedge fund assets (Exhibit 4.3).

The United States is by far the leading source of hedge fund investments, representing 63 percent of the global total with \$901 billion in assets under management as of the end of 2006. US hedge funds have grown at an annual rate of 12 percent over the past five years. However, the most marked growth in the industry is now taking place in Europe and Asia where hedge fund assets, although much smaller in absolute terms (\$460 billion and \$67 billion, respectively), are increasing at around 40 percent a year.

Several reasons explain the phenomenal growth in hedge funds:

**Investors looking for portfolio diversification.** The largest share of hedge fund capital has historically come from high-net-worth individuals, whose number and wealth have more than doubled over the past decade. Hedge funds offer investors

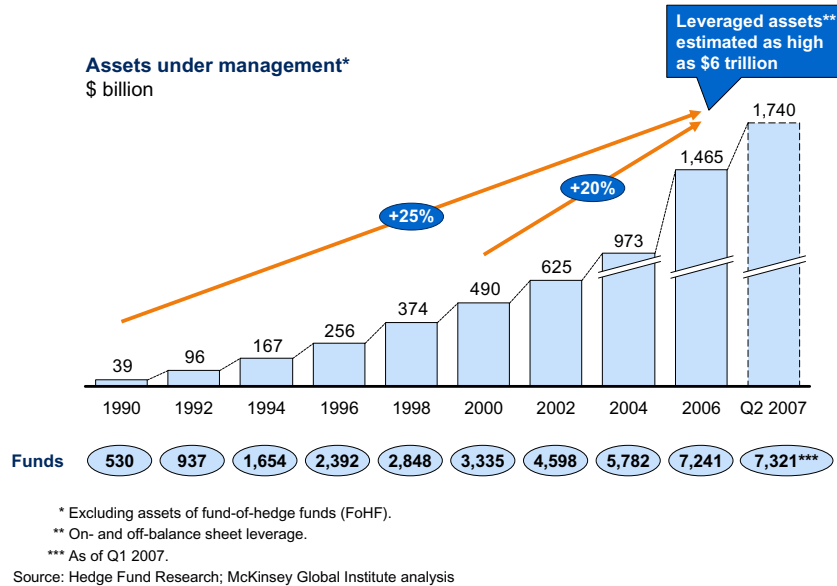
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2 Hedge funds are unregulated investment groups that manage large pools of private capital. We describe how they operate later in the chapter.

3 This figure includes only those assets under management reported by hedge funds to Hedge Fund Research. Total industry assets, including those not reported to the official databases, are likely to be higher.

## Exhibit 4.2

### HEDGE FUND ASSETS HAVE GROWN RAPIDLY OVER THE PAST DECADE



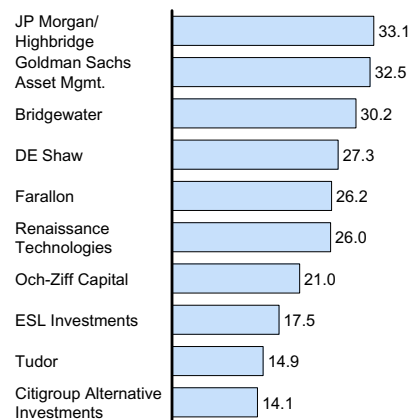
## Exhibit 4.3

### HEDGE FUND INDUSTRY IS CONCENTRATED IN THE LARGEST FUNDS

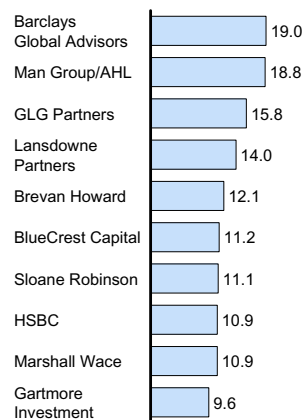
Top ten hedge funds in United States and Europe—assets under management as of December 31, 2006

\$ billion

#### United States



#### Europe



Source: Alpha Magazine, Top 100 Hedge Funds, 2007

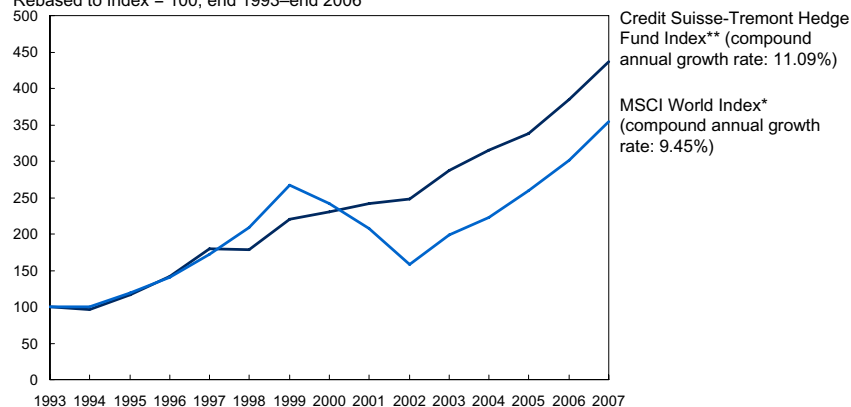
exposure to a broader range of risks and asset classes than traditional “long-only” investment funds, and thus portfolio diversification. Hedge funds also target “absolute returns”—or returns that theoretically do not depend on the performance of broad markets and the economy. Average long-term hedge fund returns, net of fees, have been somewhat higher than returns in global equity markets (Exhibit 4.4) (see “A closer look at hedge fund returns”).

#### Exhibit 4.4

### HEDGE FUNDS DELIVERED HIGHER AND MORE STABLE PERFORMANCE THAN GLOBAL EQUITIES SINCE 1993

#### CS-Tremont Hedge Fund Index vs. MSCI World aggregate performance since December 1993

Rebased to Index = 100, end 1993—end 2006\*



\* The figures for December 31 have been calculated using the annualized returns for the index.

\*\* Net of fees.

Source: Datastream; CS-Tremont Hedge Fund Index; McKinsey Global Institute analysis

Wealthy individuals are only part of the story, providing 40 percent of total hedge fund assets today. Institutional investors such as pension funds, insurance companies, and endowments and foundations are also channeling a portion of their capital into alternative investments such as hedge funds, and they account for 37 percent of hedge fund assets through direct investments. Pensions and other institutional investors also invest in hedge funds through funds-of-hedge funds, vehicles that also attract individual investors.<sup>4</sup> These account for 23 percent of hedge fund assets (Exhibit 4.5).

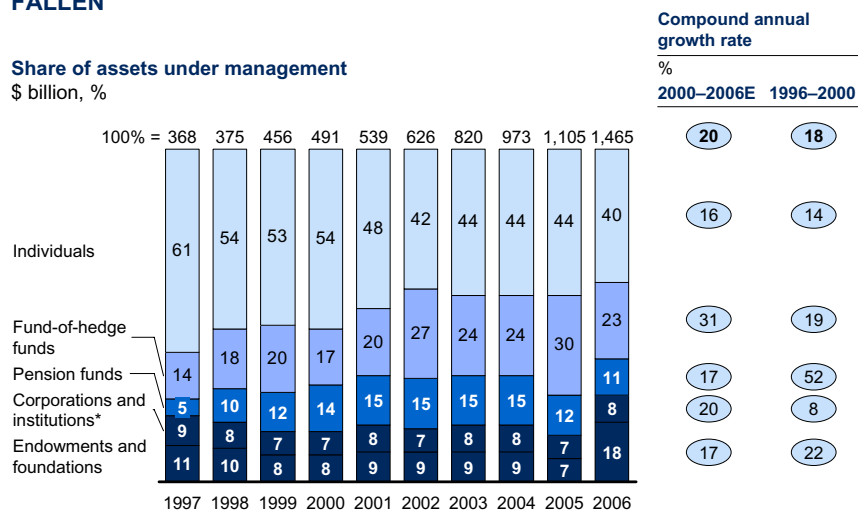
Finally, hedge funds have attracted a growing share of petrodollar wealth. The Abu Dhabi Investment Authority (ADIA), for instance, is now believed to be one of the biggest single investors—possibly the biggest—in global hedge funds and private eq-

4 Funds-of-hedge funds provide more diversification and an additional layer of scrutiny to investors who are more risk averse but still want to participate in the hedge fund game. Although most countries maintain restrictions on who can invest in a fund-of-hedge funds, the wealth requirements for individual investors is lower.

uity.<sup>5</sup> Some hedge fund managers we interviewed estimate that petrodollar wealth accounts for some 25 percent to 50 percent of their capital.

### Exhibit 4.5

#### SHARE OF HIGH-NET-WORTH INDIVIDUALS IN HEDGE FUNDS HAS FALLEN



\* Includes insurance companies, corporate direct investments (including investment banks), universities, public institutions.

Source: Hennessee Group LLC; IFSL estimates; McKinsey Global Institute analysis

#### A closer look at hedge fund returns

A variety of hedge fund indexes show that they have outperformed world equity markets over the past ten years—but not by as much as one might think. Although the returns of the top-performing hedge funds in any given year can exceed 20 percent, few funds manage to persistently generate that level of returns. The average annual returns after fees of the Hedge Fund Research Fund-Weighted Composite Index was 10.6 percent between 1996 and 2006, only moderately higher than the 8.1 percent return of the MSCI-World Equity index over the same period. On the other hand, the standard deviation of monthly returns in the HFR Composite was lower—at just half that of the MSCI index (2.1 percent versus 4.2 percent).<sup>6</sup>

Hedge fund databases suffer from several biases that can skew returns. These include survivorship bias (or the fact that some funds are liquidated and dropped

5 See chapter 2 of this report for more on petrodollar investments. Also see S. Roy, “Money and mystery: ADIA unveils its secrets,” *Euromoney*, April 1, 2006.

6 Roger Ferguson and David Laster, “Hedge funds and systemic risk,” *Banque de France Financial Stability Review*, April 2007.

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from the sample) and backfill bias (when new funds are added, they may report only positive past returns). When excluding these biases, at least one academic study finds that compound annual returns for a weighted index of hedge funds was 9 percent net of fees from January 1995 through April 1996—lower than the S&P 500 return over the same period (11.6 percent).<sup>7</sup> But it also found that hedge funds generated “alpha” returns, or returns uncorrelated with the broad market, of 3 percent annually. This shows that hedge funds offer investors portfolio diversification, if not outstandingly high average long-term returns.

Other studies confirm a generally weak correlation between hedge fund returns and broader equity and bond market indexes over the long term, additional evidence that hedge funds offer investors diversification. Simple correlation statistics between hedge fund returns and equity markets indexes have risen in recent years, but this may be due to low volatility in both.<sup>8</sup> During extreme market events, the correlation between hedge fund returns and those of broader markets may increase—as seen during August 2007.

The variability in hedge funds’ returns indicates the difficulty for hedge fund managers to consistently generate alpha returns. Not surprisingly, hedge funds have very high attrition rates; by some estimates, 40 percent of hedge funds do not make it to their fifth year.<sup>9</sup> A variety of studies show that poorly performing funds have a significantly higher probability of liquidation than those that generate high returns, indicating that investors are savvy.<sup>10</sup> Several academics have created computer programs that come close to replicating hedge fund returns at a small fraction of the cost—products that may in time dampen hedge fund growth.

**Financial innovation.** Innovation in financial-market products and technology, combined with falling transaction costs, has enabled hedge fund growth by making possible increasingly complex and high-volume trading strategies. Market innovations such as electronic trading platforms for swaps and futures and “direct market access” (DMA) tools allow hedge funds to actively trade—and profit from—a wider

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7 Roger Ibbotson and Peng Chen, “The A, B, Cs of hedge funds: Alphas, Betas, and Costs,” Yale ICF working paper, September 2006.

8 Nicole M. Boyson, Christof W. Stahel, and René M. Stulz, “Is there hedge fund contagion?” NBER working paper, 2006; Nicholas Chan, Mila Getmansky, Shane M. Haas, and Andrew W. Lo, “Systemic risk and hedge funds,” NBER working paper, March 2005; “Recent developments in hedge funds,” *Bank of Japan Research Bulletin*, May 2006.

9 G. Amin and H. Kat, “Welcome to the dark side: Hedge fund attrition and survivorship bias over the period 1994–2001,” *Journal of Alternative Investments*, 2005.

10 G. Baquero, J. Horst, and M. Verbeek, “Survival, look-ahead bias, and the performance of hedge funds,” *Journal of Financial and Quantitative Analysis*, 2004; Mila Getmansky, Andrew W. Lo, and Shauna X. Mei, “Sifting through the wreckage: Lessons from recent hedge fund liquidations,” *Journal of Investment Management*, 2004.

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range of financial asset classes and instruments. Meanwhile, banks have created innovative new products: credit securitization and structured credit vehicles such as collateralized debt obligations (CDOs) have given hedge funds exposure to illiquid pools of consumer loans, mortgages, and credit-card debt that were previously held only by banks. Synthetic products, such as total return swaps or “contracts for difference,” have opened up yet another new arena in which hedge funds can invest.<sup>11</sup> Alongside the proliferation of new products and trading techniques, innovation and improvements in reporting tools and risk-management systems have allowed hedge funds and banks to keep abreast of the potential risks that cutting-edge financial products and complex trading positions entail.

**Supply of top talent.** On the supply side, hedge funds have been able draw top talent from investment banks and asset managers, attracting star traders with the prospect of more freedom and independence and more lucrative compensation. Hedge funds can afford to offer lucrative compensation because they charge their investors a multiple of the fees that classic mutual funds charge and provide very attractive performance-related rewards. Investors typically pay hedge fund managers management fees of 2 percent of assets, although the top-performing funds charge as much as 5 percent. On top of this fee, hedge fund managers keep 20 percent of the returns they generate—or as much as 50 percent of returns in the case of the top hedge funds. Overall, hedge fund compensation is considerably higher than that earned by traditional asset managers. In 2006, 26 hedge fund managers earned \$130 million or more, with James Simons, founder of the \$26 billion hedge fund firm Renaissance Technologies, leading the ranks with an estimated \$1.5 billion income.

**Benign market environment.** For all the particular advantages enjoyed by hedge funds in recent years, the explosion in their size and number could not have occurred if the financial market backdrop had been less benign. Low interest rates, the easy availability of credit from banks eager to win hedge fund business, strong equity market performance, and accommodating tax and regulatory conditions have all played their part in fueling the hedge fund boom. Although hedge funds can make money in both rising and falling markets, they have historically performed better during bull markets than in times of broad market distress (Exhibit 4.6). Strong

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11. A total return swap (TRS) or contract for difference (CFD) allows an investor to gain exposure to an asset without having to go through the lengthy process of acquiring that asset physically. The bank enters into a contract with the client, whereby the client pays a fee (equal to the hypothetical purchase price for the asset) and in return receives the right to receive from or pay to the bank the cash flows associated with the price fluctuations of the underlying security. The bank buys an equal amount of the underlying security to hedge against the contract obligations. The disadvantage to the bank is that it has the value of these assets on its balance sheet (whereas the hedge fund does not).

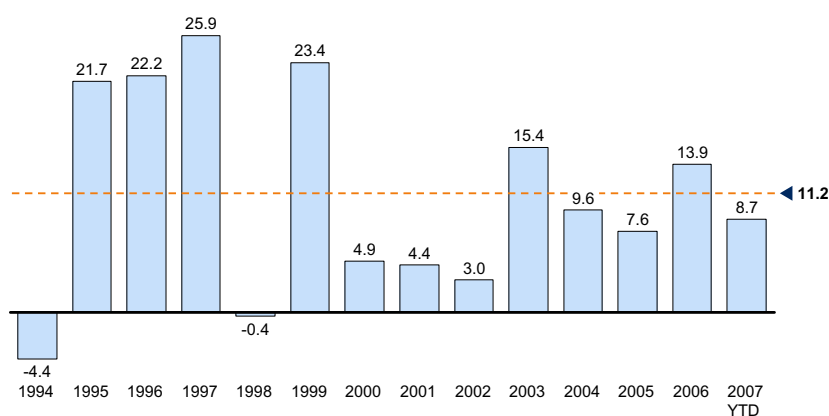
market performance since 2002 has helped hedge fund performance, attracting more investor inflows.

#### Exhibit 4.6

### HEDGE FUNDS' OVERALL PERFORMANCE IS BETTER DURING BULL MARKETS

#### Global hedge fund performance

Credit Suisse/Tremont Hedge Fund Index,\* annualized total return, %



\* Net of fees.

Source: Credit Suisse/Tremont; McKinsey Global Institute analysis

### HEDGE FUND ASSETS COULD REACH \$3.5 TRILLION BY 2012

Volatility in world financial markets and tightening of credit markets in mid-2007 already appear to be producing a shakeout in the hedge fund industry, as overleveraged and poorly performing funds have been forced to liquidate positions and return money to their investors and creditors. Several investment banks have started to tighten credit terms to hedge funds across the board to protect themselves from further hedge fund failures.<sup>12</sup>

Yet beyond this temporary slowdown, the fundamentals favor continued hedge fund growth for at least the next five years. Increasing wealth of high-net-worth individuals will continue to fuel hedge fund inflows. Petrodollar investors will increasingly invest their huge and growing wealth into hedge funds, and the sovereign wealth funds now being created by Asian nations may do the same in years to come. In developed countries, aging workers saving for retirement may be an increasingly important source of inflows.

<sup>12</sup> "Tougher terms for hedge funds," *The Financial Times*, July 30, 2007; and "U.S. banks refuse to accept subprime collateral," *The Financial Times*, August 15, 2007.

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Retail investors can invest in hedge funds through funds-of-hedge funds, publicly listed hedge funds, and the “130-30” investment funds that traditional asset managers are beginning to offer.<sup>13</sup>

Meanwhile, the portfolio reallocation of large pension funds, insurance companies, and other institutional investors into hedge funds is well under way, but it will take time to complete—particularly as their overall asset base increases. A new report suggests that public pension funds will increase their allocations to hedge funds over the next two years, from the current 6 percent to 8 or 9 percent of assets under management.<sup>14</sup> Even if hedge funds experience a few years of very low returns, pensions, petrodollar investors, and other large institutions are not likely to withdraw capital quickly as they are looking for long-term performance. It would likely take a sustained period of underperformance of hedge funds before these investors started to reduce their allocation.

Whether hedge funds will continue to grow at the rapid rates seen since 2000—some 19 percent per year—will depend on their ability to generate uncorrelated “alpha” returns, particularly during broad market downturns. If alpha returns remain significant, the rapid growth rates in hedge fund assets since 2000 might continue. This would put global hedge fund assets at \$4.6 trillion in 2012.

There is some evidence that returns have been lower in recent years. Given the growing competition among hedge funds and the shift in the investor base from wealthy individuals to large institutions such as pension funds looking for more stable, less risky returns, this may well continue in coming years. In this case, hedge fund growth could slow to between 10 percent and 15 percent per year, putting total hedge fund assets at \$3.5 trillion in 2012 (Exhibit 4.7). With a leverage ratio of 250 percent to 350 percent of equity, this would give hedge funds gross investments of \$9 trillion to \$12 trillion—about a third the size of global mutual fund assets in 2012 (Exhibit 4.8). This is remarkable growth for an investment vehicle considered by many to be on the fringes of the financial system less than ten years ago.

Even if hedge fund returns were to fall significantly, total assets under management could remain quite large in coming years. We find that even if net inflows from investors started to shrink by 10 percent per year, hedge fund assets under management would still grow to \$2.0 trillion in 2012.

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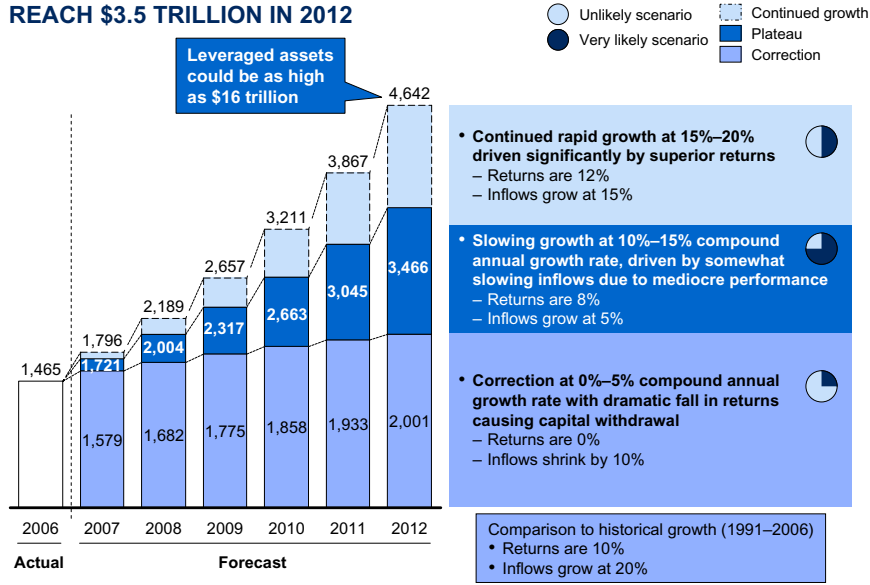
13 A 130-30 fund differs from a traditional mutual fund in that it uses a moderate level of leverage and limited short selling. It invests 130 percent of its capital by adding 30 percent of debt, and then sells short 30 percent worth of capital, thus getting back to the original 100 percent invested assets. An estimated \$27 billion is currently invested in 130-30 funds.

