BAFFI CAREFIN
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Università Commerciale Luigi Bocconi

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Private Equity Investments - Financial Markets, Macroeconomic Trends and the Return of Leveraged Buyouts*

by **Stefano Gatti** and **Carlo Chiarella**
BAFFI CAREFIN, Università Bocconi
with a foreword by **Alasdair Warren and Massimo Della Ragione**,
Goldman Sachs International

*Please note that the views expressed herein are those of the authors only and should not be taken as representative of their employers or of any other person

In collaboration with Goldman Sachs

Preface

by Alasdair Warren
and Massimo Della Ragione
Goldman Sachs International

The global financial crisis created one of the most challenging business environments of the last hundred years, impacting the corporate and financial world and reshaping the private equity industry as a whole. New buyout activity is at historically low levels, representing less than 5% of the global M&A market. What's more, private equity funds have had to cope with a low-growth Europe by investing in secular growth-oriented assets and seeking international exposure and expansion within their portfolio companies.

Today, the world is flush with capital: debt and equity markets are extremely liquid, credit spreads are at all-time lows, and equity market valuations are higher than pre-crisis levels. Over the last three years, private equity firms have raised new funds in excess of $280 billion globally, an amount of capital never raised before in any three-year period in the three-decade history of private equity.

The single biggest challenge for private equity today, however, is the ability to deploy capital. This situation is driven by the lack of primary deals on the market, and more importantly by the competing sources of capital represented by equity markets, corporates and emerging buyers (Asian sponsors and strategics, pension funds, family offices, etc.), some of whom have a significantly lower cost of capital and/or a differentiated view on strategy and international expansion.

Private equity activity and leveraged buyouts have represented an integral part of the European and global economy in the past 30 years. These initiatives have been integrating with and complementing the corporate world with a strict view of financial discipline and efficiency, geographical expansion and a returns-based approach, thus creating jobs, restructuring and repositioning companies in financial difficulty, and shaping many of today's successful public corporations.

We believe that a significant opportunity exists today in Europe for the resurgence of leveraged buyouts, spurred by the return to growth within the European economy (and Southern European countries in particular, including Italy), the increased level of strategic M&A driving cross-border mergers of large multinationals. This, in turn, creates opportunities for private equity due to subsequent portfolio rationalisation, carve outs of non-core or regulatory-constrained assets, and anti-trust related disposals. Finally, disruptive technologies will represent an important opportunity for investment in the coming years, as these start-ups evolve beyond their embryonic stage and require growth capital to develop.

In light of these shifts in economic conditions and sentiment, this thought-provoking analysis conducted by Stefano Gatti and Carlo Chiarella presents a timely and useful reference framework to interpret and measure the driving forces behind private equity activity and the implications in terms of timing and the link between credit market conditions and buyout activity.

For the fourth consecutive year, Goldman Sachs is delighted to co-host with Università Bocconi this important workshop, bringing together investors, corporates and academics and enabling top Italian and international private equity investors to share their experiences with top managers and representatives of these institutions.

Contributing Authors

Stefano Gatti is Director of the Full Time MBA at SDA Bocconi School of Management. His main areas of research are corporate finance and investment banking. He has published in these areas, including articles in the Journal of Money, Credit and Banking, Financial Management, the Journal of Applied Corporate Finance and the European Journal of Operational Research. Professor Gatti has also published a number of books on banking and finance areas and has acted as a consultant to several financial and non-financial institutions, as well as the Italian Ministry of the Economy, the Financial Stability Board and the OECD/Group of G20. He is financial advisor of the Pension Fund of Healthcare Professions and serves on the Boards of Directors and Boards of Auditors of Italian industrial and financial corporations.

Carlo Chiarella is Assistant Professor of Finance at CUNEF (Colegio Universitario de Estudios Financieros) in Madrid. He holds a Ph.D. in Finance from Università Bocconi, where he collaborates with BAFFI CAREFIN Centre for Applied Research on International Markets, Banking, Finance and Regulation. His main area of research is corporate finance. His work focuses on corporate financing and investment decisions, in particular in the context of capital markets and mergers and acquisitions.

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Introduction

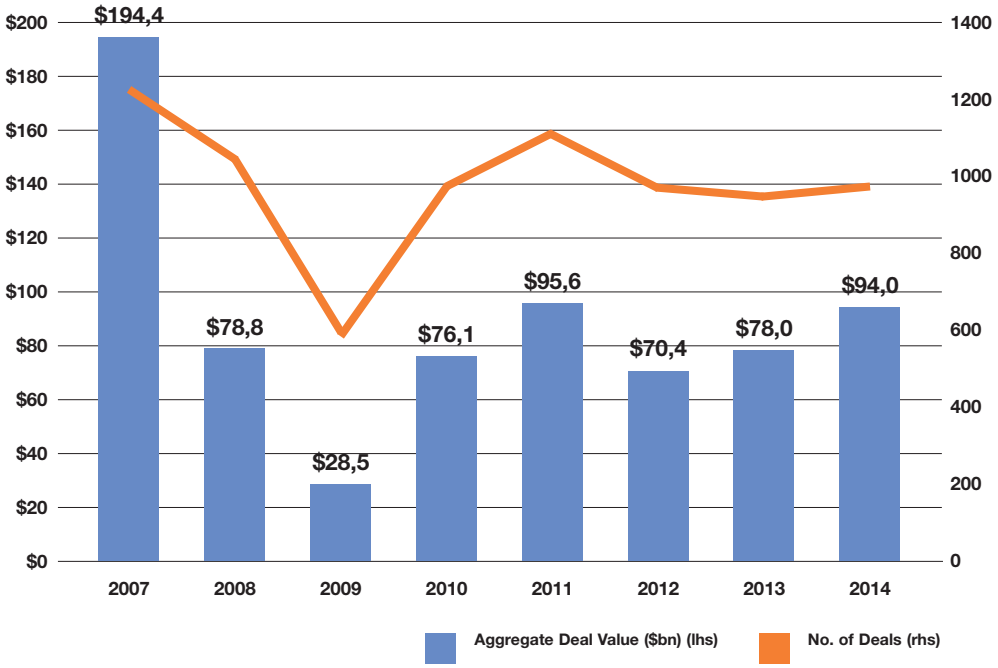
Europe has historically been a major market in the private equity universe, both as a prime investment destination and in terms of the number of fund managers basing their operations there. According to the most recent Bloomberg data, there are currently 482 private equity funds investing in Europe, and buyout funds alone have more than €639 billion invested in the region.

However, investor confidence and buyout activity in Europe have been fickle since the 2008 financial crisis and the subsequent economic turmoil that engulfed the region. Indeed, private equity tends to come in waves and the financial crisis is a striking example of the boom-bust feature of the industry. This characteristic is vividly captured by *Figures 1* and *2* which respectively track the evolution of buyout deals by volume, fundraising and dry powder in the post-crisis period.

In particular, we can observe that since 2008, buyout-focused funds and deals have abandoned European countries whose economies suffered from the severe effects of the financial crisis. Fundraising for Europe-focused buyout vehicles fell consistently amid a widespread lack of confidence for making large deals and a lack of interest in distressed deals. As a consequence, deal numbers and values have dropped considerably as well.

