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Portfolio Valuation

Private Equity Marks & Trends

Fourth Quarter 2016

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A Market Participant Perspective on the Size Premium

The magnitude of the equity risk premium, or required return in excess of the risk-free rate, is a perennial question for valuation specialists. The aggregate equity premium is typically broken into two pieces: (1) a market risk premium, and (2) a size premium.

The traditional method for measuring return premiums is backward-looking. Analysts typically compare realized returns for various asset classes over long historical periods, inferring the premiums from the differences in the return series. With regard to the size premium in particular, this approach has a number of shortcomings.

- The signal from realized returns is directionally opposite to changes in the relevant premiums. Value is inversely related to the magnitude of the risk premium; in other words, if the risk premium increases, value decreases, all else equal. Under the realized returns approach, the calculated premium is positively related to the change in value during the period. Perhaps over sufficiently long measurement periods (i.e., decades) realized returns provide a suitable proxy for the risk premium. Over the short term (and at the margin), however, they do not.

  Consider a simple example in Exhibit 1.

  During period 1, the risk premium increased, yet the marginal impact of period 1 is to reduce the risk premium when calculated on the basis of realized returns.

- Realized returns from smaller stocks are not consistently greater than those from larger stocks. Although valuation professionals tend to apply size premiums consistently without regard to current market dynamics, there are periods when large-cap stocks deliver higher returns than small-cap names.

Exhibit 1

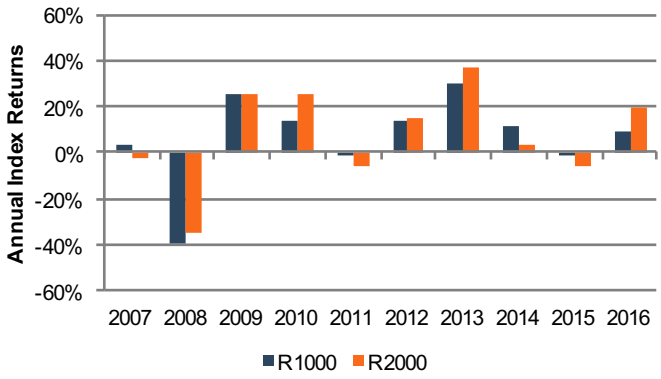
Realized Returns Compared to Risk Premiums

$Value_t$	*equals*	$\frac{Earnings_t}{Cap\ Rate_t}$		
$Value_0$	*equals*	$\frac{\$1,000}{10.0\%}$	*equals*	$10,000
$Value_1$	*equals*	$\frac{\$1,000}{11.0\%}$	*equals*	$9,091
Realized $Return_1$		*equals*	-9.1%	

Exhibit 2 summarizes annual returns on large-cap (Russell 1000) and small-cap (Russell 2000) indices over the past decade. While the aggregate return on the small-cap index exceeded that on the large-cap index by 0.7% over the period, the annual performance was mixed with the Russell 2000 posting a higher return in only five out of ten years.

Exhibit 2

Historical Annual Returns on Large and Small Cap Stocks



- Risk premiums are measured on an equity basis. For private operating companies, enterprise value (equity plus debt less cash) is the relevant perspective on value for market participants. Since the existing capital structure is replaced in its entirety in nearly all private company transactions, buyers and sellers think about enterprise value, not the value of equity in the seller's capital structure. The relevant discount rate for measuring enterprise value is the weighted average cost of capital, not the equity discount rate. As a result, valuation professionals would probably do well to consider the impact of size on the overall WACC rather than on a single component of the capital structure. Given the iterative relationship between capital structure and the cost of the individual components, such an emphasis would also lend some stability to the analysis.

- Realized returns can be reliably measured only for public companies. As a result, size premiums have historically been calculated by comparing realized returns on small public company stocks to those on large company stocks. However, the middle market and lower middle market companies that valuation professionals value are often smaller than small cap public companies. Further, the smallest public companies (the "10b" companies) are often distressed, ignored by institutional investors, or otherwise subject to specific risk factors that render them unsuitable as a basis for

measurement. As a result, measuring the size premium applicable to lower middle market companies has proven vexing.

