SSI Investment Management

2018 Convertible Outlook

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2017 was a strong year for risk assets including convertibles, driven by synchronized global expansion, a rapid rise in revenues and earnings, supportive monetary policy, a weaker dollar and expectations of tax reform. The ICE BofA ML All US Convertibles Index (VXA0) returned +13.70% for the full year, an 81% capture of the equities underlying the convertible universe spanning the spectrum from Mid Cap to Large Cap. On a long term basis, convertibles have maintained superior risk adjusted metrics relative to the equity market, with strong return capture:

Convertibles[1]	10 Years	20 Years
Total Return Capture vs Equity Market[2]	86%	100%
Volatility Capture vs Equity Market	84%	85%

[1]ICE BofA ML All Us Convertibles Index (VXA0) *[2]S&P 500 Index*

The equity sensitive segment of convertibles was the strongest performer at 22.1% driven by strong underlying equity performance. The traditional balanced, convex convertibles came in second place at 12.7%. Credit sensitive convertibles came in third place returning 9.5%.

2017 represented an inflection point in the macroeconomic backdrop. The preceding period had been characterized by tepid 1% to 2% GDP growth, depressed productivity growth, and exceptionally easy monetary policy by all major central banks. 2017 brought into focus the likely prospects of dramatic **corporate tax relief**, **deregulation** and **expansionary fiscal policy**. Actual progress on deregulation and the tax reform ignited the animal spirits. Against a backdrop of what was a synchronized global acceleration in economic activity, earnings surprises turned strongly positive. The economy has logged three consecutive quarters of above 2.5% GDP growth. Meanwhile monetary policy remains accommodative and inflation is still well contained. With the passage of the tax reform emphasizing corporate tax cuts of a permanent nature and full expensing of Capex for five years, economic growth should continue to be robust driven by rising disposable incomes and acceleration in corporate capex, barring any drastic unforeseen shifts in policy. A strong economy and flow through of tax savings to earnings should translate to another year of

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double digit earnings growth for the S&P 500. S&P earnings were expected to rise to $143 in 2018 without the tax reform. With the primary and secondary effects of tax reform, the EPS number is likely to rise to $153, almost a 16% rise in earnings YoY.

Even though monetary policy is accommodative, the Fed has adopted a stance of gradual tightening in an effort to achieve normalization. Prospects seem likely for three and possibly four additional Fed Funds **rate hikes** in 2018, depending on the trajectory of wage growth and inflation, although Fed Funds are still pricing in only two rate hikes this year. Elsewhere in Europe, the economy has been strong, QE has been tapered to 30 billion Euros per month and could very well terminate sometime after October. The large moves in treasury and bund yields since the September Fed Meeting reflect the trajectory of market's assessment of odds of the tax reform until its eventual passage, as well as an assessment of the odds of termination of QE by the European Central Bank. Bank of Japan meanwhile is pursuing yield curve targeting and is likely to taper bond purchases as well in 2018.

Although fiscal stimulus, along with improving GDP growth and economic data, would normally lead to tighter credit spreads, we are getting late in the credit cycle. Spreads are quite tight relative to history, credit standards have been getting lax and there is a lot of covenant light debt issuance. High yield default rates, though currently quite low, could pick up were the central Bank to tighten more rapidly to fight incipient inflation. However, the convertible market, dominated by companies with growing earnings, stronger balance sheets and much lower level of leverage than high yield B index, is likely to witness a far lower default rate.

There are some risks to our macro outlook. The prospect of deleveraging and a slowdown in China could be a meaningful shock to the global economy, as could geopolitical events in Europe surrounding Italian elections, or in the Korean Peninsula. In addition, the Fed is closely monitoring fiscal developments, and the path of future rate hikes may be calibrated to the pace of policy changes – in particular, the effects of tax reform on aggregate demand, and potential infrastructure spending initiatives. If these go out of sync, one could expect potential volatility shocks to the markets. Additionally, the prospects of protectionism or trade wars could unsettle the markets. Monetary policy divergence between the US and Europe/Japan could also cause currency volatility. The record low S&P realized volatility of under 7% in 2017 is not very likely to be repeated in 2018.