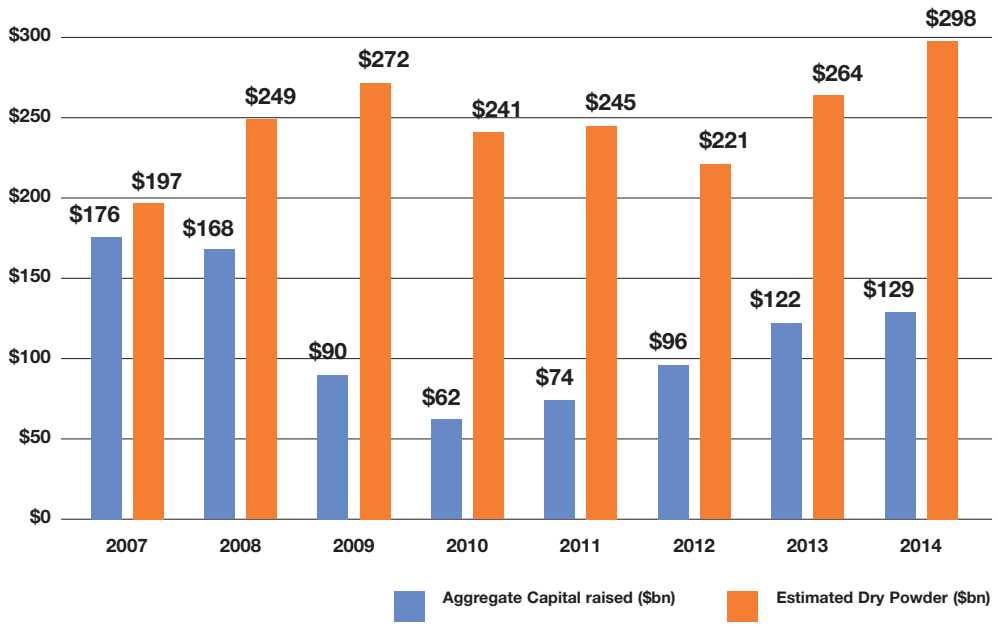
However, now that European economies are on the verge of returning to pre-crash levels, buyout activity is regaining prominence. Indeed, more than 58% of the global private equity institutional investors who responded to a survey by Probitas Partners revealed that they are planning to target the region for deals in 2015.[1] Fundraising is recovering momentum and deal activity is resurging as LBO funds are looking at the region for deals. Moreover, with substantial dry powder left to invest by funds that are solely focused on the region, Europe could well be on the brink of a major comeback in private equity investment and buyout deals.

FIGURE 1
European PE landscape: buyout deal volumes, 2007-2014



Source: Preqin

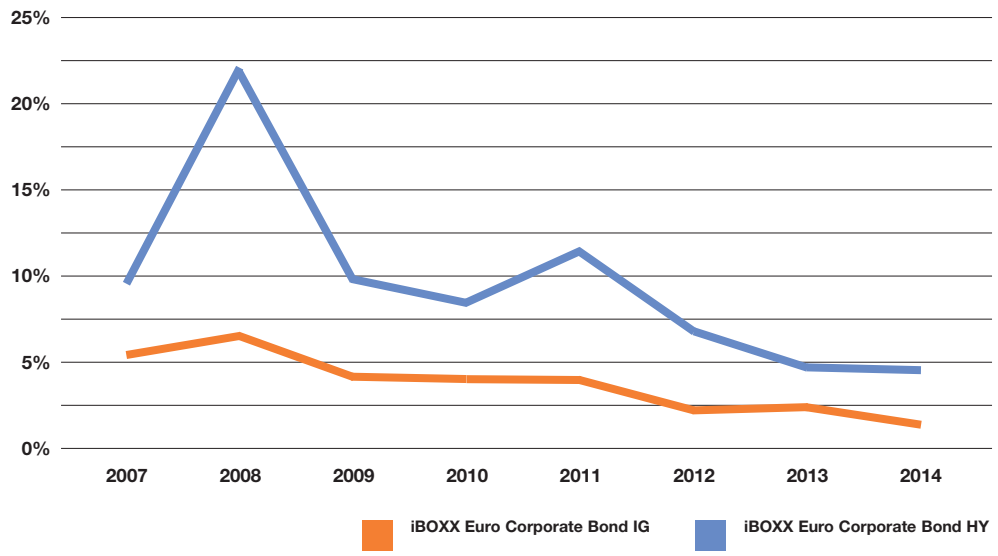
[1] Probitas Partners (2014), Private Equity Institutional Investor Trends for 2015 Survey, September



Source: Preqin

FIGURE 2
European PE landscape: fundraising and estimated dry powder, 2007-2014

Nevertheless, buyout activity so far has been sluggish in responding to its fundamental levers: namely, the availability of credit, economic growth and buoyant stock markets. The volume of deals is still far from a full comeback compared to the levels reached in 2007, as the financial landscape for European investors and firms has undergone substantial changes. In fact, while GDP is about to return to its pre-crisis level and investor confidence has been restored, the condition of financial markets is radically different: investors and firms face an unprecedented zero-interest rate world with no inflation and high valuations. In this regard, *Figure 3* and *Figure 4* show the dynamics of these key macroeconomic variables since 2007. As for credit markets, *Figure 3* reports the average annual yield on corporate bonds as quantified respectively by the iBOOX Euro Corporate Bond Index for non-financial investment grade issuers, and the iBOOX Euro High Yield Index for sub-investment grade issuers.



Source: Markit

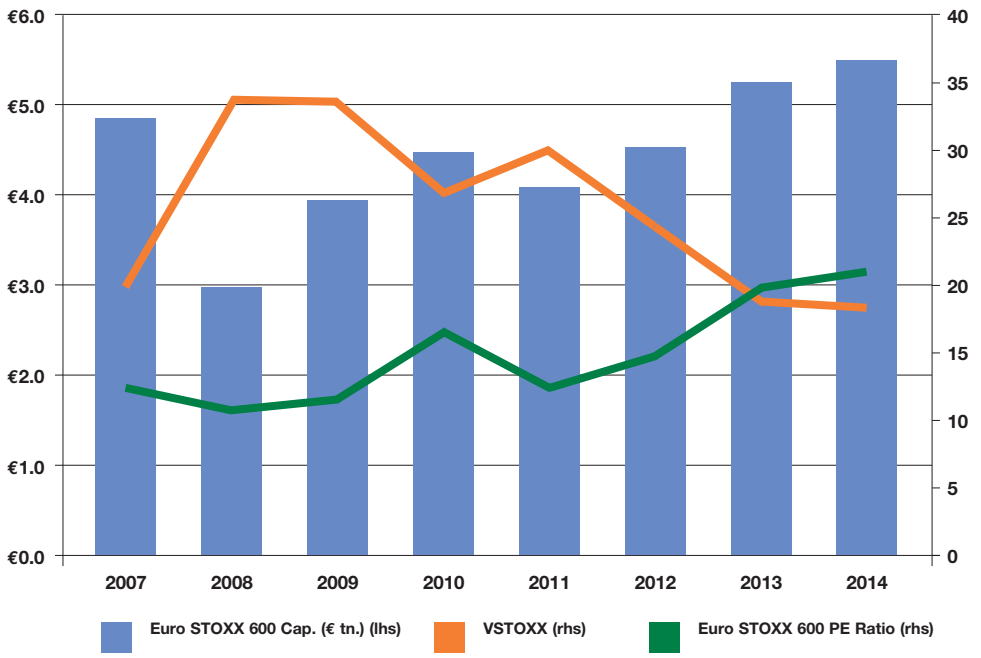
FIGURE 3
European credit markets: yields on corporate bonds, 2007-2014

Debt has never been cheaper and the spread between investment grade and high yield cost of funding has never been narrower. As yield-starved investors have become more tolerant of risk, alternative debt providers such as high yield, mezzanine and debt funds have taken up the slack generated by the contraction in bank lending in the post-crisis period. Indeed, since 2007 more than €600 bn. of bank loans to corporations were disintermediated,[2] and a substantial part of corporate funding is now provided by alternative sources such as private debt.[3] Moreover, as more credit has become available to the corporate sector, its cost has dropped to historical lows. The yield on investment grade issues is at a record low 1.33%, while on sub-investment grade issues it is just 3.06% higher, at 4.39%. In principle, these are extremely favorable conditions for buyouts.