In this article, we summarize an "ex ante" analysis of the size premium applicable in measuring the WACCs for lower middle market companies. Over the past decade, researchers have begun to advocate various forward-looking equity risk premium models in an attempt to alleviate some of the weaknesses associated with the realized returns approach, particularly the impact of a secular increase in valuation multiples over the past six decades.

- One such method, focused on small businesses, referred to as the Implied Private Company Pricing Line, is described **here**.
- Professor Aswath Damodaran has advocated a **similar approach** for estimating the equity risk premium for public companies.

Our procedure is straightforward. First, we analyze relevant data on small- and mid-cap public companies, calculating implied WACCs based on current valuation multiples. Second, we infer WACCs on lower middle market private companies using aggregate transaction data from GF Data. The resulting differences provide a measure of the size premium applicable to lower middle market companies (at the level of the WACC).

Implied WACC for Public Companies

To derive the implied WACCs for public companies, we analyze data from Capital IQ for the companies in the S&P 1000 (the combination of the S&P 400 mid-cap index and the S&P 600 small-cap index) as of January 26, 2017. Eliminating financial companies (for which enterprise value is not a relevant basis of measurement) and companies with negative EBITDA (indicating a measure of financial distress), we are left with a sample of 755 companies, with enterprise values ranging from $147 million to $18.6 billion.

Exhibit 3 on page 3 summarizes relevant performance measures for broad industry groups. The industry groupings were made to promote comparability to GF Data industry measures.

A cursory review of the statistics in Exhibit 3 confirms the overall reasonableness of the observations. For example, distribution companies have the lowest margins, and manufacturing companies carry relatively large amounts of working capital.

Using a basic five-period discounted cash flow model, we then calculate the implied WACC for each industry grouping. Exhibit 4 on page 3 illustrates the application of the model for the overall group.

Using the relevant cash flow measures from Exhibit 3, the implied WACC is the discount rate at which the indicated enterprise value conforms to the forward EBITDA multiple. For the overall index, the median performance measures and EBITDA multiple imply a WACC of 8.1%.

Exhibit 5 on page 4 summarizes results for the various industry groupings.

The most conspicuous observation from Exhibit 5 is that the WACCs for the public companies are more tightly clustered than the valuation

On the Call

The following is a brief compendium of quotes from 1Q17 earnings season conference calls.

Steve Schwarzman (BX) "And against the better growth backdrop in the United States, the largest market in the world, there should be opportunities for everyone to benefit. The stock market is clearly anticipating a lot of fundamental, pro-business reform, which I don't think is unreasonable. So we can see a prolonged continuation of current, [full] market in equities."

John Barry (PSEC) "I guess if someone asked me, well, where else is there low hanging fruit? I would say we have it in our real estate book, I think. Why? Because interest rates have come down since we made many of those multi-family investments. Fortunately, the election returns have borne us out in real estate..."

David Golub (GBDC) "Corporate profit margins seem to be facing headwinds and the headwinds have identifiable sources, rising wages, rising commodity prices, rising debt-service costs as interest rates have ticked up a bit. We publish, as many of you probably know, we publish a quarterly called the Golub Capital middle market report and it looks at the median EBITDA and revenue growth of companies in our middle market portfolio. And for the fourth quarter of 2016, it told us that corporate profit margins are under pressure in the middle market."

Scott Nuttall (KKR) "Valuations were high before the election and have become even higher after the election. And so we're working to be creative, to find value, I guess would be the high-level summary and looking at opportunities where we can leverage our industry expertise, our operational capabilities to really find something that is more idiosyncratic."

Source: All transcripts obtained from SNL.

