
The Role of Private Equity in U.S. Capital Markets

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INTRODUCTION

Private equity transactions and operations in the United States have grown dramatically over the last generation. The number and value of U.S. private buyout-related deals rose from 12 transactions in 1970, involving less than \$13 million in direct capital raised and invested, to 2,474 deals in 2007 for which buyout firms directly raised and invested approximately \$70 billion (net of leverage or borrowing).² Including leverage, the value of U.S. buyout deals averaged about \$100 billion per-year from 2000 to 2005.³ However, these sharp increases in private-equity buyouts, virtually all of them leveraged and some very highly so, have raised concerns about the economy's vulnerability to a systemic financial market event if a large firm, or a series of firms purchased in a highly-leveraged buyout or a major private equity firm should suddenly fail. These concerns have been heightened by the systemic crisis and enormous costs triggered by the large-scale failures of mortgage-backed securities and their derivatives, including the collapse of Bear Stearns, Lehman Brothers, AIG, Fannie Mae, Freddie Mac and Countrywide Financial Corp., and the severe financial stresses and extraordinary government interventions on behalf of other major financial institutions. This report examines the basis for these concerns. Based on the data and analysis, we conclude that the organization of private equity buyout funds and the nature and dimensions of their investments are fundamentally different from the conditions which have produced our current systemic instability, and that the private equity sector does not seem to present a systemic risk for U.S. capital markets or the economy.

Private equity funds play a distinctive role in U.S. financial markets and the economy by organizing and channeling capital and skilled managers to acquire and operate firms based on their analysis of the returns those firms could generate if new management brings about significant changes in those firms' operations. Private equity investors may buy struggling firms; they may purchase solid but unwanted divisions of conglomerates, and they may acquire strong companies with significant growth potential. Regardless, their role contrasts clearly with other financial institutions and investors — including hedge funds, mutual funds, pension plans and other asset management companies, insurance companies, banks, and universities and other endowed institutions — who purchase securities traded on secondary markets. These types of portfolio investors seek to forecast the future value and returns of the companies or indexes in which they might invest, based on their current or announced operations. Private equity funds provide investment opportunities that otherwise would be unavailable to most institutions, as well as high net-worth individuals, to participate directly in the turn-around operations of non-public companies.

As we will see, numerous studies have found that the investors in private equity funds, on average, earn above-market returns, because the earnings of the acquired companies, on average, increase more than those of comparable, publicly-held corporations. These findings are consistent with other studies showing that privately acquired companies which subsequently go public generally outperform the market,⁴ as well as with data show-

1 This report was supported by the Private Equity Council. The analysis and conclusions are solely the authors'.

2 VentureXpert Thomson Financial. Over these years, venture capital transactions by private equity investors and funds increased from 160 deals totaling approximately \$103 million in direct capital invested to 5,303 investments with \$40.2 billion invested.

3 VentureXpert, Thomson Financial and the Private Equity Council.

4 Cao, Jerry and Lerner Josh. (2006). "The Performance of Reverse Leveraged Buyouts," NBER Working Paper, <http://www.people.hbs.edu/jlerner/RLBOPerformance.pdf>.

ing that private equity operations involving large companies generally create net new jobs,⁵ which usually are a sign of an expanding market and sales. Many factors help to explain this performance, from the operational improvements carried out by private equity investors to the effects that leverage can play in increasing returns on investment. Whatever the causes, the dramatic growth of private equity largely reflects the market's recognition of these results. This recognition has been especially acute among public and private pension plans, and universities, foundations and other endowed entities, which have become the largest investors in private equity funds, accounting for more than 42 percent of the capital committed to those funds from 2000 to 2007.⁶ Moreover, these institutions contribute an even larger share of the capital raised in large private equity funds.

Despite this rapid expansion of the private equity sector and its use of leverage financing, our analysis has found that these developments do not create new systemic risks for the capital markets and economy.

- To begin, data indicate that private equity firms and their transactions are much less highly-leveraged than the leverage seen in numerous markets that either have experienced systemic problems or have been subject to severe stresses *without* creating such problems. In a sample of 63 of the 70 largest transactions carried out by eight large private equity firms from 2002 to 2005, borrowed funds accounted for 70 percent of the value of the assets purchased by the funds' partnerships. While several purchases by these firms in the last two years have been more highly leveraged, these levels are noticeably less than the leverage of Bear Stearns or Lehman Brothers' holdings of subprime mortgage-backed securities and derivatives, the average leverage of the five largest U.S. commercial bank holding companies in the late-1990s, the average leverage of the five largest investment banks,⁷ and the financial leverage for arbitrage activities by hedge funds. While the role that leverage plays differs across asset classes and financial institutions, as we will see, the greater the leverage, all else being equal, the greater the risk of a systemic crisis arising from cascading losses.
- In contrast to the systemic crisis that has recently unfolded in the U.S. financial system from the failures of mortgage-backed securities and derivatives, or the interest rate-based securities and derivatives involved in the cascading problems triggered by the failure of the Long-Term Capital Management hedge fund in 1999 and 2000, where the potential losses were virtually unlimited, the losses that could arise from the failures of firms held by private equity funds are limited to those firms' direct liabilities and purchase prices. An estimated 6 percent of private equity purchases result in bankruptcy or financial restructuring, and those failures result in investor losses. But as well will see, investors' losses in such instances, or even if a number of private equity held-firms failed, pose little risk of a systemic effect.
- Systemic crises involve cascading effects transmitted across financial institutions, which ultimately produce what economists call "correlated defaults."⁸ In a typical instance, a major event or development creates large losses for a number of highly-leveraged investment banks, hedge funds or other financial institutions, forcing them to liquidate assets in order to service their debts and restore their capital; and those large sales in turn drive down the price of those assets and spread the losses to other financial institutions. A private equity-held company that failed is very unlikely to be so interconnected financially as to cause such

5 Shapiro, Robert and Pham, Nam (2007, July). "American Jobs and the Impact of Private Equity Transaction." World Growth, www.worldgrowth.org/assets/File/Shapiro-IPstudy.pdf.

6 VentureXpert, Thomson Financial.

7 Report of the President's Working Group on Financial Markets (1999). "Hedge Funds, Leverage and the Lessons of Long-term Capital Management," <http://treas.gov/press/releases/reports/hedgfund.pdf>.

8 Chan, Nicholas, Getmansky Mila, Haas Shane, and Lo Andrew. (2005, March). "Systemic Risk and Hedge Funds," National Bureau of Economic Research, Working Paper No. 11200.

ripple effects. Moreover, the ownership structure and rules of private equity funds strongly mitigate their triggering a systemic crisis of this type. The financial institutions central to this cascading pattern hold only about one-third of investments in private equity funds, while the pension funds, endowments and wealthy individuals that hold a majority of these investments are less subject to severe selling pressure from sudden losses. Furthermore, private equity investors usually cannot exit a fund without giving considerable notice, even when a large loss occurs, which would short-circuit many instances of cascading panic selling.

