to bulge, ambitious executives and deal-hungry investment bankers find it ever easier to convince themselves that it is time to begin making transformational deals. This will generate demand for new loans as surely as it will generate fees for the bankers and boost egos of the successful CEOs and their teams.

"If the M&A machine gets going, 2014 could be a spectacular year," Boswell suggests.

Joe Lynch, a portfolio manager at Neuberger Berman who manages a number of vehicles that invest in bank loans, expects us to hear that machine revving up in 2014 – although he adds the caveat that he and his colleagues also expected the same for 2013.

"We expected more M&A and LBO deals in 2013, for a number of reasons," he says. "Sponsor companies are flush with cash, debt is cheap and after several years of cost-cutting, corporates are looking for growth; M&A is what companies tend to do when they can't see growth elsewhere but it hasn't happened yet."

Leland Hart, who runs the loans business at BlackRock, is positive on this subject and insists that the tide has already turned.

"Market volume related to M&A is picking up and we think that will continue," he says. "With more M&A taking place, there will be more paper on offer, increasing choice for investors seeking to diversify off the yield curve as a primary source of income."

"If the M&A machine gets going, 2014 could be a spectacular year"

Jeff Boswell

But he also takes the opportunity here to minimise the concern being expressed in some quarters about the return of covenant-lite loans to the US market. "Covenant-lite loans to a company with moderate leverage can be more attractive than duration risk to investors who want to move away from pure yield-curve exposure," he argues.

The question of the supply-demand balance and associated volatility in activity levels is less of an issue at the lower-to-middle end of the market, observes Nick Fenn, a partner at Beechbrook Capital, a provider of private debt finance to small and medium-sized companies. He also notes that observers can be too quick to make a straight causal link between debt liquidity and the volume of corporate activity at any given time.

"The availability of debt is not the only concern," he says. "A lack of general business confidence is more important. As business people come to believe more in the reality of recovery, the risk of downside shocks will reduce and the caution we have seen since the financial crisis surrounding the taking of corporate risk will begin to fade."

Fenn believes that 2014-15 could see companies rediscover an element of ambition. The cash that they have been stockpiling in recent years will then be put to more constructive use and a new, positive economic cycle will begin to unfold. "Debt will follow revived corporate activity, not the other way round," he suggests.

Either way, rising rates are, no doubt, set to increase demand for floating-rate loans in 2014 – but the supply side may just be about to respond, re-balancing the market against refinancing and changing the risk profile into the bargain.

Illiquid but not non-transparent

Cyril Demaria argues that private equity illiquidity need not prevent the creation of a model for vintage return prediction that can reduce the prudential capital costs of the asset class

Modelling PE Risk and Return Commentary

Solvency and prudential ratios are a determining factor of capital allocation from financial institutions to private equity funds (PEFs), and international regulations governing the calculations of these ratios for European insurance groups and pension funds place liquidity risk at the core of solvency assessments.

To calibrate their ratios, financial institutions can use the simplified standard, standard or internal models. Unless an institution has exposure to private equity (PE), it has to use the pre-defined ratios which use a value-at-risk method, with a mark-to-market approach over a 12-month period. But because investments in private equity are held for three to five years on average, the EIOPA calculation significantly increases its solvency costs and is notoriously dissuasive.

Indeed, private equity exhibits many characteristics that make it difficult to integrate into solvency and prudential pre-defined ratios. It is a young and US-centric industry, so performance data is limited, especially ex-US. Serious performance measurements can only be based on actual cash flows: NAVs (net asset values) mix realised and unrealised returns and IRRs (internal rates of return) are sensitive to early distributions such as 'dividend recaps' – and even using data from fully liquidated funds is difficult for practitioners who actively manage their portfolio risk exposure. Private equity performance is cyclical, coming in 'waves' as funds are raised,

investments made, valuations reported and exits achieved – and also widely dispersed between different managers, within peer groups and within vintage years. Against these problems, the calibration system under Solvency II Directive uses correlations between listed shares and private equity performance data: CEIOPS' choice of the LPX 50 index exhibits 0.75 correlation and the approach has been subject to some criticism.

Illiquidity as a factor of analysis

The approach suggested here capitalises on the drawdowns and distribution patterns of PEFs that cause problems for other methodologies, and treats illiquidity as a factor of analysis.