Exhibit 3

Public Company Median Measures (S&P 1000)

Industry Grouping	EBITDA Margin	Est 2-yr Revenue Growth	Est 2-yr EBITDA Growth	CapEx as % of Revenue	NWC as % of Revenue	Fwd EBITDA Multiple
Retail	10.4%	3.4%	4.2%	3.6%	2.3%	8.4x
Media & Telecom	20.8%	2.5%	1.8%	5.5%	-0.3%	8.0x
Manufacturing	14.1%	4.2%	7.1%	3.1%	15.2%	10.1x
Health Care Services	11.5%	9.7%	10.4%	2.0%	3.6%	11.6x
Distribution	4.9%	3.5%	6.4%	0.7%	16.1%	9.4x
Business Services	14.5%	4.0%	5.6%	2.6%	2.6%	10.7x
Overall Group	**13.9%**	**3.9%**	**6.5%**	**3.2%**	**9.6%**	**10.0x**

Exhibit 4

Discounted Cash Flow Model for Calculating Implied WACC

LTM EBITDA Margin	**13.9%**	Effective Tax Rate	**32.0%**
Est Revenue Growth Rate (2-Yr)	**3.9%**	Long-term Growth Rate*	**2.5%**
Est EBITDA Growth Rate (2-Yr)	**6.5%**	**Median effective tax rate for public group*	
CapEx as % of Revenue	**3.2%**		
Net Working Capital / Revenue	**9.6%**		

	LTM	Year 1	Year 2	Year 3	Year 4	Year 5	Terminal
Revenue	$1,000.0	$1,039.0	$1,079.5	$1,116.6	$1,149.7	$1,178.5	
Growth Rate		*3.9%*	*3.9%*	*3.4%*	*3.0%*	*2.5%*	
EBITDA	$139.0	$148.0	$157.7	$163.1	$167.9	$172.1	
Growth Rate		*6.5%*	*6.5%*	*3.4%*	*3.0%*	*2.5%*	
Margin	*13.9%*	*14.2%*	*14.6%*	*14.6%*	*14.6%*	*14.6%*	
Capital Expenditures	32.0	33.2	34.5	35.7	36.8	37.7	
As % of Revenue	*3.2%*	*3.2%*	*3.2%*	*3.2%*	*3.2%*	*3.2%*	
Net Working Capital	96.0	99.7	103.6	107.2	110.4	113.1	
As % of Revenue	*9.6%*	*9.6%*	*9.6%*	*9.6%*	*9.6%*	*9.6%*	
EBITDA - CapEx		$114.8	$123.1	$127.3	$131.1	$134.4	
less: Pro Forma Taxes		(36.7)	(39.4)	(40.7)	(42.0)	(43.0)	
Net Operating Profit after Tax		$78.1	$83.7	$86.6	$89.2	$91.4	
less: Incremental Working Capital		(3.7)	(3.9)	(3.6)	(3.2)	(2.8)	
Net Cash Flow		$74.3	$79.8	$83.0	$86.0	$88.6	$1,621.1
Discounting Periods		0.5	1.5	2.5	3.5	4.5	4.5
Present Value Factors	**8.1%**	0.9618	0.8897	0.8230	0.7613	0.7042	0.7042
Present Value of Cash Flows		$71.5	$71.0	$68.3	$65.5	$62.4	$1,141.6
Indicated Enterprise Value	$1,480.3						
Multiple of Forward EBITDA	**10.0x**						

Note - Assumes that Capital Expenditures = Depreciation

multiples. This is encouraging, as it indicates that variation in company-specific attributes that affect cash flow exerts greater influence over valuation multiples than variation in the WACC. Excluding the Media & Telecom subgroup, the median observed EBITDA multiples range from 8.4x to 11.6x, while the implied WACCs range only from 8.1% to 8.4%. (The outlier valuation multiple and implied WACC for the Media & Telecom subgroup is perhaps explainable by the woes besetting the news publishing and TV/radio broadcasting businesses.)

Implied WACC for Lower Middle Market Companies

We next calculate the implied WACC for lower middle market companies (transaction values between $10 million and $250 million) based on transactional data compiled by GF Data. GF Data collects and publishes transaction information from approximately 250 private equity groups on a blind and confidential basis. In addition to transaction multiples, GF Data publishes very useful data on capital structure and financial costs. You can subscribe **here**. Since forward earnings estimates, capital expenditure, and working capital data for the companies in the GF Data set are not available, we assume that the relevant performance measures for the corresponding public company groups are applicable to the private companies. The implied WACCs and corresponding size premiums are summarized on Exhibit 6 on page 4.