Credit availability affects two key drivers of deal performance: financial costs and equity contribution. In principle, cheap and abundant credit, especially in the high yield market, allows private equity firms to realize more leveraged transactions at lower costs. This not only boosts returns on new buyout deals, but also provides private equity firms with more resources to refinance existing buyouts or to carry out dividend recapitalizations. Nonetheless, with the lower cost of funding, a broader set of target companies with less cash flow generation power could move into the crosshairs of buyout funds, and by doing so expand buyout investment opportunities.

As regards investor confidence and the stock market, instead, *Figure 4* reports respectively the level of the Euro STOXX 50 Volatility Index as a proxy for market uncertainty, the market capitalization, and the Price/Earnings ratio of the STOXX Europe 600 ex-financials Index. Not surprisingly, investor confidence and market valuations are strictly inversely related.

FIGURE 4
European stock market valuations and investor uncertainty, 2007-2014



Source: Bloomberg, STOXX

[2] Fitch (2015), Disintermediation, Credit Market Research EMEA, January

[3] Preqin (2014), Private Debt: the new alternative, Special Report, July

Following the financial crisis, investor confidence has been fully restored and stock market valuations have seen almost restless growth. European stock prices have risen 85.3% since 2008 and their PE ratio has increased from 10.9x in 2008 to 21.2x in 2014, the highest level since 2002. The conditions observed on the stock markets are important for private equity activity as they reflect two fundamental drivers of deal performance: growth opportunities and the equity risk premium. In principle, in fact, stock market prices should reflect future expectations grounded on economic fundamentals. Thus, when an economy is in good shape, private equity firms are not necessarily discouraged by high valuations as they tend to be more confident they can improve the performance of a target firm, achieve higher cash flows, and upgrade the target's valuation even further. Moreover, stock market valuations also reflect the cost of equity, with high valuations corresponding to lower cost. This makes private equity investors more open to tying up resources in illiquid investments to achieve higher returns. Both arguments, therefore, suggest buyout activity is favored by investor confidence and good stock market performance. Indeed, future growth in performance, which is not yet reflected in current valuations, is more valuable when it is discounted at lower aggregate discount rates in periods of strong economic activity and high valuations.

The fundamental question, then, is what is currently challenging a full comeback of buyout activity? In this paper we aim to find an answer by linking buyout activity to credit availability, investor confidence and stock market valuations in an effort to shed light on the (possibly conflicting) effects of these factors on value creation.

Our intuition is that even if liquidity is currently cheap and abundant in credit markets, the challenge of making efficient use of dry powder lies in the collision between the pressure to invest and the pressure not to overpay, as the increasingly competitive buyout landscape is driving up prices. Indeed, according to Preqin's latest survey of private equity fund managers,[4] 83% of the respondents are finding the market more difficult to navigate. The explanation for this is that even if investors are showing keener interest, competition is increasing, pushing pricing levels up and making it more difficult to find attractive investment opportunities. All this could impact returns and, in turn, affect investor appetite. In fact, a majority of respondents (54%) reports that there has been an increase in competition, and 32% cite target firm valuation as the biggest challenge ahead.

More specifically, we believe that several opposing forces are currently at work.

First, on the debt market side, according to S&P Capital IQ data, while the estimated cost of debt has dropped, the average equity contribution is still relatively high at above 40%. That compares with about 30% equity before the financial crisis. This more conservative approach may well be the consequence of memories from the last private equity bubble in 2007, when acquired companies were loaded with too much leverage, which they struggled to pay back when economic conditions turned bad and liquidity in credit markets dried up. Another explanation could be that the amount, the cost and flexibility of the alternative debt sources that substituted bank lending are comparatively less supportive of higher debt multiples. Indeed, a report by Fitch on the European high yield market finds that while the median EV/Ebitda transaction multiple has made it all the way back to 9.2x, its 2007 level, the median total debt leverage transaction multiple instead is still at 5.2x, well below its peak of 6.4x in 2007.[5]

[4] Preqin (2015), Fund Manager Outlook for 2015, Private Equity Spotlight February

[5] Fitch (2015), Imbalances to Test European High Yield in 2015, Special Report, Leveraged Finance Europe, March

Second, on the equity market side, the current high stock market valuations and low risk premium are not the result of strong economic fundamentals but of extraordinarily loose monetary policies and unconventional measures implemented to support asset prices. The effect is twofold. First, artificially high valuations undermine buyout funds' confidence that they will be able to upgrade the target firm's performance and valuation over the investment period. What is more, artificially high valuations imply an artificially low cost of equity capital. Indeed, the cost of equity, as proxied by the inverse of the Price/Earnings ratio of the STOXX Europe 600 ex-financials Index, has declined from 9.4% in 2008 to 4.7% in 2014, bringing the equity risk premium to just 3.4%. Under these conditions, a major challenge for the private equity industry, with risk being so considerably underpriced, is keeping up with expectations of double-digit returns by investors, who seem slow to adjust these expectations. Private equity fundraising in Europe has been increasing year by year since 2010. According to a recent survey of private equity investors realized by Preqin,[6] a notable 37% of respondents still expect their returns to outperform public indices by a margin of 4% or more. Moreover, in line with this optimistic attitude, a majority of investors (52%) believes Europe currently provides the best opportunities for investments. Small to mid-market buyout funds are the most favored, given the growing confidence in the economic recovery and the region's industrial structure, which is anchored on family-run business.

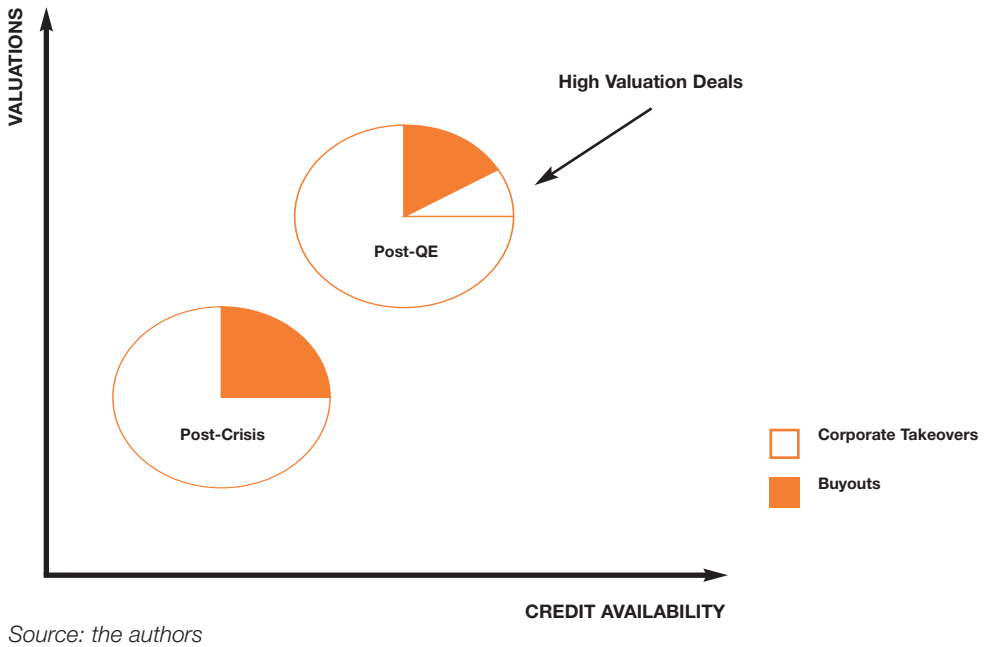
On top of that, as yield-starved investors have become more tolerant of risk, fundraising conditions have also improved. As a consequence, rapidly increasing dry powder is accompanied by growing pressure to invest and put money to work. In this picture, PE's hunt for investment opportunities is threatened by competition from corporate buyers. Companies are also awash with cash or cheap debt and in turn, are under increasing pressure to put cash to work to return to growth.[7] Potential targets are also less financially constrained and have little need to divest parts of their business. Therefore, in this context, the best targets may be harder to hit. Indeed, S&P Capital IQ data show that in 2014, financial sponsors paid companies an average enterprise value of 10x EBITDA, the highest multiple since the financial crisis.