14 *Preqin hedge special report: Institutional investors set to invest \$85 billion into hedge funds*, Private Equity Intelligence Ltd, London, May 2007.



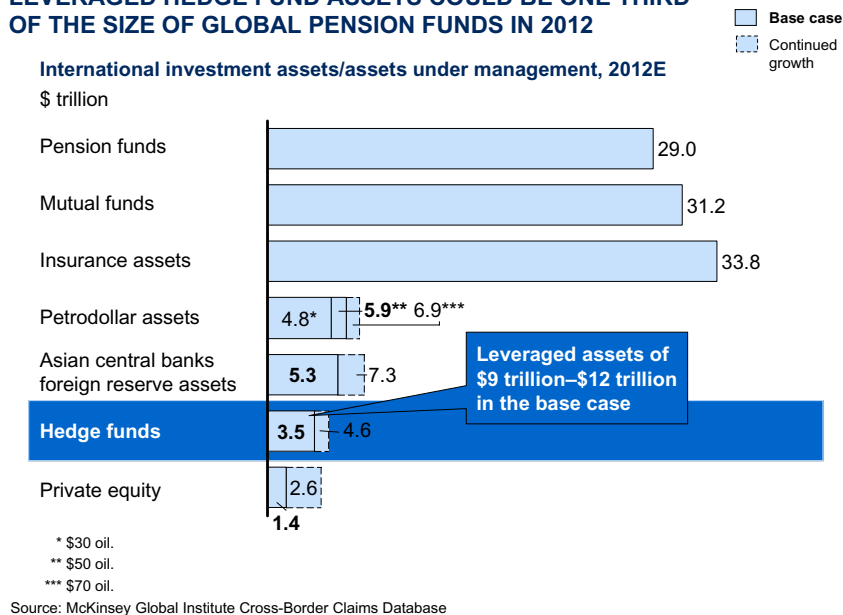
**Exhibit 4.7**

**IN MGI'S BASE-CASE SCENARIO, HEDGE FUND ASSETS COULD REACH \$3.5 TRILLION IN 2012**



**Exhibit 4.8**

**LEVERAGED HEDGE FUND ASSETS COULD BE ONE THIRD OF THE SIZE OF GLOBAL PENSION FUNDS IN 2012**



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Short of a major financial crisis that wiped out significant wealth, hedge funds will thus remain a formidable presence for the next five years—and may well double in scale. Already large players, their presence is likely to become even more pronounced. What would this mean for global financial markets?

### **UNIQUE INVESTMENT BEHAVIOR SETS HEDGE FUNDS APART**

Covering more than 7,000 funds, the hedge fund universe is broad and diverse. With few restrictions on their investment strategies, hedge funds can invest in almost anything. Nonetheless, all hedge funds share several unique characteristics that differentiate them from traditional institutional investors, such as mutual funds and pension funds. Because of these characteristics, hedge funds are shaping global financial markets in new ways.

Because hedge funds are private pools of capital, they are not subject to the same disclosure and regulatory requirements by financial authorities as other institutional investors. As a result, hedge funds can engage in a broader set of investment strategies than long-only investors, such as pension funds and mutual funds. For instance, hedge funds can invest in swaps, options, futures, and other derivatives, as well as in structured financial products like CDOs. In addition to equities and debt markets, they can take positions in foreign exchange and commodities, and they can buy or short sell securities. In short, hedge fund portfolios have a different risk-return profile than those of long-only investors. To protect less wealthy investors from excessive risk, regulations in the United States and most other countries prescribe that only “qualified” or “accredited” investors (either institutions or wealthy individuals) can contribute to hedge funds.<sup>15</sup>

Hedge funds also tend to leverage their investor capital significantly to amplify returns (although some hedge funds use little, if any, leverage). By taking margin loans from banks, or by using off-balance-sheet derivatives, hedge funds can take positions in financial markets that are many times the size of their capital (see “How hedge fund leverage works”). Overall, the hedge fund industry has leveraged assets that are an estimated three to four times its assets under management. This is why hedge funds are estimated to have up to \$6 trillion in gross investments, even though their investor capital is only \$1.7 trillion.

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<sup>15</sup> In the United States, “qualified” investors are individuals with a minimum net worth of \$5 million. Hedge funds can also accept a limited number of “accredited” investors. These are investors with a minimum net worth of \$1 million and at least \$200,000 in income in each of the previous two years, as well as a reasonable expectation of reaching the same income level in the current year.

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A third hallmark of most hedge funds is their dynamic investment strategies. Traditional investors such as mutual funds generate returns for investors by buying and holding equities and bonds, thereby earning returns mostly in line with the market. Most hedge funds, in contrast, generate returns by identifying unique profit opportunities in the market. Some hedge funds seek returns that are independent from market movements—i.e., “market-neutral.” Arbitrage funds exploit price anomalies in financial markets—for instance, a pricing mismatch between two related bonds. Some use computer models to identify these opportunities; these funds are called quantitative or “quant” funds. Other hedge funds take directional bets on market movements. These include “global macro” funds that analyze macroeconomic fundamentals in search of investment ideas, as well as “stock-picking” equity funds. Whatever their strategy, most hedge funds have a much more active trading style than buy-and-hold investors, with high turnover in their positions. As a result, hedge funds account for a significant share of trading turnover in most asset classes.

As the hedge fund industry has become more competitive, hedge funds have increasingly been investing in illiquid assets in their search for returns. In equity, this includes purchasing companies through private equity stakes, PIPES,<sup>16</sup> and buying stakes in physical assets—say, an Indonesian oil rig. In fixed income, hedge funds have been major buyers of illiquid structured credit vehicles, such as collateralized debt obligations (CDOs) and collateralized loan obligations (CLOs).<sup>17</sup> The share of hedge fund investments in illiquid and difficult-to-value securities has risen to as much as 20 percent of total assets under management.<sup>18</sup> Unlike investments in more liquid assets, these illiquid positions make it more difficult to measure and monitor risk and performance in hedge fund portfolios.

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16 PIPES stands for private investments into public-equity securities.

17 CDOs are asset-backed securities that may be backed by any type of debt instrument, while CLOs are asset-backed securities created by securitizing loans. For more detail on these instruments, see chapter 5 on private equity.

18 *Financial risk outlook*, Financial Services Authority (FSA), March 2007.

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### **How hedge fund leverage works**

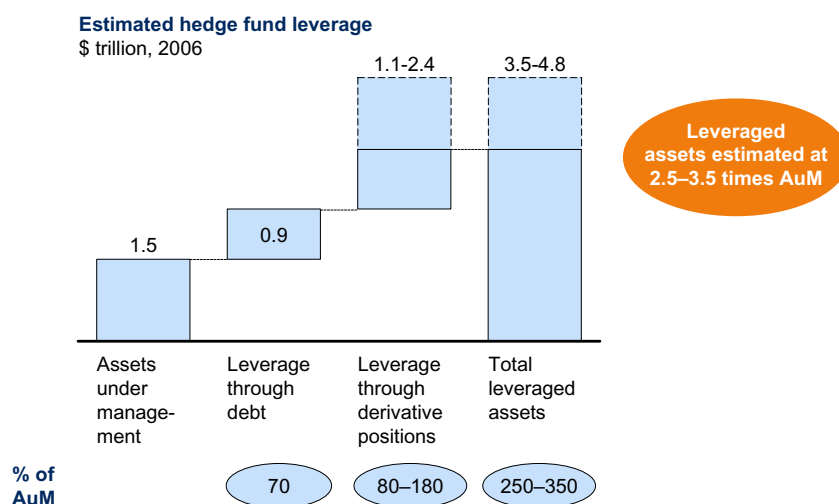
Hedge funds can leverage their investor capital in several different ways to increase returns on their investments. First is by borrowing from banks, which creates debt that appears on hedge fund balance sheets. Hedge funds typically do this by taking out margin loans from their banks (buying securities on margin). For instance, with a 10 percent margin on a given security, a hedge fund could buy \$10 worth of securities but pay only \$1 up front, the bank supplying the rest of the required capital in the form of a loan. In return, the hedge fund deposits at the bank an agreed amount of cash or securities as collateral. In addition to holding the collateral, the bank can further protect itself using margin calls—if the market value of the securities it has lent against falls by an agreed percentage, the bank is entitled to call on the hedge fund to deposit additional collateral.

Another form of debt that hedge funds receive from banks is a “repo,” or a repossession agreement, in which one party agrees to sell a security to another party for a given price and to buy it back later at an agreed price. A reverse repo is a contract in which one party agrees to buy a security for a given price and to sell it back later at an agreed price. Repos are typically used to finance the purchase of debt securities. Hedge funds can also engage in short selling—i.e., selling securities that they have borrowed from their banks or other counterparties. This practice is an implicit form of leverage, as the hedge fund uses the funds raised from the sale of these securities to buy other securities—a practice known as long/short trading.

An additional source of hedge fund leverage is the implicit, off-balance-sheet leverage provided by derivatives and structured products. Through derivatives such as options, swaps, and futures, investors can gain much larger risk exposure to an asset class than if they instead used their capital to buy the asset directly. Similarly, structured products such as the high-risk portions of collateralized debt obligations (CDOs) contain implicit leverage, as a very large share of the underlying debt securities' risk is allotted to those portions. The implicit leverage through derivatives and structured products adds to hedge funds' total leverage ratio to an aggregate level for the industry of up to an estimated three to four times its total assets under management (Exhibit 4.9).

## Exhibit 4.9

### HEDGE FUNDS LEVERAGE THEIR ASSETS THROUGH ON- AND OFF-BALANCE-SHEET INSTRUMENTS



Source: *How important are hedge funds for the investment banking industry?* Dresdner Kleinwort Equity Research; McKinsey Global Institute analysis

### HEDGE FUNDS BOOST MARKET LIQUIDITY, EFFICIENCY, AND INNOVATION

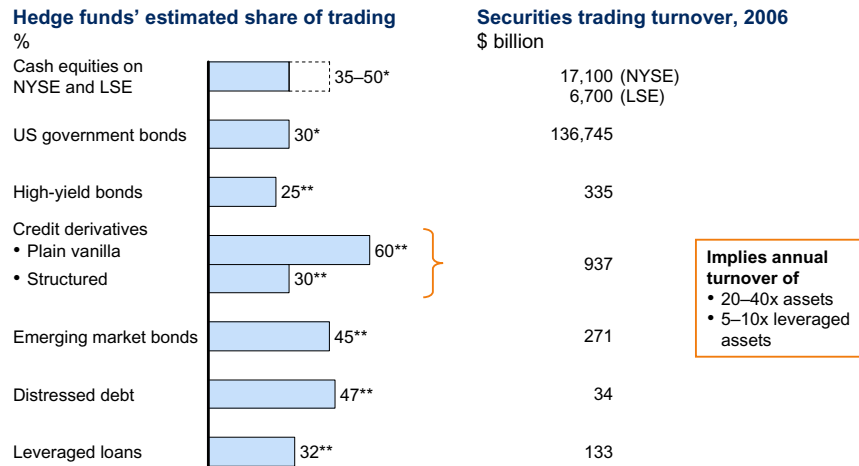
With their distinctive investment strategies, hedge funds are having a clear impact on global capital market dynamics. During the past five years, hedge funds have boosted financial market liquidity and efficiency, spurred financial innovation, and had a measurable impact on corporate performance. These benefits have substantially improved the functioning of financial markets.

**Boosting liquidity.** Because of their active trading styles, hedge funds now account for 30 percent to 50 percent of trading volumes in the largest equity and debt markets. In some higher-risk asset classes, such as derivatives and distressed debt, hedge funds are the largest player (Exhibit 4.10). This has boosted the liquidity of financial markets around the world, increasing the financing options available to many companies that might not have been able to attract financing in the past. The active trading behavior of hedge funds also enhances price discovery in financial markets and reduces the likelihood of pricing inefficiencies.

In addition, hedge funds have contributed to the rapid growth in credit markets of recent years through their purchases of credit derivatives, as well as through lending. The notional value outstanding of global credit derivatives has grown exponentially over the past ten years (Exhibit 4.11). Hedge fund trading in these securities has been a major factor, accounting for 32 percent of the market on the sell side and

**Exhibit 4.10**

**HEDGE FUNDS ACCOUNT FOR A SIGNIFICANT SHARE OF TRADING VOLUME**



\* Press estimates.

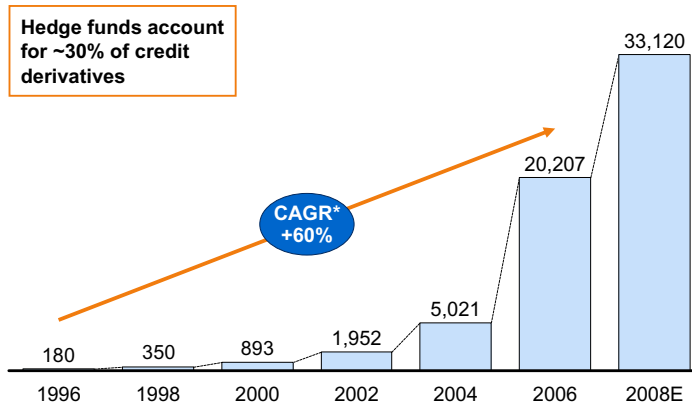
\*\* IMF/Greenwich Associates estimates based on trading volumes reported by 1,281 US fixed-income investors, including 174 hedge funds.

Source: NYSE; LSE; US Bond Market Association; IMF; Greenwich Associates; Financial News; Gartmore; Stern School of Business; British Bankers' Association; ISDA; McKinsey CIB Practice; McKinsey Global Institute analysis

**Exhibit 4.11**

**GROWTH IN CREDIT DERIVATIVES INDICATES THAT OFF-BALANCE-SHEET LEVERAGE HAS INCREASED**

Global credit-derivatives market notional amounts \$ billion



\* Compound annual growth rate.

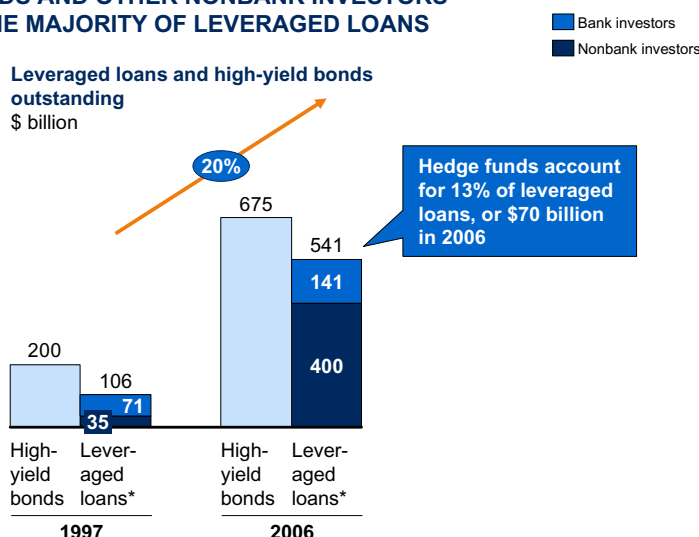
Source: British Bankers' Association; McKinsey Global Institute analysis

28 percent on the buy side. Hedge funds have sold approximately \$6.4 trillion in notional credit protection, and \$800 billion on a net basis. Hedge funds have also been major buyers of asset-backed securities (ABS)—especially mortgage-backed securities (MBS)—and collateralized debt obligations created from ABS. All these instruments have allowed banks to originate more loans than they would have otherwise, because they can take these credit risks off their own balance sheets and syndicate them in the market. This expansion of credit has provided consumers and companies with unprecedented access to capital, thus fueling economic growth. (Some of the credit growth has undoubtedly been excessive, as the current contraction in credit markets shows.)

Moreover, Standard and Poor’s estimates that hedge funds account for 13 percent of high-risk loan volume in recent years, which has gone to leveraged buyout funds and companies with poor investment ratings (Exhibit 4.12). Some observers question the prudence of hedge funds making such leveraged loans. Combined with their large participation in the market for CDOs and CLOs, hedge funds have contributed to the private equity boom.<sup>19</sup>

**Exhibit 4.12**

**HEDGE FUNDS AND OTHER NONBANK INVESTORS PROVIDE THE MAJORITY OF LEVERAGED LOANS**



\* High-yield loans to below-investment-grade companies and LBOs; leveraged buyout funds account for one-third of the total in the United States and two-thirds in Europe.

Source: Standard and Poor’s S&P/LSTA Loan Index April 2007; McKinsey Global Institute analysis

19 See chapter 5 for an explanation of how CDOs have fueled the private equity boom.

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**Financial innovation.** As prominent users of complex and new financial instruments, hedge funds have been a major force behind financial innovation. This has allowed more efficient spreading of risk across market participants and better hedging of risk within portfolios. Hedge funds, and banks' proprietary trading units, have created automated trading programs that have enabled the rise of quantitative trading strategies and have pioneered arbitrage trading (investing in two related securities to exploit and remove price inefficiencies). Spurred by demand from hedge fund clients wanting to gain exposure to various asset classes quickly and easily, banks have created a variety of exotic products in exchange and OTC markets. These developments have improved financial market efficiency but have potentially added risks as well.

**Shareholder activism.** Some hedge funds are playing an increasingly active role as shareholders. The British hedge fund TCI (The Children's Investment Fund), for instance, recently started the campaign to break up the struggling Dutch banking giant ABN Amro, a move that was joined by hedge funds Atticus and Tosca. It is not yet clear whether hedge fund activism improves long-term corporate performance. Several academic studies offer some evidence that it does. One study, for instance, found that companies targeted by activist hedge funds on average saw their share price rise by 5 percent to 7 percent over the first year, and that their subsequent average return on equity (ROE) was 10 percent higher than a sample of their industry peers.<sup>20</sup> Some of the improved performance in ROE may have been due to increased use of leverage in the companies or to a reduction in their capital expenditure. More research is needed on whether activist hedge funds—like other active shareholders—sustainably improve corporate performance.

### **DO HEDGE FUNDS POSE SYSTEMIC RISK?**

Although hedge funds have provided significant benefits for financial markets, their activities also create risks. "Systemic risk" refers to the possibility that many financial institutions could fail simultaneously in response to a single major event. Hedge funds could pose systemic risk in two main ways: (1) the failure of several large hedge funds at once could create contagion across unrelated asset classes as they are forced to unwind positions, and (2) hedge funds could create huge losses for the banks that lend to them. Several aspects of hedge funds' activities amplify these risks.

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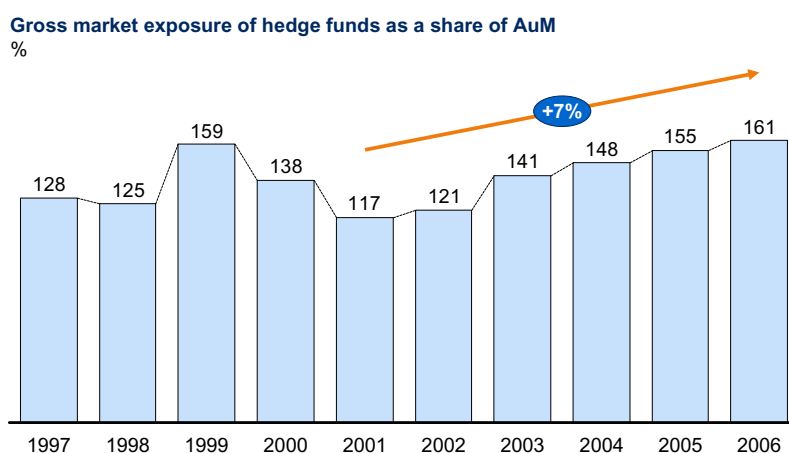
<sup>20</sup> A. Brav, W. Jiang, F. Partnoy, and R. Thomas, *Hedge fund activism, corporate governance, and firm performance*, Knowledge@Wharton research paper, November 1, 2006.



