FRBSF Economic Letter

Number 2008-08, February 29, 2008

The Economics of Private Equity Investments: Symposium Summary

This Economic Letter *summarizes proceedings of a symposium held at the Federal Reserve Bank of San Francisco on October 19, 2007, sponsored by the Bank's Center for the Study of Innovation and Productivity (CSIP). The symposium brought together academic researchers and private equity practitioners, including representatives of private equity firms, investors in private equity, and lenders. Presentations are listed at the end, and some are available at http://www.frbsf.org/csip/research/symposium200710.pdf*

Private equity investment, particularly related to the purchase of private and public firms, has been a central component of so-called leveraged buyouts (LBOs) over the past several years. In the U.S., the dollar amounts of these LBOs increased markedly, from $24 billion in 2001 to $320 billion in 2006. By midyear 2007, they had reached almost $200 billion, but then activity slowed dramatically due to severe financial market conditions. While the private equity sector is relatively small compared to the entirety of the U.S. capital markets, it has been very prominent because of its rapid growth and the degree to which financial innovations have played a role.

In October 2007, the Economic Research Department's Center for the Study of Innovation and Productivity (CSIP) convened a symposium of academic researchers and industry experts to examine the economic factors driving the heightened level of activity through the first half of 2007 and the slowdown following the credit market dislocations observed starting in July and August. This *Economic Letter* summarizes the main themes discussed at the symposium.

Growth of private equity investment

Broadly defined, private equity investment refers to investments made by professional managers of investment funds in private companies. The two main categories of such investment are venture capital (VC), which concentrates on newer companies, and buyouts, which concentrate on more seasoned companies. In recent years, a large percentage of these buyouts have involved the purchase of publicly traded companies in their entirety and their conversion to private companies. The end-investors, or limited partners (LPs), in these funds are typically large institutional investors, such as pension funds, endowments, and foundations, as well as wealthy individuals. The LPs invest in funds managed by professionals from private equity firms, which typically manage several funds at once. These managers, or general partners (GPs), receive annually a percentage fee of the money under management in these funds as well as a portion of any realized gains, which are commonly realized through the sale of the firm to other investors or through a public stock offering. The term "leveraged buyouts" is more commonly used for these types of investments, since acquisitions of firms are financed using a combination of equity (from the LPs) and debt issued in the form of bonds and loans under the company's name.

Private equity investment funds have been around since the mid-1940s, but their growth in recent years has been remarkable. As noted at the conference by Peter Chung (Summit Partners), total private equity commitments globally totaled about $2.3 billion in 1969, increasing to nearly $335 billion in 2006. Focusing on buyouts, the annual amount invested in these funds was approximately $275 billion in 2006, according to Colin Blaydon (Tuck School of Business, Dartmouth).

Changes in the mix and composition of leverage

The mix of equity and debt used in LBOs has changed over time. Blaydon's presentation showed that the average share of equity used in LBOs rose through most the 1990s, reaching a peak of about 42% in 2001, and then declined to about 32% in 2006.

In addition, the composition of the debt used in LBOs has changed. Jonathan Coslet (TPG Capital), presented evidence on the availability of leverage for buyout transactions by highlighting the growth of

---

CSIP FRBSF

CSIP NOTES *CSIP Notes* appears on an occasional basis. It is prepared under the auspices of the Center for the Study of Innovation and Productivity within the FRBSF's Economic Research Department.

loans, both by banks and especially by institutional investors. He reported that the overall size of the leveraged loan and high-yield bond sectors, which is where buyouts were mainly financed, had reached \$324 billion in 1998, with respective shares of 68% and 32%. Furthermore, the leveraged loan market was dominated by bank lending. These markets began to shrink in size shortly after that, reaching a low of \$201 billion in 2002. During this period, the bank lending share decreased to 40%, but the leveraged loan market share grew in level and percentage to \$59 billion and just short of 30%, respectively.

After 2002, the supply of leverage increased dramatically up through 2006. Overall market size surged by a factor of more than three to \$656 billion. While all three categories grew over this period, leveraged loans by institutional investors grew by a factor of nearly 5.5 from \$59 billion to \$321 billion. Correspondingly, this sector's share of overall financing availability grew from 30% to nearly 50%. Preliminary numbers for the first half of 2007 indicated a continuation of this trend.

Coslet noted that the steady growth of institutional lenders at the primary expense of bank lenders from the mid-1990s to the mid-2000s was due in part to the development of loan securitizations, commonly referred to as collateralized debt obligations (CDOs). These securitization vehicles were very common in the mortgage and consumer debt markets and migrated over into the commercial and buyout loan markets over the past few years. He found that the number of these institutional loan vehicles grew from 150 in 1999 to just over 800 by mid-2007. Peter Rappoport (JPMorgan) reported that, in dollar terms, CDO issuance that focused on corporate lending went from roughly \$15 billion in 2003 to over \$100 billion in 2006. The preliminary number for the first half of 2007 was nearly \$60 billion.

These changes in financing sources were accompanied by financing terms that were more favorable for private equity firms. The analysis by Christopher James (University of Florida), for example, suggests that the general decline in interest rates and risk premiums made debt financing more attractive. Other terms of lending also eased over this period. One indication was the increased origination of so-called "covenant lite" loans in which various types of loan covenants (i.e., conditions placed on the borrower by the lender) were either scaled down or excluded from the loan contract entirely. Blaydon noted that while only 5% of U.S. corporate loans could be categorized as "covenant lite" at year-end 2006, that ratio had increased sharply to over 25% in the first-half of 2007.

