

Big is Better: Growth and Market Structure in Global Buyouts

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The word that best describes the recent trends in the private equity industry is “big.” The assets under management (AUM) for the entire industry have grown exponentially, deal sizes are getting larger, and the largest financial sponsors are becoming even bigger on a relative basis, leading to a more concentrated industry. With no signs of these developments abating, we explore their potential ramifications in this article. In particular, we ask: How is competition within the industry likely to change? What does greater concentration mean for investors in private equity funds? And what is the probable impact, if any, on the ownership and acquisition premiums of buyout targets?

To put these developments in perspective, consider that, at the end of 2006, the industry AUM were estimated to total more than \$1.3 trillion. Compared with 1980, this implies a compound annual growth rate of 24%—substantially faster than the 11% at which the stock of public equity securities, private and public debt securities, and bank assets rose during this period.² Between 2003 and 2006, commitments to private equity funds surged 260% to more than \$400 billion. By far the largest share has gone into buyout funds whose investment pace has accelerated substantially. With the real cost of debt near historically low levels, and far below the earnings yield on equities, the global volume of leveraged buyouts (LBOs) skyrocketed to more than \$700 billion in 2006, a fourfold increase compared with 2003. However, this record is unlikely to last for long: In the first six months of 2007, buyout deals already totaled around \$560 billion, or 25% of global mergers and acquisitions.

Individual buyouts have become substantially larger, involving publicly-listed firms with greater frequency. In a significant number of cases, the size of target companies have required sponsors to work together in so-called “club deals,” although more recently buyout firms seem to have preferred to include limited partners and even existing shareholders instead. Increasingly, general partners (GPs) look for global investment opportunities, while limited partners (LPs) seek to diversify their portfolios by committing capital to funds investing in different geographies. And while some buyout firms have recently floated special investment vehicles on the

public stock markets in an effort to get access to “permanent capital,” others have decided to sell minority stakes through an initial public offering (IPO)—a step that was once viewed as heresy by the private equity industry.

All of these developments are contributing to the profound changes taking place in the structure of the private equity industry. In analyzing how concentration in the industry has evolved over time, we start by examining the growth of individual funds and the drivers behind the observed growth differentials. Next, we evaluate the degree of concentration in fundraising and compare our findings with the market concentration in other financial industries. On the product side, we look at the impact of club deals and the extent of market contestability in an increasingly global buyout market. Finally, we discuss possible future growth strategies for buyout firms.

Fund Growth and Market Segmentation

The substantial overall increase in new commitments to private equity funds masks the highly uneven distribution of capital flows across individual GPs. While the huge growth opportunities have motivated new firms to enter the market, the bulk of the capital has gone to a few mega-funds, allowing them to grow at an accelerated pace. What has motivated these GPs to seek substantially higher funding? And why have investors chosen to fuel that growth rather than dispersing their commitments more widely?

Large Funds Are Getting (Much) Larger

Growth differentials in fundraising have been substantial. As of June 2007, the 12 largest funds recently raised in the U.S. totaled around \$155 billion (Table 1), an average increase of 142% compared with their predecessors of the same fund family. At 75%, average fund-to-fund growth was comparatively lower in Europe. Nevertheless, this growth trajectory was enough for the seven largest European funds to raise the equivalent of \$60 billion (Table 2). These U.S. and European mega-funds account for more than 50% of the capital committed in their respective vintage years, but represent only around 10% of the total number of funds reported by Thompson Venture Economics.

1. We wish to thank our colleagues at AlInvest Partners for many helpful comments and suggestions, especially Wim Borgdorff, Paul de Klerk and Maarten Vervoort. All remaining errors are the authors' alone.

2. D. Farrell, S.M. Lund, and A. N. Maasry, “Mapping the Global Capital Markets,” *The McKinsey Quarterly*, January 2007.

Table 1 **Recently Raised US Mega-Funds and their Predecessors** (as of end-June 2007)

	Most recent fund size (\$ bn)	Δ_{-1} (%) 1/	Δ_{-1} (%) 1/	Δ_{-3} (%) 3/
Blackstone 4/	22.0	241	71	197
GS Capital Partners	20.0	135	89	59
Carlyle	17.0	116	101	193
KKR	16.6	167	0	209
TPG	15.1	185	55	37
Providence	12.0	182	54	193
Apollo Management 5/	10.1	215	-11	140
Hellman & Friedman	8.4	140	60	47
TH Lee 6/	8.0	25	86	156
Silver Lake 6/	8.0	122	63	...
Bain Capital	8.0	129	40	...
Warburg Pincus 5/	8.0	51	6	...