Hedge funds' use of leverage is one source of risk, and it has been rising. In 2006, gross hedge fund assets stood at 161 percent of net assets, the highest level in a decade (Exhibit 4.13).<sup>21</sup> Individual hedge funds and strategies within funds may use much higher leverage. The Lipper Tass database shows that average leverage ranges from 40 percent for equity long/short strategies to over 400 percent for fixed-income arbitrage.<sup>22</sup> A survey of global prime brokers by Fitch Ratings Ltd., found that leverage for some credit strategies is now as much as 20 times assets under management.

### Exhibit 4.13

#### HEDGE FUND ON-BALANCE-SHEET LEVERAGE IS AT A TEN-YEAR PEAK



Source: Hennessee group; International Financial Services London (IFSL)

In normal market conditions, leverage provides extra liquidity to financial markets. For hedge funds with arbitrage strategies, leverage enables them to make significant profits from very small price discrepancies. But in times of turbulence, leverage has a multiplier effect and can force hedge funds to liquidate assets. Consider a hypothetical hedge fund leveraged at 4 times its equity. If the value of its portfolio were to decline by 5 percent, it would have to sell 25 percent of its assets to maintain a leverage ratio of 4.0 (Exhibit 4.14). If it did not, its leverage would rise to 5.3 times equity. During turbulent markets, banks often increase their margin requirements, reducing the amount of leverage that hedge funds can use—and forcing them to sell

21 Hedge funds increase the amount of equity capital they get from investors by leveraging it up with debt. The equity capital is known as assets under management, or “net” assets. The amount of total assets invested in the market is termed “gross” assets or “gross market exposure.”

22 “Recent developments in hedge funds,” *Bank of Japan Research Bulletin*, May 2006.

## Exhibit 4.14

### LEVERAGE CAN ACCELERATE FORCED SELLING

SIMPLIFIED EXAMPLE

- 1 Hedge fund owns \$100 worth of securities

Assets	Liabilities
Stock (100)	Loan (80)
	Equity (20)

Leverage of 4x

- 3 Hedge fund sells \$20 worth of securities to restore 4.0x leverage ratio

Assets	Liabilities
Stock (75)	Loan (60)
	Equity (15)

Restore leverage of 4x

- 2 Securities decline 5% in value

Assets	Liabilities
Stock (95)	Loan (80)
	Equity (15)

Leverage has increased to 5.3x

- 4 Margin increases to 25%, hedge fund must sell \$35 worth of securities to restore new leverage ratio of 3.0x

Assets	Liabilities
Stock (60)	Loan (45)
	Equity (15)

Restore leverage of 3x

Source: *Hedge funds: The credit market's new paradigm*, Fitch Ratings, June 5, 2007

even more.

A scenario in which several highly leveraged hedge funds were forced to unwind large positions at a rapid pace could significantly depress asset prices and create contagion across normally uncorrelated asset classes. This could create losses for other investors and spark a panicked “flight to safety.” A small glimpse of such a dynamic could be seen, for instance, in the brief market downturn in February 2007 when some emerging market indexes fell by a few percentage points in one day, but the index funds tracking these indexes fell by a multiple over the same period. This temporary disconnect was caused largely by hedge funds, which rapidly traded out of their positions in these index funds. In August 2007, turbulent equity markets caused huge losses for several large quantitative equity arbitrage hedge funds, which prompted selling by fund-of-hedge funds, exacerbating equity market declines. The risk of large hedge funds simultaneously unwinding positions and creating declines across markets that are usually uncorrelated is quite real.

On top of the risks posed by leverage is the difficulty of measuring risk in hedge fund portfolios. Although risk-management systems have improved significantly over the past ten years, the trend toward hedge funds taking illiquid positions in companies and instruments such as CDOs raises new challenges. These investments cannot be “marked to market”—valued at their market price and reported daily at that value

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on a hedge fund's balance sheet. Instead, they must be “marked to model”—valued internally using a model constructed by the trader, the fund's lending bank, or the fund's third-party administrator. Many hedge funds that had invested heavily in subprime mortgage assets, for instance, found out that the prices other investors were willing to pay for these assets were far lower than the valuations suggested by their models. For some funds, this turns into a vicious circle—in need of cash to meet the margin calls from creditors, but failing to find buyers for the “bad” positions they want to get out of, the funds are forced to sell off their “good” assets. This also creates contagion across asset classes.

### **SYSTEMIC RISK FROM HEDGE FUNDS MAY BE DECLINING—BUT THE JURY IS STILL OUT**

Hedge funds clearly pose potential risks to financial market stability. Nonetheless, some evidence suggests that the past ten years have seen the systemic risk posed by hedge funds reduced—but certainly not eliminated completely. Although it would be foolish to claim that the systemic risk from hedge funds has disappeared, there are several reasons for cautious optimism: hedge fund strategies are becoming more diverse, banks have gotten better at protecting themselves from counterparty credit risk with hedge funds, and financial markets have become deeper and more resilient.

#### **Hedge fund strategies are becoming more diverse**

A key determinant of hedge fund risk is the degree of similarity in their trading strategies. Similar trading strategies could cause hedge funds to simultaneously unwind positions in response to a market shock, thereby causing a sharp decline in asset prices and liquidity. There are several ways to assess the similarity, or correlation, among hedge fund investment strategies.

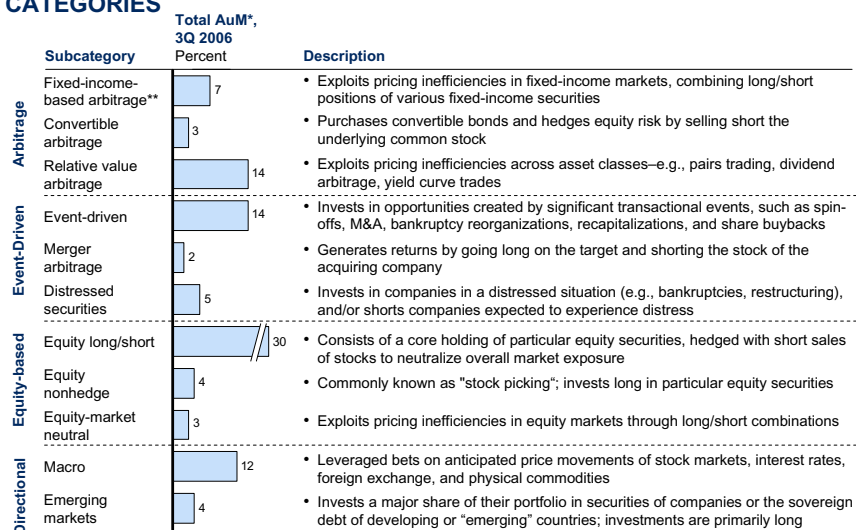
We can identify four broad groups of hedge fund strategies: arbitrage, event-driven, equity-related, and directional, each of which has a number of subcategories (Exhibit 4.15).<sup>23</sup> The first two groups aim to be “market-neutral” strategies; i.e., they aim to achieve returns that are uncorrelated with market movements (some equity strategies are also market-neutral, while others are not). For example, a convertible arbitrage manager seeks to find discrepancies in the prices of convertible bonds and common stock of the same issuer. Directional strategies, in contrast, are those that generate returns by taking bets on market movements in equities, fixed-income, foreign-exchange, and physical commodities.

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23 Note that this categorization of strategies cannot easily be applied to some recently emerging strategies such as the carry trade, in which an investor sells a certain currency with a relatively low interest rate and uses the funds to purchase a different currency yielding a higher interest rate, profiting from the differential.

## Exhibit 4.15

### HEDGE FUND STRATEGIES CAN BE GROUPED INTO FOUR MAJOR CATEGORIES



\* Strategies not included are Market Timing, Regulation D, and Short Selling (together 1% of total AuM), and Sector-Specific strategies.

\*\* Includes the HFR strategy definitions: fixed income (FI) arbitrage, FI convertible bonds, FI diversified, FI high yield, FI mortgage-backed.

Source: Hedge Fund Research; McKinsey Global Institute analysis

Since the mid- to late 1990s, the universe of hedge fund strategies has become more diverse, working against herd behavior. Although hedge fund assets are six times as large as they were ten years ago, hedge funds are engaged in a far broader set of investment activities, covering more geographies, illiquid investments, and new financial instruments. Moreover, hedge fund investment strategies have shifted away from directional plays to a broader range of strategies (Exhibit 4.16). The share of directional strategies in total hedge fund assets decreased from 62 percent in 1996 to 15 percent in 2006. Global macro, the largest subcategory of the directional segment, single-handedly accounted for 55 percent of total assets in 1996, but today it has shrunk to a mere 12 percent. Arbitrage and event-driven strategies have grown and now comprise 47 percent of total hedge fund assets. These strategies aim to be market-neutral. If they prove to generate returns in both rising and falling markets, this shift should improve financial market stability. This is especially likely to be the case during normal market conditions. During extreme market volatility, however, many asset classes that are normally uncorrelated can start to move together.

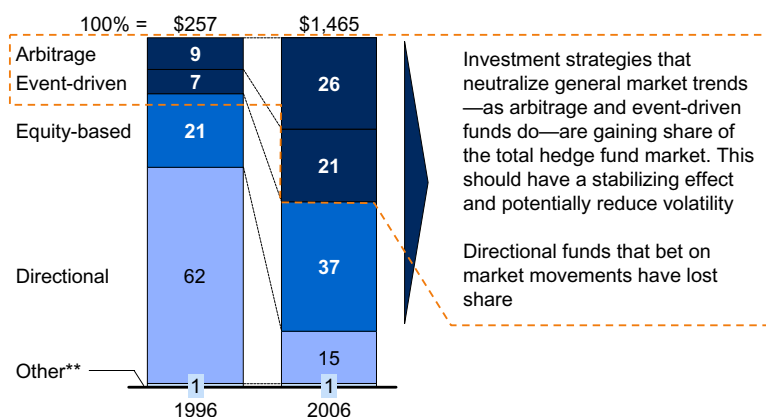
Measuring the correlation of hedge funds' returns is another way to assess the likelihood that they might simultaneously unwind positions. The evidence on this point is mixed and depends on the methodologies and data sources used. A recent study by the Federal Reserve Bank of New York finds a decline since 1998 in both

**Exhibit 4.16**

**HEDGE FUND STRATEGIES HAVE BECOME MORE DIVERSIFIED, REDUCING “HERD BEHAVIOR”**

Strategy composition\* by assets under management  
Percent, \$ billions

Market-neutral strategies



\* Strategy composition as of 3Q 2006.

\*\* Includes dedicated short-bias, market-timing, and Regulation D investment strategies.

Source: Hedge Fund Research; McKinsey Global Institute analysis

the volatility and covariance of hedge fund returns across different strategies and across individual hedge fund returns (Exhibit 4.17).<sup>24</sup> This would imply that systemic risk from hedge funds is declining. Other studies, however, find evidence of contagion in hedge fund returns, meaning that very poor performance in one strategy increases the likelihood of poor performance in other strategies. It will take several more years to see whether the hedge fund industry, at its current size, has indeed truly diversified its trading strategies and can produce uncorrelated returns over a full market cycle.

The equity market turbulence of August 2007 is instructive. On one hand, several very large quantitative equity arbitrage funds simultaneously suffered significant losses when market volatility spiked—suggesting that their models were not market-neutral and that they employed similar trading strategies.<sup>25</sup> On the other hand, other hedge funds stepped in to buy the distressed assets. Several hedge fund groups began to raise new pools of capital to buy distressed assets. In short, hedge funds were acting as the markets’ “lender of last resort,” willing and able to buy up assets that were sold by other failed funds. This reflects their increased diversity.

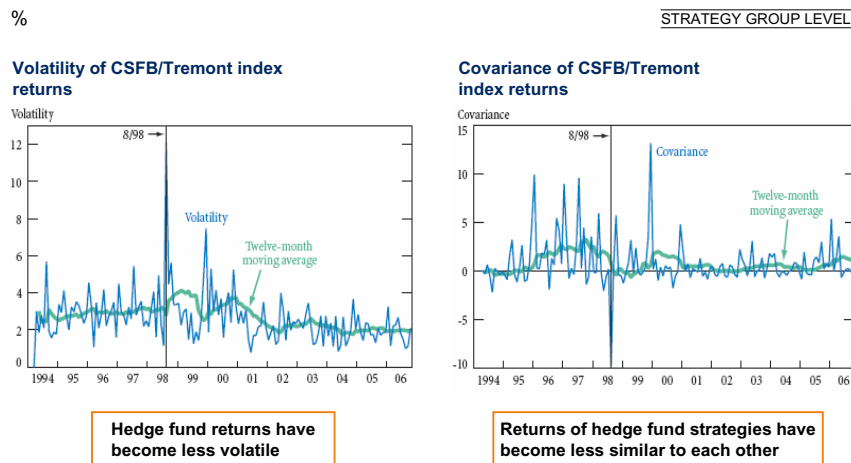
24 T. Adrian, “Measuring risk in the hedge fund sector,” Federal Reserve Bank of New York, *Current Issues in Economics and Finance*, March/April 2007.

25 Nicole M. Boyson, Christof W. Stahel, and René M. Stulz, “Is there hedge fund contagion?” NBER working paper, 2006; Nicholas Chan, Mila Getmansky, Shane M. Haas, and Andrew W. Lo, “Systemic risk and hedge funds,” NBER working paper, March 2005.

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## Exhibit 4.17

### COVARIANCE AND VOLATILITY OF HEDGE FUND RETURNS HAVE DECREASED—BUT THIS HAS OCCURRED IN BENIGN MARKETS\*



\* These charts show volatility and covariance by hedge fund investment strategy. Analysis on individual fund level yields similar results.

Source: Adrian, T., "Measuring risk in the hedge fund sector," Federal Reserve Bank of New York, *Economics and Finance*, March/April 2007

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## Banks are protected better against counterparty credit risk

Although hedge fund strategies may be becoming more diverse, there is still the risk that the failure of one or more large funds could pose very large losses for banks. Banks are exposed to the hedge fund industry in several ways.

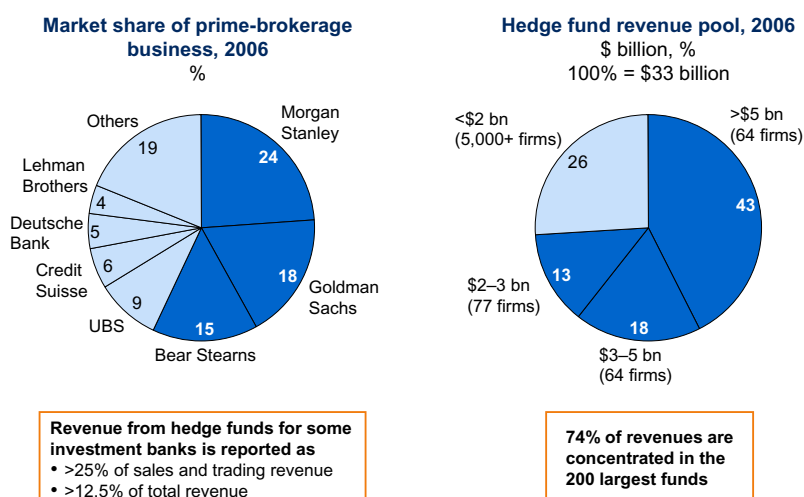
One aspect is banks' dependence on revenues from hedge funds. In 2006, banks are estimated to have earned over \$30 billion from providing trading and prime brokerage services to hedge funds—some 15 percent of their total capital-markets revenues.<sup>26</sup> For the largest investment banks that dominate the prime brokerage market, this percentage is likely much higher. Moreover, revenues that banks earn from hedge funds are highly concentrated, with 74 percent of the total revenue coming from the largest 200 hedge funds (or those with assets in excess of \$2 billion). In addition, the prime brokerage market that serves hedge funds is also highly concentrated, with the largest three players accounting for more than half of the overall market (Exhibit 4.18). This situation leaves banks potentially vulnerable to a simultaneous meltdown of one or several large hedge funds.

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<sup>26</sup> Prime brokerage comprises all services other than sales and trading that investment banks provide to hedge funds. The main services are clearing and custody, securities lending, financing (including margin loans, repos, and, increasingly, permanent capital), customized technology and reporting tools, and risk-management advisory services. The prime broker earns fees on financing the hedge fund's positions and charges fees for providing clearing and other services.

## Exhibit 4.18

### HEDGE FUND REVENUES ARE HIGHLY CONCENTRATED IN THE TOP 200 FUNDS



Source: Lipper Hedge Word; Merrill Lynch; Global Custodian; hedge fund interviews; McKinsey Global Institute analysis

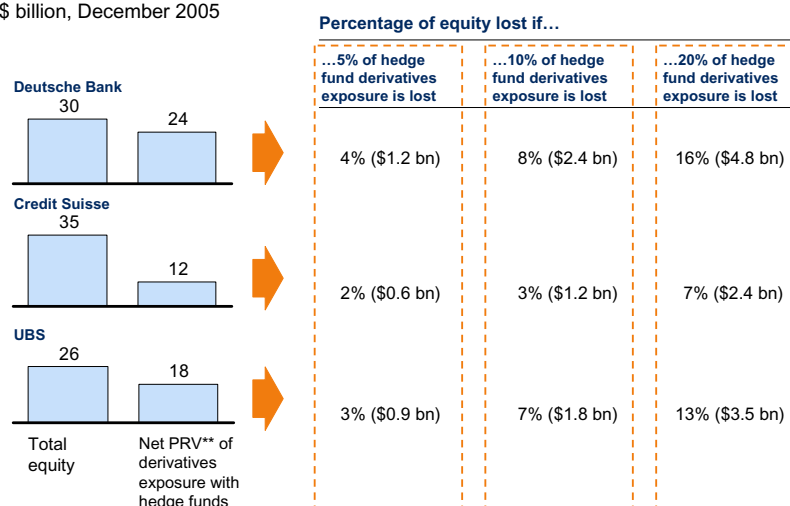
Banks are also exposed to counterparty risk with hedge funds because of outstanding loans and bilateral derivatives contracts. If hedge funds failed, banks might find their positions worthless. However, our analysis suggests that the banks' exposure to this risk is not unduly large. We calculate that a loss of 20 percent of banks' derivatives exposure to hedge funds corresponds to a maximum loss of 15 percent of bank equity (Exhibit 4.19). The true loss would be smaller, since banks require hedge funds to put up collateral. Moreover, we find that the top ten banks' total exposure to credit and derivatives risk from hedge funds is equal to 2.4 times their equity—a relatively high capital adequacy ratio of 42 percent (Exhibit 4.20).

Banks have also significantly improved their ability to manage counterparty credit risk over the past decade. Risk-management and monitoring systems today can calculate quickly when a margin call is required and when they need to increase collateral requirements. They are thus better prepared to manage risk coming from hedge funds than they were ten years ago, when the collapse of LTCM threatened to bring down the banks. An exception is in risk-management systems for illiquid assets, whose market value is difficult to measure, as we noted previously. But even in this area, the subprime mortgage crisis that started in 2007 has shown that banks quickly claim their money from ailing hedge fund debtors.

### Exhibit 4.19

#### LOSS OF 20 PERCENT OF BANKS' DERIVATIVES EXPOSURE TO HEDGE FUNDS IMPLIES 15 PERCENT LOSS OF BANK EQUITY\*

\$ billion, December 2005



\* Does not account for collateral that banks hold  
 \*\* PRV = Positive replacement value..

Source: Company data; Dresdner Kleinwort equities estimates; McKinsey Global Institute analysis

### Exhibit 4.20

#### THE TEN LARGEST BANKS COMFORTABLY COVER HEDGE FUND EXPOSURE THROUGH TIER 1 CAPITAL

Prime brokers' counterparty credit exposure				
December 2005				
	Banks' total credit exposure	Ratio to Tier 1 capital	Banks' hedge fund credit exposure	Hedge fund exposure ratio to Tier 1 capital
	\$ billion		\$ billion	
Loaned securities	555	1.09	222	0.44
Reverse repos	1,864	3.65	466	0.91
Derivatives PRV*	885	1.74	292	0.57
Margin loans	367	0.72	242	0.48
<b>Total</b>	<b>3,672</b>	<b>7.20</b>	<b>1,223</b>	<b>2.40</b>

Total exposure is equivalent to 2.4 times Tier 1 capital— i.e., a capital adequacy of 42% vs. the hedge funds sector

Note: Figures may not sum due to rounding.  
 \* PRV = Positive replacement value

Source: Prime broker published balance sheet accounts; Thomson Financial; OECD estimates



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### **Financial markets are deeper and more resilient**

The stock of global financial assets has more than doubled over the past ten years, reaching \$167 trillion at the end of 2006—more than 20 times global hedge funds' leveraged assets. Moreover, financial markets around the world are deepening, offering more investment opportunities. Emerging market financial systems, in particular, have been growing rapidly, along with those in Europe. The greater breadth and liquidity of global financial markets suggests that markets could better handle the failure of one or more large hedge funds.