- Systemic crises also are commonly related to the collapse of very speculatively-valued assets, as seen most recently in speculative mortgages and the securities and derivatives based on those mortgages. The investment focus of private equity funds on potentially *undervalued* firms should largely preclude a systemic crisis arising from the collapse of *overvalued* assets. At a minimum, our dataset does not suggest speculative bubbles in the assets purchased by these large private equity funds during the period examined here. Private companies do not have standard price-earnings ratios, since there is no public market price for each share; but the most widely used measure of the ratio of value to earnings in privately-held firms, the “enterprise-value multiple” (EVM), averaged a moderate 9.5 for 63 large transactions undertaken by eight large U.S. private equity firms from 2002 to 2005. Some observers claim that several private equity purchases in the last two years have been overpriced but data for 2006-07 are incomplete and cannot provide the basis for a credible analysis.
- The limited size and diversified holdings of the private equity sector also make it highly unlikely that problems with some private-equity investments could trigger larger, systemic problems in the capital markets. The direct capital at risk in private equity holdings is less than one percent of the value of all U.S. public companies. The total value of all private equity holdings also is equivalent to just 2.6 percent to 4.3 percent of corporate stocks and 3.1 percent to 5.3 percent of GDP, and less than one-seventh the value of subprime mortgages in 2006; and the annual leverage used in all private equity deals since 2000 amounts to less than 8 percent of the net annual borrowing for mortgages. The holdings of all private equity funds also total less than half the off-balance sheet holdings in derivatives held by the Long-Term Capital Management hedge fund, just before its collapse threatened a systemic crisis. Finally, unlike the systemic risks presented by the dot-com bubble or the serious system problems triggered by subprime mortgage-backed securities, the assets of private equity funds are diversified across nearly all major industries and sectors.
- The factors which brought down Bear Stearns, Lehman Brothers and AIG, and produced a systemic crisis in financial markets, largely are not present in the private equity sector. Bear Stearns’ crisis and later the crises for Lehman Brothers and AIG began with funds they created to trade very highly-leveraged subprime mortgage-backed securities (MBSs) and their derivatives, with Lehman Brothers also holding a highly-speculative and highly-leveraged commercial mortgage portfolio. As the housing bubble expanded, these funds’ returns rose and attracted more institutional investors and more funds for leverage, which both institutions invested in more MBSs and their derivatives, including collateralized debt obligations (CDOs) and credit default swaps (CDSs). When the housing market began to fall and mortgages began to fail, investors moved to liquidate their holdings in the various funds and their lenders called in their loans. In all these cases, the leverage in this area was so great, and the obligations from CDOs and CDSs so large, that they exceeded the firm’s capital and made it technically insolvent. The failure of these funds and their parent companies also produced large losses for other financial institutions which were invested in them or had loaned funds to them. Many of those institutions also had highly-leveraged portfolios of MBSs, CDOs and CDSs; and the sudden, sharp decline in the value of their leveraged holdings forced them to write down huge losses, damaging their balance sheets, reducing their liquidity and producing a credit crunch.

- Private equity buyout funds did not incur direct losses in the recent subprime mortgage crisis, since they do not invest in asset-based securities or the derivatives based on them, nor do they invest in or lend funds to others institutions trading in those securities and derivatives. (Some private equity firms have created dedicated funds with investments in some mortgage-related securities that have not performed well, but these investments are distinct from the funds focused on buyouts.) As noted, the investments of private equity funds also are less highly-leveraged than those of either Bear Stearns or the classes of financial institutions caught up in the capital market's current systemic problems. A private equity fund's moderately-leveraged investments in turn-around companies limit the potential losses of its partnerships, their investors, including financial institutions, and lenders. While companies held by private equity funds can fail, the portfolios of the funds are diversified across industries, so that a crisis in one sector such as housing does not threaten to force the liquidation of substantial numbers of other assets. Further, there are minimal if any financial interconnections between companies owned by private equity firms, so that distress in one such company is unlikely to affect the health of the fund holding and managing the investment.

This analysis draws on two databases and the literature of previous studies. The treatment of the holdings and ownership of the private equity sector as a whole is based on the comprehensive VentureXpert database of Thomson Financial. We also use a smaller and more detailed proprietary database collected by the Private Equity Council to assess recent levels of leverage and financial vulnerability in the nation's large private equity funds.⁹ This second database was created by surveying eight major U.S. private equity firms for data on deals with a minimum value of \$250 million each, transacted from 2002 through 2005. These data cover acquisitions of 70 large U.S. companies, including 50 companies which the private equity funds still hold and 20 companies which they subsequently sold. These private equity firms were able to provide earnings or debt and equity data for 67 cases at the time of acquisition, including 59 cases with complete earnings, debt and equity data, 4 cases with only earnings data, and 4 cases with only debt and equity data. This sample of 67 acquired companies includes 47 firms or 94 percent of large acquisitions from which these funds had not exited, plus all 20 companies which had been exited. The sample represents 95.7 percent of all deals exceeding \$250 million carried out by the eight private equity firms (67 cases of 70) and 98.5 percent of their total investments in LBO acquisitions (\$142.4 billion of \$144.5 billion).

This sample includes 20 manufacturing and 47 non-manufacturing companies; and at the time of the acquisitions, 26 of the 67 were privately-held companies, 14 were publicly-traded firms, and 27 were subsidiaries of publicly-traded companies. The average value of the deals was about \$2.1 billion, and the total value of the 67 buyouts came to \$142.44 billion. To our knowledge, this is the first analysis of the systemic risks of private equity operations based on empirical data provided by large private equity firms. The sample is comparable in numbers to most previous academic analyses of private equity and provides insight into the dimensions, features and systemic risks associated with the current period of purchases and operations of large companies by major private equity firms.

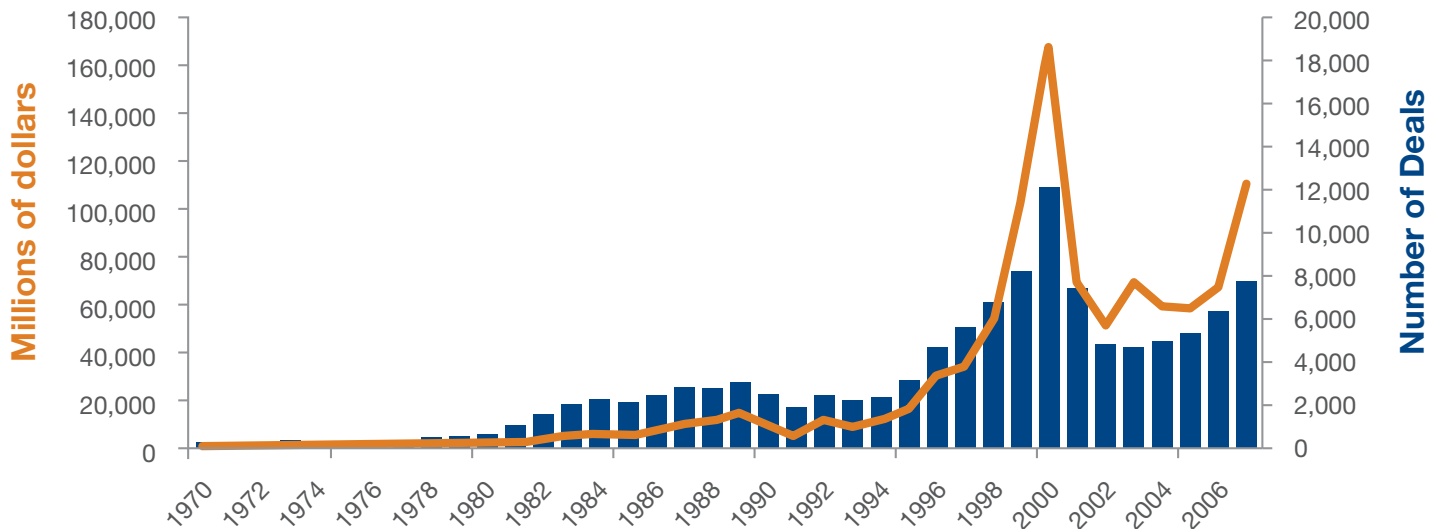
THE DIMENSIONS AND PATTERNS OF PRIVATE EQUITY ACTIVITIES