To sum up, we believe that high target valuations and fierce competition are counteracting the forces supporting buyout activity coming from favorable conditions in credit markets and restored confidence. As a result, from these conflicting conditions we expect several non-trivial implications to emerge in terms of both the volumes and the expected performances of buyout deals.

[6] Preqin (2015), Alternative Assets Investor Outlook: Private Equity, February

[7] See Chiarella C. and Gatti S. (2014), "Deleveraging, Investing and Optimizing Capital Structure", CAREFIN, Università Bocconi

In this report, we split the period from 2005 to 2014 into pre-crisis, post-crisis and post-QE sub-periods. We then exploit the different price responsiveness of corporate buyers and financial sponsors across each sub-period. Our aim is to assess the effect of shifts in credit availability, investor confidence and stock market valuations on buyout activity, using a 'difference in differences' approach, as summarized in *Figure 5*. We find that corporate takeovers and PE buyouts are not synchronous. In particular, in support of our conjecture that pricing has an adverse effect on buyout activity, we observe a comparative lack of financial sponsor-related deal flow when credit availability is paired with high valuations. We interpret this result as evidence of the fact that financial sponsors become more reluctant to embark on buyouts when target valuations rise. This corroborates our explanation that the pressure not to overpay is preventing a full comeback of buyout activity to its pre-crisis level. Consistently, we also observe that the lack of financial sponsor-related flow is concentrated in target industries with the highest valuations, further supporting the case for the adverse effect of pricing on buyout activity.



Source: the authors

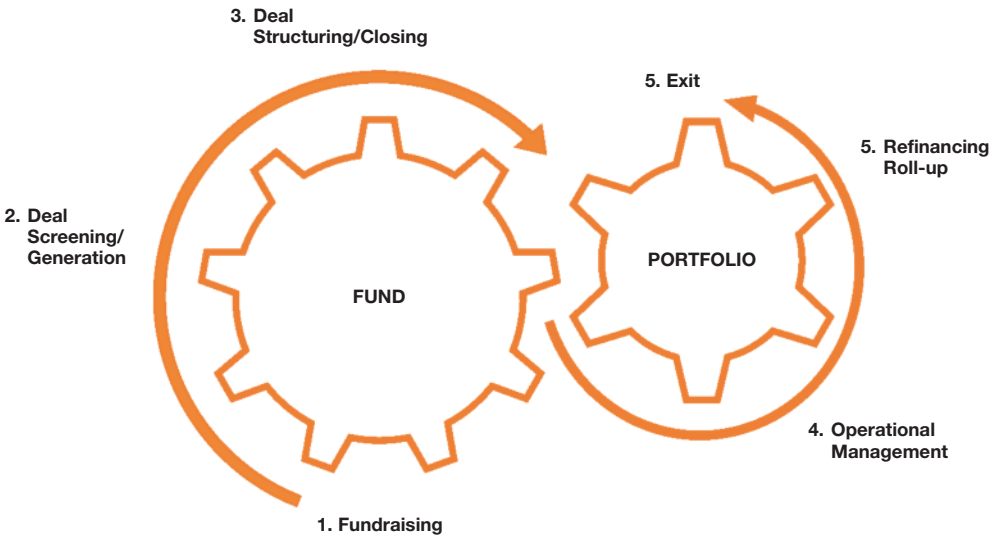
FIGURE 5
The adverse effect of pricing on buyout activity: financial sponsor vs. corporate deal flow

The remainder of our paper is structured as follows. In the next section, we describe the levers of value creation for LBOs and we discuss how these are affected by variations in credit availability and stock market valuations. In the following section, we present the results of our empirical analysis of buyout activity in Europe in the period between 2005 and 2014, showing evidence of the conflicting effects of credit availability and stock market valuation which in our opinion explain the current deadlock in deal volumes. Finally, in the last section we draw our conclusions and offer our recommendations.

Sources of value creation for LBOs in a changing macroeconomic landscape

With cheap, abundant debt and growing dry powder putting pressure on pricing, differentiated ways of creating value must be developed in order to deliver high performances in such a challenging and increasingly competitive market. Indeed, according to a recent survey by Roland Berger on private equity professionals in Europe,[8] the majority of respondents (62%) see a need to re-adapt the private equity business model. *Figure 6* summarizes the process of value creation in private equity.

FIGURE 6
The process of value creation for LBOs



Along this process, the primary drivers of value creation are basically three:

- leverage
- growth
- arbitrage

In the deal structuring phase (number 3 in the figure), the financial structure of the transaction is determined. The extensive use of borrowing to finance the deal is the first way in which value is created in LBOs. The goal is to maximize the efficiency of the capital structure so that as the debt is paid down using the cash flows generated by the buyout target, the value of the equity investment increases on a dollar-for-dollar basis. As a result, for any given valuation at exit, using a more leveraged financial structure generates higher returns.

[8] Roland Berger (2015), European Private Equity Outlook 2015, February

A second major driver of value creation is for financial sponsors to increase the value of their investments in the operational management phase (number 4 in the figure) through relative enhancements such as organic growth, cost cutting, and the realization of synergies from add-on acquisitions. Indeed, as debt represents a fixed claim, all the increments in enterprise value that are achieved as a consequence of these strategic plans accrue equity value.

Finally, growth of market valuation multiples during the holding period can create value for the financial sponsor at exit (number 5 in the figure). In this case, the growth in valuation is market-driven and beyond the control of the company or the sponsor. However the way in which deals are screened and closed (numbers 2 and 3 in the figure) can still have a substantial effect on this lever of value creation, since better executed deals leave more space for arbitrage on valuation multiples.

Maximum returns are achieved when all three levers are exploited simultaneously. However, the extent to which each one can generate value over a specific holding period depends on the macroeconomic conditions during that time. Indeed, credit cost and availability determine the extent to which value can be generated by adopting a more leveraged financial structure. Analogously, the potential to generate value by means of growth depends on overall economic prospects and confidence. Instead the level of stock market valuations when a deal is closed determines how much value can be created through arbitrage on valuation multiples.

The resulting implication is that buyout activity will be shaped by the macroeconomic landscape, in particular through the impact of credit availability, confidence and stock market valuations on the different levers of value creation. In this respect, if we consider the period between 2005 and 2014 in Europe, we can identify three different sub-periods characterized by distinct macroeconomic conditions. The pre-crisis period up to 2008 is followed first by a post-crisis period characterized by good credit conditions matched with high investor uncertainty and lower valuations (i.e. from 2009 to 2011) and then by a second period following quantitative easing (i.e. from 2012 to 2014). This last period instead saw cheap, abundant credit paired with restored investor confidence and high stock market valuations. *Table 1* shows how the combination of the different levers of value creation has changed according to the macroeconomic landscape.