The starkly different market impacts of the failure of LTCM in 1998 and the collapse of the hedge fund Amaranth in 2006 illustrate this point to a degree. While there has been extensive debate whether the \$3.6 billion LTCM bailout was actually necessary, it is striking that the question of launching a rescue during more recent hedge fund failures such as Amaranth has not even arisen. When Amaranth failed, there was barely any reaction in the financial markets, despite the fact that the fund's losses were larger—\$6 billion lost in a week—than those of LTCM, which lost \$4.6 billion over several months. This was partly because, unlike LTCM, which was highly leveraged and trading in many different asset classes, Amaranth's activities took place in the relatively confined natural gas market where few investors are active. Its losses were limited to the hedge fund itself and a small number of counterparties. In fact, other market participants, notably the hedge fund Citadel and the investment bank JP Morgan, profited from the debacle, buying Amaranth's assets at a bargain price of some \$2 billion, "rescuing" the fund from a default and stabilizing the market at the same time. Moreover, LTCM was a large client for many banks, leaving them all exposed when its trades went awry. Banks have since learned from this episode and hold more equity and collateral against hedge fund risk.

### **EVOLVING FROM MAVERICK TO MAINSTREAM**

Hedge funds have become such an established feature of the investment universe that some argue the era of the mutual fund is over. In today's investment world, mutual funds have arguably lost their *raison d'être* and find themselves squeezed in the middle between standardized index fund products, which can generate market beta returns at a fraction of the fees that mutual funds charge, and hedge funds and other alternative assets that can offer uncorrelated returns, exposure to new asset classes, and important portfolio diversification. Others take a very different view, arguing that most hedge funds have failed to live up to their promise and have become little more than leveraged mutual funds with excessive fees.

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The truth is more complex than these opposing views suggest. Some hedge funds have indeed relied more on leverage and rising markets than on skill in generating alpha in recent years—and will likely not last the market downturn. But hedge funds as a group are here to stay and will almost certainly grow larger over the next five years. Institutional investors, particularly pensions, are in the process of allocating a larger portion of their portfolio to hedge funds and they have a long-term investment view that will outlast one or two years of low returns. But three trends will put pressure on hedge funds to become less market mavericks and more mainstream players. This will further reduce the risk that hedge funds pose to the market, although hedge fund returns may be curtailed as well.

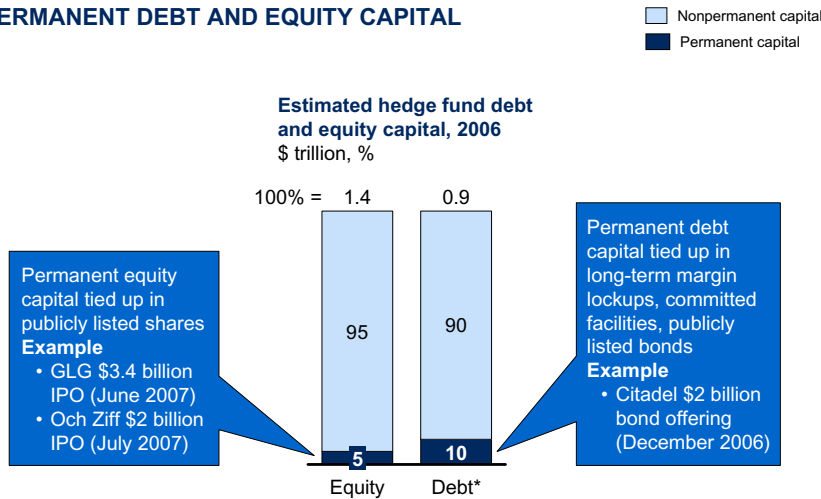
**Permanent capital will increase hedge funds' ability to weather storms**

Some hedge funds are beginning to seek permanent sources of capital to improve their ability to withstand financial market volatility (a trend that will also reduce counterparty credit risk to banks). By raising capital via bond offerings, committed lending facilities, and permanent equity elicited through IPOs, rather than from private investors, hedge funds can avoid forced selling of assets and better weather market downturns. Today, hedge funds have an estimated 5 percent to 10 percent of their capital from long-term sources (Exhibit 4.21). Bond offerings and initial public offerings in equity markets are in the works. For instance, Citadel Investment Group issued bonds for the first time in December 2006, while GLG Partners, a large European hedge fund, floated an initial public offering on the New York Stock Exchange in June 2007, raising \$3.4 billion in equity. Some of the largest hedge funds are also lengthening the “lock up” period during which investors are prevented from withdrawing funds.

Permanent capital funding options such as IPOs, debt offerings, and committed lending facilities are typically open only to the largest, most well-established hedge funds. This will accelerate consolidation in the hedge fund industry. Together with longer investor lock up periods and more restrictions on investor withdrawals, permanent capital will increase the largest funds' ability to withstand market volatility and give them a further advantage over smaller funds.

**Exhibit 4.21**

**5–10 PERCENT OF HEDGE FUND CAPITAL IS TIED UP IN PERMANENT DEBT AND EQUITY CAPITAL**



\* Debt consisting of margin loans, repos, loaned securities—excluding derivatives.  
 Source: Press; Hedge Fund Research; OECD; McKinsey Global Institute analysis

**Competition will result in industry consolidation**

Hedge funds justify the lucrative fees they charge by seeking high absolute returns. But the compression of alpha returns seen over recent years shows that the hedge fund industry has become crowded, and superior investment opportunities have become rare. This is causing the liquidation of some of the poorer performers in the industry.<sup>27</sup> The turmoil in credit, equity, and debt markets in 2007 will accelerate this trend, as funds that were too reliant on leverage, failing to create real alpha, collapse under the credit crunch. The remaining hedge funds are responding to the challenge by reducing leverage in their portfolios.

New products in the markets will likely cause investors to become more demanding. The 130-30 funds offered by some mutual funds, for instance, give investors access to leveraged returns. Synthetic hedge fund products can generate similar returns at lower costs. Given the high attrition rates in the hedge fund industry, only hedge fund managers with unique trading skills will survive in the long run. Some of the largest hedge fund groups are becoming integrated alternative investment firms, spanning the investment spectrum of hedge funds, private equity, and real estate.

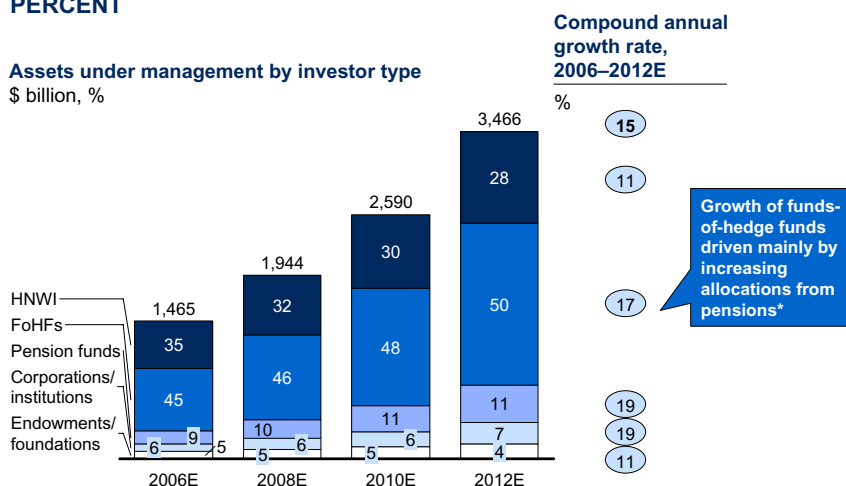
<sup>27</sup> A variety of academic studies show that investor inflows into a hedge fund decline sharply after several years of poor performance. See “A closer look at hedge fund returns” for more detail.

### Institutionalization may lower risk taking of some hedge funds

A shift in hedge funds' investor base is prompting many to become more institutionalized players. Foundations and endowments are at the forefront of institutional investment into hedge funds. But with an estimated 15 percent to 25 percent of their wealth already in hedge funds, their growth will slow. Pension funds, as we noted previously, will likely increase their allocations to hedge funds in the coming years, from the current typical allocation of 6 percent of their assets to 8 percent or 9 percent. In short, institutional investments in hedge funds—via direct investments and funds-of-hedge funds—are likely to grow considerably, and high-net-worth individuals will likely further lose share of total assets (Exhibit 4.22).

#### Exhibit 4.22

### AS HEDGE FUNDS INSTITUTIONALIZE, FUNDS-OF-FUNDS WILL GROW TO 50 PERCENT AND INDIVIDUAL SHARE WILL FALL BELOW 30 PERCENT



\* Directly and via funds-of-hedge funds (FoHFs).

Source: Hedge Fund Research; IFSL; Hennessee Group; McKinsey Global Institute analysis

This shift could influence some hedge funds' investing strategies and behavior. Many institutional investors, especially pension funds, are seeking stable absolute returns. As a result, hedge funds with large institutional holdings may pursue trading strategies that promise less risk but more stability. Some hedge funds may also be inclined to put in place more institutionalized governing structures, increase transparency and investor communication, and further improve their risk-control capabilities to satisfy the demands of their investors.

The current trend of hedge funds listing shares on public equity markets and issuing public debt will further reinforce the trend toward more institutionalized players.

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Public shareholders will require regular disclosure, clear governance structures, and more transparency. They will also be looking for more stable returns.

Over the long term, these three trends may serve to make hedge funds larger, more diversified, more focused on long-term survival, and less risky—in short, more mainstream players.



## 5. Private equity: Eclipsing public capital markets?

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Private equity has arguably been the most controversial of the four rising new power brokers—despite being the smallest. But size does not measure influence. Private equity is ushering in a new model of corporate governance and is exerting pressure on companies across the board. Private equity buyouts of large public corporations such as energy giant TXU Corp. for \$45 billion and health care's HCA, Inc. for \$33 billion—not to mention the pending Chrysler deal—have commanded the attention of companies large and small. As the industry grows and matures in coming years, so will its influence on public markets.

Yet amid the hype, facts about private equity's impact are scarce. Private equity assets under management have increased two and a half times since 2000, topping \$700 billion at the end of 2006.<sup>1</sup> But even now, private equity is only half the size of global hedge funds in terms of assets under management and is smaller than the single-largest petrodollar fund, the Abu Dhabi Investment Authority. Moreover, it is growing more slowly than either hedge funds or petrodollar investments (Exhibit 5.1). Although private equity is becoming an increasing share of mergers and acquisitions (M&A), companies owned by private equity funds are worth just 5 percent of the enterprise value of companies listed on US stock markets.

Still, private equity's influence is larger than its size would suggest. The changes it has spurred in corporate governance have breathed new life into private ownership by increasing focus on long-term performance, using high debt levels to achieve tough financial targets, and taking long-term investment horizons that allow root-

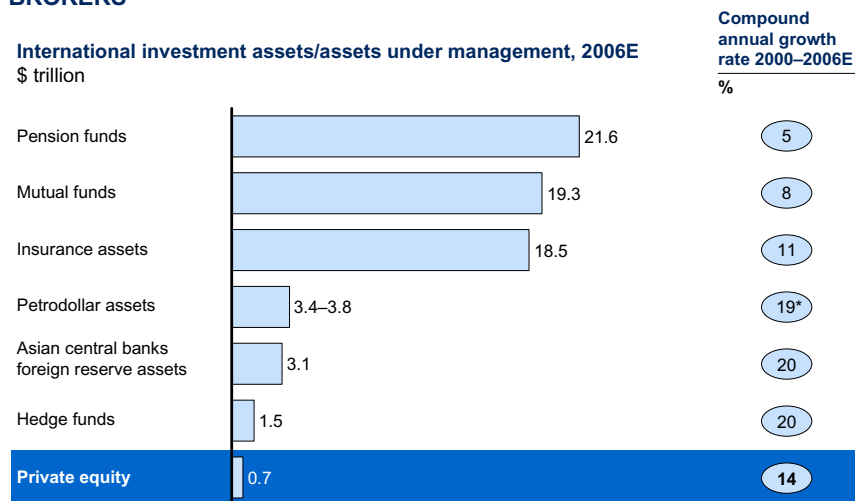
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1 In this report, we focus only on leveraged buyout funds (LBOs). We use the terms "private equity" and "LBOs" interchangeably. In broader usage, "private equity" also sometimes refers to venture capital and mezzanine and distressed debt. We focus on LBO funds because they are the focus of public debate and are the largest segment. In the broader definition, the industry has around \$1.1 trillion in assets under management. See "How do we define private equity?" for more detail.

and-branch restructuring. As the pace of buyouts has quickened, private equity is causing public companies to rethink their attitudes toward debt and equity and to reshape their growth strategies.

### Exhibit 5.1

#### PRIVATE EQUITY IS THE SMALLEST OF THE FOUR NEW POWER BROKERS



\* Growth rate calculated based on 2006 estimated data reported to the International Monetary Fund (\$2.5 trillion).  
Source: International Financial Services, London; Venture Economics; Hedge Fund Research; McKinsey Global Institute analysis

But private equity may be amplifying financial market risks as well. Leveraged buy-out funds (LBOs) are behind the dramatic growth in high-yield debt—the preferred financing for today’s corporate takeovers—and have been using their growing clout to extract looser lending covenants from banks. This may be increasing credit risk, but our analysis shows that private equity defaults alone are unlikely to have broader financial market implications. Moreover, private equity tends to invest in relatively stable companies, limiting the effects of economic downturns on their performance and enabling companies to finance higher levels of debt.

As we go to press in October 2007, credit markets have tightened dramatically, making financing some of the recent deals difficult. Some observers are predicting the end of the buyout boom. But the rise of private equity represents a structural shift in financial markets that will continue to gain influence in the long term. Even if growth slows in the short term, we project that private equity assets may grow to \$1.4 trillion by 2012. In the years to come, the evidence suggests that private equity firms will mature, consolidate, and diversify their investments, amplifying the industry’s influence on the broader corporate and financial landscape.

In this chapter we review the factors behind the recent growth of private equity, explore its impact on both the corporate and financial landscape, assess whether it is creating new financial system risks, and look at how the industry is likely to evolve.



Our goal is to provide hard facts on this little-understood sector. Although we do not take a view on regulatory issues, our research will help financial market investors, intermediaries, and regulators make well-grounded decisions.

## THE RESURGENCE OF PRIVATE EQUITY

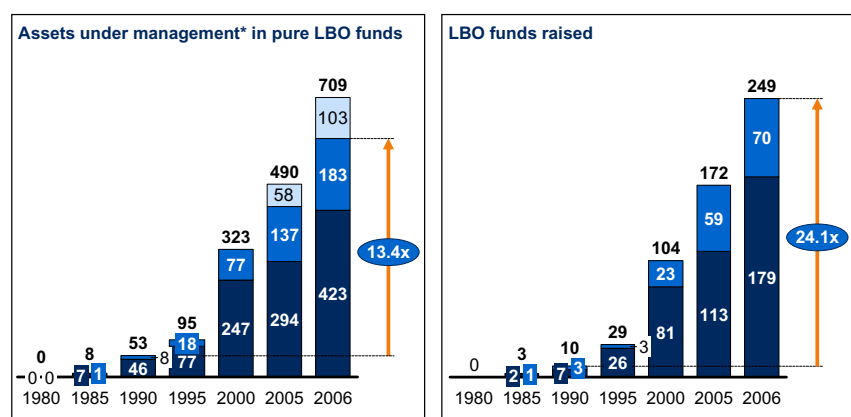
Private equity has been a feature of the financial markets for a long time. In the 1980s, the LBO industry came to prominence after the creation of high-yield “junk bonds.” The industry used this high-yield debt to finance huge corporate takeovers, including that of RJR Nabisco, Inc. by Kohlberg Kravis Roberts & Co. (KKR) for \$31.4 billion in 1988, the largest buyout of that era. But by 1990, the economy slowed down and default rates on high-yield debt increased from 4 percent to 10 percent; confidence in junk bonds swiftly eroded and the buyout boom was over. The LBO industry embarked on a long convalescence.

Private equity funds—the current name for leveraged buyouts—have seen rapid growth since 2000, driven by abundant global liquidity and strong investor demand. By the end of 2006, LBO funds had amassed \$709 billion of assets under management (Exhibit 5.2).<sup>2</sup> US funds accounted for \$423 billion and European funds for \$183 billion. Most recently, private equity growth has picked up in Asia and the rest of the world. We estimate that Asian and other global LBO funds had around \$103 billion in assets under management at the end of 2006.<sup>3</sup>

### Exhibit 5.2

#### RECENT GROWTH HAS TAKEN THE PRIVATE EQUITY INDUSTRY TO UNPRECEDENTED LEVELS

\$ billion



Note: US figures for 1980–1996 taken from Venture Expert, for 1997–2006 from PE Analyst; Europe figures taken from Venture Expert. Figures may not sum due to rounding.

\* AuM calculated as the sum of funds raised during the current year and the four previous years. See technical notes for more detail.

Source: Venture Expert; PE Analyst; AVCJ; EMPEA; McKinsey Global Institute analysis

- These figures cover only pure LBO funds. Other figures on the size of the private equity industry are higher, but these include other private asset classes such as venture capital and mezzanine, real-estate, and energy funds.
- See appendix A for more detail on how we calculate private equity assets under management.

### How do we define private equity?

The term “private equity” could refer to three potential groups: venture capital funds, leveraged buyout (LBO) funds, and other private investment funds. Venture capital plays a crucial role in providing early-stage and expansion financing to entrepreneurs and start-up companies. Leveraged buyout funds acquire larger, mature companies using a significant amount of borrowed money, or leverage. Other private investment funds invest in specific industries (e.g., real-estate funds, infrastructure funds) or provide mezzanine financing to companies.<sup>4</sup>

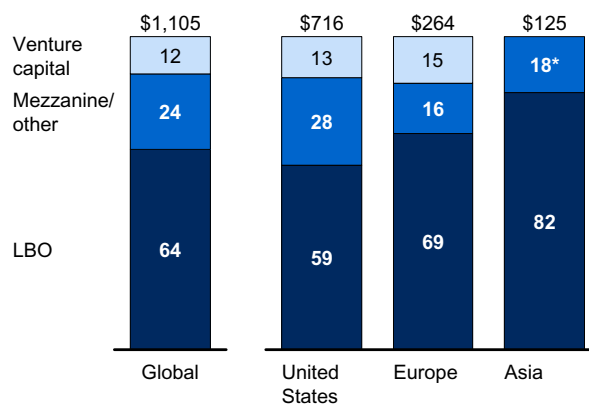
No comprehensive figures are available on the size of the private equity industry. Using several data sources and interviews with industry experts, we estimate that at the end of 2006, all three types of funds globally had \$1.1 trillion of assets under management. Of this, \$710 billion, or 64 percent, was in LBOs.

#### THE PRIVATE EQUITY LANDSCAPE

ESTIMATES

##### Private equity assets under management, 2006

\$ billion, %



\* Includes venture capital and mezzanine financing.

Source: PE Analyst; Venture Expert; EMPEA; AVCJ; McKinsey Global Institute analysis

In this report we focus exclusively on leveraged buyout funds because they are the focus of the current public debate about private equity and because of their rising exposure to, and influence on, capital markets around the world. We use the terms “private equity” and “leveraged buyout funds” interchangeably.

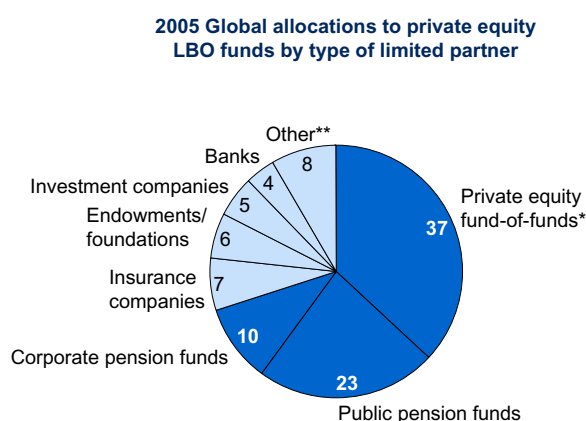
4 Mezzanine financing is a hybrid of debt and equity that is typically used to finance the expansion of companies. The lender extends a loan but has the right to convert to an equity interest in the company if the loan is not paid back in time and in full. In the case of bankruptcy, mezzanine financing is subordinated to debt provided by senior lenders such as banks.