Source: Private Equity Analyst

1/ percentage change in fund size from predecessor fund to most recent fund

2/ percentage change in fund size from pre-predecessor fund to predecessor of most recent fund

3/ percentage change in fund size from pre-pre-predecessor fund to pre-predecessor of most recent fund

4/ including top-off fund

5/ in market

6/ first close; in market

Table 2 **Recently Raised European Mega-Funds and their Predecessors** (as of end-June 2007)

	Most recent fund size (€ bn)	Δ_{-1} (%) 1/	Δ_{-2} (%) 2/	Δ_{-3} (%) 3/
Permira	11.1	176	47	289
Cinven	6.5	49	81	336
Apax 4/	6.2	44	144	-2
CVC Europe	6.0	51	19	296
BC Partners	5.8	40	282	144
Carlyle Europe	5.0	177	80	...
KKR Europe 5/	4.5	50

Source: Private Equity Analyst

1/ percentage change in fund size from predecessor fund to most recent fund

2/ percentage change in fund size from pre-predecessor fund to predecessor of most recent fund

3/ percentage change in fund size from pre-pre-predecessor fund to pre-predecessor of most recent fund

4/ first close; in market.

5/ in market

As impressive as the average fund-to-fund growth rates appear, they still under-estimate the true dynamics, especially at the upper-end of the buyout market. While in the past a typical fundraising cycle encompassed four years, recently several buyout firms (including Carlyle, Hellman & Friedman, and Providence in the U.S. and KKR and Permira in Europe) have decided to return to the market at significantly shorter intervals.

The incentives for GPs to manage larger pools of capital are obvious: it can bring about important economies of scale, while at the same time the management fees increase proportionally with the fund size. But the fee structure alone is unlikely to explain why a small group of mega-funds has emerged. Equally if not more important are the expanded buyout opportunities provided by larger pools of capital. Larger funds allow individual GPs to target high-quality assets whose size and complexity limit the number of competitors

in buyout deals. And while limited partnership agreements typically cap any particular deal at 10% of the overall fund size, the substantial increase in fund sizes has allowed some GPs to commit more than \$1 billion to a single deal.

Investment strategies vary, of course, and while some GPs focus on a very limited number of deals, others spread their bets more widely. Overall, however, we find that fund sizes and individual deal sizes are significantly correlated. In an internal project at AlpInvest (jointly with Professor Oliver Gottschalg of HEC), we looked at 55 buyout funds and 447 realized deals and found a correlation coefficient of 0.42.

Although our database did not allow us to examine the extent to which the correlation between fund sizes and deal sizes has changed over time, anecdotal evidence suggests that the relationship has become tighter. Interestingly, the top-four fundraisers in the U.S. in 2005-2006 were identical with the firms with the largest global deal flows, however, in

reverse order. According to Thomson Financial, TPG was involved in 17 deals with an aggregate enterprise value of just over \$101 billion, followed by Blackstone, Bain Capital and KKR, which took part in global deals worth \$93, \$85 and \$78 billion, respectively.

The desire to raise more capital to be deployed in larger deals is amplified by the degree to which the firm-size distribution in the U.S. and European markets is skewed. In mid-2006, the 1,000 largest publicly-listed companies in the U.S. had a total market capitalization of nearly \$14 trillion—more than nine times larger than the next 2,000 companies (around \$1.5 trillion). The degree of skewness in the firm size distribution is not much different, although the overall market capitalization and the average firm size have remained small relative to the U.S. market. Thus, in both economies the buyout market becomes more competitive at the lower end of the firm size distribution as a growing number of funds could potentially target a particular company. Conversely, above a certain threshold few potential competitors remain, providing an important incentive for GPs to join this super-league.

The firm size distribution is an important factor constraining the universe of buyout targets, but it's not the only one. Top-performing and high-growth companies are typically not a good fit for private equity financing. Buyout targets tend to be of small-to-medium size, reducing the universe of targets in a market segment that is already characterized by considerable competition among buyout firms. Conversely, more mature and larger companies show a comparatively greater need for restructuring—in a market segment few buyout firms can reach.