Excluding the Media & Telecom sector, the implied size premiums for the various industry groupings are between 2.1% and 3.1%, with the overall market at 2.5%. Again, these are size premiums relative to the WACC, not the cost of equity. On an

Exhibit 5

Implied WACC for Public Companies by Industry Grouping

	Mid and Small Cap Publics (S&P 1000)						
	Retail	Media & Telecom	Manuf.	Health Care	Distr.	Business Services	Overall
Companies in Sample	**80**	**22**	**402**	**10**	**36**	**144**	**755**
Implied WACC Analysis							
Sector-Specific Inputs							
Forward EBITDA Multiple	**8.4x**	**8.0x**	**10.1x**	**11.6x**	**9.4x**	**10.7x**	**10.0x**
LTM EBITDA Margin	10.4%	20.8%	14.1%	11.5%	4.9%	14.5%	13.9%
Est. 2-yr Revenue Growth	3.4%	2.5%	4.2%	9.7%	3.5%	4.0%	3.9%
Est. 2-yr EBITDA Growth	4.2%	1.8%	7.1%	10.4%	6.4%	5.6%	6.5%
CapEx as % of Revenue	3.6%	5.5%	3.1%	2.0%	0.7%	2.6%	3.2%
Working Capital as % of Rev.	2.3%	-0.3%	15.2%	3.6%	16.1%	2.6%	9.6%
Global Inputs							
Long-term Rev. Growth (Y5+)	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Effective Tax Rate	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%
Implied WACC	**8.1%**	**9.0%**	**8.1%**	**8.2%**	**8.4%**	**8.1%**	**8.1%**

Exhibit 6

Implied WACC for Public Companies by Industry Grouping

	Lower Middle Market (GF Data Aggregates)						
	Retail	Media & Telecom	Manuf.	Health Care	Distr.	Business Services	Overall
Implied WACC Analysis							
Sector-Specific Inputs							
Reported EBITDA Multiple	**6.1x**	**7.3x**	**6.3x**	**7.5x**	**6.9x**	**7.6x**	**7.0x**
LTM EBITDA Margin	10.4%	20.8%	14.1%	11.5%	4.9%	14.5%	13.9%
Est. 2-yr Revenue Growth	3.4%	2.5%	4.2%	9.7%	3.5%	4.0%	3.9%
Est. 2-yr EBITDA Growth	4.2%	1.8%	7.1%	10.4%	6.4%	5.6%	6.5%
CapEx as % of Revenue	3.6%	5.5%	3.1%	2.0%	0.7%	2.6%	3.2%
Working Capital as % of Rev.	2.3%	-0.3%	15.2%	3.6%	16.1%	2.6%	9.6%
Global Inputs							
Long-term Rev. Growth (Y5+)	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Effective Tax Rate	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%
Implied WACC	**9.6%**	**9.0%**	**10.7%**	**10.6%**	**9.8%**	**9.8%**	**9.9%**
Implied Size Premiums	1.5%	0.0%	2.6%	2.4%	1.4%	1.7%	1.8%

Note - Reported EBITDA multiples from GF Data Resources (YTD 2016 aggregates from November 2016 report)

absolute basis, the implied WACCs range from 10.3% to 11.5%.

Size Differences within the Lower Middle Market

In addition to the industry breakdowns, GF Data segregates the universe of observed transactions by size. As expected, within the lower middle market universe, valuation multiples are positively related to size, with the average EBITDA multiple on $100 million to $250 million transactions (8.9x) exceeding that on $10 million to $25 million transactions (6.0x). Applying the same procedure to this data yields additional color regarding the size premiums applicable to lower middle market companies, as summarized on Exhibit 7 on page 5.

On this view, the size premium for the larger end of the lower middle market shrinks to 0.7%, while that for the smallest companies is 3.9%.

Takeaways

The analysis summarized in this article is not intended as a technique for calculating the weighted average cost of capital. It is offered, rather, as a set of guideposts to assist valuation specialists in assessing the reasonableness of the calculated WACC, particularly when the subject of the valuation is a controlling interest; for minority interest valuations, an equity perspective within the existing capital structure may be more relevant.