A number of developments in financial markets lie behind the recent revival in private equity's fortunes—some of which have fueled growth in the hedge fund industry as well. These include:

**Investor demand.** With rising global liquidity and increasing investor interest in “alternative” asset classes that offer higher returns than public debt and equity markets offer as well as diversification benefits, inflows to private equity funds have exploded. New fund-raising in the United States was 60 percent higher in 2006 than in 2005—and three times the level of new fund-raising in 2004. The most important providers of capital to private equity funds have been pension funds, which account for 33 percent of assets under management through direct investments (Exhibit 5.3). But pension funds (and other institutional investors and wealthy individuals) also invest through private equity fund-of-funds, which offer greater diversification and an additional layer of due diligence in choosing funds. Insurance companies, endowments and foundations, and wealthy individuals have also been important, as have oil investors, who on average allocate a larger share of their portfolio to alternative asset classes such as private equity than do many other types of investors.<sup>5</sup> In very recent years, private equity funds have also received a boost from reinvested profits and dividends.<sup>6</sup>

**Exhibit 5.3**

**PENSIONS AND PRIVATE EQUITY FUND-OF-FUNDS ARE THE LARGEST INVESTORS**



\* Assets come from pensions, other institutions, and wealthy individuals.  
 \*\* Including wealthy individuals.  
 Source: Private Equity Intelligence; McKinsey Global Institute analysis

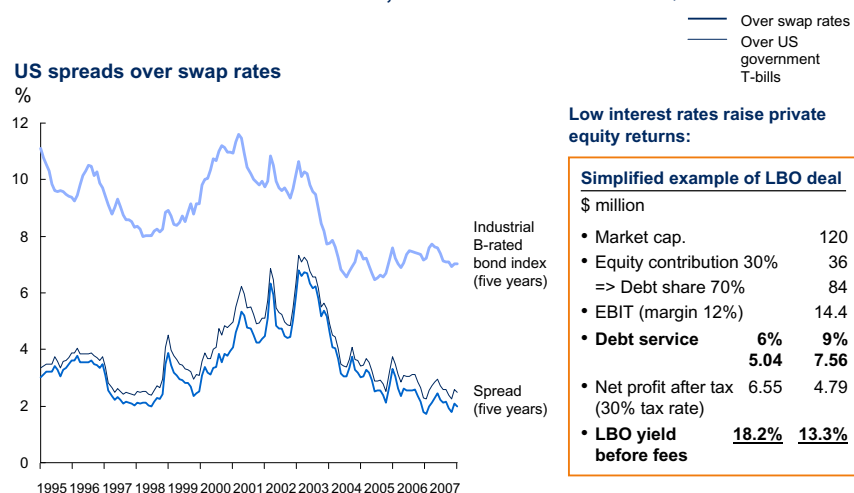
5 See chapter 2 for more detail on oil investors.

6 *Global Financial Stability Report: Market Developments and Issues*, International Monetary Fund, April 2007.

**Low-cost credit.** The growing liquidity in global capital markets from petrodollars, Asian central banks, and retirement savers has lowered interest rates and compressed credit spreads substantially (Exhibit 5.4).<sup>7</sup> Rates on B-rated industrial bonds in the United States (representative of the debt that LBO funds raise) fell to just 163 basis points over US government bonds in March 2007, its lowest level since 1998 (although as of August 21, 2007, it had risen to 304 basis points). At the same time, the availability of credit has grown due to the creation of collateralized loan and debt obligations (CLOs and CDOs) that allow banks to package debt into securities that can be sold to other investors (see “How CLOs and CDOs fueled the buyout boom”). Low interest rates combined with an ample supply of credit have fueled private equity growth by allowing LBO funds to borrow cheaply. This allows them to pay a considerable premium to buy public companies.

#### Exhibit 5.4

### INTEREST RATES HAVE FALLEN, BOOSTING PRIVATE EQUITY RETURNS



Note: Swap rates today are the benchmark standard for calculating credit spreads, as many bond investors hedge their interest rate exposure directly on the swap market; moreover, swap rates reflect only the counterparty's credit risk, which makes it more comparable across countries.  
Source: Bloomberg; OECD; McKinsey Global Institute analysis

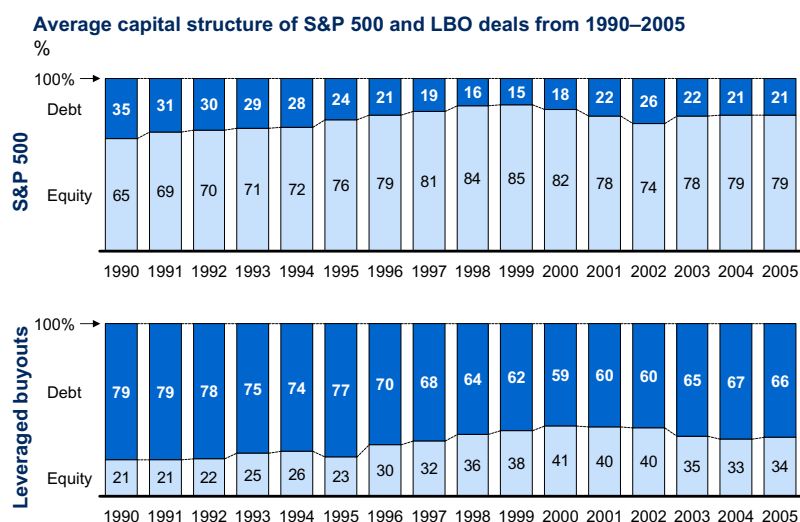
**Attractive corporate targets.** Most companies listed on public stock markets have far less debt than companies owned by private equity firms (Exhibit 5.5). In the low-interest-rate environment of 2004 through 2006, this has given private equity firms the opportunity to buy companies and boost returns on equity by adding more debt to their balance sheet. At the same time, corporate profits have been strong, giving companies the cash flows required to handle the interest payments on more debt. Moreover, managers at some companies are attracted to private equity ownership to

<sup>7</sup> We estimate that foreign capital inflows to the United States have lowered US interest rates by as much as 130 basis points. See chapter 3 on Asian central banks for more detail on this analysis.

avoid costly compliance with regulatory disclosure. At the same time, there is some evidence that private equity firms have broadened the range of companies they are prepared to buy, going after new industries and companies with new profiles. In the United States, the share of LBO deals in the health care and energy sectors has grown (Exhibit 5.6). Although this suggests private equity firms are broadening their focus, it may also reflect more competition for deals in the traditional sectors in which they invest, such as consumer, retail, and telecom. Competition is coming both from other private equity firms as well as from emerging infrastructure funds that are prepared to accept lower returns for the most stable assets.

### Exhibit 5.5

#### DEBT-EQUITY RATIO IN S&P 500 IS FAR BELOW THAT IN LEVERAGED BUYOUTS



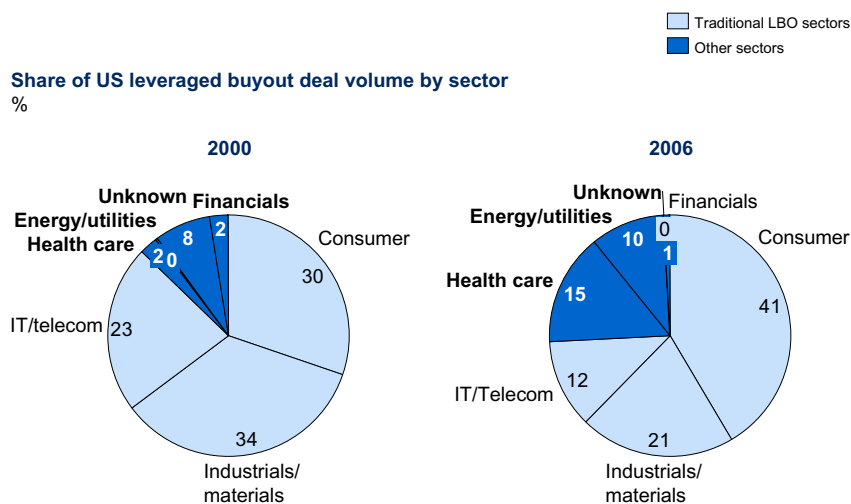
Source: S&P LCD; McKinsey Global Institute analysis

**Regulatory changes.** Finally, pension reforms have historically played an important role, opening the door for private equity’s largest type of investor. Until 1978, US pensions faced a rule stipulating that pension managers were to invest according to a “prudent man” principle. Most pension fund managers duly avoided investing in private equity and other “alternative” investments.<sup>8</sup> However, in 1979, the US Department of Labor ruled that pension funds should consider portfolio diversification as a component of prudence, implying that some allocation of assets to private equity would comply with the strictures of the act. This clarification opened the door for pension funds to invest in private equity (as well as hedge funds) and provided the industry with a crucial new source of funding. Since 1979, pension funds have been the single most important investor in private equity, both through direct invest-

8 The Employee Retirement Income Security Act of 1974 (ERISA) is a federal law that sets minimum standards for pension plans in private industry.

## Exhibit 5.6

### US LEVERAGED BUYOUT DEALS HAVE EXPANDED INTO NEW SECTORS



Note: Figures may not add to 100 due to rounding.  
Source: Capital IQ; *Buyouts Magazine*; press; McKinsey Global Institute analysis

ments and through private equity fund-of-funds. Today they allocate an estimated 8 percent of their portfolio to private equity—a share that has increased over the past five years.

#### How CLOs and CDOs fueled the buyout boom

Banks create collateralized loan obligations (CLOs) and collateralized debt obligations (CDOs) by bundling together a pool of loans or debt instruments, respectively, and dividing the credit into different tranches to sell to investors. The least risky tranches, called the senior tranches, give investors first right on loan payments but offer the lowest returns. These tranches are often given ratings of AA or higher by ratings agencies. Mezzanine tranches offer more risk but higher returns, while the riskiest tranches, confusingly called the “equity tranches,” offer the highest returns of all.

CLOs and CDOs allow banks to remove credit risk from their balance sheets and shift it to a large, diverse pool of investors—but still earn fees for having originated the loans or bonds. At the end of the first quarter 2007, US banks held less than 7 percent of the outstanding volume of leveraged loans. CLOs and CDOs have increased the availability of credit, particularly in the high-risk “leveraged” loans used to finance leveraged buyouts, because lending is no longer constrained by the amount of bank capital. For investors, a diversified pool of loans is in theory less risky than holding the credit risk on a single loan: even if one or two borrowers

default, the rest should pay. In 2006, US investment banks issued \$500 billion in CLOs, almost six times more than in 2001.

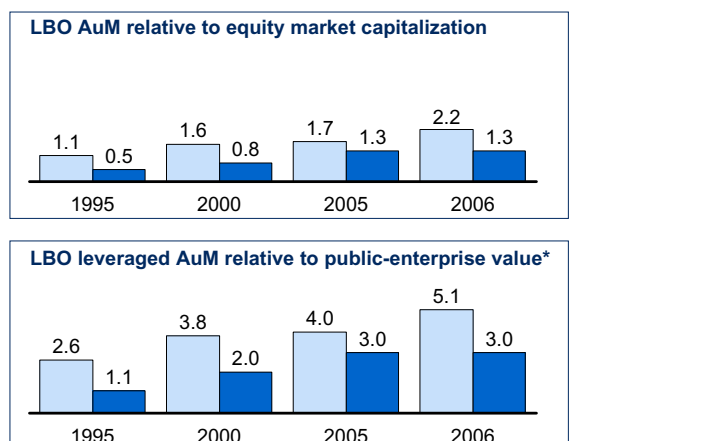
## PRIVATE EQUITY IS STILL RELATIVELY SMALL—BUT WILL GROW

Despite the intense public focus on the private equity industry, it is a small player on the global financial landscape. LBO assets under management at the end of 2006 were equivalent to only 2.2 percent of the market capitalization of US stock markets and 1.3 percent of European stock markets. The companies owned by private equity are equal to just 5.1 percent of the enterprise value of US companies listed on stock markets, and 3.0 percent of the value of European listed companies (Exhibit 5.7).<sup>9</sup> These facts alone should offer a dose of reality to the often-heated public debate.

### Exhibit 5.7

#### PRIVATE EQUITY IS STILL SMALL RELATIVE TO PUBLIC EQUITY MARKETS

US and European LBOs relative to public equity markets  
%



Note: Assumption is that all assets under management by LBO funds are invested.

\* Assuming a constant equity share of 30% for LBO investments and 70% for public companies.

Source: Venture Expert; PE Analyst; MGI Global Financial Stock Database; McKinsey Global Institute analysis

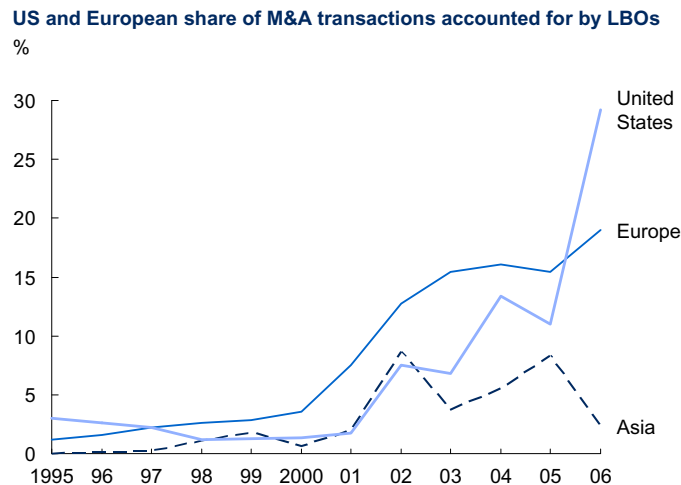
Private equity has become a significant player in certain segments of financial markets. In mergers and acquisitions, private equity firms now account for nearly one in three transactions in the United States and one in five in Europe (Exhibit 5.8). In the market for high-risk “leveraged” loans, private equity is one-third of the total in the United States and two-thirds in Europe. After private equity buyouts of huge public companies, there is apparently no size limit on the potential buyout targets. As a result of its presence in these arenas, private equity is influencing actions in both

<sup>9</sup> Private equity-owned companies account for a somewhat larger share of employment. In the United Kingdom, the British Venture Capital Association reports that in 2006 companies currently backed by LBO funds accounted for 6.2 percent of employment.

corporate boardrooms and financial markets.

The credit market turmoil that began in mid-2007 may well slow private equity  
**Exhibit 5.8**

**PRIVATE EQUITY IS A MAJOR PLAYER IN M&A**



Source: Dealogic; McKinsey Global Institute analysis

fund-raising in the short-term. Debt financing is very difficult to raise, and many investment banks have had trouble placing billions of dollars' worth of bonds to finance private equity deals. Although some of the largest private equity firms are embarking on new fund-raising to buy distressed assets, many funds—particularly smaller ones—will find it especially difficult to raise financing, fueling industry consolidation.<sup>10</sup> But private equity investors are likely to show great patience. Most funds have long commitment periods. Even as they expire, investors also take the long-term view in their investments, and it would take sustained low private equity returns over a number of years—or a large relative drop in the value of their other investments—for them to shift their assets elsewhere.

The fundamentals favor further long-term private equity growth. Pension funds, endowments, and other institutional investors are still in the process of allocating a larger share of their portfolios to private equity and other alternative asset classes. According to Private Equity Intelligence, a research group, the global target allocation to private equity broadly defined (including venture capital and other funds) across all institutional investors in their database is 9.7 percent—but as of June 2007, the

<sup>10</sup> Private firms, including KKR and Carlyle, are reported to be raising a total of \$52 billion for European buyout funds; see Martin Arnold, "Large buyout firms seek to raise funds for cut-price opportunities," *The Financial Times*, August 17, 2007.



actual allocation stood at 7.8 percent.<sup>11</sup> Even if the current market turmoil caused investors to keep their allocation to private equity constant, flows into LBO funds would continue as the asset base of pensions and other institutions grows.

Under conservative assumptions, we project that global private equity assets under management could reach \$1.4 trillion by 2012, twice their current size (Exhibit 5.9). This assumes that new fund-raising in the United States and Europe stops growing and remains at its 2006 level, while fund-raising in Asia and other markets grows at just half the 2000 to 2006 average rate, or 10 percent annually. On the other hand, if current growth rates in fund-raising continued, private equity assets would reach \$2.6 trillion in 2012. In a downturn scenario, we model private equity inflows actually declining by 15 percent per year in the United States and Europe, while inflows in Asia and other markets stagnate at their 2006 levels. This would make private equity assets a bit larger in 2012 than they are today, reaching \$770 billion.

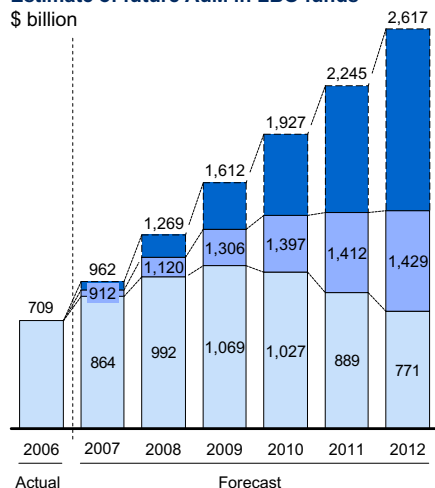
What will the long-term continued growth of private equity mean for global financial markets?

### Exhibit 5.9

#### IN OUR BASE CASE, PRIVATE EQUITY ASSETS WOULD REACH \$1.4 TRILLION IN 2012

##### Estimate of future AuM in LBO funds

\$ billion



Continued growth  
Base case  
Correction

- **Continued rapid growth of funds raised (compound annual growth rate 2000–06), driven by low interest rates and high investor demand**
  - Funds raised in the US grow by 14% per year
  - Funds raised in Europe grow by 20% per year
  - AuM in Asia/ROW growth at 20%

- **Slowing growth of funds raised**
  - Funds raised in the United States and in Europe remain at their 2006 level
  - AuM in Asia/ROW growth by 10%

- **Correction in funds raised, more hostile regulatory environment and default of some PE companies**
  - Funds raised in the US shrink by -15% per year
  - Funds raised in Europe shrink by -15% per year
  - AuM in Asia/ROW remain at their 2006 level

Source: McKinsey Global Institute analysis

## DOES PRIVATE EQUITY CREATE VALUE?

Understanding how private equity generates returns, and whether these funds sustainably improve the performance of the companies they buy, is the first step

11 *Private Equity Spotlight*, Private Equity Intelligence, June 2007.

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in assessing the impact of private equity on the market. Although the conventional wisdom is that private equity funds are making spectacular returns for investors, the actual evidence for this is mixed. We find that only the top quartile of funds is significantly outperforming the market—and that they are on average fundamentally improving the performance of the companies they buy.

### **Top-quartile funds post impressive returns**

Measuring private equity returns is notoriously difficult. By definition, this industry is private and therefore largely exempt from the disclosure requirements to which public firms are subject. We have used data from Venture Economics to assess private equity performance and compared our findings against the experience of industry experts.<sup>12</sup>

Our analysis shows that in comparison with other asset classes, the average returns of US LBO funds have not been particularly impressive. Annualized ten-year returns have underperformed hedge funds, real estate, and US equities (Exhibit 5.10). Academic studies have found that private equity returns are mixed although some research finds that LBO returns exceed those of public stock markets even after adjusting for fees and risk (see appendix A for a review of academic studies on private equity returns).<sup>13</sup>

We find that top-quartile private equity funds outperform the market by far—particularly in Europe (Exhibit 5.11). Many top fund managers also are able to persistently post superior returns. One report finds that private equity firms managing a fund with returns in the top quartile have a 43 percent probability of seeing their next fund in the top quartile as well.<sup>14</sup> At the other end of the scale, managers of funds in the bottom quartile have a probability of 59 percent that their next fund will perform even more poorly (Exhibit 5.12). This shows that a fund manager's track record has a significant influence on the performance of future funds.

### **Leading private equity firms improve corporate performance**

Private equity funds use several strategies for generating returns. The first strategy is identifying companies that are good takeover targets. These include, for instance, those that public markets undervalue or those that are performing poorly and

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<sup>12</sup> See appendix A for how Venture Economics calculates returns on private equity funds.