With a substantially larger fraction of total capital flows going into a small number of mega-funds, going-private deals have regained considerable momentum. In 2006, around one-quarter of all buyouts in excess of \$250 million were public-to-private deals. Their substantially enhanced firepower allows the mega-funds to exploit important advantages the private equity model is said to possess—chief among them the ability to pursue a pro-active acquisition strategy, implement a levered capital structure, benefit from flexible and low-cost financing and have a varied set of exit options. Rather than simply providing capital in exchange for passive equity interests as traditional public investors do, private equity investors view themselves as “adding value” to the companies in which they invest.³

The Track Record Matters

The emergence of a limited number of mega-funds would not have occurred if the GPs' past performance had not encouraged LPs to commit substantially larger resources. As recent research has found, larger funds and later funds in the

sequence of funds from a particular GP have significantly higher realized returns.⁴ This has led academic research to conclude that returns in buyouts are persistent; and, as robustness checks suggest, this is not an artifact of common investments or overlapping time periods for the current and previous funds of a particular GP. These findings support the critical importance that LPs typically attach to a GP's track record in their decision to commit capital to a fund, resulting in an inherent tendency towards increasing market concentration.

Importantly, the vast majority of today's mega-funds in the U.S. are from the GPs that had the largest funds in the 1990s and even in the 1980s, suggesting that the market structure is fairly persistent. Few GPs have succeeded in penetrating the super-league of funds, as investors attach a substantial premium to a GP's experience and track record. Barriers to entry thus seem to be high. Exit barriers are lower: although the performance of a fund is known with certainty only after all portfolio companies are fully divested and returns distributed to investors, over longer time spans underperforming GPs find it difficult to keep up with their peers in raising new funds. Thus, a number of GPs (e.g. Forstmann Little, Doughty Hanson) that once belonged to the super-league a decade or two ago are no longer in that league.

Market Concentration in the Buyout Market

The growth in the size of the mega-funds has had, and will likely continue to have, a profound impact on the market structure in private equity. At the same time, however, the number of funds raised has risen substantially over the past two decades. What has been the overall effect on the concentration in the market for fundraising—and, by implication, the market for buyouts? And how does private equity compare with other financial intermediaries?

Rising Inequality in Fundraising

An ideal measure of concentration in the buyout market is the assets individual firms have under management. Unfortunately, this information is not publicly available across a large sample of firms, nor do we have consistent data over time. However, given that AUM is a function of previous (net) fund inflows, the concentration of fundraising should give a relatively good approximation.

In Figures 1 and 2, the vertical axis shows the total amount of fundraising in individual years, expressed in deciles. The horizontal axis shows the number of funds raised, also expressed in deciles. Suppose, for example, that all funds were of equal size, so that 10% of the funds raised 10% of the total capital and 90% of the funds raised 90% of the capital in any given year. In this case, all observations would fall onto

3. The inherent agency conflicts led Michael Jensen to predict as early as 1989 the eclipse of the public corporation. See Michael C. Jensen, “Eclipse of the Public Corporation,” *Harvard Business Review*, September-October 1989.

4. See Steven N. Kaplan and Antoinette Schoar, “Private Equity Performance: Returns, Persistence, and Capital Flows,” *Journal of Finance*, Vol. 60 (August 2005), pp. 1791 – 1823.