Successive steps are implemented. First, we aggregate the cash flows of fully realised venture capital and leveraged buyout funds in different markets, and generate statistical templates ('ideal-types') against which to benchmark actual and future funds. Figure 1 shows an example ▶

"Private equity exhibits many characteristics that make it difficult to integrate into solvency and prudential pre-defined ratios"

1. Cumulated cash-flow curves of US VC funds for the 1980-2001, medium, high, very high and low returns periods

Legend: 1980-2001 / Medium / High / Very high / Low
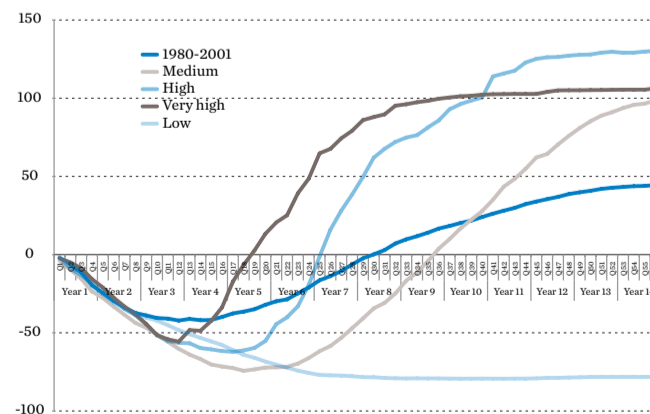
The figure provides five cumulated cash-flow curves, based on data reported by Thomson ONE Banker as of December 31, 2011 (re-based to 100), excluding outliers. Four 'ideal types' are identified: 'high' returns, 'medium' returns, 'low' returns and 'very high' returns
Source: Cyril Demaria

Cyril Demaria

◄ of the resulting j-curves for US VC. Each vintage year is allocated to one of the four categories identified (very high, high, medium and low returns). An average cash-flow curve is computed for each category.

The second step is to identify the predictive power of these 'ideal types' for the future outcomes of PEFs. A correlation table is established based on the cashflows of 'ideal-types' and of each vintage. Figure 2 shows some of the results, again for US VC.

The last step is to determine when the correlations identified start to have a predictive role and how reliable these predictions are. The 'ideal-type' assessment of the final quarter of each year is tested to see if it reflects the final performance for each vintage year, in each strategy and each geographical area. Figure 3 shows the probability that the year-end performance of a fund reflects its final performance, based on the 'ideal types'. If year-end performance equals final performance, the average spread with the other categories is provided, as well as the spread with the closest comparable. If year-end differs from final performance, the spread with the closest comparable is provided, as well as the highest spread witnessed, the lowest, and the highest among the lowest.

Below two years of activity, correlations do not give any clear information: correlations are high with all the ideal types and prediction rates at or below 50%. Between years three and five, some correlations drop and the most likely performance category slowly emerges: at the end of year three, the category of performance is predicting the final performance at a 50% (VC Europe, the Middle East and Africa) to 65% (LBO EMEA) level. Year four exhibits a further increase in this probability (except for LBO EMEA) and from year five and onwards, the percentage increases systematically. From year six the performance category to which the vintage year will most likely belong appears clearly.

The model relies on some assumptions. First, that the behaviour of PEF managers towards cash flows does not change materially: should the calculation of management fees in the investment period change from a percentage of the fund size to a percentage of the capital paid in, for example, the incentive would be to deploy capital faster. The results are stilll largely based on US data and EMEA comparisons exhibit significant differences. Finally, the return categories rely on past cash flows. Some might become irrelevant and others emerge, although the model should help to identify them.

However, the model deals with partial data, lack of precision and can function with incomplete cash flows, by measuring the distance of a given stream of cash flows from a series of ideal types. It supports the active management of portfolios.

Illiquidity in private equity is not necessarily associated with uncertainty or lack of transparency; cash flows do tell us a story. The private equity secondaries market will probably make the most use of this performance-attribution model initially, but regulators have an opportunity to use it to reduce the cost of capital associated with investing in private assets. Dynamic solvency ratio calculations can be established to sort vintages early and exclude certain scenarios. Maximum and average losses can be predicted statistically, based on return categories. The illiquidity of the asset class becomes less problematic and value-at-risk frameworks can integrate the output of this model.

Cyril Demaria is a lecturer at EDHEC and EADA and author of Introduction to Private Equity (Wiley, 2013) and Private Equity Funds Investments (Palgrave, 2014)