TABLE 1
Levers of value creation across different macroeconomic landscapes

Levers of value creation	Pre-crisis (2005-2008)	Post-crisis (2009-2011)	Post-QE (2012-2014)
Leverage	Yes, as credit is abundant and the required equity contribution is at its lowest	Limited. In the immediate post-crisis period spreads jump up and credit dries up, especially bank credit. As disintermediation gains momentum, alternative providers of funds emerge and credit conditions improve; still deals cannot be leveraged as in the pre-crisis period.	Limited. Credit is cheap and abundant, spreads have compressed post-QE. Still, credit markets post-disintermediation do not support deals that are as highly leveraged as in the pre-crisis period.
Growth	Yes, as economic prospects are good and confidence is high	Limited, as economic prospects are bad and confidence is low	Yes, as economic prospects are improving and confidence is restored
Arbitrage	Yes, as stock market valuations are increasingly high but are based on growth expectations	Yes, as stock market valuations have dropped but are continuously rising	Limited, as artificially high valuations and increased competition put pressure on entry multiples

According to our stylized representation, in the current landscape, deal screening, structuring and closing should be gaining prominence as the most important drivers of performance and deal flow. Indeed, where debt fuels competition for targets and an upsurge in pricing levels, financial sponsors risk being left with only riskier, poor quality deals where the danger of overpaying is more substantial. In response to this threat, European private equity firms need to specialize by focusing on specific industries or on small- to middle-market deals. The reason is that industry expertise, target selection, deal execution and moving early will be the key success factors in such an increasingly challenging market. Consistent with this view, the results of Preqin's recent survey reveal that 44% of fund managers are currently reviewing a broader set of investment opportunities, demonstrating intensified efforts to source the most attractive deal possible to add to their portfolios.[9] These findings are also supported by the Roland Berger survey which shows that the majority of respondents perceive the availability of targets and their pricing as strong drivers for conservatism. In fact, a majority of respondents (56%) are skeptical about the attractiveness of potential targets. In addition, consistent with the need to specialize, respondents expect the pharmaceuticals and healthcare industry (49%), the consumer goods and retail industry (48%) and the technology and media industry (46%) to be the most active sectors in terms of PE deals. On top of that, and again in line with specialization, a remarkable 86% of respondents expect investments will be targeting the small- to mid-cap segment of the market.

[9] Preqin (2015), Fund Manager Outlook for 2015, Private Equity Spotlight February

What challenges a full comeback of PE activity? An empirical analysis of buyout activity in Europe

Investor interest in private equity investments in Europe could not be stronger as investors are eager for returns, and cheap and abundant debt can support the realization of more leveraged transactions at lower costs. So what is challenging a full comeback of buyouts to pre-crisis level?

Our explanation is that the collision between the pressure to invest and the pressure not to overpay is making the efficient use of the ever-growing dry powder more of a challenge. At the same time, the increasingly competitive buyout landscape is driving up prices.

We focus on buyout activity in the period between 2005 and 2014 with two aims. We seek to isolate the adverse effects of pricing on buyout activity, and to highlight the (possibly conflicting) effects of credit availability, investor confidence and stock market valuations on deal volume through the levers of value creation.

To achieve this goal, we split our sample period into three different sub-periods according to credit availability, investor confidence and stock market valuations, as reported in *Table 2*. Then we exploit the variations in price responsiveness of corporate buyers and financial sponsors across different sub-periods to assess the effect of varying macroeconomic conditions on buyout activity using a 'difference in differences' approach.

In particular, we compare buyout activity in the pre-financial crisis period (i.e. from 2005 to 2008) with two different post-crisis sub-periods: the first marked by unfavorable credit conditions matched with high investor uncertainty and lower valuations (i.e. from 2009 to 2011), and a second one following quantitative easing (i.e. from 2012 to 2014) characterized instead by cheap, abundant credit paired with restored investor confidence and high stock market valuations.

TABLE 2
Sample sub-periods summary statistics (means)

Period	iBOOX Corp. IG Yield	iBOOX Corp. HY Yield	Yield Spread	Euro STOXX PE	Cost Equity	of Risk Premium	VSTOXX
Pre-crisis (2005-2008)	5.11%	11.36%	6.25%	12.68	7.97%	2.86%	21.10
Post-crisis (2009-2011)	3.82%	9.80%	5.98%	13.56	7.58%	3.76%	30.02
Post-QE (2012-2014)	1.99%	5.39%	3.40%	18.51	5.53%	3.54%	20.46

Source: Markit, Bloomberg, STOXX

Our intuition is that financial sponsors have comparatively greater pricing power in the post-crisis sub-period than post-QE. Indeed, an empirical study by Gorbenko and Malenko (2013) shows that financial sponsors, who typically aim for higher returns than corporate buyers to meet the expectations of their investors, are more reluctant to close deals at high valuations and less willing to contribute additional equity to compete with rival bids by corporate buyers.[10] In the first case, financial sponsors would in fact erode their potential capital gain at exit, while in the latter case they would dilute their return. Vice-versa, corporate buyers have relatively greater pricing power in the post-QE sub-period. Indeed, our intuition in this case is that they can nonetheless afford to close deals at higher valuations, as they usually require lower rates of return than financial sponsors; they can exploit potential synergies; and, contrary to the post-crisis period, they are under strong pressure by shareholders to put their cash holdings to work.[11]

As a result, we expect that corporate takeovers and buyouts will not be synchronous. In particular, if pricing has an adverse effect on buyout activity, as we conjecture, we expect to observe a comparative lack of sponsor-related deal flow when high credit availability is paired with high valuations, as in the post-QE sub-period. This would demonstrate that financial sponsors become more reluctant to embark on buyouts when target valuations rise, supporting our explanation that the pressure not to overpay is preventing a full comeback of buyout activity to its pre-crisis level. Consistently, we also expect to observe that the adverse effect of pricing on buyout activity is stronger whenever the targeted industry is one that is experiencing more intense takeover activity, or it is on average more expensive, or it is more tightly correlated to overall market valuation, or in other words, it is comparatively more responsive to upward pricing pressures. This would provide further evidence of the conflicting effects of credit availability and stock market valuations on buyout activity.

Are LBOs equally represented in the various macroeconomic cycles compared with corporate takeovers?

The first step of our empirical analysis is to compile a sample including all private equity buyouts and corporate takeover bids for European targets closed in the ten-year period from 2005 to 2014, as reported by Bloomberg. For each bid, we collect information on the announcement date, the deal value, the bid premium, the industry of the target, and the target's Price/Earnings and EV/EBITDA transaction ratios where available. Our final sample includes 4,088 buyout deals for a total deal value of $648.7 billion, and 27,404 corporate takeovers for an aggregate $2.9 trillion deal value. *Table 3* summarizes the main characteristics of the sample, breaking down data on the basis of the type of deal and the sub-periods in which it occurred. Summary statistics show that the private equity buyouts in our sample are substantially fewer than corporate takeovers, but nonetheless these buyouts are focused on comparatively larger deals. In all sub-periods, we observe that the mean and median deal values of buybacks are larger than those of corporate takeovers. However, the data reported in the table also shows how mean deal size has dropped considerably for buyouts since the financial crisis, while it has increased for corporate takeovers. These trends have gradually narrowed the gap across the two subsamples to the extent that financial sponsors and corporate buyers have increasingly become competitors for the same deals.