Figure 1 Concentration in US Fundraising for Buyouts

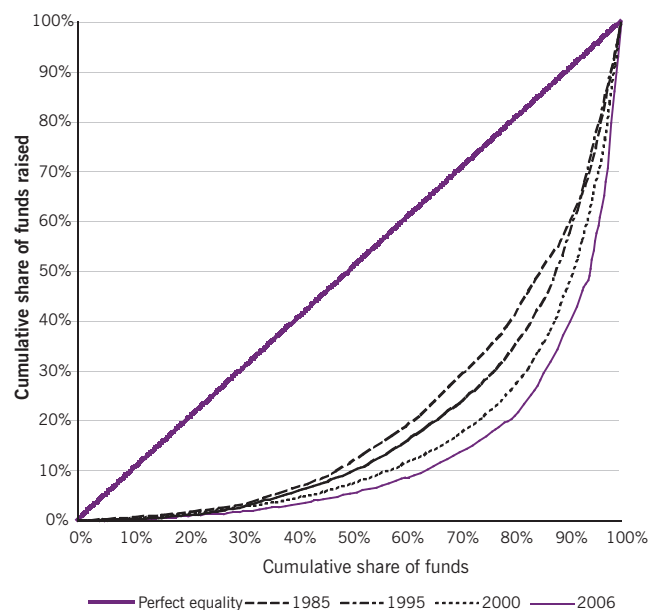
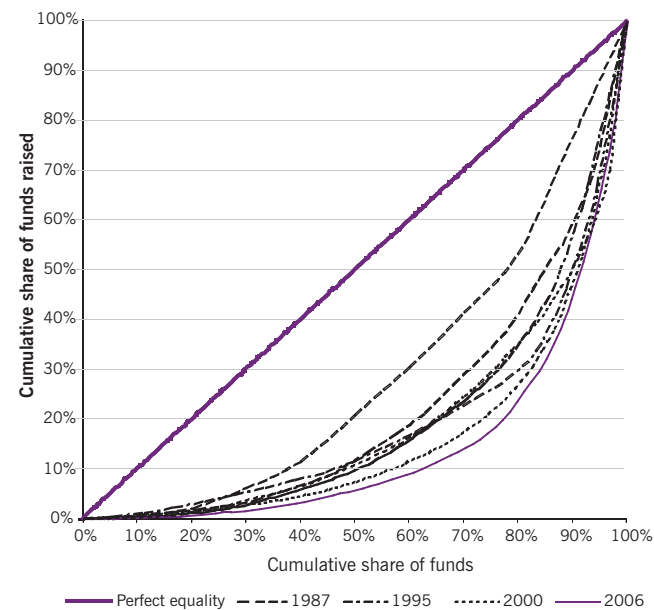


Figure 2 Concentration in European Fundraising for Buyouts



the diagonal. The other extreme is if just one fund received all of the capital supplied by LPs in a given year.

The actual distributions in the U.S. and Europe—known as Lorenz curves—fall between these two extremes. Over time, however, the curves have shifted away from the diagonal, implying that the distribution of fundraising has become more unequal.⁵ In 2005-06, the top 10% of the funds (in terms of their size) accounted for almost two-thirds of all capital raised. In 1995, the top 10% represented around 45% of the overall fundraising market, and in the second half of the 1980s, when buyouts enjoyed a similar increase in activity as today, the respective share of the top 10% was around 40%.

The degree of inequality is somewhat less extreme in Europe. In 2006, 10% of the European funds raised around 55% of the total capital flowing into private equity. However, the trend has been very similar to that in the United States, with some funds growing substantially faster from one generation to the next than others. In fact, in the second half of the 1980s when the European buyout market began to emerge, the respective share of the top-decile funds was only around 25%.

Entry Conditions and Market Concentration

The increasing market concentration doesn't take into account the absolute number of funds raised, which has increased sharply. Thomson Venture Economics reports that 119 funds were raised in 2005, 100 more than in 1985. In Europe, 51 funds were reportedly raised in 2005, up from just 10 funds in 1987. While part of this increase is due to an improved coverage of the market, the rising number of funds suggests that barriers to entry are relatively low at the small end of the market. One factor emerging fund managers may benefit from is the constraints new LPs have in terms of accessing the funds of the GPs with the best track record. They are often closed to new investors as the GPs are able to raise sufficient capital for their new funds from their existing investor base. But if these LPs are unwilling to commit to second-tier funds or funds with virtually no track records, newcomers' access to the private equity market will then be largely restricted to funds of funds (with layered fees) or publicly-listed private equity firms or special investment vehicles.⁶

A common measure of market concentration and market power is the Herfindahl-Hirschman Index (HHI),