Private equity transactions, including both buyouts and venture financing, have been among the fastest-growing investment areas in recent decades. New capital investments by private equity firms — not including the funds borrowed to complete the transactions — averaged \$230 million per year in the 1970s and reached \$81 billion per year from 2000 to 2007, a 352-fold increase. In 2000, the peak year for private equity to that

⁹ McKinsey and Company collated the data provided by the eight private equity firms which are solely responsible for the data's integrity. Data provided by Apollo, Bain, Blackstone, Carlyle, Kohlberg Kravis Roberts, Providence, Silver Lake, and Texas Pacific Group.

point, there were 12,187 deals involving capital investments of \$167.7 billion by the funds (Figure 1, below). In 2007, private equity investors completed 7,777 transactions involving \$110.2 billion in private equity-fund capital. The number of private equity firms also increased from 92 in 1970 to 3,250 in 2000, and then fell to 2,823 by December 2007. The average size of the direct investments increased four-fold from \$3.5 million in 1970 to \$14.2 million in 2007 (2007 dollars).¹⁰

Figure 1. Number of Private Equity Deals and Total Investments, 1970-2007¹¹



Most of the recent growth in private equity investment has involved buyouts, and those buyouts also have shifted in focus from purchases of small subsidiaries of large firms to buyouts of entire companies, often privately-held firms.¹² As Figure 2, next page, shows, venture-related investments in the 1970s were 4.4 times greater than buyout-related investments; since 2000, venture investments have exceeded buyouts by only 17 percent. Buyout-related investments in the 1970s totaled \$425 million in 353 deals, compared to \$1.9 billion in 2,159 venture investments; from 2000 to 2007, buyouts totaled \$299.3 billion in 14,408 deals, compared to \$350.7 billion in 38,976 venture deals.¹³ Apart from the \$31.1 billion acquisition of RJR Nabisco in 1988, the ten largest buyouts on record all occurred in 2005, 2006 or 2007.¹⁴

10 Again, all investment figures cited here are reported by Thomson Financial and represent investments by private equity funds exclusive of outside leverage.

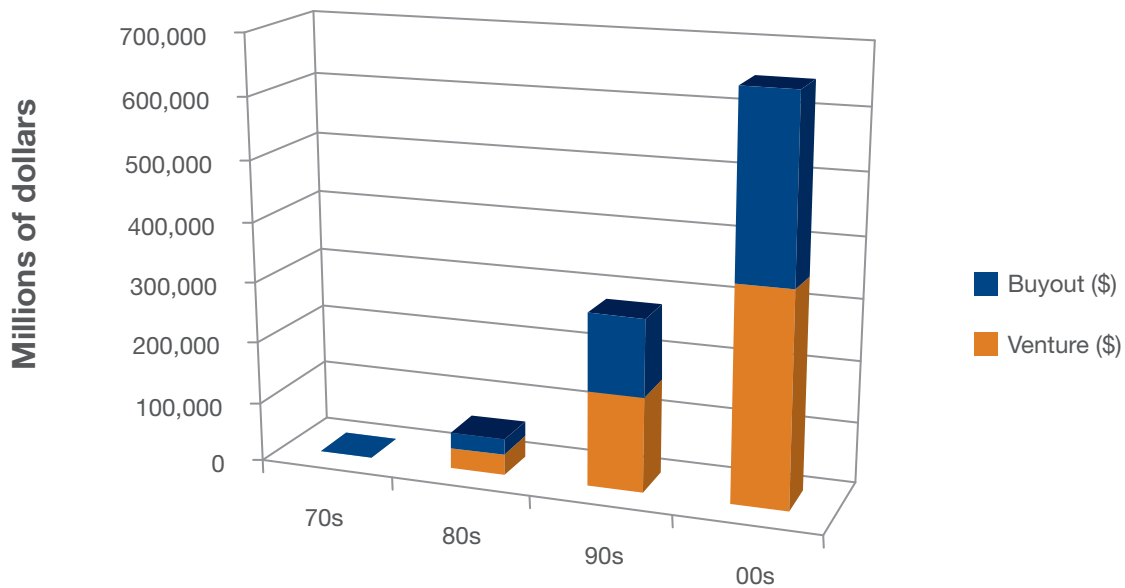
11 VentureXpert, Thomson Financial.

12 The boundary between venture and buyout funds is not always fixed. From 2000 to 2007, 16 percent of investments by venture capital funds involved buyout-related activities, and 14 percent of investments by buyout funds involved venture capital activities. VentureXpert, Thomson Financial.

13 VentureXpert, Thomson Financial.

14 The ten largest private-equity transactions are: TXU (\$43.8 billion, 2007), Equity Office Properties (\$38.9 billion, 2006), HCA (\$32.7 billion, 2006), RJR Nabisco (\$31.1 billion, 1988), Harrah's Entertainment (\$27.4 billion, 2006), Clear Channel Communications (\$25.7 billion, 2006), Kinder Morgan (\$21.6 billion, 2006), Freescale Semiconductor (\$17.6 billion, 2006), Albertson's (\$17.4 billion, 2006) and Hertz (\$15 billion, 2005); New York Times (2007, February 26). "The Top 10 Buyouts."

Figure 2. Total Investments in Private Venture Capital and Buyouts, 1970-2007



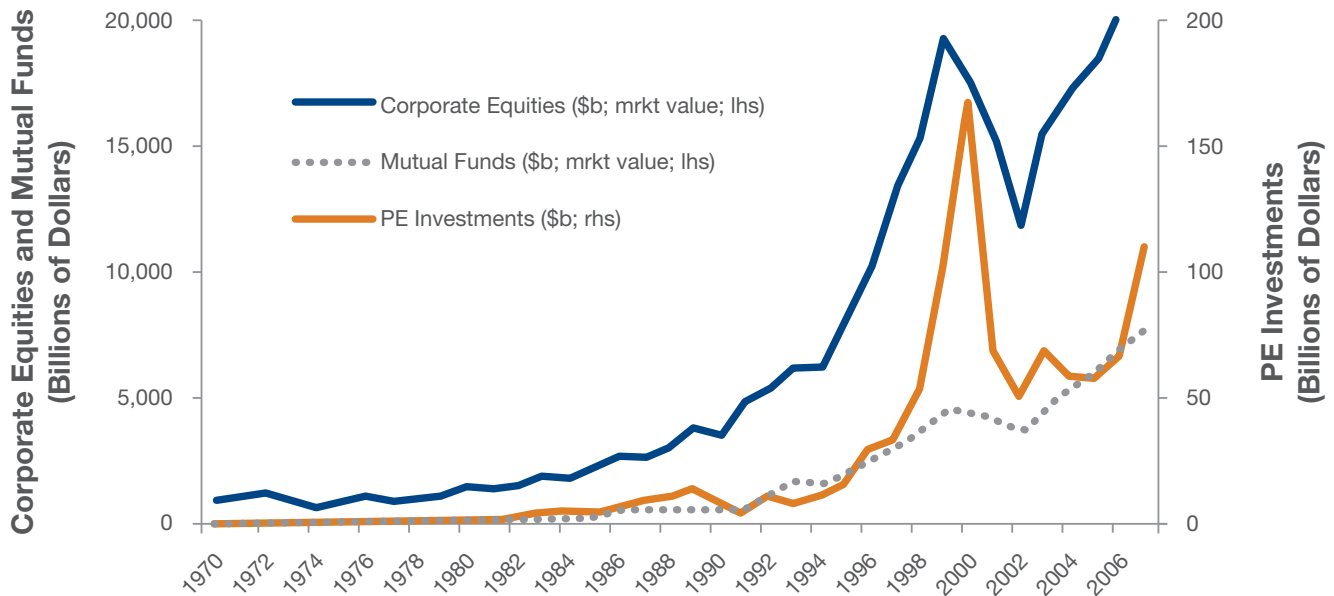
The strong growth of private equity funds reflects their facility in identifying and entering fast-growing market areas and increasing the profitability of the firms they acquire. Studies have found that the investment flows into these funds increase sharply when a “demand shock” occurs in a particular industry portending strong future growth, most notably the development of personal computers and later the Internet, changes in the Food and Drug Administration’s approval process for drugs, and the emergence of a high-yield debt market.¹⁵ Private equity investment also generally tracks the business cycle, rising and falling with the overall economy.¹⁶ In this respect, the pattern of growth in private equity investments resembles corporate equities and mutual funds, especially from 1970 to the mid-1990s. As Figure 3, next page, shows, however, mutual funds have grown more slowly than public or private equities since the mid-1990s; and investments in corporate equities and mutual funds have both grown much faster than investments in private equity funds since 2004.

