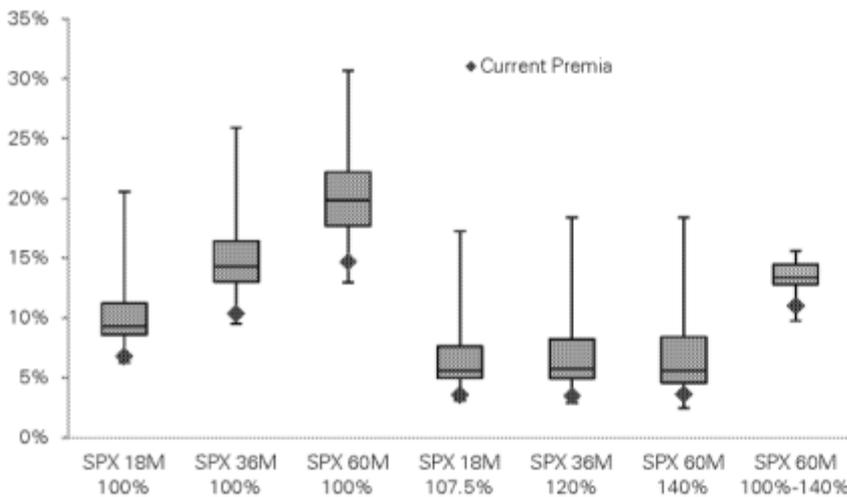




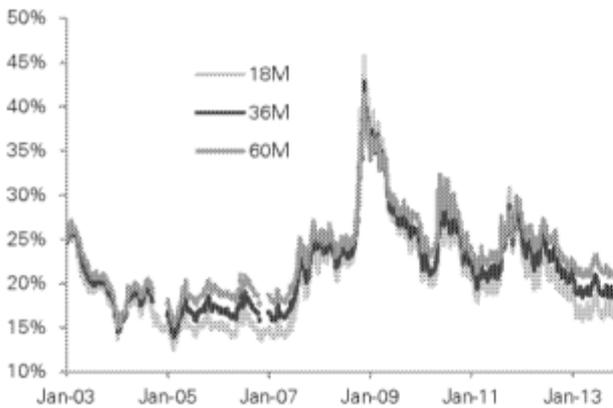
Figure 3: Current premia for long-dated SPX calls and call spreads is low



Source: Deutsche Bank  
 Max-Min lines represent the distance between the maximum and minimum of the call option premia since Jan-2003.  
 Hi-Lo bars represent the distance between the 75th and 25th percentile of the call option premia since Jan-2003.  
 The line between the Hi-Lo bars represents the median call option premia since Jan-2003. Solid dots represent the current level of the indicator.

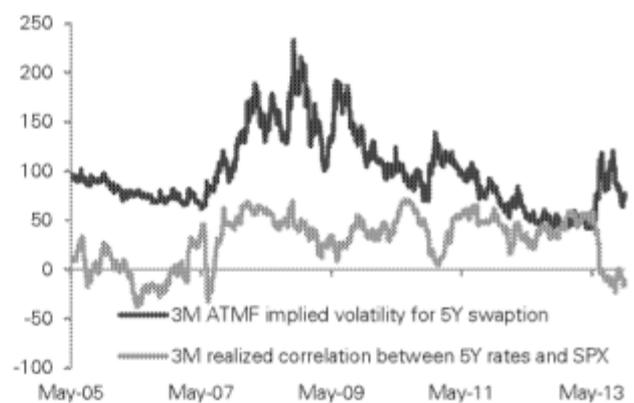
The main driver of the depressed option premium is due to SPX spot implied which has declined sharply throughout 2013 (see Figure 4). Further downward pressure on SPX long-dated call premia is also due to low rate volatility and the decreased correlation between rates and equities (longer maturity equates to greater sensitivity to the volatility of the forward vs. short-dated options, see Figure 5).

Figure 4: SPX long-dated ATMS implied vols are near historically low levels...



Source: Deutsche Bank

Figure 5: ...as are rate implied volatility and rate-equity correlations\*



Source: Deutsche Bank, Bloomberg Finance LP  
 \*We show realized correlations as a proxy for implied due to data unavailability

A second effect is due to the SPX forward itself which is materially lower vs. the spot level. This makes the SPX option premia appear low optically. The following equations help understand the drivers of the forward:

$$\text{Forward} = \text{Spot} + \text{Cost of Carry}$$

$$\text{Cost of Carry} = \text{Spot} \times (\text{Interest Rate} - \text{Repo} - \text{Dividend Yield}) \times \text{Time}$$