2. Correlation table for US VC funds, by vintage year (1980-2009) and category of returns

Correlation matrix

	1980-2001	Medium	High	Very high	Low	Medium 1985	High 1990	Very high 1995	Low 2000
1980-2001	1	0.94	0.99	0.90	-0.55	0.93	0.98	0.86	0.10
Medium	0.94	1	0.90	0.71	-0.36	1.00	0.90	0.66	0.39
High	0.99	0.90	1	0.92	-0.62	0.88	1.00	0.89	0.02
Very high	0.90	0.71	0.92	1	-0.78	0.69	0.93	0.98	-0.30
Low	-0.55	-0.36	-0.62	-0.78	1	-0.30	-0.62	-0.81	0.79
H 1980	1.00	0.93	0.99	0.91	-0.57	0.91	0.99	0.86	0.08
1981	0.97	0.98	0.94	0.80	-0.42	0.97	0.93	0.76	0.28
1982	0.95	0.97	0.91	0.75	-0.30	0.98	0.90	0.69	0.43
1983	0.92	0.98	0.87	0.68	-0.25	0.99	0.86	0.62	0.51
1984	0.90	0.98	0.85	0.63	-0.20	0.99	0.84	0.57	0.58
Medium 1985	0.93	1.00	0.88	0.69	-0.30	1	0.87	0.64	0.46
1986	0.84	0.96	0.78	0.57	-0.25	0.97	0.77	0.53	0.52
1987	0.96	1.00	0.93	0.75	-0.42	0.98	0.92	0.70	0.30
1988	0.97	0.98	0.96	0.81	-0.49	0.96	0.95	0.76	0.20
1989	0.93	0.99	0.91	0.70	-0.38	0.98	0.90	0.66	0.35
H 1990	0.98	0.90	1.00	0.93	-0.62	0.87	1	0.90	0.00
1991	0.98	0.96	0.97	0.85	-0.49	0.94	0.97	0.81	0.20
Very high 1992	0.97	0.85	0.99	0.96	-0.70	0.83	0.99	0.93	-0.11
1993	0.96	0.86	0.98	0.93	-0.67	0.83	0.98	0.88	-0.07
1994	0.95	0.82	0.98	0.93	-0.70	0.80	0.98	0.94	-0.15
1995	0.86	0.66	0.89	0.98	-0.81	0.64	0.90	1	-0.37
1996	0.73	0.50	0.75	0.93	-0.88	0.48	0.75	0.92	-0.57
1997	0.79	0.60	0.79	0.92	-0.86	0.57	0.79	0.88	-0.50
1998	0.98	0.89	0.97	0.91	-0.60	0.87	0.96	0.86	0.01
Low 1999	0.38	0.49	0.28	0.08	0.54	0.56	0.26	-0.01	0.87
2000	0.10	0.39	0.02	-0.30	0.79	0.46	0.00	-0.37	1
2001	0.16	0.52	0.11	-0.23	0.73	0.60	0.11	-0.29	0.95
2002	-0.08	0.39	-0.16	-0.47	0.91	0.49	-0.17	-0.52	0.99
2003	-0.14	0.46	-0.25	-0.55	0.97	0.56	-0.27	-0.60	0.97
2004	0.13	0.81	-0.03	-0.42	0.95	0.83	-0.06	-0.50	0.99
2005	0.22	0.91	0.11	-0.49	0.97	0.87	0.08	-0.54	0.98
2006	0.61	0.98	0.73	-0.28	0.99	0.97	0.74	-0.40	0.99
2007	0.83	1.00	0.98	0.19	0.99	0.99	0.99	0.30	0.99
2008	0.86	0.98	0.96	0.79	0.96	0.96	0.98	0.87	0.96
2009	0.93	0.98	0.99	0.99	0.95	0.98	0.99	0.92	0.95

Source: Cyril Demaria

This table provides the results of correlation tests of the cash-flow curves for US VC funds by vintage year and by category of returns as well as the 1980-2001 average. The vintage years 1985, 1990, 1995 and 2000 are selected as most characteristic of a particular category of return – 'ideal types'. Data as of 31 December 2011. Categorisation based on ThomsonOne's communicated returns.

3. Probability that year-end performances reflect the final performance of US VC funds

VC CF USA (realised funds 1980-2001)

Fund age (years)	2	3	4	5	6	7	8	9	10	11	12	All (max 14 Y)
Year-end performance = final performance	45.45%	59.09%	68.18%	63.64%	72.73%	81.82%	86.36%	100%	95.45%	100%	100%	79.65%
If YE = FP: average spread with three other categories	-0.6%	-0.7%	-6.0%	-29.1%	-41.0%	-48.6%	-49.2%	-46.3%	-46.2%	-44.8%	-44.5%	30.7%
If YE = FP: spread with closest comparable	0.4%	0.5%	4.2%	13.9%	20.2%	17.4%	19.2%	17.3%	17.1%	13.4%	11.1%	11.4%
If YE <> FP: spread with closest comparable	0.5%	0.7%	2.0%	3.8%	6.2%	4.8%	0.3%	-	1.1%	-	-	0.7%
If YE <> FP: highest spread with closest comparable	0.162											
If YE <> FP: lowest spread with closest comparable	0.000											
If YE <> FP: highest minimum spread with closest comparable	0.015											
If YE <> FP, does the comparable stays the same?	Yes:	8	(50%)	No:	8	(50%)						
Outlier	1	(1981)				Performance:			Medium			

Source: Cyril Demaria