These data also show that private equity investments remain an order of magnitude smaller than these other areas of investment. In 2007, all new investments in the private equity sector, including both direct capital and leverage, were equivalent to 1.4 percent of mutual fund assets and 0.5 percent of equity market assets. Further, as we will see, the average value of all private equity assets over the period 2000-2005 was equivalent to, at most, 4.6 percent of the average value of all corporate equities over the same years.

15 Ljungqvist, Alexander and Richardson Matthew. (2003, October). “The Investment Behavior of Private Equity Fund Managers.” Social Sciences Research Network (SSRN), <http://ssrn.com/abstract=478061>.

16 Axelson, Ulf, Stromberg Per, and Weisbach. Michael. (2007, January 4). “Why Are Buyouts Levered? The Financial Structure of Private Equity Funds.” National Bureau of Economic Research, Working Paper No. 12826.

Figure 3. Private Equity Investment, Corporate Equities and Mutual Funds, 1970-2007¹⁷



The strategic objective of all private equity transactions and subsequent operations is to raise the value of the acquired company, which normally involves steps to raise its earnings. A company’s earnings may rise as its business expands, its costs decline, and/or as it acquires another company. Despite a common perception that most of the earnings growth of private equity-owned businesses comes from cutting jobs and other costs, a recent study found that those steps account for about one-quarter of the earnings growth in the years following acquisitions, while nearly half of that growth comes from “organic” revenue gains, including revenues from existing and new products.¹⁸ The remaining quarter-share of the earnings growth of private equity-owned companies can be traced to new acquisitions, as when a company acquired by private equity investors becomes a platform for purchases of related businesses, in order to achieve broader market reach and greater economies of scale.¹⁹

The growth of the private equity sector reflects most fundamentally the strong returns generated by this earnings growth. Using proprietary data from 73 private equity funds over the period 1981 to 1993, two leading scholars, Alexander Ljungqvist and Matthew Richardson, estimate that these funds outperformed the S&P 500 index by an average of 8.06 percent per year and outpaced the Nasdaq index by an average of 6.28 percent per-year.²⁰

17 VentureXpert, Thomson Financial and Flows of Funds Accounts, Board of Governors of the Federal Reserve System.

18 Ernst & Young. Private Equity. (2007). “How Do Private Equity Investors Create Value? A Study of 2006 Exits in the US and Western Europe.”

19 The returns earned by private equity can be difficult to measure before an acquired company is resold. While private investment funds track their net asset values, this measure is not set by a public market but usually is an internal appraised value. Actual returns are often measured based on an internal rate of return or cash disbursements relative to capital investment. In other respects as well, measuring the performance of private equity funds raises challenges. Performance assessments are based on self-reporting under which managers report the estimated value of their investments to index providers. Their estimates are normally based on appraisals of underlying asset values, since no market prices for those precise underlying assets exist. There also may be significant lags, with private equity fund performance normally reported on a monthly or quarterly basis. There may be estimation bias based on incomplete or suppressed (censored) data and sample selection bias. “The Benefits of Private Equity: 2006 Update,” Center for International Securities and Derivatives Markets.

20 Ljungqvist, Alexander and Richardson, Matthew. (2003). “The Cash Flow, Return and Risk Characteristics of Private Equity.” NYU Finance Working Paper No. 03-001.

PRIVATE EQUITY FUNDS AND SYSTEMIC RISK IN U.S. CAPITAL MARKETS

Private equity buyout funds play two important and distinctive roles in the U.S. economy. In the real, physical economy of factories and offices, their operations facilitate the productive use of existing assets and resources, usually by identifying companies with untapped potential and reorganizing their operations in ways that increase their value, including making additional investments.²¹ As a matter of economic theory and history, efforts to turn around or strengthen existing individual companies are an extremely unlikely source of systemic problems in capital markets.²²

On the financial side of the economy, private buyout funds operate principally as intermediaries that enable institutional and individual investors to take stakes in leveraged, merger and acquisition transactions and turnaround operations.²³ The capital for large private equity transactions typically is comprised of 1 to 3 percent in contributions from a fund's general partners (although on occasion, it is considerably more), some 30 percent from its outside institutional or individual investors or "limited partners," and the remaining funds borrowed from financial institutions.²⁴ This role as intermediary for other institutions in these leveraged investments, along with the growth in the numbers and size of buyouts, are what have raised concerns in some quarters about systemic risk. As we will see, the evidence suggests that these concerns are unwarranted.

Most of these concerns focus on the leverage employed in private equity buyouts, as high levels of leverage have been a factor in other instances of cascading financial-sector problems, including the current subprime mortgage-related problems. High leverage raises legitimate concerns about systemic risk especially when the leverage is used to speculate on highly-volatile instruments. The failure of the Long-Term Capital Management hedge fund, which threatened to trigger a systemic financial crisis, involved investments in highly-unpredictable interest rate and currency instruments purchased with a leverage ratio of more than 25-to-1.²⁵ Much more recently, the collapse of Bear Stearns, Lehman Brothers and other institutions heavily invested in subprime mortgage derivatives involved even higher levels of leverage. On February 29, 2008, the gross leverage ratio for Bear Stearns and Lehman Brothers was nearly 33-to-1. At the end of June 2008, the gross leverage ratio for Freddie Mac was an extraordinary 68-to-1. With such highly volatile instruments, enormous losses that occur suddenly can trigger systemic effects, as the use of high leverage creates losses straining or exceeding an institution's capital resources, and the instruments purchased with the leverage and those held by other institutions are sold at losses, which may force those selling them to liquidate other investments as well.

These conditions for cascading failures are not present in the private equity sector. First, the leverage typi-

21 The market in private equity deals involving large companies is also highly competitive: Acquisitions deals targeting companies valued at \$1.5 billion or more attract, on average, more than four bidders, and some 80 percent of large companies sold in private equity transactions involve auctions with multiple bidders. See Private Equity Council (2007). "Public Value: A Primer on Private Equity,"

22 This view is reinforced by the shifting focus of buyout transactions. In the 1980s and 1990s, one-third or more of all buyouts involved entire publicly-held companies, and up to one-quarter of buyout involved bankrupt firms. This focus by private equity on takeovers of entire, publicly-held corporations, especially in transactions resisted by their managements, and failing companies, raised the first public concerns about the role of private equity. Since 2000, however, the primary focus of private-equity investments has shifted: Privately-held firms have made up more than 65 percent of all buyouts, while entire public companies have accounted for less than one-fifth and bankrupt enterprises for a mere 3 percent.