Perhaps the most notable indicator of the degree of easing in financing conditions for LBOs is the increased value of debt firms raised relative to their operating cash flow, or earnings before interest, taxes, depreciation, and amortization (EBITDA). Blaydon noted that, for LBOs, the average ratio of debt to EBITDA increased from about 4 in 2001 to 7 in the first part of 2007.

As discussed by several symposium participants, the credit events of August and September 2007, which originated in the U.S. subprime mortgage markets, spread quickly to the markets for buyout financing (as well as other debt markets) through CDOs and related securitization vehicles. As noted by Rappoport, purchasers of the highest-rated CDO securities, particularly investors in short-term commercial paper backed by these CDO securities, began to require more compensation for taking on the additional funding risks that came to the fore during that period. Once these investors slowed down their securities purchases, the funding of buyout-related transactions, both those already initiated and new ones, slowed dramatically.

Sources of value added

A central issue for the symposium was how private equity investors are able to generate value. In particular, the question is: What elements of private equity acquisitions make a firm worth more than the pre-acquisition stock price of publicly traded firms or the value that private owners place on the firm?

One place to start is with the leverage itself. In LBOs, the financing structures of the acquired firms are changed dramatically. As noted by James, before the LBO, a typical firm's capital structure is roughly two-thirds equity and one-third debt, and after the LBO it is just the reverse, one-third equity and two-thirds debt. Everything else equal, with the tax advantages of debt financing (i.e., fully deductible interest expenses), the value of a firm should increase. Indeed, James finds the LBO acquisition price relative to operating cash flow is strongly positively related to the debt-to-EBITDA ratio. Using a different data source, Chung presented similar trends in the rise in buyout debt-to-earnings ratios and also showed that buyout purchase prices rose accordingly.

Since the tax advantages to debt financing are generally available, the question of why private equity firms are able and willing to use more leverage remains.

Several related reasons were suggested during the symposium. One is that private equity firms are able to concentrate the management of the firm on improving performance. In particular, Chung argued that conversion of the firm's management into much more direct ownership within the form of a private firm, as opposed to a public firm, realigned management incentives to emphasize improved performance. For example, Blaydon stated that the absence of regular reporting of performance measures to public shareholders via public filings removes an "earnings myopia" and allows managers to focus more directly on firm profitability. More generally, private equity ownership can be seen as better aligning management incentives to maximize the value of the acquired firms.

Beyond these incentives and the increased latitude for firms to have longer-term decision horizons, the discussion at the symposium also suggested that private equity acquisition involves identifying firms in which operational efficiency can be improved.

Compensation

Another important economic component of the private equity investment business is how the investment managers, the GPs, are compensated. As one might expect, the contract terms are affected by and influence their behavior and performance. Ayako Yasuda (Wharton School of Business at the University of Pennsylvania) presented her research on this topic based on a database of 238 buyout and VC firms from 1992 to 2006. The standard setup of a private equity investment is that the investor (or LP) commits a fixed level of capital at the inception of a fund, but not all of the commitment is drawn at once. Over the contractual life of the fund, capital is drawn down for making specific investments or for paying the annual management fees, which tend to be 2% of the total commitment per year. Typically, funds make investments during the first five years, hold a given investment for three to seven years, and exit them before the fund expires. The GPs receive variable compensation, known as "carry," that is typically 20% of the investment return above the original committed capital amount. For example, on a \$100 million investment that grows to \$150 million over a ten-year investment horizon, the LP pays the GP \$20 million (= \$100 million x 2% x 10 years) in management fees and \$10 million (= (\$150–\$100) million x 20%) in carry fees.

Yasuda's research showed that private equity funds expect to receive about 60% of their revenue from management fees (and other fixed revenue components) and the remaining 40% from carried interest (and other variable revenue components). There are key differences between buyout funds and VC funds. Buyout fund managers are found to earn lower revenue per dollar managed than do VC funds, but they earn substantially higher revenue per partner and per professional than do VC funds. The reason for this result is that buyout funds are more scalable and can grow to a larger size without compromising the abilities and success rates of the GPs. In other words, successful VCs can increase the size of funds, but not the size of individual investments; in contrast, successful buyout funds can increase both the size of the funds and the size of individual investments to generate larger revenues per partner.

This degree of scalability of private equity buyout firms is consistent with the increase in both the size of funds and the size of individual acquisitions discussed by Blaydon. However, it also was noted that the very largest buyout deals in recent years have involved partnerships among several private equity firms. This suggests some limits on scalability, perhaps owing to a goal to limit the degree of concentration of risk exposure for a given fund.

Conclusion

Private equity investment provides an alternative mechanism for corporate governance and financing. While the events of the latter half of 2007 clearly indicate that the degree to which this mechanism is used can be affected by general conditions in the overall capital markets, the economics underlying the approach suggest that buyout funds managed by private equity firms will remain an integral part of the global capital markets.

Jose A. Lopez
Research Advisor

Conference presentations

Blaydon, Colin C. "Overview of the Private Equity Sector."

Chung, Peter Y. "Sources of Value in Private Equity Acquisitions."

Coslet, Jonathan. "Debt Markets and LBO Financing."

James, Christopher M. "Financing Private Equity Acquisitions."

Rappoport, Peter. "Collateralized Debt Markets."

Yasuda, Ayako. "The Economics of Private Equity Funds."

ECONOMIC RESEARCH
FEDERAL RESERVE BANK
OF SAN FRANCISCO

P.O. Box 7702
San Francisco, CA 94120

**PRESORTED
STANDARD MAIL
U.S. POSTAGE
PAID
PERMIT NO. 752
San Francisco, Calif.**

Address Service Requested

Printed on recycled paper
with soybean inks

Index to Recent Issues of *FRBSF Economic Letter*