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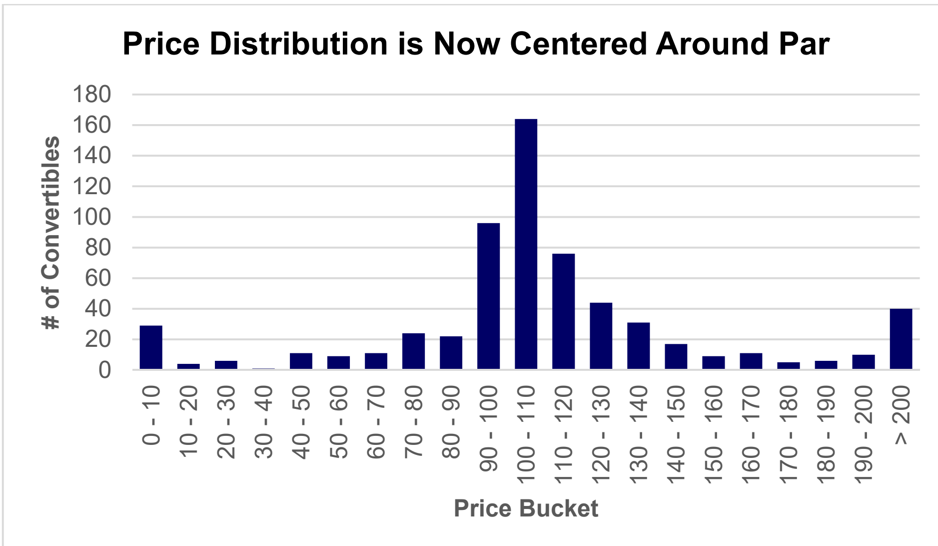
With their unique combination of fixed income and equity attributes, convertibles appear well poised to navigate the market environment ahead. This is because the asset class offers defensive downside protection through a par redemption value, while participating in equity market appreciation and minimizing duration risk. A pickup in record low implied volatility in the equity market is also likely to benefit convertible valuations. The asset class is highly convex at this point in time, and average dollar prices have moderated towards par, compared with the recent past:



Sources: Bloomberg, SSI internal research

We expect 2018 convertible returns to be impacted by the following factors:

- The asset class is expected to participate in the appreciation of the equity market in line with its equity sensitivity, or delta.
- We expect slight widening of credit spreads as a strong economy and stronger credit profile of convertibles offset the effects of gradual tightening of monetary policy and the effects on credit markets of a potential turn in the credit cycle.
- In contrast to equity and fixed income assets that are likely to suffer under conditions of rising volatility and rising interest rates respectively, convertibles have a built in offset in the former and much more muted reaction in the latter environment. The equity option in a convertible rises in value when volatility rises, providing a meaningful offset in contrast with equities that generally suffer a drawdown when volatility rises. The muted reaction to rising rates relative to

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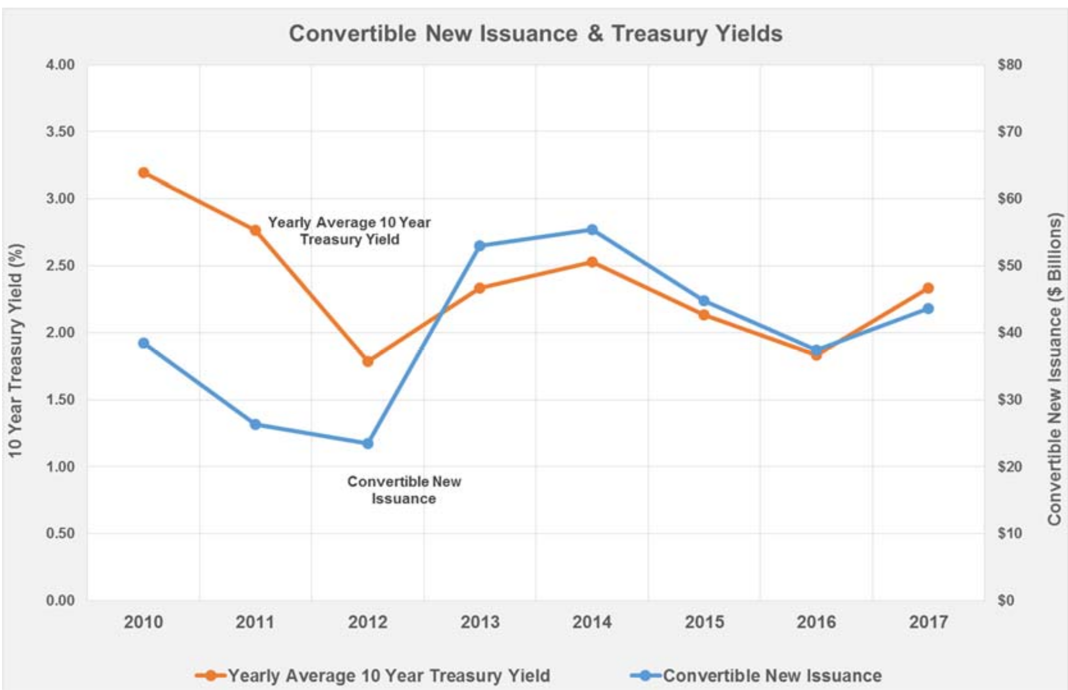
fixed income is a result of a duration that is less than half that of the Bloomberg Barclay's Aggregate Bond Index.