23 Metrick, Andrew and Yasuda, Ayako. (2007, September 9). "The Economics of Private Equity Funds." Swedish Institute for Financial Research Conference on The Economics of the Private Equity Market, <http://ssrn.com/abstract=996334>.

24 The equity portion of the financing for 63 buyout deals carried out from 2002 to 2005 by eight large U.S. private equity firms ranged from 10 percent to 88 percent of the purchase price, while the debt portion accounted for between 11 percent and 90 percent. Data collected by McKinsey and Company for the Private Equity Council.

25 Report of the President's Working Group on Financial Markets (1999). "Hedge Funds, Leverage and the Lessons of Long-Term Capital Management," <http://treas.gov/press/releases/reports/hedgfund.pdf>.

cally used in private equity transactions, while substantial, is nearly an order of magnitude less than the two instances noted above, and considerably less than seen in many other instances that have not produced systemic crises. The Federal Reserve Board has estimate that the debt-to-equity ratio of companies acquired by private equity funds in the 1970s and 1980s ranged between 1 and 3.²⁶ Similarly, a broad study found that equity contributions in leveraged buyouts averaged 28.4 percent of the total purchase prices in LBOs from 1992 to 2000 and 36.3 percent from 2001 to 2007.²⁷ As we will see, our sample of 63 large, leveraged buyouts by eight major private equity funds from 2002 to 2005 found an aggregate debt-to-equity ratio of 2.3 (the equivalent of approximately 70 percent debt and 30 percent equity), although in individual cases the debt component was as high as 90 percent.²⁸

For a more systematic view of this issue, we measure the leverage-intensity of private equity buyouts at the time of acquisition by calculating three separate measures, using our sample of 63 large companies acquired by eight large U.S. private equity firms during the period 2002-2005.²⁹ (Table 1, below) This sample includes 18 manufacturing and 45 non-manufacturing companies which together were purchased for \$136.4 billion, or an average of \$2.2 billion per-transaction. These buyouts relied upon \$40.8 billion in private equity capital and \$95.6 billion in debt, or a debt-equity ratio of 2.3 at time of acquisitions. The leverage-intensity of these transactions also can be measured by calculating the debt as the percentage of the purchase price (debt-to-value) and by calculating the equity as the percentage of the purchase price (equity-to-value). At the time of these acquisitions, the debt-to-value ratio of these 63 cases was 70 percent (71.5 percent for manufacturing and 69.6 percent for non-manufacturing companies); while equity-to-value ratio of these 63 transactions was 30 percent (28.5 percent for manufacturing and 30.4 percent for non-manufacturing companies).

**Table 1. Leverage-Intensity of 63 Large Private Equity Transactions
Carried Out by Eight Major PE Firms, 2002-2005³⁰**

	Total (63 companies)	Manufacturing (18 companies)	Non-manufacturing (45 companies)
Debt-to-Equity			
All 63 cases	2.3 to 1	2.5 to 1	2.3 to 1
Median	1.9 to 1	2.3 to 1	1.8 to 1
Highest	8.8 to 1	8.8 to 1	7.0 to 1
Lowest	0.1 to 1	0.5 to 1	0.1 to 1
Debt-to-Value			
All 63 cases	70.0%	71.5%	69.6%
Median	65.0%	69.6%	64.2%
Highest	89.8%	89.8%	87.4%
Lowest	11.5%	34.5%	11.5%
Equity-to-Value			
All 63 cases	30.0%	28.5%	30.4%
Median	35.0%	30.4%	35.8%
Highest	88.5%	65.5%	88.5%
Lowest	10.2%	10.2%	12.6%

26 Fenn, Goerge and Lian, Nellie. (1995, December). "The Economics of the Private Equity Market." Board of Governors of the Federal Reserve System.

27 "S&P Leveraged Commentary & Data," cited in Tenorio, Vyvyan, "Anatomy of a Cycle," *M&A Quarterly Review*, January 25 2008.

28 Data collected by McKinsey and Company for the Private Equity Council.

29 As noted earlier, our sample contains 67 cases, but only 63 cases have equity and debt data at the time of acquisitions.

30 The simple average debt-to-equity ratio of these 63 acquisitions was 2.2. Data collected by McKinsey and Company for the Private Equity Council.

This analysis shows, first, that measured by debt-to-value, the leverage-intensity of major buyouts in recent years, 70 percent, is considerably less than the 85 percent average debt-to-value measure for subprime mortgages and the maximum 80 percent leverage against market value (93 percent against face value) permitted under Regulation T for investments in non-convertible corporate paper.³¹ The debt-to-equity ratio for 63 large private equity transactions of 2.3-to-1 and the median value of debt-to-equity ratio of 1.9-to-1 also are very moderate compared to the comparable measures for the investment holdings of several other financial institutions: The average debt-to-equity ratio of the balance sheets of the five largest commercial bank holding companies in the late-1990s, for example, was 14-to-1, while the average debt-to-equity ratio of the five largest investment banks at that time was 27-to-1.³² Even the highest debt-to-equity ratio in our sample of large private equity transactions, at 8.8-to-1, appears modest in this context.³³ There are sound reasons why investment banks and commercial bank holding companies use high levels of leverage — so long as the leveraged funds are invested in non-speculative, sound vehicles. Nevertheless, these measures show that the investments of the large private equity firms whose activities have raised concerns about systemic risk are much less leveraged than investments of much larger financial institutions were in the highly-speculative period of the late 1990s, when large subsequent losses did *not* produce systemic problems—and much less leveraged than seen in the Bear Stearns, Lehman Brothers, Freddie Mac and Countrywide failures that recently produced such serious systemic problems. The 2.3-to-1 debt to equity ratio of private equity also is less than seen in many hedge funds. Convertible arbitrage funds, for example, have debt to equity ratios averaging 3.2-to-1.³⁴

The structure of the private equity business also distances it from the conditions that produce systemic financial crises. In the classical case, the failure of one or a number of large, highly-leveraged investments threatens the solvency of an institution, inducing some of its investors to bail out and forcing it to quickly sell other assets. This response, in turn, further depresses both the value of the original investment and of comparable assets held by other institutions. The combination depresses confidence in the troubled institution and its share price, producing new losses for other investors on top of the losses of those institutions holding comparable assets. If those institutions also are highly leveraged, they also may be forced to sell other assets, depressing the prices of other classes of comparable assets. If other investors also pull out of the growing circle of damaged institutions, the losses may force these institutions to pull back from making new investment and loans, reducing liquidity across large parts of the market. A growing perception of cascading problems also may damage general investor confidence, producing declines in the stock market or the currency; and in open, global capital markets, a stock market crash and currency crisis can lead to an international financial crisis as the cascading problems cross borders.

When such financial crises occur, they can depress a country's economic performance for a considerable period. In what are commonly called the "Big Five" cascading financial crises affecting developed countries in the last 30 years — Spain in 1977, Norway in 1987, Finland in 1991, Sweden in 1991, and Japan in 1992 — the sub-

30 The simple average debt-to-equity ratio of these 63 acquisitions was 2.2. Data collected by McKinsey and Company for the Private Equity Council.

31 Data collected by McKinsey and Company for the Private Equity Council, General Securities Representative Study Manual, Freddie Mac and Federal Reserve Board, *Ibid*.