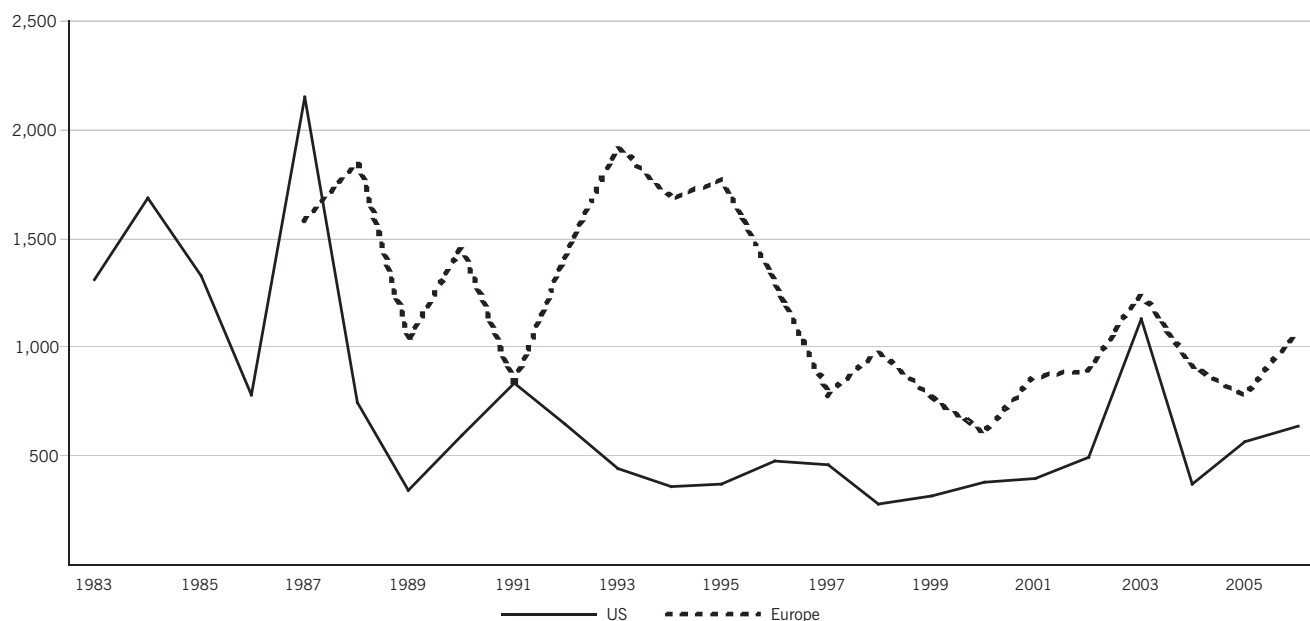
5. Algebraically, the degree of inequality in fundraising can be expressed by the Gini coefficient, which measures the area between the observed Lorenz curve and the line of absolute equality as a proportion of the total area under the line of absolute equality:

$$G = 1 + \frac{1}{n} - \frac{2}{n^2} \sum_{i=1}^n y_i$$

where y_1, \dots, y_n represent individual funds in decreasing order of size, y^n is the mean fund size, and n is the number of funds. Note that the coefficient is only a measure of

relative size. One distribution might be more equal than another over one range, less equal over a succeeding range, and yet both might record the same coefficient. The Gini coefficient has a maximum value of unity (absolute inequality) and a minimum of zero (absolute equality). In the U.S., the Gini coefficient was 0.75 in 2005, an increase from 0.61 in 1995 and from 0.57 in the mid 1980s. In Europe, the Gini coefficient was 0.70 in 2005-06, up from 0.61 in 1995 and 0.41 in 1987.

Figure 3 Herfindahl-Hirschman Index in US and European Fundraising, 1983 – 2006



which reflects both the inequality of market shares and the number of firms (or funds). The HHI is widely used in anti-trust policies and is calculated by summing the squares of the individual market shares of all the participants.⁷ Its maximum value is 10,000 when there is only one fund in the industry. The Horizontal Merger Guidelines issued by the U.S. Department of Justice and the Federal Trade Commission divide the spectrum of market concentration measured by the HHI into three regions that can be broadly characterized as “unconcentrated” (HHI<1000), “moderately concentrated” (1000<HHI<1800), and “highly concentrated” (HHI>1800).⁸

Interestingly, the HHI suggests that the concentration in the U.S. and European fundraising markets has actually remained broadly unchanged in recent years—notwithstanding considerable year-to-year fluctuations (Figure 3). Although some funds have grown substantially bigger and seem to be playing in a league of their own, the rising overall number of funds has offset the effect of mega-funds on concentration. In Europe, the HHI indicates a comparatively higher degree of concentration, which is mainly due to the lower absolute number of funds raised. Overall, however, the HHI suggests that both the U.S. and European buyout markets are unconcentrated using the definitions of the U.S. Department of Justice and the Federal Trade Commission.