The traditional build-up computation of the WACC is subject to a host of variables that can have a material impact on the overall conclusion of the WACC. Different estimates regarding the risk-free rate, market risk premium, size premium, specific-company risk, cost of debt, tax

rate, and capital structure can result in significantly different estimates of the WACC. The analysis in the article is not intended to suggest that certain build-up components are more appropriate than others. Rather, the analysis is intended to support the overall reasonableness of the concluded WACC.

To be sure, the implied WACCs presented in this article are also dependent upon multiple assumptions regarding growth rates, margins, tax rates, capital expenditures, and working capital. While we are comfortable with the overall reasonableness of these assumptions, others are certainly possible. For example, if the assumed long-term growth rate is higher, the implied WACCs will also be higher. However, given that our focus in this article is on the size premium measured as a delta, consistency is more important than precision.

Exhibit 7

Implied Size Premiums within the Lower Middle Market

	S&P 1000 Overall	Lower Middle Market			
		$100 to $250	$50 to $100	$25 to $50	$10 to $25
Implied WACC Analysis					
Sector-Specific Inputs					
Fwd / Reported EBITDA Multiple	**10.0x**	**8.9x**	**7.6x**	**6.5x**	**6.0x**
LTM EBITDA Margin	13.9%	13.9%	13.9%	13.9%	13.9%
Est. 2-yr Revenue Growth	3.9%	3.9%	3.9%	3.9%	3.9%
Est. 2-yr EBITDA Growth	6.5%	6.5%	6.5%	6.5%	6.5%
CapEx as % of Revenue	3.2%	3.2%	3.2%	3.2%	3.2%
Working Capital as % of Revenue	9.6%	9.6%	9.6%	9.6%	9.6%
Global Inputs					
Long-term Revenue Growth (Y5+)	2.5%	2.5%	2.5%	2.5%	2.5%
Effective Tax Rate	32.0%	32.0%	32.0%	32.0%	32.0%
Implied WACC	**8.1%**	**8.8%**	**9.9%**	**11.2%**	**12.0%**
Implied Size Premium		0.7%	1.8%	3.1%	3.9%

Source: Capital IQ, GF Data, Mercer Capital analysis

It is also possible that the GF Data – like all transaction data sets – is subject to a selection bias, as it includes data only on companies that actually transacted. Perhaps more attractive companies having lower costs of capital are more likely to transact. That is ultimately very hard to know.

- Further, available trailing twelve month revenue growth rates and EBITDA margins reported by GF Data are generally higher (revenue growth often in the mid-teens and margins in excess of 20%). Whether the reported growth rates are sustainable with "normal" levels of capital investment is unknowable. Adjusting growth rates and margins to conform more closely to the GF Data statistics would increase the implied lower middle market WACCs on Exhibits 6 and 7 between 100 and 200 basis points.

- GF Data also publishes leverage statistics regarding the observed transactions. As expected, the observed capital structures at acquisition use more financial leverage than the typical public company. While the lower middle market capital structures may be expected to moderate over time, the capital structure discrepancy ultimately confirms the decision to focus on the WACC, rather than the cost of individual components, each of which will vary with leverage levels. The analysis assumes that the implied WACCs are optimal for the companies transacted.

The WACC for a specific company will necessarily consider risk factors unique to that company. In addition, the growth, margin, and other assumptions must be appropriate to the subject. In our view, however, the industry aggregate data summarized in this post can prove valuable for valuation specialists as they assess whether the inputs for the subject company are appropriately greater than, equal to, or less than these industry measures.

In the end, reasoned judgment is more important than technique. While further analysis is certainly possible, we believe the analysis presented in this article contributes to the goal of estimating the WACC from the perspective of the relevant market participants for lower middle market operating companies.