32 Report of the President's Working Group on Financial Markets (1999). "Hedge Funds, Leverage and the Lessons of Long-Term Capital Management," <http://treas.gov/press/releases/reports/hedgfund.pdf>.

33 The large variations in these ratios across private-equity transactions are notable: Debt accounts for as little as 11.5 percent of the value of a private-equity acquisition and as much as 89.8 percent.

34 Scheneeweis, Thomas, Martin, Goerge, Kazemi, Hossein and Karavas, Vassilios. (2005). "The Impact on Leverage on Hedge Fund Risk and Return," *The Journal of Alternative Investments*; Report of the President's Working Group on Financial Markets (1999). "Hedge Funds, Leverage and the Lessons of Long-term Capital Management."

sequent decline in real GDP growth averaged more than 5 percent, and growth rates remained well below their pre-crisis trend levels for three years.³⁵ The fiscal costs of cleaning up these financial crises also can be very large. For example, the costs came to 6 percent of GDP for Sweden, 8 percent of GDP for Norway, 16 percent of GDP for Spain, and 20 percent of GDP for Japan. While emergency steps thus far have protected the U.S. capital markets from a full-blown, worst-case systemic crisis following the collapse of subprime mortgage-backed securities and their derivatives, those steps have not been able to prevent enormous systemic losses and problems, with economic and budgetary costs very likely to be many hundreds of billions of dollars.³⁶

The business of private equity funds does not fit this pattern of cascading losses and failures. As noted, the investments of private equity funds generally are not excessively leveraged, especially in contrast to other parts of the financial system which are more likely to produce systemic risk. Further, most outside, limited partners in private equity funds are not highly leveraged themselves. Since 2000, pension plans and the endowments of foundations, universities and other non-profit institutions have been the largest investors in these funds. (Table 2, below) From 2000 through 2007, pension plans committed \$42.9 billion to private equity funds, and endowments committed \$35.3 billion, or respectively 23.1 percent and 19.0 percent of the \$185.4 billion raised by buyout funds. In addition, wealthy individuals and families whose investments in these funds also are not leveraged accounted for 10.8 percent of the capital raised. By contrast, the leveraged, financial institutions that can intensify and transmit systemic problems play a relatively modest role in private equity: From 2000 to 2007, banks provided 12.4 percent of private equity fund capital, and other financial intermediaries and insurance firms companies another 9.7 percent and 7.4 percent respectively.

Table 2. Sources of Investment Capital for Private Equity Funds, 2000-2007³⁷

	Commitments (\$ millions)	Share of Total Commitments (%)
Pensions	\$42,863.8	23.1%
<i>Public</i>	\$22,634.4	12.2%
<i>Private</i>	\$20,229.4	10.9%
Endowments/Foundations	\$35,248.7	19.0%
Banks	\$22,984.0	12.4%
Family/Individuals	\$19,954.5	10.8%
Intermediaries	\$18,022.5	9.7%
Insurance	\$13,782.5	7.4%
Foreign	\$13,368.8	7.2%
Corporations	\$9,811.3	5.3%
Others	\$9,407.1	5.1%
Total	\$185,443.1	100.0%

Private equity funds are also unlikely to trigger a systemic crisis in U.S. capital markets, because they invest in individual companies rather than financial instruments. The economic risks involved in private equity investments are real, since acquired companies often are experiencing problems. Some companies seek out private

35 Bordo, Michael, Mizrach, Bruce, and Schwartz, Anna (1995). "Real versus Pseudo-International Systemic Risk: Some Lessons from History," National Bureau of Economic Research, Working Paper 5371.

36 Reinhart, Carmen. and Rogoff, Kenneth. (2008). "Is the 2007 U.S. Sub-Prime Financial Crisis So Different? An International Historical Comparison," Working Paper.

37 Commitments by sources in buyouts funds and mezzanine funds, VentureXpert Thomson Financial.

equity investors because their own financial problems prevent them from borrowing from banks or raising funds through new public equity issues or corporate paper. Such difficulties can present serious risks if a recession occurs, the firm finds itself the subject of major litigation, or adverse changes occur in the firm's regulatory environment. A recent study for the World Economic Forum of 21,397 private equity transactions from 1970 to 2007 found that 6 percent "end in bankruptcy or financial restructuring," a higher bankruptcy rate than all U.S. publicly traded companies but lower than the default rate for U.S. corporate bond issues.³⁸ While large privately-held companies sometimes fail, and these failures can be painful to those affected, their failures do not usually occur suddenly; and a private equity fund holding such a company can take steps to protect its solvency and overall investing activities. Further, when such a company fails, the value of many of its physical assets may be unaffected and can be sold to limit the fund's losses. In addition, the very large private equity transactions that might be of most concern in this regard usually involve more than one private equity fund, limiting the exposure of any single fund: Eight of the ten largest buyouts on record involved multiple private equity firms.³⁹

This investment profile contrasts sharply with the financial institutions and investment whose recent failures raised genuine prospects of cascading capital-market problems. In the collapse of Long-Term Capital Management, Bear Stearns, Fannie Mae, AIG and others, speculative and highly-leveraged investments in interest-rate derivatives and subprime and conventional mortgage-backed securities and their derivatives created sudden losses that far exceeded the value of the investments with their formal leverage, which in turn forced the liquidation of other highly-leveraged investments, producing rising losses for its investors and everyone else holding the same or closely comparable instruments. By contrast, the investments of private equity funds in individual companies limit their exposure to no more than the value of that investment, its leverage or loans to complete the purchase, and the acquired firm's liabilities net of the value of its cash and other assets. These potential losses are known by the funds with some certainty, and their underlying assets are much less subject to the sharp and sudden shifts in value associated with speculation in interest rates, currency values, and housing prices following a bubble. The contrast is even greater, when the financial exposure associated with a privately held company is compared to the theoretically unlimited risks associated with the highly-leveraged options contracts and large-scale short sales undertaken by some hedge funds.

As a result, the value of the investments made by private equity funds is much less volatile and much more limited than those seen in recent cases of systemic capital market problems. In the end, there are no modern instances of a financial crisis or widespread asset decline triggered by the failure of a single company — even a very large company such as Enron — whether held by private equity funds or by other classes of investors.⁴⁰

The securitization of subprime and conventional mortgages also involves physical assets underlying the initial instruments and their derivatives; but unlike companies held by private equity funds, the value of the underlying housing assets had been distorted by the speculative bubble in housing prices and the practices of many mortgage lenders, while the ratings practices applied to mortgage-backed securities and derivatives distorted the perception of the risks assumed by many financial institutions who invested in these instruments and the institutions that provided their leverage. While some of the leverage used in private-equity

38 Gurung, Anuradha and Lerner, Jerry, co-editors, (January 2008), *Globalization of Alternative Investments: The Global Economic Impact of Private Equity Report 2008*, World Economic Forum, www.weforum.org/pdf/cgi/pe/Full_Report.pdf.

39 The two exceptions are the \$31.1 billion KKR purchase of RJR Nabisco in 1988 and the Blackstone Group's \$38.9 billion deal for Equity Office Properties in 2006.

40 The failure of a large and highly-leveraged company owned by a private equity fund also could also entail considerable indirect adverse effects, in lost jobs and reduced demand for the goods and services used by the failed company. However, these effects, along with those arising from an acquired firm's existing liabilities, would arise from the company's failure irrespective of its purchase by a private equity fund and cannot be claimed as part of the risk of private equity buyouts.

buyouts is also securitized in collateralized debt obligations similar to those in the subprime mortgage area, the use of these instruments in private equity involves much less systemic risk because the two sectors are so different in scale relative to the markets potentially subject to that systemic risk.