The Impact of Club Deals

The preceding HHI analysis should be regarded with caution. Since the size of funds and the size of deals are significantly correlated, the concentration of fundraising can be assumed to be an important determinant of the concentration in buyouts. Nevertheless, the HHI values shown in figure 3 may significantly underestimate the true degree of concentration on the transactions side, given that a significant number of buyouts have involved two or more sponsors. Indeed, for U.S. buyouts with a transaction value of more than \$5 billion, research by Weil, Gotschal & Manges found that 91% were club deals.⁹

However, club deals also accounted for 38% of going-private transactions where the value was between \$250 million and \$1 billion, suggesting that many sponsors elected to share the risk of the transaction and to pool resources to achieve a favorable result. While clubs are frequently formed already in the bidding process, sometimes deals are syndicated only after an individual GP has successfully acquired a buyout target. The world’s four most active buyout firms in 2006 took part in deals worth \$357 billion—around 50% of the entire global buyout volume of an estimated \$723 billion. However, with their focus substantially concentrated on large transactions, their share was minimal in terms of the number of deals. Together, these four firms were involved in only about 50 deals out of nearly 3,000 buyouts worldwide.

6. Publicly listed private equity firms are tracked, for instance, by the family of LPX indices. At the beginning of 2007, the LPX50 index comprising the world’s largest publicly listed private equity firms had a market capitalization of more than €56 billion.

7. The HHI is defined as $\sum Si^2$, where Si is the market share of the i th firm.

8. http://www.usdoj.gov/atr/public/guidelines/hmg.htm#N_17_

9. Weil, Gotschal & Manges, “Sponsor-Backed Going Private Transactions” (2007).

While club deals have led to a more concentrated buyout market than the amounts of capital raised by individual GPs would suggest, there are doubts whether the formation of buyout consortia will maintain its popularity. Indeed, there are signs that collusion charges and the desire for sponsors not to share control has begun to undermine their appetite for club deals. Thus, the recent trend of targeting deals through buyout consortia might prove temporary.

Globalization and Market Contestability

The largest transactions have the most exclusive clubs. Even with a consortium of buyers, individual contributions may be large, which means that only the most successful funds that have been able to raise large amounts of capital can even participate. According to the theory of market contestability, many apparent oligopoly situations are characterized by competitive behavior on the part of incumbent firms because of the potential for new firms to enter the market in response to excess profits.¹⁰ However, in the mega-buyout segment, incumbent private equity firms have little fear that new entrants can easily penetrate the market, put pressure on the fee structure, bid up prices in buyouts, and thus reduce profits.

Increasing globalization is changing the rules of the game, at least for the non-U.S. market. For example, several U.S. firms have successfully penetrated the European fundraising market and been involved in a number of large buyouts. Among the top-ten buyout firms in Europe in 2006, five were of U.S. origin. These U.S. GPs participated in deals worth more than \$83 billion in a market that saw a total volume of transactions of around \$273 billion. The individual size of these deals tended to be large and involved several buyout firms.¹¹

The fact that a number of U.S. firms have been able to enter the European market suggests a significant degree of contestability. This is not surprising, given that private equity has a much longer tradition and track record in the U.S. Conversely, European GPs have found it much more difficult to penetrate the U.S. market; in 2006, there was not a single European GP among the top-ten buyout firms in the U.S. in terms of the overall market volume.

At the same time, the U.S. market is substantially more dominated by a small number of GPs. Whereas in Europe the top-four buyout firms participated in deals worth around 35% of the total market size, the equivalent in the U.S. was nearly 75%. And these firms show a high degree of persistence with regard to their market position both on the fundraising

and deal sides, suggesting that the degree of contestability in the U.S. market is comparatively low.

U.S. firms are also more successful in penetrating third markets, namely Asia-Pacific. Although still small compared with the U.S. and Europe, the volume of deals in the Asia-Pacific region has expanded rapidly in the last few years and attracts increasing attention from firms in search of global opportunities. Again, firms with a global reach tend to be larger and more experienced—characteristics that apply to U.S. GPs to a larger degree.

Benchmarking Private Equity

How does the industry structure in the buyout market compare with other sectors in the financial services industry, such as hedge funds, mutual funds, and investment banks? The hedge funds industry is particularly relevant because it is comparable in size and it shares with private equity a similar investor base.¹² However, hedge funds do not share the fund structures used in private equity, nor the need for frequent rounds of fundraising. Instead, hedge funds tend to be open-ended/evergreen; that is, they do not have a finite life span, meaning that hedge fund managers have a quasi-permanent source of capital to be invested at their discretion.