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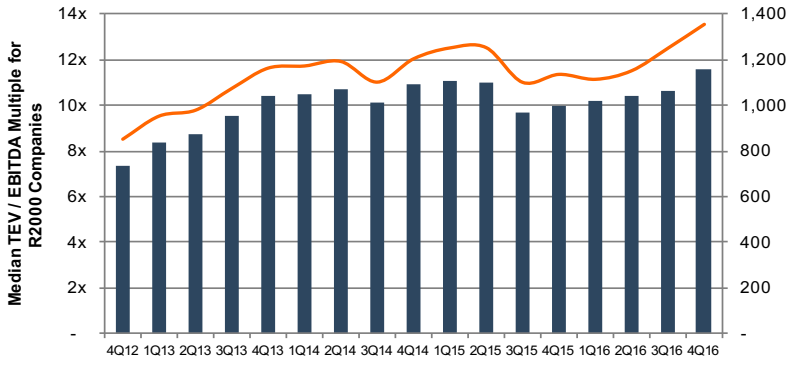
Equity Valuation

Russell 2000 Index Values and EBITDA Multiples

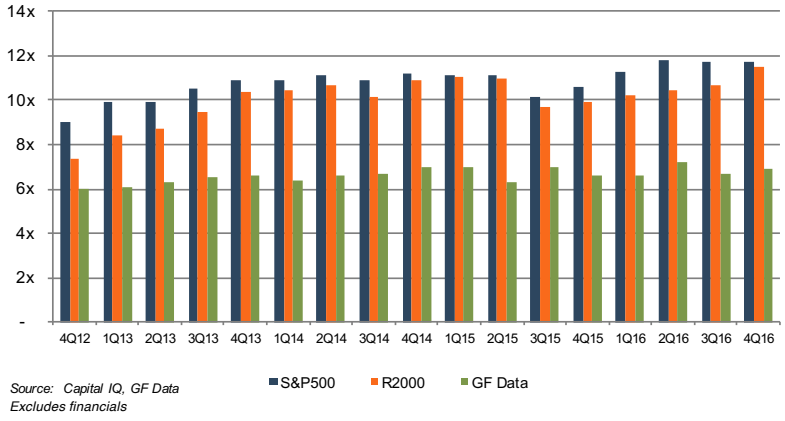
Small cap stocks continued to outperform other segments in 4Q16 as investor confidence soared following the November election. Small cap companies stand to benefit from a generally more favorable economic backdrop that supports growth and consumer confidence.



Source: Capital IQ
Median EBITDA Multiple (ex-financials)

EBITDA Multiples over Time

The gap between small cap and large cap multiples narrowed to its lowest point since 2Q15 as investors bid the shares of small caps up following the national election. The consensus view seems to be that domestically focused companies may benefit more than large international companies due to higher corporate tax rates generally and less exposure to a strengthening dollar.

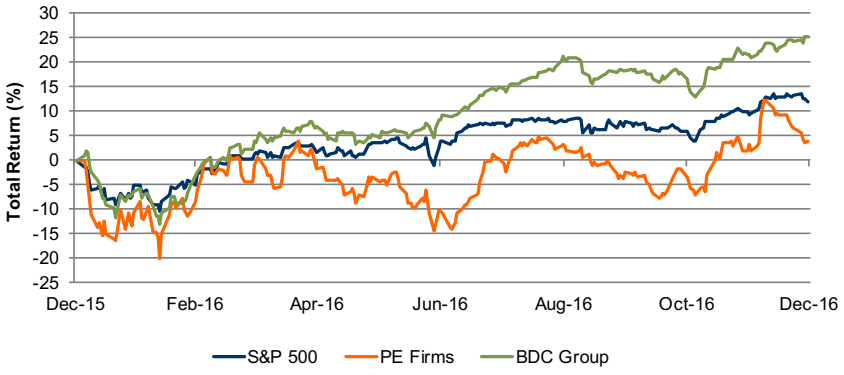


Source: Capital IQ, GF Data
Excludes financials

Stock Performance for Publicly Traded PE Sponsors

Total Returns (Trailing Twelve Months)

The stock market rally accelerated through the end of the year with the unanticipated election of Donald Trump as the next POTUS, and Republicans holding Congress. The financial sector outperformed the broader market, with the highly regulated banking sector leading the way. PE Firms and the BDC group gained 10% and 9% from November 8th through the end of the year versus 5% for the S&P.