[10] Empirical evidence in support of this claim is provided by Gorbenko A. and Malenko A. (2013), Strategic and Financial Bidders in Takeover Auctions, Journal of Finance 69, 2513-2555

[11] See Chiarella C. and Gatti S. (2014), Deleveraging, Investing and Optimizing Capital Structure, CAREFIN, Università Bocconi

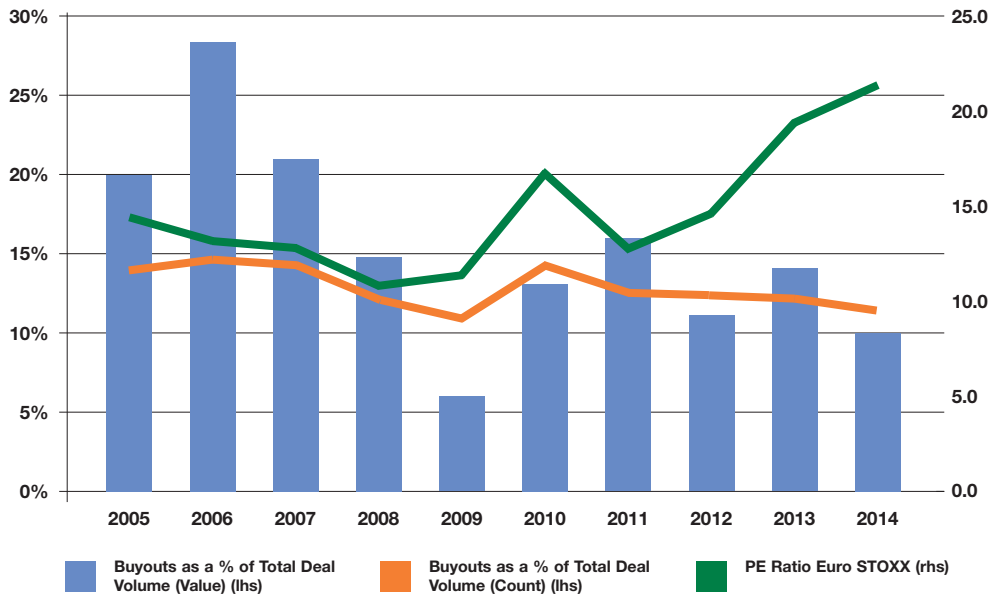
TABLE 3
Sample summary statistics: deal flow and size

	Private Equity Buyouts					
	Deal Count	Value ($bn)	Mean ($mil)	Min ($mil)	Med. ($mil)	Max. ($bn)
Pre-crisis	2,201	463.25	487.1	10.8	102.9	27.37
Post-crisis	993	96.36	317.0	8.4	70.4	7.00
Post-QE	894	89.07	319.3	9.1	74.9	5.09
	Corporate Takeovers					
	Deal Count	Value ($bn)	Mean ($mil)	Min ($mil)	Med. ($mil)	Max. ($bn)
Pre-crisis	13,989	1,635.2	235.7	1.4	19.0	100.02
Post-crisis	6,875	662.1	251.2	1.1	22.3	25.76
Post-QE	6,540	676.5	311.5	1.5	26.8	43.42

Source: Bloomberg

To the extent to which the targets in our sample are representative of the entire set of investment opportunities for financial sponsors, the proportion of private equity buyouts over the total deal flow coincides with the likelihood that a financial sponsor would embark on a deal in a given period. We then investigate the link between valuations and buyout activity by looking at the proportion of financial sponsor-related deal flow under varying conditions in equity markets. If private equity buyouts and corporate takeovers were synchronous, we would expect their relative deal flows to stay constant across periods of different market valuations. On the contrary, a comparative lack of sponsor-related deal flow when valuations are higher would be interpreted as evidence of the adverse effect of pricing on buyout activity. *Figure 7* plots the proportion of buyouts as a percentage of total deal flow for each year from 2005 to 2014, along with the corresponding level for the Price/Earnings ratio of the STOXX Europe 600 ex-financials Index. Consistent with our view, since 2011 the two series have diverged significantly. Rising stock market valuations have been accompanied by a decline in private equity-related deal flow. In this respect, evidence shows that higher competition and higher prices may indeed have an adverse effect on overall buyout activity. On the contrary, in the early post-crisis period, with comparatively lower valuations and widespread uncertainty deterring corporate buyers' appetite for deals, financial sponsors-related deal flow gained momentum despite less favorable credit market conditions. Also in this case, the evidence shows the relevance of pricing as a fundamental driver of buyout activity.

FIGURE 7
Private equity-related deal flow and valuation, 2005-2014



Source: Bloomberg, STOXX

To quantify the magnitude and the statistical significance of this effect, we then estimate a Linear Probability Model for the likelihood of observing a buyout under varying macroeconomic conditions.[12] In particular, we investigate whether the probability of observing a financial sponsor-related deal changes significantly from one sub-period to the other as a consequence of the corresponding shifts in credit availability, investor confidence and stock market valuations. In the first specification of our model, we look at the relation between buyouts and macroeconomic conditions at the aggregate level. Then, in an effort to further isolate the adverse effect of competition and market valuation on buyouts, we shift our analysis to the industry level. In particular, we classify all deals in our sample on the basis of their target industry. Our aim here is to investigate how the activity of financial sponsors is affected by pricing across different industries, depending on the sensitivity of each one to upward pricing pressures. We then classify each target industry on the basis of the level of its Price/Earnings ratio, its unlevered Beta coefficient, and its share of total deal flow for each year.[13] We expect private equity-related deal flow to be more adversely affected if the targeted industry is one that is experiencing more intense activity (i.e. "hot" market), or is relatively more correlated to overall market prices (i.e. higher Beta), or is more expensive (i.e. higher PE Ratio). We would also expect the reverse to be true. *Table 4* reports the results of the estimation of different specifications of the model:

$$LB0 = b_0 + b_1\ Post\text{-}Crisis + b_2\ Post\text{-}QE + b_3\ HighValue + b_4\ Post\text{-}Crisis \times HighValue + b_5\ Post\text{-}QE \times HighValue + e$$

where LBO, the dependent variable, is a dummy variable that takes the value of 1 if the deal is a buyout backed by a financial sponsor and 0 if the deal is a corporate takeover; Post-Crisis is a dummy variable equal to 1 for deals announced between 2009 and 2011, and 0 otherwise; Post-QE is a dummy variable equal to 1 for deals announced after 2011, and 0 otherwise; and HighValue is a dummy variable equal to 1 for deals whose targeted industry ranks in the top third of the cross-industry distribution of PE Ratios, Betas, or deal flow, and 0 otherwise.

TABLE 4
Linear Probability Model for buyouts

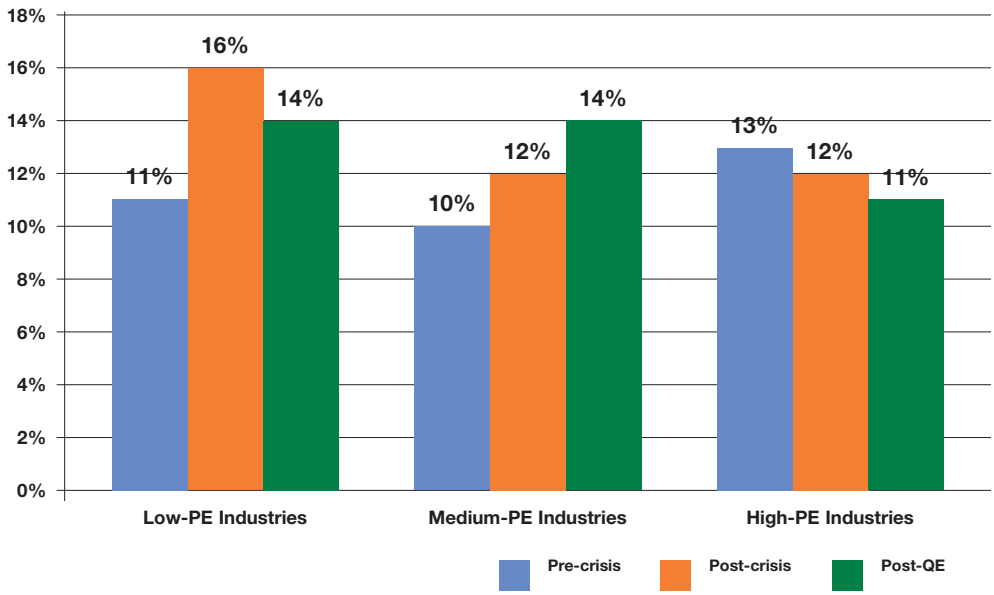
	Aggregate	HighValue (PE Ratio)	HighValue (Beta)	HighValue (Deal Vol.)
Constant	0.130***	0.134***	0.137***	0.088***
	(51.58)	(36.06)	(43.90)	(18.08)
Post-crisis	-0.009**	0.027***	-0.006	0.002
	(-2.11)	(-4.04)	(-1.12)	(0.19)
Post-QE	-0.015***	-0.010*	-0.011**	0.04
	(-3.33)	(-1.90)	(-2.02)	(0.52)
HighVal		0.001	-0.004	0.067***
		(0.21)	(-0.72)	(11.64)
Post-crisis x HighVal		-0.032***	-0.009	-0.016
		(-3.45)	(-0.97)	(-1.57)
Post-QE x HighVal		-0.019*	-0.022**	-0.028***
		(1.84)	(-2.06)	(-2.73)
No. Obs	31,492	31,492	31,492	31,492
R2	0.0004	0.0011	0.0002	0.0066