The data show that the holdings of private equity buyout funds represent a very small share of the markets that they would have to move, in order to create a systemic problem. Over 2000 to 2007, direct capital investments by private equity buyout funds averaged \$37.5 billion per-year, and among our sample of large buyouts by major private equity funds, the holding period for these acquisitions averaged about three years. A recent study of worldwide leveraged buyout activity since 1970 has estimated the average holding period at about five years, although it also found evidence that this period may be shorter in the United States.⁴¹ The two estimates suggest that at any point in time since 2000, the direct capital at risk in private equity investments has been \$112.5 billion to \$187.5 billion — depending on the holding period used. Those levels are equal to just 0.6 percent to 1.0 percent of the average total value of U.S. equities in the same period and 0.3 percent to 0.5 percent of the total value of corporate bonds at the end of this period. By contrast, the liabilities represented by subprime mortgages alone in 2007 were \$1.3 trillion, or seven to more than 10 times as great as all private equity buyout assets at risk. Those liabilities represented almost 13 percent of the total U.S. mortgage market in 2007 — and that does not include the even greater liabilities represented by the derivative instruments — compared to private equity buyouts, which represent one percent or less of the equity market.

If we include the leverage used in private equity investments in these comparisons, the total value at risk in the entire sector at any time, depending on the holding period used, averaged about \$360 billion to \$600 billion from 2000 to 2007, compared to off-balance sheet derivative positions of \$1.25 trillion for a single hedge fund, Long-Term Capital Management, just before its collapse threatened a systemic crisis. The \$360 billion to \$600 billion total at risk is also equivalent to 3.1 percent to 5.3 percent of the average GDP over this period, compared to approximately 11 percent of GDP for both subprime mortgages and the derivative positions of Long-Term Capital Management. Similarly, the total average annual value at risk in private equity is equivalent to just 2.6 percent to 4.3 percent of the average annual value of all corporate equities. Moreover, the loans or leverage for all private equity deals averaged about \$83 billion per-year in this period, or the equivalent of less than 3 percent of the \$2,902 billion in average annual borrowings for all purposes, and less than 8 percent of annual mortgage lending of \$1,132 billion per-year in this period.⁴²

In brief, private equity funds occupy a place in the capital markets that is likely too small to trigger broad, cascading financial market problems.

In contrast to the losses arising from the subprime mortgage-backed security crisis or the end of the dot-com stock bubble, the investments of individual private equity funds and the buyout sector as a whole also are highly diversified across industries and sectors. Table 3, next page, shows that of \$299.3 billion invested in 14,408 buyout transactions from 2000 to 2007, consumer-related companies accounted for 10.8 percent of the transactions and 14.7 percent of total private-equity investment; industrial companies, including energy and semiconductor firms, accounted for 18.0 percent of the transactions and 21.2 percent of the total investment; computer firms represented another 16.0 percent of transactions and 9.6 percent of total investment; and

41 Gurung, Anuradha and Lerner, Jerry, co-editors, (January 2008), *Globalization of Alternative Investments: The Global Economic Impact of Private Equity Report 2008*, Working Papers, Volume 1, World Economic Forum, www.weforum.org/pdf/cgi/pe/Full_Report.pdf.

42 Board of Governors of the Federal Reserve System, Flow of Funds Accounts of the United States, www.federalreserve.gov/releases/zl/Current/data.htm.

health care concerns accounted for 13.3 percent of transactions and 9.5 percent of investment.⁴³ The private equity sector, therefore, is generally as insulated from sectoral stresses and losses as the overall stock market; and the diversification of these funds provide another barrier to broad, cascading financial market problems.

Table 3. Distribution of Buyout Transactions, Companies, and Investments, By Economic Sector, 2000-2007⁴⁴

Economic Sector	Transactions	Investment
All Sectors	14,408	\$299.3 billion
<i>Consumer Related</i>	10.8%	14.7%
<i>Industrial</i>	18.0%	21.2%
<i>Communications</i>	8.6%	12.1%
<i>Internet Specific</i>	15.6%	7.8%
<i>Computer (software & hardware)</i>	16.0%	9.6%
<i>Health</i>	13.3%	9.5%
<i>Financial/Business Services</i>	9.0%	7.3%
<i>Others</i>	8.6%	17.9%

As a result, the private equity sector also is less liable to be seriously affected by the speculative distortions that play an important role in many systemic financial crises. The most common systemic problems in modern times have involved asset bubbles in which speculation had driven up the prices of a class of assets or equities, producing unusually high valuations which subsequently fell sharply and suddenly. The subprime mortgage-backed security problems arose after an historic run up in housing prices: The Office of Federal Housing Enterprise Oversight reports that from early 1997 to early 2007, housing prices in Boston, Chicago, Denver, New York, San Diego, and Washington, D.C., increased by an average of 141 percent.⁴⁵ This sharp and sustained run-up produced the initial market for subprime mortgages, the subsequent markets for mortgage-backed securities and the derivatives based on those securities, and the expansion of these markets by financial institutions with enormous leverage, which together created systemic risks and ultimately produced systemic problems. Similarly, during the dot-com bubble of the late 1990s, the shares of many venture capital-backed technology companies sold for more than 150 times their earnings — or an infinite multiple in the face of no earnings — and the price-earning (P/E) ratio for even the broad-based S&P 500 at that time was nearly 44, or almost 2.75 times greater than the index’s historic P/E average of 15.9.⁴⁶ Even if a private equity fund partnership invests in a bubble-affected sector, the diversity of private-equity fund portfolios would limit its losses when the bubble bursts.

There is other evidence that the value of the holdings of private equity funds are not generally affected by the speculative fevers that often contribute to systemic crises. Privately-held companies do not have public stock prices and therefore we cannot analyze mark to market price-earnings ratios for signs of speculative excess. However, another measure called the “enterprise value multiple” (EVM) provides some insight. While a price-earnings ratio is calculated by dividing the price per-share by the net earnings per-share, the enter-

43 We also used data from 1970 to 2007 to calculate the composition of private equity investment. The percentage of breakdowns is very similar to 2000-2007 data.

44 Annual disbursements, including only buyout-related deals in the U.S, VentureXpert Thomson.

45 www.ofheo.gov/hpi_download.aspx. The 1997-2007 price increases by city: Boston, 135 percent; Chicago, 92 percent; Denver, 81 percent; New York, 166 percent; San Diego, 211 percent; and Washington, D.C., 171 percent.

46 Bogle, J. (2001). “A Tale of Two Markets,” Bogle Financial Markets Research Center, http://www.vanguard.com/bogle_site/sp20010416.html

prise value multiple is calculated by dividing the company's total value by its total earnings before interest, taxes, depreciation and amortization (EBITDA). The price-earnings ratio and the enterprise value multiple are not strictly technically comparable.⁴⁷ Nevertheless, the ratio of the value of firms purchased by private equity funds to their earnings (before interest, taxes, depreciation and amortization) appears to be very moderate. Our analysis of the sample of 63 large private equity purchases carried out by eight major private equity firms from 2002 to 2005 shows that the EVM for those acquisitions was 9.3 and their median EVM was 8.9.⁴⁸

Table 4. Enterprise Value Multiple of 63 Large Private Equity Transactions Carried Out by Eight Major Funds, 2002-2005⁴⁹

Enterprise Value Multiple	Total (63 companies)	Manufacturing (19 companies)	Non-manufacturing (44 companies)
All 63 cases	9.3	9.0	9.5
Median	8.9	8.3	9.0
Highest	22.7	18.6	22.7
Lowest	4.2	4.2	4.5

Finally, the terms of the limited partnerships in private equity funds create an additional barrier to the onset of a systemic financial panic or crisis triggered by large losses. Unlike the speculators who purchased dot-com company stocks on the secondary markets or the financial institutions holding subprime mortgage-backed securities and their derivatives, the outside investors in private equity funds cannot liquidate their holdings without providing considerable advance notice. As a result, the immediate pressures on the capital of a private equity fund or one of its partnerships from the failure of any single investment, no matter how large, are limited to the losses from that failure, creating something of a firewall against the cascading effects typical of systemic financial crises.