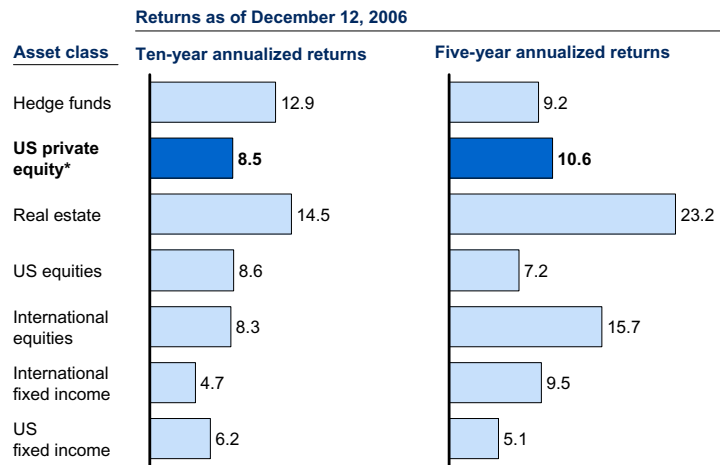
<sup>13</sup> For a sample of academic papers on private equity returns, see Oliver Gottschalg and Alexander Groh, *The risk-adjusted performance of US buyouts*, 2006; and Steven Kaplan and Antoinette Schoar, "Private equity performance: returns, persistence and capital flows?" *The Journal of Finance*, August 2005.

<sup>14</sup> *Private equity spotlight*, Private Equity Intelligence, April 2007; Steven Kaplan and Antoinette Schoar, August 2005.

**Exhibit 5.10**

**US AVERAGE PRIVATE EQUITY RETURNS HAVE NOT OUTPERFORMED PUBLIC EQUITIES ON A TEN-YEAR HORIZON**

%



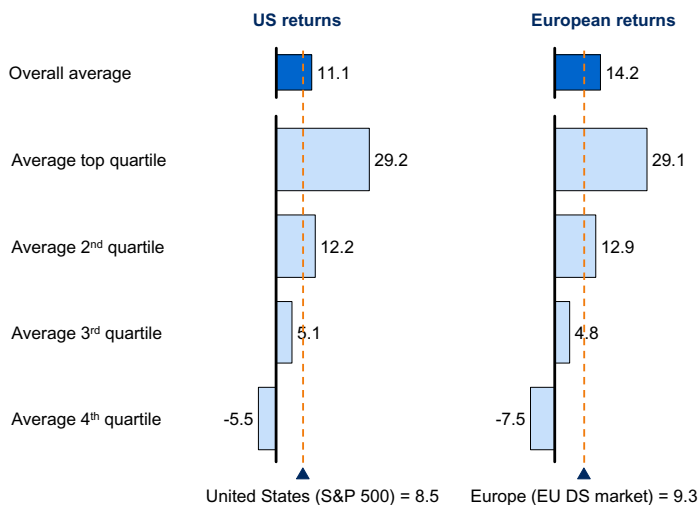
\* Leveraged buyouts

Source: Efron/PSN; Russell 3000; MSCI World X; NAREIT; Citigroup; Greenwich Global Hedge Fund Index (formerly Van Hedge); Venture Economics; McKinsey Global Institute analysis

**Exhibit 5.11**

**TOP-QUARTILE LBO FUNDS FAR OUTPERFORM PUBLIC EQUITIES**

15-years' cumulative buyout IRRs\* since inception, January 1992–December 2006



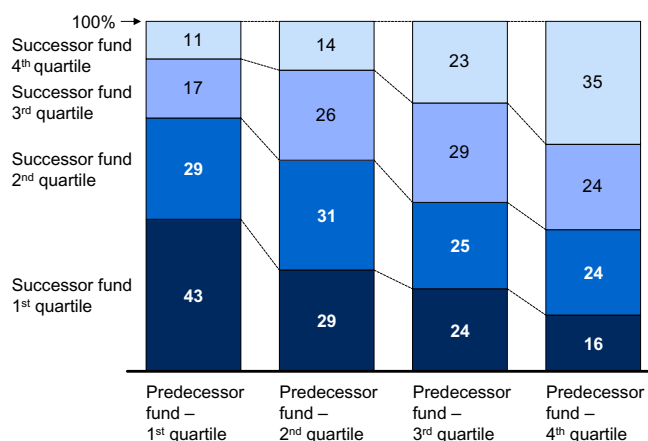
\* Internal rate of return

Source: Thomson Venture Economics; Datastream; McKinsey Global Institute analysis

## Exhibit 5.12

### FUND MANAGER'S TRACK RECORD HAS A SIGNIFICANT INFLUENCE ON PERFORMANCE OF FUTURE FUNDS

Distribution of fund performance of PE funds by general partner  
Based on performance data of 3,400 funds managed by 1,159 PE firms



Note: Figures may not sum due to rounding.  
Source: Private Equity Intelligence Ltd., 2007

not realizing their potential. A second strategy is to help the company improve its performance. As owners of the company, private equity firms can appoint nonexecutive directors to the board who then have a direct say in the company's operations, management, and strategy. Some private equity funds buy several companies in a sector and merge them into a single company with more scale. With either of these strategies, buyout funds can amplify the returns on their investment by adding more debt to the company's balance sheet (hence the term "leveraged buyout"). On average, private equity-owned companies' capital structure is 30 percent equity and 70 percent debt—the opposite ratio to that found in publicly listed companies (see Exhibit 5.6). Adding debt also imposes discipline on management to meet cash-flow targets. If the company performs well, either because of its own internal improvement or because of an uptick in overall industry performance, the extra leverage boosts returns.

Given the lack of public information about private equity firms' strategies and returns, it is difficult to judge which of these various methods of generating returns is most important. In the recent low-interest-rate environment, the role of leverage has undoubtedly been beneficial. A joint study by McKinsey & Company and Oliver Gottschalg in 2005 found that in 548 buyout deals in the United States and Europe, one-third of the buyout performance was the result of leverage.<sup>15</sup>

<sup>15</sup> Oliver Gottschalg, "How important is leverage, really?" *PEIAsia*, July/August 2007.

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But other evidence shows that improving corporate performance has played a key part in generating returns for the top private equity firms. One study of 60 LBO deals found that two-thirds of them improved company performance and that risk-adjusted returns on the performance-improving deals were twice the industry average performance.<sup>16</sup> A different study found that the stock price of private equity-owned companies that were later listed again in public stock markets performed better than the industry average over a one-year period, suggesting the positive influence of private equity was durable.<sup>17</sup>

Thus, the top private equity firms are having a direct impact on the performance of the companies they buy. Going forward, given the variability in returns across funds, private equity will consolidate and these high performers will gain share.

#### **FORGING AN IMPROVED MODEL OF CORPORATE GOVERNANCE**

The importance of private equity extends far beyond its impact on the companies it buys or on the returns generated for investors. Its rise is noteworthy because of the more fundamental impact it is having on the corporate and the financial landscape.

Arguably the most significant impact that private equity has had is in revolutionizing corporate ownership. In the past, there were two clear forms of ownership: (1) family-owned or closely held; (2) dispersed public ownership across many shareholders. Private equity is forging a new hybrid model that falls between the two. It is thus opening up new funding options and governance structures that are particularly well suited to some types of companies and to larger, long-term investors.<sup>18</sup>

The public-ownership model has some well-known advantages as well as drawbacks. The main advantage a stock-market listing offers a company is the widest access to capital. For some companies, such as those in emerging markets and start-ups, it is also an important signaling device for investors. The key disadvantage is that public listing imposes constant scrutiny by regulators and the media, and perhaps an undue focus on short-term profitability from a dispersed base of not particularly well-informed shareholders. For investors, buying shares in a public company offers the potential for capital gains but, because ownership is so dispersed, most

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16 Joachim Heel and Conor Kehoe, "Why some private equity firms do better than others," *The McKinsey Quarterly*, 2005.

17 Jerry Cao and Josh Lerner, "The performance of reverse leveraged buyouts," NBER working paper, 2006.

18 Andreas Beroutsos, Andrew Freeman and Conor Kehoe Beroutsos, "What public companies can learn from private equity," *McKinsey, on Finance*, winter 2007.

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shareholders cannot afford to be active in governing management.<sup>19</sup> If companies perform poorly, they tend to sell shares rather than vote their shares in favor of changes. This relatively unengaged oversight opens the possibility that managers may sometimes act in ways contrary to the interests of owners. A variety of mechanisms—from more active corporate boards to stock options—have been devised to better align the incentives of owners and managers.

Privately held companies avoid the regulatory scrutiny of public ones, and the owners (a stable group, since trading is difficult) have a direct say in the governance of the company, minimizing potential conflicts of interest (or agency issues) between owners and managers. But to raise capital, the funding options of privately held companies are mainly limited to bank loans and debt issues; raising new equity is a cumbersome private placement process.

Private equity firms offer a hybrid model (Exhibit 5.13). Companies owned by private equity escape the glare of public scrutiny and the quarterly earnings pressures of public shareholders. Because private equity funds typically have an investment horizon of four to five years—much longer than that of the typical mutual fund or other public investor—the target company can undertake long-term restructuring and investments. Private equity funds take full ownership (or at least a concentrated equity share) of the company. Their investors give the private equity firm the mandate to vote all their shares, giving the funds a clear say in governance (see “The structure of a private equity fund”). The private equity firm, in turn, appoints its partners as nonexecutive directors to the company board. They, of course, have strong financial incentives to maximize shareholder returns, and they ensure that the management also invests in equity and enjoys the same upside potential. Moreover, the higher leverage that private equity firms use to finance takeovers puts further pressure on management to achieve the operational and financial targets that they agreed at the outset.

For a certain set of companies, the switch from public ownership to private equity may be a healthy move. This is particularly true for underperforming companies or for companies with high levels of free cash flow in stable but slow-growing industries, such as industrials, retail, telecom, and consumer goods. It may also be true of companies whose business model is changing profoundly. Private equity can help these companies boost economic value creation through financial, strategic, or deep operational change.<sup>20</sup> For companies in growth industries, however, public

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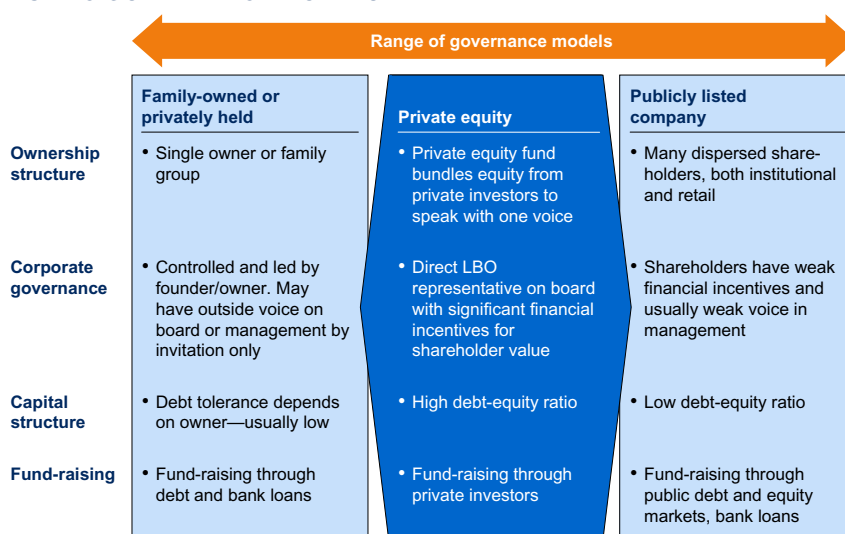
19 For a detailed discussion, see Mark J. Roe, *Strong Managers and Weak Owners: The Political Roots of American Corporate Finance*, Princeton University Press, 1994.

20 Economists Michael Jensen, Steven Kaplan, and Alfred Rappaport all contributed to a similar discussion in the early 1990s; see bibliography for details.

market discipline works well: the company's trajectory is clear, and it needs to be mindful of shareholder returns to be able to raise extra capital for growth. Nor is private equity well suited for companies with variable earnings because it may be difficult for them to consistently meet interest payments.

**Exhibit 5.13**

**PRIVATE EQUITY IS AN ALTERNATIVE TO CLASSIC PRIVATE AND PUBLIC GOVERNANCE MODELS**



Source: McKinsey Global Institute analysis

**The structure of a private equity fund**

Private equity firms usually structure themselves as management partnerships or limited-liability partnerships (LLPs) that act as holding companies for several private equity and alternative-asset funds run by the general partners. The private equity firm sets up a fund with a three- to five-year time horizon. The general partners, who also often invest in the fund, raise money from institutional investors (pension funds, insurance firms), fund-of-funds, and high-net-worth individuals (HNWIs). These investors become limited partners and generally play a passive role.

Private equity fund managers typically rely on external service providers—including investment banks, audit and tax advisors, and lawyers—to help them source deals and execute transactions. The private equity firm puts together a consortium of equity providers, advisers, and lenders for each buyout deal.

Private equity firms have several cash-flow sources. First, they collect a management fee from limited partners, usually amounting to an annual 1

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percent to 3 percent of the individual fund's assets under management. Second, the private equity firm receives a portion of the profits generated by the fund (the so-called carry or carried interest). The "carry" is typically 20 percent to 25 percent of profits, although funds with good track records charge up to 30 percent. This carry provides a strong incentive for private equity fund managers to create value. The firm pays out the remaining 75 percent to 80 percent to the limited partners. Third, the portfolio company pays general partners transaction fees for various services such as investment banking, monitoring, and consulting, typically calculated as a percentage of the value of the deal.

### **PRIVATE EQUITY HAS AN OUTSIZED INFLUENCE ON COMPANIES AND CAPITAL MARKETS**

Beyond its impact directly on the companies it buys, and on the corporate governance landscape, private equity is having a broader indirect effect on companies, boards, and financial markets (Exhibit 5.14). In the years to come, as private equity evolves into a more mature industry and grows in size, this influence will expand.

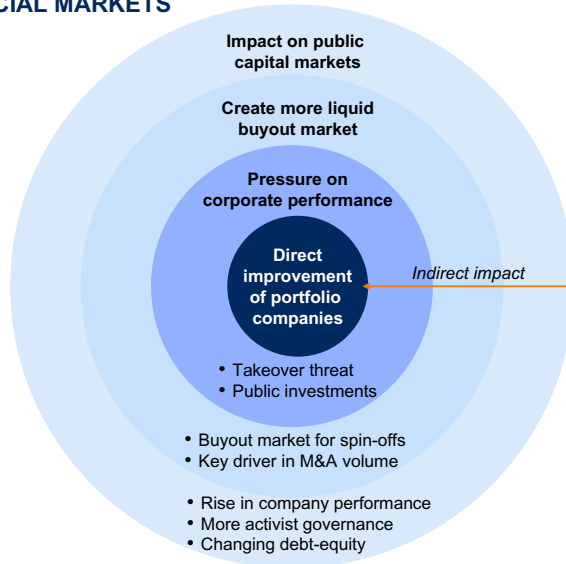
**Pressure on corporate performance.** Private equity has an impact on corporate performance beyond those companies under its control. Increasingly powerful private equity funds are creating competitive pressure on a much broader set of listed companies that want to avoid takeover. With the growing size of buyout deals—due in part to an increase in private equity groups jointly purchasing companies (Exhibit 5.15)—no company is immune from takeover. The CEOs and boards of public companies of all sizes are starting to review their performance and create antitakeover strategies. (Note, however, that some companies welcome the opportunity to work under private equity, believing that it might be better for themselves and their companies.) One strategy is to improve performance in order to raise their market values. Another has been to buy back shares—often using debt—to make a takeover less affordable. In addition, public shareholders may take a note from the more activist private equity owners (and hedge funds as well) and demand a larger voice in governance and on management issues.

**Changing views on optimal capital structure.** Private equity may also influence how public companies think about debt and equity. Share buybacks are on the rise in the United States, sometimes financed in part by new debt issuances (Exhibit 5.16). Although many companies pursue share buybacks mainly as a way to return cash to shareholders, it does reduce their outstanding equity. Over time, public company managers—and their shareholders—may adjust their tolerance of debt. While increasing debt on their balance sheets may run the risk of credit agencies downgrading



**Exhibit 5.14**

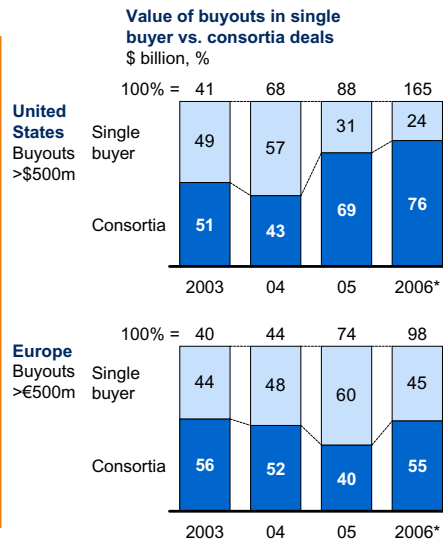
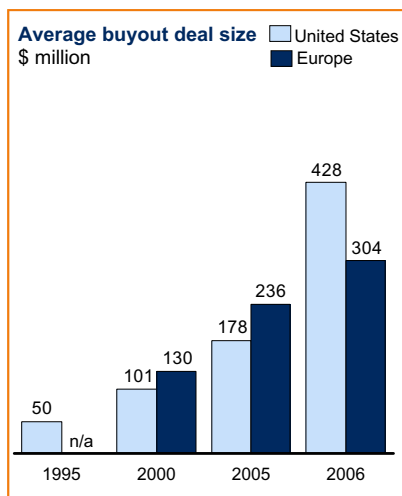
**PRIVATE EQUITY HAS DIRECT AND INDIRECT EFFECTS ON COMPANIES AND FINANCIAL MARKETS**



Source: McKinsey Global Institute analysis

**Exhibit 5.15**

**SIZE OF LEVERAGED BUYOUT DEALS IS GROWING**



\* As of third quarter 2006.

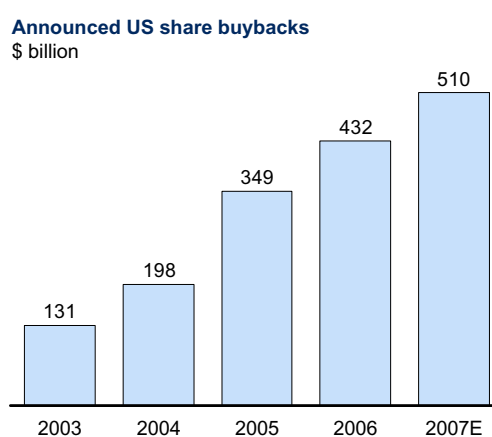
Source: Initiative Europe; Capital IQ; Buyout Magazine; McKinsey Global Institute analysis

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these companies, management may be willing to accept such a development—provided it doesn't take their companies below investment grade rating—in return for the benefits of being able to improve overall shareholder returns. This, of course, will require that public managers worry less about market capitalization (often a key determinant of their pay) and more about total returns to shareholders.

**Exhibit 5.16**

**SHARE BUYBACKS HAVE GROWN RAPIDLY IN THE UNITED STATES**



Source: Datastream; Bloomberg; McKinsey Global Institute analysis

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**Changing growth strategies.** Private equity may also influence corporate growth strategies. The rise in private equity has been accompanied by increasing acquisition prices (Exhibit 5.17). This is crowding out strategic companies in the M&A market because they do not use as much debt to finance deals as private equity funds do.<sup>21</sup> A McKinsey analysis from 2004 showed that a strategic bidder participated in 38 percent of the M&A transactions studied but won only 16 percent of all auctions. The crowding out of strategic bidders by private equity firms may have a downside, although not in all cases. When the synergy between the strategic buyer and the target company is stronger than that of the private equity firm, private equity winning the deal would result in creation of less economic value. (Note that industry consolidation is also a favorite private equity tactic.) This dynamic will also force many companies to focus more on expanding their own businesses to achieve growth, rather than growing through M&A, as many have done for the past 15 years.

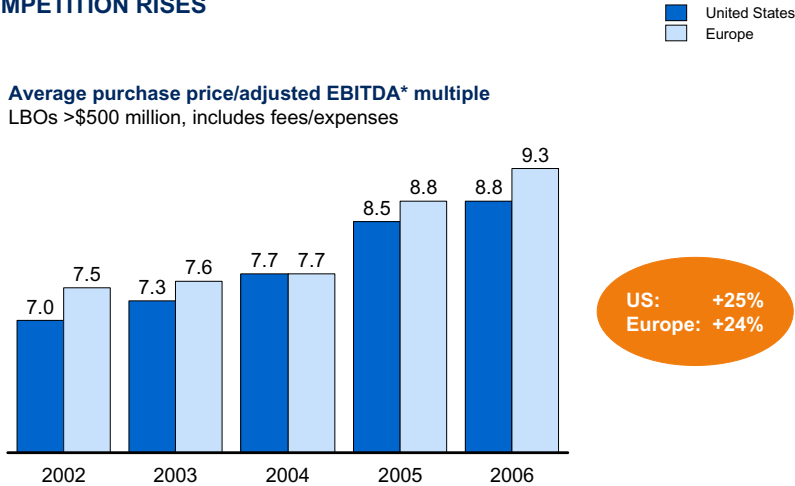
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21 Regular companies are called “strategic buyers” in M&A, while private equity firms are called “financial buyers.”