Notes: t-stats in parenthesis; ***, **, * represent significance levels at 1%, 5% and 10%, respectively

[12] To present the results of our analysis, for simplicity's sake we model the choice of realizing a buyout with a Linear Probability Model rather than with a Probit Model. The advantage is that we can directly interpret the estimated coefficients in terms of probabilities. The results of the analysis adopting a Probit Model, which would not impose any linearity restriction, are analogous and available upon request.

[13] Data on PE Ratios and Beta at industry level are collected from Bloomberg on the basis of industry-specific sub-indices of the STOXX Europe 600 ex-financials Index.

Our analysis shows that, consistent with the trend observed in *Figure 7*, the overall likelihood of a buyout is significantly lower in the post-crisis period, and especially so in the post-QE period. While in the pre-crisis period the probability of a buyout is approximately 13%, in the post-crisis and post-QE sub-periods it drops by respectively 0.9% and 1.5%, both statistically significant. We interpret this empirical result as evidence of the conflicting effects of shifts in investor confidence and stock market valuations on buyouts. In particular, in the post-crisis period the negative effect of a drop in investor confidence prevails over the attractiveness of lower market valuations and favorable market conditions. Instead in the post-QE period we observe that the adverse effect of pricing and competition prevails over restored confidence and favorable credit conditions. By means of our industry-level analysis, we then attempt to determine how much of these overall effects can be attributed to each driver of buyout activity, with a particular focus on market valuations. When industries characterized by high valuations are identified on the basis of their PE Ratio, we observe that the likelihood of a buyout drops significantly in the post-crisis and post-QE periods only if the targeted industry has high market valuations. In particular, the probability of a buyout falls by 3.2% in the post-crisis period and by 1.9% in the post-QE period, both statistically significant. For all other industries, instead, the probability of a buyout grows by 2.7% post-crisis and drops by just 1% post-QE, both statistically significant. We interpret these results as evidence of the adverse effect of valuations on buyouts. Indeed, once we isolate high priced industries, we observe how the appetite of financial sponsors for buyouts is increasing post-crisis across all other industries in response to lower valuations and possibly less competition by corporate buyers, due to their lack of confidence. In the post-QE period, instead, as valuations increase across all industries, the adverse effect of pricing on buyouts is generalized. In support of this interpretation, *Figure 8* plots the proportion of private equity-related deal flow across different categories of target industries ranked on the basis of their PE Ratios in the three sub-periods. Indeed, we observe a shift in private equity-related deal flow from high-PE industries to medium- and low-PE industries following the financial crisis. This finding corroborates the view that high target valuations conflict with the other drivers of buyout activity.

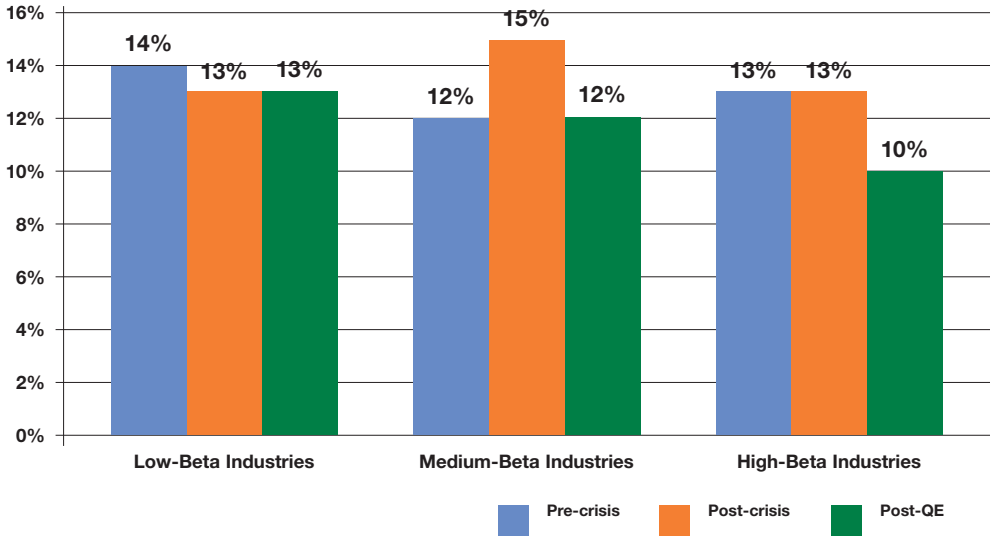


Source: Bloomberg, Markit

FIGURE 8
Private equity-related deal flow and industry valuation (PE Ratios), 2005-2014

Analogous results are obtained when industries characterized by high valuations are identified on the basis of their Beta or their share of total deal flow, to proxy for responsiveness to upward pricing pressures and competition respectively. In the first case, regression results confirm that post-QE high valuations negatively affect the likelihood of a buyout; in particular the adverse effect is especially severe for deals in high-Beta industries. *Figure 9* corroborates this result by plotting the proportion of private equity-related deal flow across different target industries ranked on the basis of their Beta in the three sub-periods.

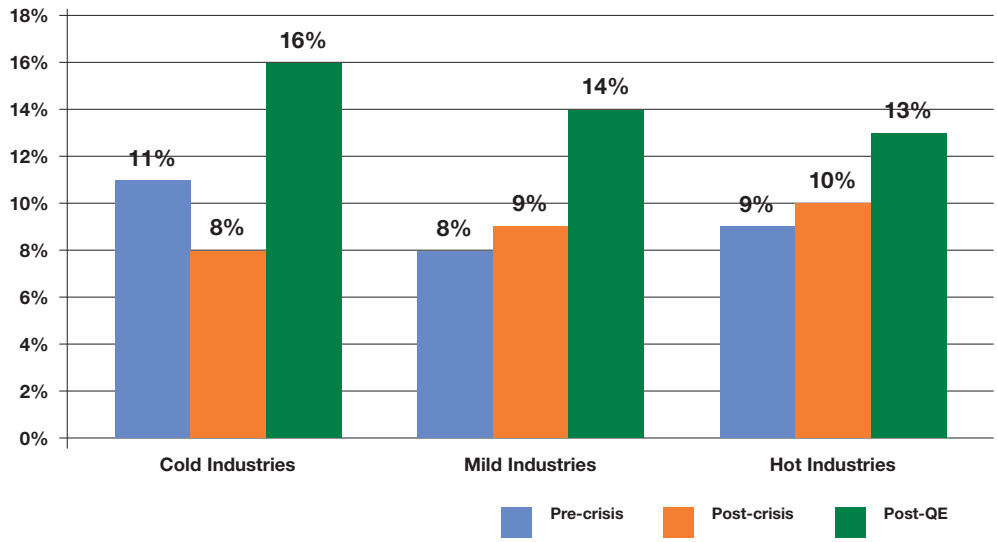
FIGURE 9
Private equity-related deal flow and industry valuation (Beta), 2005-2014