THE SYSTEMIC FINANCIAL CRISIS OF 2008 AND THE PRIVATE EQUITY SECTOR

The private equity sector, then, draws on a number of basic factors and conditions which mitigate the prospect of the systemic problems and risks triggered by the collapse of the subprime mortgage market and now evident in the failures of Bear Stearns, Countrywide, Lehman Brothers, Fannie Mae, Freddie Mac, AIG, and Merrill Lynch, and ongoing threats to other financial institutions. Each has its own particular characteristics, but the crisis that overtook Bear Stearns, the first to fall, was generally typical. The roots of the crisis lay in funds it established and initially funded to trade collateralized debt obligations (CDOs) backed by subprime mortgage-backed securities. As U.S. housing prices rose and the market for subprime mortgages expanded, especially adjustable rate subprimes, the fund's returns increased, which enabled it to attract more investors, including other financial institutions, and to borrow much more from other financial institutions. The fund invested the new capital and borrowings in more mortgage-backed securities, CDOs, and a new form of credit derivative called "credit default swaps" (CDS), also referencing mortgage-backed securities, in which

47 According to IRS corporate returns, the sum of interest, taxes, depreciation and amortization for all reported companies across all industries, which constitute the difference between net earnings used in price-earnings and the earnings data used in the enterprise value multiple, averaged 9.4 percent of earnings over 2002-2005. See Internal Revenue Service, 2005 Corporate Returns — Basic Tables. Returns with Net Income; www.irs.gov

48 We use purchase prices, including direct capital and leverage, as a proxy for enterprise value (in lieu of purchase price plus existing debt minus cash on hand), due to data constraints.

49 Data collected by McKinsey and Company for the Private Equity Council.

investors received payments in exchange for a promise to pay if the underlying securities defaulted. By the time of the crisis, the fund was leveraged at 15-to-1, and its parent company was leveraged at nearly 33-to-1. When the U.S. housing market began to fall, the adjustable rates on subprime mortgages began to rise, and those mortgages began to fail at elevated rates, substantial numbers of investors in the Bear Stearns fund and other Bear Stearns products liquidated their holdings in the fund and its lenders moved to call in loans. The fund had to sell highly-leveraged assets which were falling in value so sharply and quickly that the fund itself failed, and Bear Stearns losses in the fund and elsewhere left it insolvent. The systemic crisis that followed arose from first the direct losses incurred by other financial institutions with large holdings in the Bear Stearns fund, much of which also was leveraged, and even more important, from their own highly-leveraged portfolios of mortgage-backed securities, CDOs, and credit default swaps. As the subprime and conventional mortgage markets turned down sharply, rating agencies downgraded the securities and market demand for them plummeted, forcing institutions across the financial system holding those securities and the CDOs and CDSs backed by them to write down very large losses. In many cases, including Lehman Brothers, Fannie Mae, Freddie Mac, Merrill Lynch and AIG, the wave of debt that overtook Bear Stearns finally overtook them as well. These write downs and failures, in turn reduced liquidity and produced a credit squeeze affecting other business borrowers and the institutions holding shares or debt from those borrowers. More important, they threatened an even broader crisis across the banking system that finally produced the extraordinary federal interventions of September 2008.

The credit crunch triggered by the cascading losses and failures arising from subprime and conventional mortgages and the securities and derivatives backed by them has affected the availability of loans for leveraged buyouts. However, private equity funds have not taken direct losses in this crisis, since they invest in corporations and not in debt instruments or the securities backed by them. Further, their investments are much less highly-leveraged, at about 3 to 1, than those of the financial institutions holding the securities and derivatives that triggered the crisis of Autumn 2008. While a large company held by a private equity fund could fail, moderate leverage and the likelihood that such a large company was held by more than one fund would limit the potential losses of the partnership(s), its investors including financial institutions, and its lenders. Finally, the portfolios of these funds are so diversified across industries that a crisis in a single sector such as housing would not threaten the entire portfolio and force the liquidation of large numbers of other assets.

CONCLUSION

Based on their organization and operations, modern private equity funds present little if any realistic prospect of triggering cascading losses and systemic problems in U.S. capital markets. Their distinctive economic operation is to improve the use and value of existing assets by channeling new capital and strategic and operational expertise to turn around distressed firms and expand the reach and potential of healthy ones. Annual investments in private equity transactions have grown more than 350 fold since the 1970s, because this approach have been financially successful: From the early 1980s to the mid-1990s, for example, the annual returns of 73 private equity funds averaged about 17.5 percent a year, compared to 9.4 percent and 10.9 percent a year for the S&P 500 and Nasdaq indexes.⁵⁰ Private equity funds provide many institutions and individuals their only opportunity to invest directly in the turn-around or expansion operations of non-public companies.

Borrowed funds provide the majority of financing for private equity acquisitions, raising concerns about systemic risk for U.S. capital markets in the event that a large holding by a major private equity fund should fail

50 Ljungqvist, Alexander and Richardson, Matthew, *op. cit.*

suddenly. Our analysis concludes that the private equity sector does not present a systemic risk to U.S. capital markets. The debt carried in large private equity transactions, as a share of their market value or their equity component, is not only much less than seen in two recent instances which triggered systemic problems, the failures of Long-Term Capital Management and, more recently, Bear Stearns, Lehman Brothers, Fannie Mae, Freddie Mac and others, but also substantially less than the balance sheet leverage of large commercial bank holding companies, the legally-permitted leverage of non-convertible corporate paper, or the leverage of hedge fund arbitrage activities. The ownership of private equity funds also reduces the potential that the failure of a private equity-owned company or a private equity partnership could set off cascading losses affecting the balance sheets of banks and other financial institutions. The banks and other financial institutions that provided most of the financing for subprime mortgages and the speculation in the securities and derivatives backed by them hold less than one-third of private equity funds. Further, the terms of investment in private equity funds entail considerable notice and restrictions for investors who want to withdraw their capital, preventing much of the cascading panic responses seen in systemic capital market crises.

The nature of the holdings of large private equity funds also reduces the potential of their triggering a systemic crisis. These funds invest in individual companies with real physical and intangible assets, rather than the derivative instruments associated with recent systemic problems, and that focus limits the funds' downside exposure to unwise decisions and sudden market shifts. Large private equity funds also maintain investment portfolios that are highly diversified across economic sectors, further limiting their exposure to market breaks in particular industries, as seen most recently in the collapse of the dot-com and housing bubbles. Furthermore, modern systemic capital-market crises typically start with a sharp slide in a speculative market, and there is no evidence of speculation or highly-inflated pricing in the holdings of private equity funds. The private equity sector also is probably too small to trigger broad, cascading financial market problems, with net capital assets equal to less than 1 percent of all corporate public equities, leverage equal to less than 3 percent of annual borrowings, and total holdings equal to less than half of the subprime mortgage market or the derivative positions of Long-Term Capital Management before its collapse. We conclude that the private equity sector presents very little risk of triggering a systemic crisis in U.S. capital markets.

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