As in private equity, hedge funds are showing growing concentration, with large multi-strategy funds starting to dominate the industry. The assets these multi-strategy funds manage have grown at a 29% compound annual rate in the first half of the decade, considerably faster than the 22% increase for the market as a whole. Representing less than 1.5% of the total universe, the top-100 funds account for around 58% of the entire industry assets. This compares with slightly less than 50% for the top-100 funds at the beginning of the decade. Despite this, competition is significant. Barriers to entry are low and so are barriers to exit—thanks to greater transparency, underperformers are easily identifiable and forced to leave the market. Increased product differentiation is a critical strategy through which hedge fund managers are responding to competitive market pressures.

As for asset management, the U.S. market for specialized wholesale management is characterized by large numbers of buyers and sellers, ease of entry and exit, and slightly differentiated products. Competition is high due to the willingness of trustees to switch between managers on the basis of performance evaluation; the growing role of consultants; the lack of bargaining power of fund managers in their relationships with trustees; relatively low switching costs; and the relatively low

10. The theory of contestable markets has been developed by W.J. Baumol, C.J. Panzar, and D.R. Willig, *Contestable Markets and the Theory of Industry Structure* (San Diego, Harcourt Brace Jovanovich, 1988). A discussion in the context of financial markets can be found in E.P. Davis and B. Steil, *Institutional Investors* (Cambridge, MA: MIT Press, 2001).

11. Although club deals in Europe are the norm where transaction sizes are in excess of \$5 billion, they are still the minority for smaller deals.

12. Assets managed by hedge funds have also enjoyed substantial growth in recent years. In the first half of this decade, the compound annual growth rate is estimated at 22%, propelling total assets under management to more than \$1 trillion. Today, around 8,500 funds exist, a three-fold increase from the 2,800 funds or so that existed in 1995. See Ch. Roxburgh, "The Outlook for European Corporate and Investment Banking," *The McKinsey Quarterly*, August 2006; A. Uribe, "Demystifying Hedge Funds," *Finance and Development*, Vol. 43 (June 2006).

sunk costs that are incurred in entering the sector, suggesting a high degree of contestability.

By comparison, the U.K. wholesale industry features a relatively high degree of concentration. In the late 1990s, when the degree of concentration appeared to stabilize after a prolonged period of rising concentration, the top-five firms had a market share of around two-thirds—up from less than 50% in the mid-1980s. However, thanks to a large number of smaller firms, the HHI seems to have leveled off at around 1,000 at the end of the last decade, up from 700 15 years earlier. Dominant firms tend to stay dominant, and at least until recently there appears to have been relatively little fluidity, implying a degree of stickiness in mandates that is absent from the U.S. specialized sector.¹³ Stability has tended to prevail, despite changes in ownership following takeovers (including by foreigners), the fact that many players and potential entrants are part of multi-product firms (able to cross-subsidize entry), and the large number of niche players constantly entering and exiting the market. However, there are few signs that market power is exploited. Firms behave as if they were in a competitive situation in terms of pricing and hence profitability, suggesting that contestability is high.

Hedge funds and asset managers in public markets compete with private equity firms in the sense that they invest capital allocated to them by institutional investors and high net worth individuals. By contrast, investment banks offer the services the former require to conduct their businesses. Indeed, private equity has been the most important source of fees for investment banks over the 2004 to 2006 period, totaling around \$30 billion.

The services that the investment banks provide to buyout firms vary in their concentration. While the U.S. market for bond underwritings has become less controlled (1,543 HHI in 1990 to an 887 HHI in 2003), the degree of concentration in the M&A market has remained broadly unchanged during this period, just below the threshold above which a market is viewed as controlled.¹⁴ In the U.S. leveraged loan market, which has become the major source of financing in buyout deals, the top four players in 2006 had an average market share of around 13%, with the top firm accounting for more than 20%. This is significantly more concentrated than the European market, where the top four players have a combined market share of only around 36%. The U.S. IPO market is similarly more concentrated, with the four largest players accounting for around 50% of the market and the next six institutions for another 35%.¹⁵

Whither Buyouts?

Overall, the buyout market appears less concentrated than other financial markets, despite a substantial increase in the concentration of fundraising in both the U.S. and Europe. Whereas today's concentration in private equity mirrors the organic growth of individual institutions driven by their past performance, the asset management and especially the investment banking industries have been subject to a substantial amount of M&A activity. The consolidation of the industry is continuing unabated, with financials having remained the second most active M&A sector in 2005-2006. Little suggests that this trend will fundamentally change in the foreseeable future. In fact, it may even accelerate; in Europe especially the market has remained highly fragmented and looks likely to see significant bank mergers over the next few years.