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## Exhibit 5.17

### LEVERAGE BUYOUT ACQUISITION PRICES HAVE INCREASED AS COMPETITION RISES



\* Earnings before interest, taxes, depreciation, and amortization.  
Source: Standard and Poor's M&A statistics; McKinsey Global Institute analysis

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**Higher returns in public equity markets.** Over time, private equity may increase the performance of returns on stock markets as they take underperforming companies private and then relist them after the funds have turned these corporations around. In 2006, more companies were delisted from the New York Stock Exchange and taken private than had IPOs, due in large part to private equity. In London, the same is true for domestic British companies. (Many foreign companies also had IPOs in London.) A broader set of companies improving their performance as a defense against takeover will amplify this effect. And over the next five years, the takeover boom of recent years will give way to a growing number of private equity-owned firms listed on public stock markets, which historically have outperformed industry averages.

### IS PRIVATE EQUITY CREATING FINANCIAL MARKET RISKS?

Alongside the potentially far-reaching—and arguably largely beneficial—influence that private equity is having on corporations, there has been rising worry that the industry may be creating new sources of risk in the financial markets. The chief anxiety is around private equity's abundant use of debt to finance deals combined with a loosening of lending standards by banks, which observers argue may be increasing credit risk and could threaten financial system stability. However, our analysis shows that although the volume of lending to private equity is rising rapidly, private equity is only a small part of the overall debt market. Even if default rates among private

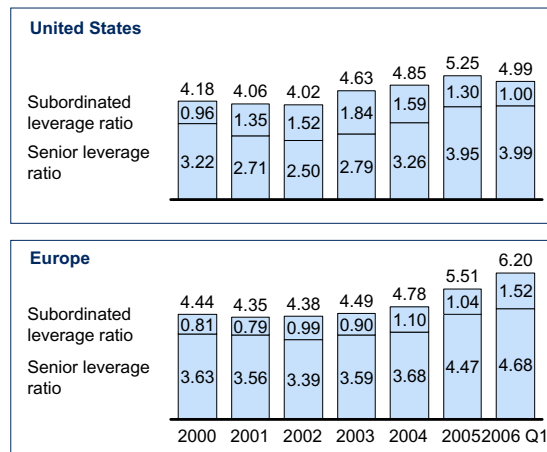
equity borrowers were to soar beyond historic levels, this development would not, on its own, threaten the broader market.

Without doubt, the proportion of debt used to finance buyouts is rising—particularly in Europe (Exhibit 5.18). Because of low interest rates, which make higher levels of borrowing economically feasible, and increased competition in the private equity industry that is raising acquisition prices, private equity firms have taken on more debt to make acquisitions.

**Exhibit 5.18**

**AVERAGE LEVERAGE RATIO OF LEVERAGED BUYOUTS HAS INCREASED SINCE 2002—ESPECIALLY IN EUROPE**

Average debt/adjusted EBITDA\* multiple of LBOs



US: +19%  
Europe: +40%

Note: Data includes LBOs with EBITDA of > €/\$50 million.  
\* Earnings before interest, taxes, depreciation, and amortization.  
Source: S&P LCD; IMF; McKinsey Global Institute analysis

At the same time, a shift has occurred in the type of debt used to finance buyouts. Unlike in the 1980s, when high-yield junk bonds were the primary vehicles, private equity firms today have increasingly sought—and obtained—loans from banks (Exhibit 5.19). Whereas standardized bond contracts offer strong creditor protections, loans allow borrowers and lenders to negotiate more customized and flexible terms. Where current concerns may find some justification is in the fact that, as “leveraged lending” (as this type of loan is called) has risen, private equity firms have exerted their increasing bargaining power with funders to negotiate fewer loan covenants that protect the lender. The volume of “covenant-lite” loans grew to \$48 billion in the first quarter of 2007—twice the amount issued for the whole of 2006. It remains to be seen whether or not defaults on covenant-lite loans will be higher than on traditional loans. Critics argue that these loosened loan structures could increase default losses to lenders during adverse markets—which could then decrease their

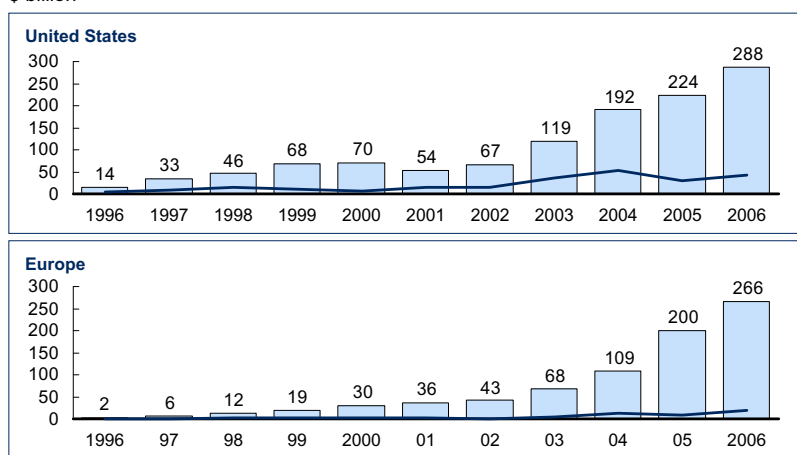
ability to lend to even credit-worthy borrowers.

**Exhibit 5.19**

**LEVERAGED BUYOUT DEALS INCREASINGLY FINANCED BY LEVERAGED LOANS**

**US and European PE bond and loan issuance**  
\$ billion

— PE-driven high-yield bond issuance\*  
■ PE-driven leveraged lending\*



\* Leveraged lending defined as LIBOR+150 basis points or rating<BBB; high-yield bond defined as rating<BB.  
Source: Dealogic; IMF; McKinsey Global Institute analysis

In addition to a proliferation of covenant-lite loans, there is concern that banks’ risk underwriting of private equity loans has gotten lax as private equity firms bargain for ever-lower interest rates. Today, interest rates on B-rated bonds (private equity’s category) do not cover historic default rates—meaning that lenders are not being covered for the expected losses on the loan.<sup>22</sup>

The main reason that banks have been willing to issue such loans at low rates is that they do not hold the loans to maturity. Today, banks hold just 16 percent of high-risk loans (Exhibit 5.20). Instead, they package them into collateralized loan obligations and sell the loans to a broad array of other investors (see “How CLOs and CDOs fueled the buyout boom”). These investors ultimately bear the default risk, not the banks. But they are unlikely to adequately assess the credit risk of loans, either, given that CLOs package together many loans. The task of assessing the credit risk of borrowers (private equity and others) may be falling through the cracks.

Despite this rise in leveraged lending, our analysis shows that even a sharp rise in private equity defaults would not likely bring down credit markets. The reason is that they are a small part of the market. In 2006, financial-sponsor-backed leveraged

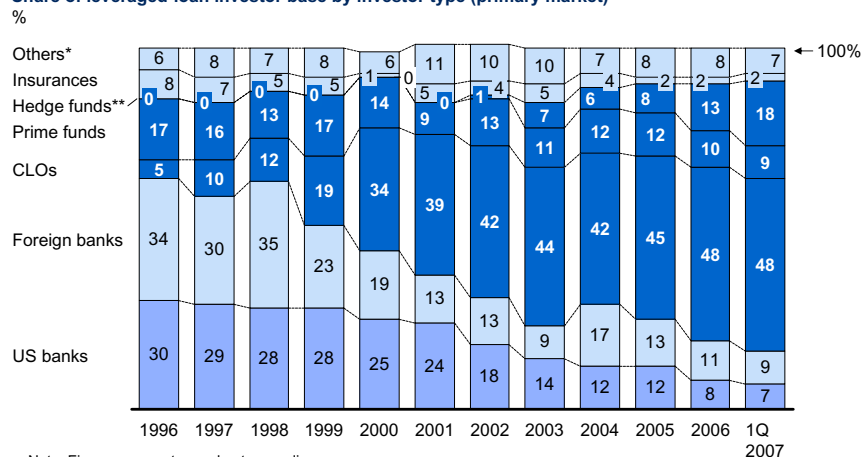
<sup>22</sup> Based on default rates from 1970 to 2006, lenders should receive a spread of 400 basis points over the risk-free rate to cover the default risk. Since 2004, the spread on B-rated bonds has been below this.

## Exhibit 5.20

### BANKS HOLD ONLY 16 PERCENT OF HIGH-RISK LOANS

■ Institutional investors

Share of leveraged-loan investor base by investor type (primary market)



lending (mainly private equity) accounted for just 11 percent of overall corporate debt issuance in the United States and Europe (Exhibit 5.21), amounting to \$288 billion in the United States and \$266 billion in Europe. Even if private equity default rates rose to 50 percent more than their previous high (15 percent instead of 10 percent), the implied losses would equal only 7 percent of the 2006 syndicated lending issuance in the United States and 3 percent in Europe (Exhibit 5.22).

In short, our research suggests that the private equity industry is arguably still not large enough to pose a systemwide risk. Although a rise in defaults would undoubtedly cause pain to private equity fund managers and their investors, losses in the scheme of the broader market would not be great.

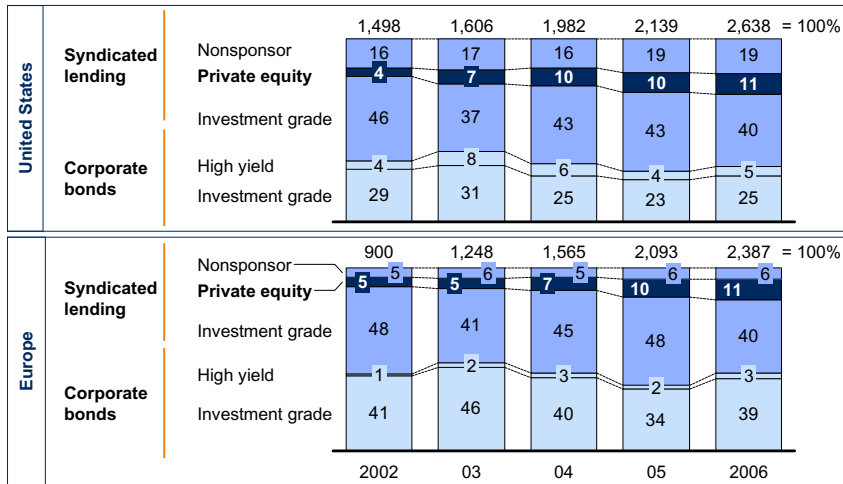
### PRIVATE EQUITY INDUSTRY WILL EVOLVE, EXPANDING ITS INFLUENCE

Credit market developments in mid-2007 may well signal that private equity has reached a peak for the moment, but long-term trends are still in the industry's favor. Private equity will mature and consolidate in response to rising competitive pressures and will gain influence in the process. It will diversify both in terms of its geographical activities and across a wider range of investment opportunities. Far from eroding the influence of private equity on corporations and on the dynamics of the financial markets, these developments will amplify the industry's impact on broader markets.

**Exhibit 5.21**

**PRIVATE EQUITY IS 11 PERCENT OF THE OVERALL CORPORATE DEBT MARKET**

US and European corporate debt issuance  
\$ billion, %

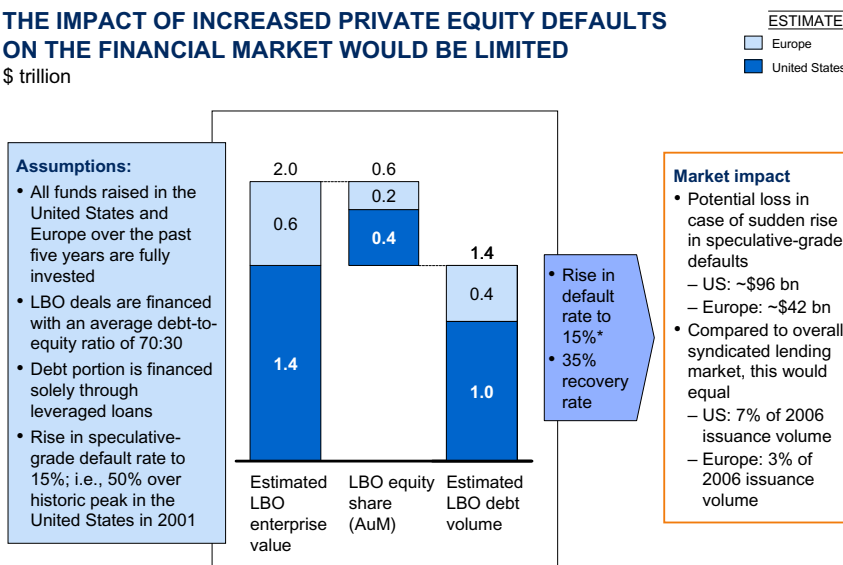


Note: Figures may not sum due to rounding.  
Source: Dealogic; McKinsey Global Institute analysis

**Exhibit 5.22**

**THE IMPACT OF INCREASED PRIVATE EQUITY DEFAULTS ON THE FINANCIAL MARKET WOULD BE LIMITED**

\$ trillion



\* 50% higher than historic peak from 2000 to 2006.  
Source: Venture Expert; PE Analyst; Dealogic; McKinsey Global Institute analysis

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### **Private equity consolidation will create even more powerful players**

The disproportionate influence of private equity will grow as the industry trends toward ever-larger funds. Today, the private equity industry is already concentrated in a relatively small number of high-performing “mega funds.” In 2006, 62 percent of private equity assets under management in the United States were concentrated in the top 20 private equity firms, up from 47 percent in 2000. In Europe, the industry has long been concentrated with the top 20 firms controlling 69 percent of total assets in 2006, up from 63 percent in 2000. Going forward, the top-performing private equity firms will take over—or drive out of business—the many firms that consistently post subpar returns.

Alliances between private equity funds and investment banks and other lenders will increase competition for larger deals. For instance, Terra Firma, ranked 15th among private equity firms globally in terms of assets under management, was a credible competitor to KKR, now the largest private equity firm in the world, because of the backing it gained from Wellcome Trust, a charitable organization in the United Kingdom, in the takeover of Alliance Boots.

Similarly, some private equity funds are now offering some of their investors, known as limited partners, the opportunity to coinvest in deals, increasing the amount of capital that private equity brings to the table. This allows investors to put additional money into an investment, sidestepping the high fees charged by private equity firms’ general partners. The arrangement benefits private equity firms by increasing the size of corporate targets they can acquire. We estimate that coinvestments today amount to less than 5 percent of total assets under management in private equity but that these arrangements are likely to gain in popularity.

### **Private equity is going global, expanding its influence**

The industry is moving increasingly into emerging markets as competition intensifies in Europe and the United States, making attractive buyout opportunities scarcer—and more expensive. Worldwide, private equity funds that focus on investing in emerging markets raised more than \$33 billion of new capital in 2006, more than five times the amount raised in 2004. And a survey of investors in these funds shows that 78 percent say their commitments to emerging market funds will grow over the next five years.<sup>23</sup>

Asian markets such as South Korea, China, and India are key new prospects, accounting for nearly 60 percent of the \$33 billion raised for emerging markets in

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<sup>23</sup> *Emerging Market Private Equity Fundraising Review, 2006*, Emerging Market Private Equity Association, Washington, DC.



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2006. Funds focused on China and India alone raised \$7.1 billion in 2006. But the trend toward emerging markets extends more broadly to a variety of private equity players. In 2006, US private equity funds made investments (both venture capital and buyouts) worth more than \$20 billion in Asia, up from \$12 billion in 2005.<sup>24</sup>

Being successful in these new markets may not be easy. The direct governance that private equity firms offer is highly valued by investors in emerging markets, where governance standards are generally lower. However, emerging markets typically also have a less inviting environment for takeovers, with more state ownership of companies, large family-owned conglomerates, shallow equity markets that do not offer an easy exit, and more macroeconomic volatility. Many private equity firms that invested in Latin America in the 1990s, for instance, did poorly after the ensuing string of currency devaluations and severe recessions. In addition, private equity firms in many developing countries may find themselves unexpectedly saddled with long negotiation periods and perhaps having to accept minority stakes in takeovers. But as recent deals in China have shown, they will often accept these terms and proceed nonetheless.

#### **Private equity will expand into new investment arenas**

Private equity firms will continue to expand their activities in new directions and diversify their operations—in the process maturing and achieving less variable cash flows. One example of this trend is a shift already under way into lower-risk/return investments such as infrastructure funds. These funds buy into airports, harbors, and other types of infrastructure, often acquiring formerly state-owned businesses. Whereas traditional LBO funds target an investment horizon of four to five years and annual returns of some 18 percent, infrastructure funds aim for a holding period of up to 10 years and annual returns of 14 percent, the trade-off being more stable cash flows and less risk.

Private equity funds may also increasingly branch out into taking minority blocks of shares in companies listed on public stock markets, as some activist hedge funds do. Their goal is to improve corporate performance, and thus investor returns, by committing to the company for several years and joining the board of directors, but with smaller investment stakes.

Finally, more of the big private equity firms will likely expand beyond private equity into other alternative asset classes, such as hedge funds and real-estate funds, in an effort to diversify their income and lower volatility. An example of this trend toward

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<sup>24</sup> Database of the *Asia Venture Capital Journal*.

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the creation of integrated alternative investment firms is the Blackstone Group, the first “private equity” firm to have an IPO. Blackstone’s business actually includes the management of various types of alternative asset funds including corporate PE, real estate, and marketable alternative assets; M&A advice, restructuring, and reorganization; and fund-placement services. Out of its \$88.3 billion in total assets under management in May 2007, Blackstone invested only 37 percent in private equity funds, 23 percent in real-estate funds, and the remaining 40 percent in alternative asset funds.

### **Private equity IPOs could create stronger institutions**

It may seem to be a contradiction in terms for private equity groups to list on public equity markets, but this is a growing trend as industry players seek an exit for the founding generation, as well as more permanent sources of capital. There are already 300 publicly listed private equity vehicles worldwide, with a total market capitalization of \$100 billion, many of which are public partnerships, such as 3i or Candover Investment Trust, or publicly listed buyout funds. Most of the largest private equity–management companies have remained private so far. Blackstone launched an IPO in June 2007, so becoming the first of the four largest private equity firms to go public. A planned IPO of KKR was delayed by the equity market correction that started in mid-2007.

By raising a new source of permanent capital, IPOs may enable private equity firms to invest more in building their institutional capabilities rather than relying on the talents of a single individual or group of individuals. The trade-off will be that private equity funds will have to be more transparent and make much more substantial disclosure to investors. This may limit some of their risk-taking options. Publicly listing shares may also create a dilemma for private equity firms, as they balance public shareholders’ demands for returns and less volatility with their limited partner investors’ desire for higher long-term returns. As retail investors buy shares, more intense regulatory scrutiny may follow.

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The resurgence of private equity will not spell the end of public capital markets, but it is diversifying governance models and creating effective new forms of ownership for many companies in certain industries. Because of this, private equity has an impact far beyond the companies it buys. Companies across the board are revising their strategies and reviewing performance in response to the takeover threat—or alternatively, reconsidering their public listing—and over time will change their views on debt versus equity. In financial markets, the rise of LBOs has fueled fears of

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increasing credit risk, but as yet the industry is too small to pose a systemic threat. In the financial arena, the more lasting effect of private equity will be on shareholder activism and equity markets. Even if industry growth slows temporarily, in the long term it will continue to grow, diversify, and extend its influence.



# Appendix A: Private equity

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This appendix has three sections:

1. Calculation of private equity assets under management
2. Brief review of the academic literature on private equity returns
3. Calculation of internal rate of return on private equity funds

## **1. Calculation of private equity assets under management**

We base our calculation of private equity assets under management (AuM) on data on the funds raised by private equity firms in the United States and Europe. For the United States, we use a composite of data from Venture Expert (1978–1996) and Private Equity Analyst (1997–2006). While we believe that Private Equity Analyst provides better-quality data on recent US funds, the quality of its data declines the further back ones goes as it is a relatively new data provider. In contrast, Venture Expert offers superior coverage of the period before 2000. Taking both data sets together therefore gives us the best coverage. For Europe, we use Venture Expert data exclusively for the whole period.

To arrive at total AuM, we add up the funds raised over five years (the current year and the four previous years) for the United States and Europe, respectively. This is because we assume that the average life cycle of a typical private equity fund is about five years. The focus of this report is on leveraged buyout funds, so we exclude fund-raising for venture capital funds, real-estate funds, and mezzanine funds.