The economic backdrop is supportive of increased convertible new issuance, as trends such as M&A, GDP growth, and higher bond yields tend to lead to companies tapping the convertible market to raise capital. In addition, the tax reform Act of 2017, by limiting the deductibility of interest expense on debt substantially improves the relative attractiveness of convertibles when compared with high yield debt. These factors should bring about a rise in the volume of convertible new issuance. New issues are priced attractively on average, and tend to increase the convexity of the universe. The historical relationship between new issuance and the level of interest rates is presented in the graph below:



Notes: 2017 Treasury Yield & New Issuance Yield: average through 12/31/17

Sources: Bloomberg, SSI internal research

In sum, we believe convertibles are competitively positioned for attractive returns on a relative and absolute basis in 2018.

Our return expectation for the convert market is derived from expected price moves in the underlying equities, the current income of the asset class and expectations regarding the impact of moves in credit spreads, rates and market volatility. While rising rates are likely to be a headwind for equity multiples, improving economic growth prospects and the decisive extinction of deflation risk are likely to act as tailwinds to multiples, by reducing the still higher than normal level of current equity risk premium. The S&P closed 2017 at 20.2X the estimated EPS for the index of $131.8 for 2017. We expect the S&P multiple to moderate to 19.2X due to a slight pickup in pace of rate hikes. Bottom up estimates of S&P earnings currently stand at $153 after the passage of tax reform*, leading to an S&P year end price target of 2938 for a price return of 9.9%, and an 11.8% total return. Between the convertible market delta of approximately 58% and an average gamma of 0.5%, we expect the price return for convertibles to be 8.8%. In addition, we expect 2.9% from current income, a spread widening by 20 bps and rise in rates of 75 bps. Given the low duration of the asset class, the net effect of spread tightening and rate increases is likely to be -2.1% in 2018. We also expect realized and implied volatility in the market to start reverting to its recent mean and to pick up by 5 vol points. Given the vega or sensitivity of the asset class to volatility of 0.26, the volatility pickup should contribute 1.3% to returns. This brings the base case return scenario to 10.9% for convertibles in 2018:

Convertibles[1]: 2018 Expected Returns	
Convertibles Total Expected Returns	10.9%
Total Expected Return Capture vs. Equity Market[2]	93%

[1]ICE BofA ML All Us Convertibles Index (VXA0) [2]S&P 500 Index

Please note: Using analyst estimates on the underlying equities of VXA0 convertibles, convertible earnings are expected to rise by nearly +20% in 2018, compared with only +16% for the S&P 500; with a similar estimated earnings multiple, we expect convertible multiples to contract alongside those of the S&P

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- Founded in 1973
- 13 Investment Professionals
- 100% Employee Owned
- $1.6 Billion AUM
- 35 Employees

Notes on Forward Return Calculations:
The calculations and comparisons used reflect the belief or investment thesis of the portfolio management team on a prospective basis, and as such, due to various risks and uncertainties, actual events or projected results may differ materially from those reflected in the document.

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Notes on Expected Returns*		
S&P price 12/31/17	$2,673.6	
2017 est. S&P Earnings	$131.8	
2018 est. S&P Earnings post-TaxAct	$153.0	
2018 est. S&P Earnings Growth	16.1%	= (est. 2018 earnings / est. 2017 earnings) - 1
2018 est. S&P Earnings Yield	5.7%	= est. 2018 earnings / S&P 2017 price
2017 est. P/E	20.2x	
2018 est. P/E	19.2x	
P/E compression	-5.0%	
S&P est. price 12/31/18	$2,937.60	= (earnings yield * 2018 P/E multiple) * S&P 2017 price
2018 est. S&P price increase	9.9%	= (S&P 2018 price / S&P 2017 price) - 1
2018 est. S&P dividend yield	+ 1.9%	
2018 est. S&P total return	11.8%	= 9.9% S&P price increase + 1.9% S&P dividend
2018 est. Convert Earnings Growth	19.5%	
2017 Convert Market Delta	58%	
2017 Convert Market Gamma	0.4	
2018 est. Avg Market Delta	61%	= [gamma * (earnings growth - P/E compression) / 2] + 2017 delta
2018 est. Convert price increase	8.8%	= (Earnings Growth - P/E compression) * 2018 est. Avg Market Delta
Spread & Rate Effects	-2.1%	= 2.2 duration * (75bps rate rise + 20bps spread expansion)
Vol Effect	1.3%	= 5% pickup in vol * 0.26 vega
2018 est. Convert Income	+ 2.9%	
2018 est. Convert total return	10.9%	= cumulative effect of 8.8% price return, 1.3% vol effect, -2.1% spread & rate effects, and 2.9% income

*Source: SSI internal research

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