In private equity, the size distribution of potential buyout targets, as well as the fee structure, will continue to provide important incentives for individual firms to grow faster than their peers. These incentives could be amplified by other factors. A cyclical change from less benign credit market conditions could make access to debt capital markets more difficult, prompting an increase in the equity component in buyouts. From a structural perspective, a down cycle could test the attractiveness of buyout consortia, most of which have been formed under market circumstances that arguably were more conducive to common strategies. However, should club deals fall out of favor again individual firms would need to find other ways to finance deals of the size recently seen.

Raising ever larger funds may not be a sustainable solution. As discussed above, performance tends to improve as fund managers get more experienced and funds get bigger. However, empirical studies suggest incremental improvements tend to become smaller and at some point further growth might even be detrimental to a fund's performance. The reasons for this are not entirely clear and it remains to be seen whether GPs will be able to defy gravity by expanding the boundaries of the traditional buyout universe through ever larger funds and deals. But the empirical evidence that exists thus far would caution against exceedingly optimistic return expectations as funds continue to expand. And given that a fund's track record is a key determinant of its success to raise future funds, it seems that growth is not unlimited nor even desirable.

What are the options then? One strategy entails allowing LPs to co-invest larger amounts of capital alongside fund investments at no extra fee. This trend is already underway

13. See E.P. Davis and B. Steil, *Institutional Investors*.

14. See O. Altinkilic, R. S. Hansen, and E. Hrnjic, "Investment Bank Governance," Paper presented at the Annual Meetings of the American Finance Association, Chicago, January 9, 2007.

15. Such concentration ratios may be misleading as they are based on a static concept and do not mirror the frequency at which the leading firms in an industry turn over. As a result, they may overestimate the market power of individual firms, if dynamic

competition leads to rapid changes in the lead tables. In fact, this appears to be the case among the group of the top-10 firms. Within that group there is considerable movement. However, notwithstanding fluctuations within the "bulge-bracket" segment, this group is significantly homogenous due to considerable barriers to entry. See F.M. Scherer, *Industrial Market Structure and Economic Performance*, 2nd Edition (Chicago: Rand McNally, 1980).

and looks set to gather momentum. From an LP's standpoint, this option looks attractive as, other things being equal, net returns per invested dollar increase. But while the impact of concave fund returns to an LP can thus be reduced, larger co-investments are unlikely to eliminate the phenomenon of flattening (and potentially negative) performance growth as a function of larger funds.

Similar doubts concern strategies aimed at broadening a firm's access to capital through public listings of special vehicles. A number of such vehicles have been successfully listed, although it appears that a substantial percentage of buyers have been institutional investors and high net-worth individuals who had invested in private equity funds anyway. Unless GPs provide compelling evidence that they can sustain their performance with much larger funds, investors are likely to reduce their exposure, irrespective of their channel of entry to the asset class.

Taking a private equity firm public, as opposed to listing individual instruments, could be an alternative strategy. In fact, several publicly-listed private equity firms exist, including Blackstone and soon KKR, and the universe of such companies could expand. However, being a publicly listed company requires a significant amount of disclosure and the kind of visibility that until now has been regarded as inconsistent with the basic business model of the industry. While individual firms may decide to go public, the full implications of such a step are not entirely clear. True, in investment banking private partnerships have essentially disappeared and prior concerns have proved to be unfounded. However, whether the experience in investment banking is fully applicable to private equity remains an open question.

While mergers and acquisitions could provide yet another route to raise larger funds (and hence to more concentration),

historically such a strategy has played virtually no role. A key impediment is the partnership structures in the private equity industry, and unless the market sees a clearer trend towards public listings, we would not expect increased M&A activity to lead to greater market consolidation.

If vertical expansion towards ever larger funds and deals turns out to be constrained, growth in the private equity industry will have to rely to a larger extent on horizontal expansion. This can mean increasingly globalized strategies. It can also imply expanding into different product markets, with private equity firms increasingly resembling asset managers. While buyout funds may provide the backbone, new business lines such as infrastructure, real estate, mezzanine, and distressed debt could be developed. Some large firms have already broadened their product platforms substantially. However, we might have seen just the beginning of a process where boundaries with other financial intermediaries, especially hedge funds, get increasingly blurred. If investment banking provides any guidance, we should expect further dramatic shifts in the industry structure of private equity in the years to come.

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