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For private equity assets under management in Asia and rest of world, we use data provided by the Emerging Markets Private Equity Association (EMPEA) and the *Asian Venture Capital Journal (AVCJ)*. This data includes total AuM for leveraged buyout, venture capital, and mezzanine funds aggregated together. We therefore estimate the share of AuM in leveraged buyout funds alone by using the same split as in the United States in the respective year. These data sources both calculate AuM as the sum of funds raised during the current year and the five previous years, leaving a minor inconsistency with our methodology for the United States and Europe.

## **2. Brief review of the academic literature on private equity returns**

The question of how private equity performs in comparison to similar investments in public equity markets has recently caught the attention of academics. However, these studies have failed to reach a consensus on this issue.

Part of the difficulty in making this comparison is that private equity has some unique characteristics such as its tendency toward illiquidity, the higher risk-profile of these investments due to relatively high levels of leverage, and the focus of many private equity funds on specific industries. Some recent studies have attempted to take such differences into account. For instance, Groh and Gottschalg (2006) compared the risk-adjusted performance of a sample of leveraged buyouts and investments in public equity markets.<sup>1</sup> They base their analysis on a comparison of the internal rates of return (IRRs) of 199 US buyout fund investments between 1984 and 2004 with the IRRs from public market investments with an equal risk profile. Their analysis finds that private equity generated higher risk-adjusted returns than investments in public equity markets, net of fees.

Identifying the source of higher returns by private equity is important as this helps to indicate whether private equity funds are creating economic value and improving corporate performance or whether they are simply generating returns by adding debt to companies. A 2005 study by Professor Gottschalg finds that one-third of buyout performance is due to leverage alone.<sup>2</sup> Taking into account the performance of the industries in which private equity invests, this figure rises to three-quarters. This still leaves one-quarter of private equity performance being due to fundamental performance improvements.

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1 Oliver Gottschalg and Alexander P. Groh, "The risk-adjusted performance of US buyouts," working paper, November 2006.

2 Oliver Gottschalg and McKinsey & Company conducted a joint study and published the results in "How important is leverage, really?" *PEI Asia*, July/August 2007.

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Thomas Boulton, Kenneth Lehn, and Steven Segal analyzed a sample of 245 public companies that were bought by private equity funds between 1995 and 2005.<sup>3</sup> They find that these companies had performed substantially worse than the industry average prior to buyout. This suggests that the prime motivation for buyout was to reverse poor performance. The authors' analysis also finds that firms taken private had more cash as a percentage of total assets than their industry peers, making them attractive buyout targets.

Several other studies have found that private equity does not always outperform public markets. Kaplan and Schoar (2005) analyzed the performance data for a sample of 746 venture capital and buyout funds collected by Venture Economics between 1980 and 2001. The authors find that, gross of fees, the average returns generated by both types of private equity partnerships exceeded those of the S&P 500. Net of fees, however, their estimates suggest that returns are broadly equal to those of the S&P 500. Weighted by committed capital, they found that venture capital funds outperform the S&P 500; buyout funds do not.<sup>4</sup>

Gottschalg, Phalippou, and Zollo (2004) find that, after adjusting for selection biases, a sample of 933 private equity funds raised between 1980 and 1995 achieved an IRR of 12.45 percent—underperforming the S&P 500 index by 3 percent per year on average.<sup>5</sup>

As more money is flowing into the private equity market, the challenge of generating superior returns will increase. Professors Gompers and Lerner of Harvard Business School show that substantial capital flows to private equity can be self-defeating, resulting in too much money chasing too few deals.<sup>6</sup> They found that the greater the supply of private equity capital, the higher the prices paid for the acquired companies. Subsequent research by Gottschalg and Daniel Zipser at HEC Paris (2006) has confirmed that higher investor inflows lower the returns to private equity investment and that herd behavior by investors amplifies fundraising and investment cycles.<sup>7</sup>

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3 Thomas Boulton, Kenneth Lehn, and Steven Segal, "The rise of the U.S. private equity market," in *New Financial Instruments and Institutions: Opportunities and Policy Challenges*, Brookings Institution Press, 2007.

4 The authors acknowledge that the average returns results potentially biased because they do not control for differences in market risk and because of possible selection biases; Steven Kaplan and Antoinette Schoar, "Private equity performance: Returns, persistence, and capital flows," *The Journal of Finance*, August 2005.

5 Oliver Gottschalg, Ludovic Phalippou, and Maurizio Zollo, *Performance of private equity funds: Another puzzle?* INSEAD-Wharton Alliance Center for Global Research and Development, September 2004.

6 Paul A. Gompers and Josh Lerner, "Money chasing deals? The impact of fund inflows on private equity valuations," *Journal of Financial Economics*, February 2000.

7 Oliver Gottschalg and Daniel Zipser, *Money chasing deals and deals chasing money—The impact of supply and demand on buyout performance*, February 2006.

These results support the view that there are a finite number of attractive investment opportunities for private equity.

Investors are also facing another challenge. Having understood how important it is to be part of the top quartile of the market in order to achieve superior returns, more money flows to those private equity groups with a superior track record. But with the creation of ever-larger “mega-funds,” it will be increasingly difficult for the same private equity firms to successfully repeat their performance. Research by Gottschalg and Zollo at INSEAD (2004) suggests that excessive growth in fund size from one fund generation to the next can indeed have a significant detrimental effect on subsequent performance.<sup>8</sup>

### 3. Calculation of internal rate of return on private equity funds

Venture Economics (VE) calculates the pooled internal rate of return (IRR) for leveraged buyout funds by collecting the cash flows for all funds and calculating a return on the underlying “pooled” portfolio, rather than averaging returns across funds. By doing so Venture Economics treats the different cash flows as if they accrued to a single fund. VE then uses this combined cash flow series to calculate a rate of return. The advantage of this method is that it takes the scale and timing of the both large and small cash flows into consideration. The disadvantage is that, over a long period of fund performance—e.g., a 20-year horizon—the larger, more recent funds will have more influence on the performance than smaller funds. However, many investment managers would agree that this balance mimics the performance characteristics of their own portfolios. We illustrate VE’s pooling of cash flows here:

	Month 1	Month 2	Month 3	...	Month n-1	Month n
<b>CF fund 1</b>	-3	-5	-3		3	7
<b>CF fund 2</b>	5	5	5		5	5
<b>CF fund 3</b>	-3	4	-10		5	
...						
<b>CF fund n-1</b>	-4	0	5		3	2
<b>CF fund n</b>					-18	20
<b>Total CF</b>	-5	4	-3		-2	34

<b>IRR</b>
⇒ 12%

Note: Buyout sample sizes are ~450 for the United States and ~400 for Europe.

<sup>8</sup> Peter Cornelius, Oliver Gottschalg, and Maurizio Zollo, “Private equity funds look for strength in numbers,” *Financial Times*, April 6, 2006.



## Appendix B: Technical notes

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These technical notes provide more detail on some of the methodologies employed in this report. We discuss the following topics:

1. Estimating the size of petrodollar foreign investment assets
2. Methodology for translating oil prices into capital outflows from oil-exporting countries
3. Estimating the impact of foreign purchases of US bonds on US long-term interest rates
4. Methodology for projecting future Asian current-account surpluses

### **1. Estimating the size of petrodollar foreign investment assets**

The best publicly available data on the foreign assets of countries comes from the International Monetary Fund's (IMF) International Financial Statistics (IFS) database. This database relies on figures reported by the central governments of each country. For Middle Eastern countries, these data are significantly underestimated. Based on that database, the total net foreign assets of the countries of the Gulf Cooperation Council (GCC) in 2006 would be \$576 billion.<sup>1</sup> This includes data only from Kuwait, Oman, and Saudi Arabia; the UAE and Qatar do not report their foreign assets at all, and Bahrain is of negligible size.

But this figure is very low in comparison with other sources of data. If we add together the current-account surpluses that the GCC states have run over the past three

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<sup>1</sup> We calculate the estimated 2006 figure as 2005 reported foreign assets plus 2005 net capital outflows (i.e., current-account surpluses).

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years, for instance, we reach a figure of approximately \$470 billion—equivalent to four-fifths of the region’s total reported foreign assets to the IMF. In order to take a longer-term view, we added up the GCC’s current-account surpluses since 1973 and applied a growth rate equivalent to the annual rate of return on US six-month Treasury bills (a very conservative assumption). This exercise yielded a total of some \$2.4 trillion in foreign assets in 2006—about four times the officially reported figure to the International Monetary Fund.

We therefore decided to supplement IMF data with estimates of GCC foreign wealth from several additional sources. We collected publicly available figures on GCC governments’ total assets—i.e., central bank holdings and sovereign wealth funds—from press and academic literature and then complemented them with a consensus estimate of the onshore-offshore split of these investments from financial markets experts within the region.<sup>2</sup> This methodology yielded a total of \$1.0 trillion to \$1.3 trillion of foreign assets for central banks and sovereign banks.

To arrive at an estimate of Middle Eastern private wealth held in foreign assets, we used a top-down approach. To arrive at a figure for 2006, we took the 2005 wealth base from the Merrill Lynch/Cap Gemini World Wealth report and calculated the growth of this base by taking into account national GDP forecasts as well as expert estimates of regional savings and tax rates. We then cross-checked our estimate with that of Forbes’s Arab wealth list, which finds that the top ten Arab ultra-high-net-worth individuals represent roughly 30 percent of total ultra-high-net-worth investable assets. This was in line with our findings of \$700 billion to \$900 billion of private wealth in the GCC. We then applied an expert estimate of the onshore-offshore split of these private investments (25 percent onshore, 75 percent offshore) (see Exhibit 2.16 in chapter 2).

Using this methodology, we find that GCC foreign investments are \$1.6 trillion to \$2.0 trillion at the end of 2006. For “other Middle Eastern countries”, given the small size of their economies and the limited information on them, we simply take the figures they report to the IFS. Finally, for other oil exporters, we also use the IFS figures, since these countries generally have a good track record in reporting foreign assets.

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2 We conducted interviews with experts on Middle East financial markets, among them leaders of the financial institutions practice in McKinsey’s Middle East office and an investment banker with a Saudi investment bank.

## 2. Methodology for translating oil prices into capital flows from oil-exporting countries

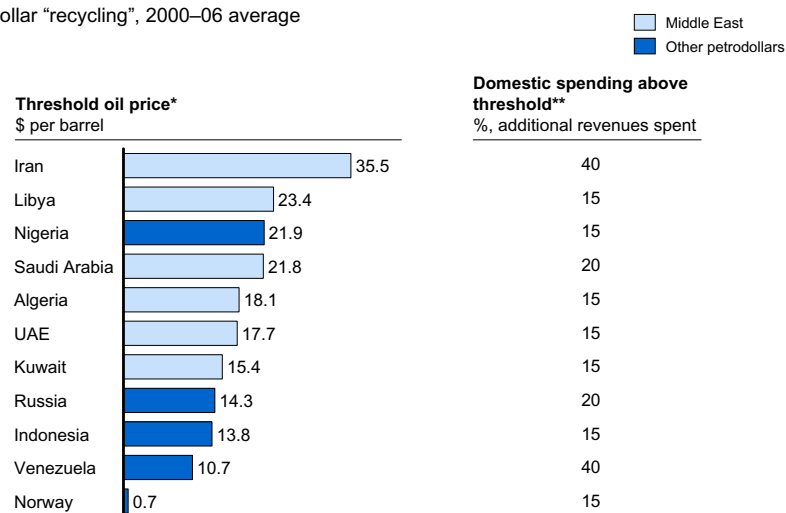
To project net outflows from oil-exporting countries, we first estimate what oil revenues for each country will be. Using MGI's proprietary model on global energy demand, we can model the impact on oil revenues for different oil price levels. The base case assumes an oil price of \$50 per barrel, but we also consider alternative scenarios with oil at \$30 and \$70 per barrel.<sup>3</sup>

We then assess the percentage of oil revenues that each oil-exporting country will spend domestically and the percentage that each will invest in foreign assets. We use a methodology developed by economist Brad Setser.<sup>4</sup> He finds that each country has a fairly consistent baseline expenditure on domestic investments and imports, regardless of the oil price. We can translate this level of spending into a price-per-barrel of oil. Setser estimates this threshold, or "hurdle rate," econometrically for each country based on historical data on oil revenues and capital outflows. This methodology allows for the fact that some countries have lower domestic spending and fewer imports than others. For instance, Kuwait spends all oil revenues domestically at oil prices of \$15.40 per barrel and below, while Saudi Arabia spends all revenue domestically up to \$21.80 per barrel (Exhibit B.1).

### Exhibit B.1

#### OIL EXPORTERS VARY IN THE SHARE OF OIL REVENUES CONSUMED

Petrodollar "recycling", 2000–06 average



\* When oil price is below this threshold, country spends all oil revenue on domestic investments.

\*\* Above threshold oil price, percent of additional revenues spent on domestic investment; remainder is invested abroad.

Source: Brad Setser, *Oil and global adjustment*, March 2007; McKinsey Global Institute Energy Demand Model; McKinsey Global Institute Capital Flows Database; McKinsey Global Institute analysis

3 *Curbing Global Energy Demand: The Energy Productivity Opportunity*, McKinsey Global Institute, May 2007.

4 Brad Setser, *Oil and global adjustment: Global reserve and petrodollar watches*, Roubini Global Economics Monitor paper, March 2007.

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As the oil price rises above each country's threshold, countries then spend a portion of the additional revenue domestically and invest the remainder in assets abroad. Kuwait, for instance, spends 15 percent of the revenues above its hurdle rate on domestic expenditures, while 85 percent goes into foreign investment assets. Saudi Arabia spends 20 percent of the oil revenues above its threshold rate on domestic spending and invests 80 percent abroad in financial assets.

Using this methodology, we can estimate the future capital outflows from oil exporters at different oil price levels. To determine total foreign investments, we simply add up the capital outflows from all countries across years.

### **3. Estimating the impact of foreign purchases of US bonds on US long-term interest rates**

We estimate the impact of Asian and other foreign purchases of US long-term bonds on US long rates based on analysis by two academic researchers Francis Warnock and Veronica Cacdac Warnock.<sup>5</sup> Their research econometrically estimates the effect of standard macroeconomic variables on US long-term nominal interest rates using a reduced-form model. The analysis then augments the model by including several measures of net foreign purchases of US bonds (focusing on ten-year Treasury yields). Running several regression analyses, the research authors find a statistically significant negative impact from foreign purchases of US long-term bonds on US long-term interest rates. The authors show that a one-percentage-point increase in foreign purchases of US long-term bonds (expressed as a percent of GDP) decreases long-term interest rates by 43 basis points. We use the regression coefficients calculated by the Warnock and Warnock analysis to derive a rough estimate of the impact of individual countries' official and private purchases of US long-term bonds on US long rates. This includes purchases of US bonds by Asian countries, oil exporters, and other countries.

In order to arrive at an estimate of net purchases of US long-term bonds—split into Treasury securities, agency bonds, and corporate bonds—by China and other major Asian economies, we use a two-step approach. Building on the holdings of US long-term securities provided by the US annual survey of foreign-portfolio holdings (in the balance of payments), we first derive implicit net purchases per country calculated as the difference between the holdings per year. As pointed out by Setser and other academic papers, although this survey provides a better picture of foreign inflows into the United States than the Treasury International Capital (TIC) Reporting System flow data, the survey still has several limitations. Most importantly the survey poten-

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<sup>5</sup> Francis E. Warnock and Veronica Cacdac Warnock, *International capital flows and U.S. interest rates*, Board of Governors of the Federal Reserve System, September 2005.

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tially undercounts foreign dollar assets.<sup>6</sup> We therefore adjust the derived net foreign purchases of securities upward so that they match the comprehensive inflows data into US corporate and government debt provided by the MGI Global Financial Flows Database.

Applying the adjusted figures on the correlation coefficients calculated by Warnock and Warnock, we find that the annual net foreign purchases of long-term US bonds in 2006—amounting to 5.7 percent of US nominal GDP—lowered the respective US long rates by 130 basis points. Net foreign purchases of US Treasury securities and agency bonds—that totaled 3.0 percent of US nominal GDP—lowered long rates by 68 basis points.<sup>7</sup> If we then break down the calculated impact to a country level, major Asian central bank purchases of US long-term bonds lowered US long rates by an estimated 55 basis points or 42 percent of the total global impact. Petrodollar purchases of US bonds lowered interest rates by an estimated 21 basis points (see Exhibit 3.16 in chapter 3).

#### **4. Methodology for projecting future Asian current-account surpluses**

To project future Asian current-account surpluses, we consider two scenarios. In the first scenario, we assume that each country's current-account surplus continues to grow at the compound annual growth rate (CAGR) that prevailed between 1998—the year following the Asian financial crisis—and 2006. For some countries, the implied surpluses become implausibly large. China, for instance, would have a surplus of 17.2 percent of GDP compared with 7.4 percent in 2006 (Exhibit B.2). Although some smaller economies such as Singapore currently have much larger current-account surpluses than this, it seems unlikely that either China or foreign governments would find a Chinese surplus of this size desirable.

To make our projection plausible, we therefore limit the amount by which a country's current-account surplus can grow. For most countries the cap is 10 percent of real GDP, which is exceeded today only by small economies. For very small economies like Singapore and Hong Kong we set the cap at 27 percent of real GDP in 2012, the level of Singapore's current account today. We assume smooth growth between now and 2012 for countries whose surpluses reach 10 percent of GDP. In this scenario,

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6 We use survey data because custodial bias distorts the TIC flow data—official inflows are lower than would be expected given the scale of global reserve growth. Nevertheless, the survey data, provided at midyear, does not capture everything. The survey covers US, not global, custodians and therefore fails to capture those reserves that have been handed over to private fund managers. Also see Brad Setser, *Estimating the currency composition of China's reserves*, 2007.

7 Applying the correlation coefficients calculated by Warnock and Warnock based on the authors' adjusted data series of foreign purchases of US long-term bonds onto our dataset of net foreign purchases is technically not fully appropriate. However, it provides a good indication of how foreign purchases of US long-term securities—which are far higher than the level that we can consider as a “normal” pattern—impact US long-term interest rates.

## Exhibit B.2

### MGI PROJECTED CURRENT-ACCOUNT GROWTH TO 2012

Based on 1998–2006 compound annual growth rates

Economy	2006 current-account surplus	% of GDP	2012 current-account surplus	% of GDP
Hong Kong	22	11.6%	110	43.6%
Switzerland	62	16.5%	144	35.0%
Singapore	33	26.9%	52	32.6%
Malaysia	23	17.1%	46	24.8%
Luxembourg	5	13.9%	11	24.7%
China	180	7.4%	667	17.2%
Netherlands	48	7.5%	111	15.5%
Sweden	27	7.4%	63	14.6%
Taiwan	21	5.8%	48	10.4%
Germany	134	4.7%	310	9.9%
Argentina	7	3.6%	23	9.0%
Canada	32	2.8%	106	7.7%
Denmark	10	3.7%	23	7.7%
Finland	7	3.6%	17	7.4%
Belgium	11	2.8%	25	5.8%
Brazil	17	2.1%	57	5.5%
Japan	161	3.4%	203	3.9%

Source: BP World Energy Report; Global Insight; McKinsey Global Institute Energy Demand Model; McKinsey Global Institute Capital Flows Database; McKinsey Global Institute analysis

the current-account surpluses of the seven major Asian economies grow from \$521 billion in 2006 to \$862 billion in 2012 (see Exhibit 3.9 in chapter 3).<sup>8</sup>

In our second scenario, the growth of Asian current-account surpluses slows down. This could happen for several reasons. One is if a major global recession dampened consumption in the United States and Europe, thereby reducing Asian exports and foreign capital inflows. Alternatively, current-account surpluses would shrink if Asian countries—particularly China—allowed more rapid appreciation of their currencies. We consider this more conservative scenario the more likely outcome over the next five years.

To model current-account surplus projections in this scenario, we use Global Insight's forecast for China and Japan. For China, Global Insight projects a declining current-account surplus, from \$237 billion in 2006 to \$61 billion in 2012. This implies a 15 percent appreciation of the yuan, from 7.62 to the dollar (as of June 30, 2007) to 6.48 in 2012. Japan's surplus remains more or less stable in the Global Insight projection. We model current-account surpluses in other Asian countries as growing more slowly than in the past, in line with Global Insight's projections. Altogether, Asia's current-account surplus declines by 6 percent annually, to \$359 billion in 2012 (see Exhibit 3.9 in chapter 3).

<sup>8</sup> These economies are China, Japan, Hong Kong, Malaysia, Singapore, South Korea, and Taiwan.

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