Source: Bloomberg, Markit

In the latter case, when industries are classified on the basis of their share of deal flow, regression results show that increased competition adversely affects the likelihood of a buyout in over-heated markets by driving up prices. In particular, evidence indicates that high valuations are detrimental for buyouts in the post-QE period only in over-heated industries. In this regard, *Figure 10* plots the proportion of private equity-related deal flow across different target industries ranked by their share of total deal flow in the three sub-periods. While, private equity-related deal flow rises post-QE across all industries, the scale of this effect is comparatively smaller for deals in over-heated industries where competition is fiercer.

FIGURE 10
Private equity related deal flow and industry valuation (competition), 2005-2014



Source: Bloomberg, Markit

Summing up, our empirical analysis shows that corporate takeovers and buyouts are not synchronous, as we observe a comparative lack of sponsor-related deal flow when competition is more intense and target valuations are higher. We interpret our results as evidence that high prices, when driven by an increasingly competitive landscape and high stock market valuations, adversely affect buyout activity. This finding is consistent with our intuition that the collision between the pressure to invest and the pressure not to overpay is making private equity investing more of a challenge. This may be preventing a full comeback of buybacks to the pre-crisis level.

If pricing is such an important driver of buyout activity, how do credit conditions, investor confidence and target valuations affect the premiums paid or the transaction multiples? Regrettably, severe limitations on the availability of data hamper our ability to focus on deal execution and analyze in more detail the extent to which transaction terms change in response to shifting macroeconomic conditions. Nevertheless, *Table 5* presents some summary statistics with respect to a subsample of deals for which data are available on premiums paid and PE and EV/EBITDA transaction multiples. Financial sponsors and corporate buyers consistently behave in a similar manner in term of premiums, but lower multiples are paid in buyouts in the post-crisis period. We interpret this result as a plausible indication of the fact that in this period, buyout-related deal flow is fueled by relatively lower valuations and by less competition from corporate buyers. In fact, rising target valuations and increasing competition in the post-QE period close the gap between the transaction multiples paid by the different types of buyers.

TABLE 5
Sample summary statistics of deal terms

	Private Equity Buyouts			
	Deal Count	**Premium (med.)**	**PE Ratio (med.)**	**EV/Ebitda (med.)**
Pre-crisis	108	12.5%	21.21	10.42
Post-crisis	25	21.3%	14.34	6.91
Post-QE	16	16.1%	19.00	9.40
	Corporate Takeovers			
	Deal Count	**Premium (med.)**	**PE Ratio (med.)**	**EV/Ebitda (med.)**
Pre-crisis	589	13.2%	19.76	10.65
Post-crisis	250	22.7%	20.35	9.07
Post-QE	177	16.8%	18.29	8.45

Source: Bloomberg

Conclusions

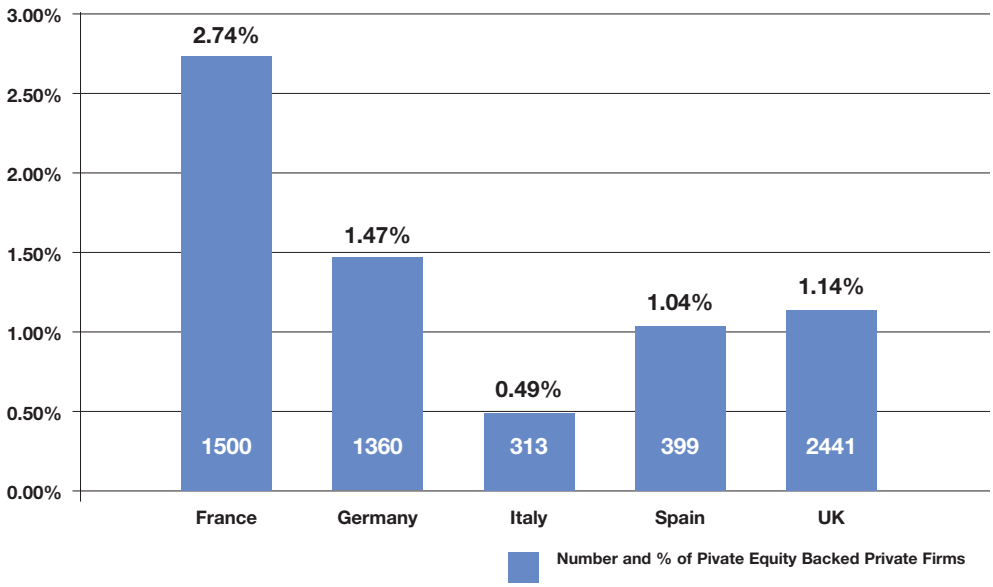
The picture that emerges from our analysis confirms our intuition that even if liquidity is currently cheap and abundant in credit markets, there is a collision between the pressure to invest and the pressure not to overpay. This is making the efficient use of dry powder more of a challenge, while the increasingly competitive buyout landscape is driving up prices.

In the light of all this, looking ahead, a full comeback of buyout activity requires either a substantial improvement of future economic expectations or a correction in stock market valuations. In the meantime, in today's more competitive landscape where debt represents a less important lever of value creation, deal screening, structuring and closing will be the prominent levers of performance.

In particular, European private equity firms need to specialize by focusing on specific industries or on smaller to middle market deals. In fact, industry expertise, target selection, deal execution and moving early will be the key success factors to achieve returns that are in line with investor expectations.

Competition is high but there is no shortage of investment opportunities. *Figure 11* shows the current number of private equity-backed private companies across major European economies. Europe's great appeal as a prime private equity investment destination does not seem to have fully converted into deal volume yet, leaving the area rich with investment opportunities to be explored.

FIGURE 11
European private equity-backed private companies



Source: Bloomberg; the percentage figure is quantified with respect to the universe of private firms recorded on Bloomberg for a given country

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Europe has historically been a major market in the private equity universe, both as a prime investment destination and in terms of the number of fund managers basing their operations there. However, both fundraising and buyout activity in Europe have been fickle since the 2008 financial crisis and the subsequent economic turmoil that engulfed the region.

Now that European economies are on the verge of returning to pre-crash levels, fundraising is recovering momentum and Europe could well be on the brink of a major comeback in private equity investment and buyout deals, as funds that are solely focused on the region have substantial dry powder left to invest.

Nevertheless, buyout activity so far has been sluggish in responding to its fundamental levers: namely, the availability of credit, economic growth and buoyant stock markets. As the volume of deals is still far from a full comeback compared to the levels reached in 2007, the fundamental question, then, is what is currently challenging a full comeback of buyout activity?

In this BAFFI CAREFIN position paper, we aim to find an answer by linking buyout activity, in the period between 2005 and 2014, to the macroeconomic landscape, in an effort to shed light on the (possibly conflicting) effects of changes in credit availability, investor confidence and stock market valuations on the different levers of value creation.

Our empirical analysis shows that even if liquidity is currently cheap and abundant in credit markets, the challenge of making efficient use of dry powder lies in the collision between the pressure to invest and the pressure not to overpay, as the increasingly competitive buyout landscape is driving up valuations.