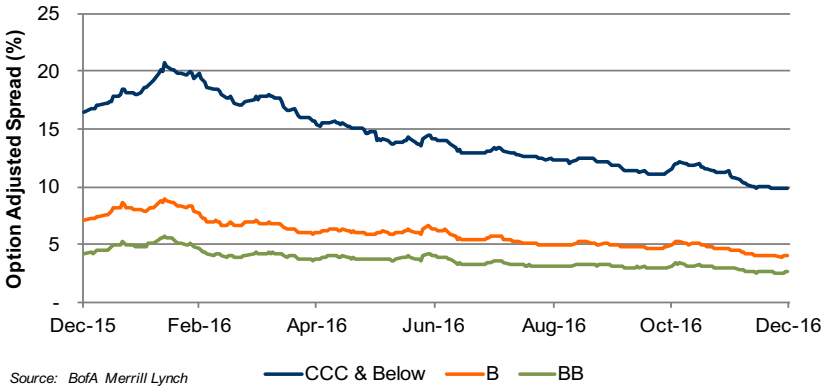


Source: S&P Global Market Intelligence

Debt Investments

High Yield Spreads by Credit Rating

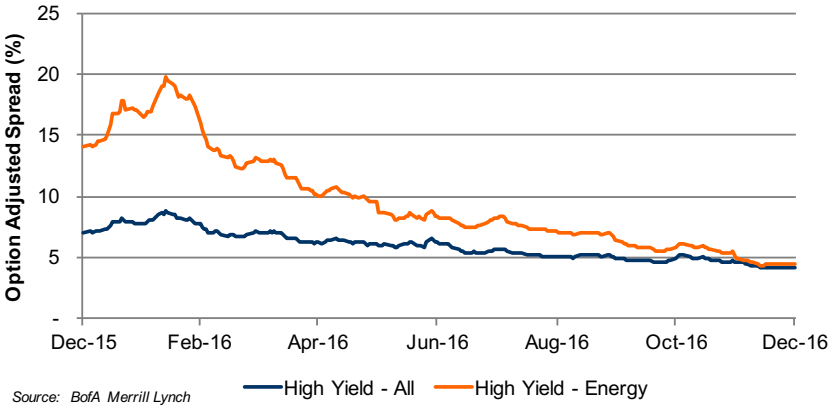
With investor optimism high in 4Q16, credit spreads continued to narrow. Year over year, yields on credits rated CCC or below narrowed 663 basis points, while B and BB credits tightened 305 bps and 157 bps.



Source: BofA Merrill Lynch

Impact of Energy Sector on High Yield Spreads

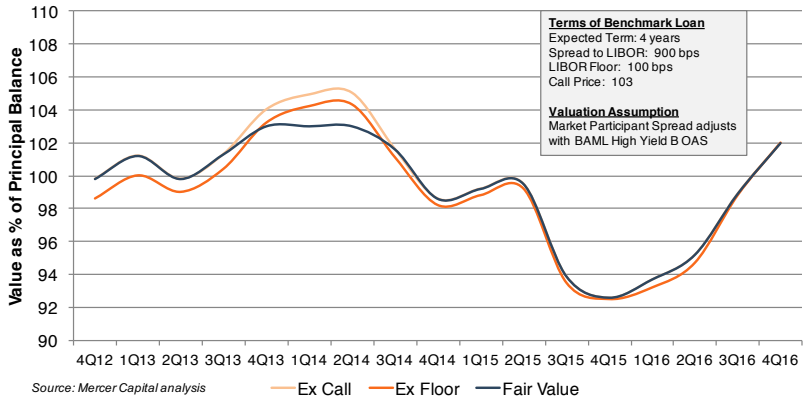
At the end of the year, the energy premium relative to the rest of the high yield market had shrunk to 18 bps, compared to 718 bps at the start of the year and a peak of 1097 bps on February 11, 2016.



Source: BofA Merrill Lynch

Fair Value of Benchmark Debt Instrument

With spreads continuing to contract, the fair value of our benchmark loan increased to a 2% premium to par, compared to 98.6 at December 31, 2015 and 98.9 at September 30, 2016. With the current yield curve, spreads would need to expand 61 basis points for fair value to approach 100.



Source: Mercer Capital analysis

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