

# Discounts in the Marketplace

Q4' 2017

In the valuation of closely held companies and securities, two separate valuation discounts are typically considered: the minority interest discount and the lack of marketability discount. Trends in the broader markets often play a role in the level and direction of these discounts.

## Market Overview

Despite a year consisting of commodity market volatility, worldwide currency concerns, interest rate adjustments, a growing threat of international violence, and political uncertainty, the S&P 500 realized a 19.42% increase in the twelve months ending December 31, 2017 to a closing price of 2,673.61. In the fixed income markets, the 10 and 30 year treasuries generally decreased over the past year to closes of 2.40% and 2.74%, respectively, as of December 31, 2017. 3-month LIBOR increased from 0.998% at the end of 2016 to 1.694% as of December 31, 2017, and the United States prime rate increased by 75 basis points to 4.50% over the same period. The Moody's seasoned Baa corporate bond yield decreased from 4.73% as of December 31, 2016 to 4.17% as of December 31, 2017. The price of crude oil increased by approximately 12.5% over the last twelve months to \$60.42/barrel at December 31, 2017.

Short-term, mid-term and long-term Applicable Federal Rates (AFR) have increased since September 30, 2017. AFR data are presented later herein.

## Minority Interest Discount Indications – Investment/Real Estate Companies\*

| Summary of Median Discounts for the Week Ended Friday, December 29, 2017<br>(Negative values indicate discounts; positive values indicate premiums) |  |                                      |
|---|--|--------------------------------------|
| Equity Closed-End Invst. Companies  | Debt Closed-End Invst. Companies         | Real Estate Limited Partnerships (a) |
| Domestic Equity ..... -4.4%   | National Muni ..... -4.8%                | Overall Median ..... -16.4%          |
| International Equity ..... -10.8%   | Single State Muni ..... -8.2%            | 10th Percentile ..... -4.1%          |
| Global Equity ..... -6.1%   | Domestic Corp. (Invst. Grade) .... -4.7% | 90th Percentile ..... -36.9%         |
| Real Estate Equity ..... -6.8%  | Domestic Corp. (Non-IG) ..... -7.6%      | Non-Distributing ..... -36.7%        |
| Natural Resource Equity ..... -4.4%   | Global Bonds ..... -9.2%                 | Low-Distributing ..... -17.0%        |
| Preferred Equity ..... -0.5%  | Mortgage/Govt. Agency ..... -0.6%        | High-Distributing ..... -12.6%       |

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| Domestic Equity ..... -4.1%  | National Muni ..... -2.7%                | Overall Median ..... -16.4%          |
| International Equity ..... -10.4%  | Single State Muni ..... -5.1%            | 10th Percentile ..... -4.1%          |
| Global Equity ..... -5.7%  | Domestic Corp. (Invst. Grade) .... -4.9% | 90th Percentile ..... -36.9%         |
| Real Estate Equity ..... -6.6%   | Domestic Corp. (Non-IG) ..... -6.3%      | Non-Distributing ..... -36.7%        |
| Natural Resource Equity ..... -2.3%  | Global Bonds ..... -5.2%                 | Low-Distributing ..... -17.0%        |
| Preferred Equity ..... 0.6%  | Mortgage/Govt. Agency ..... -3.2%        | High-Distributing ..... -12.6%       |

\*This market data is for informational purposes only, and should not be considered as appropriate for (or reflective of) a particular entity or security without meaningful additional analysis. Also refer to the disclaimer at the end of this report.

Note:

- (a) Includes real estate limited partnerships (“RELPs”) in the 2016 Partnership Profiles Study, which was published in December 2016 and contains pricing data as recent as September 30, 2016. A small portion of the discounts at which these RELPs were trading include an allowance for limited marketability.

## Discount for Lack of Marketability Model

As previously stated, the S&P 500 increased 19.42% in the twelve months ended December 31, 2017. In addition, the VIX (volatility index) decreased from 14.04 as of December 31, 2016 to 11.04 at December 31, 2017. We note that the VIX remains at historically low levels in comparison to years with high stock market volatility (e.g., 2008, 2009). This is indicative of an increase in investor sentiment and a reduction in fear in the markets, as investors are paying less for puts on the S&P 500, a form of insurance. The trend in volatility is notable, as it is one of many key factors when determining a discount for lack of marketability.

For many years, MPI has been a leader in its analysis and interpretation of the Rule 144 private placement market. We have long held that, when applied correctly, this market provides valuable data for purposes of developing a private company lack of marketability discount. Our staff has collected 30 years of transaction data from this market, which is now the basis of a peer reviewed and published proprietary, multivariate regression model. We develop private company discounts for lack of marketability for companies of various shapes and sizes by applying this regression model. Our model includes consideration of the following factors: size as measured by market capitalization, the price-to-book ratio, block size, holding period, stock price volatility, S&P 500 performance, and Treasury bond yields. Our research has found that both company specific factors and market conditions on the date of valuation are critical.

We have found that discounts for lack of marketability vary significantly from company to company. It is not uncommon for small, highly volatile companies to be priced at substantial discounts for lack of marketability. On the other hand, large and more stable companies tend to be priced at lower discounts.

Given this variability, we ask that you contact us for guidance on a specific situation. It is also important to note that, similar to the market in general, discounts tend to vary over time.

For more information on our proprietary discount for lack of marketability study, please contact us or refer to our published study, which can be found on the MPI website.

Applicable Federal Rates (AFR)

| <b>Applicable Federal Rates (AFR) for December 2017</b> |               |                    |                  |                |
|---|---------------|--------------------|------------------|----------------|
| <b>Short-Term</b>                                       |               |                    |                  |                |
|   | <b>Annual</b> | <b>Semi-Annual</b> | <b>Quarterly</b> | <b>Monthly</b> |
| <b>AFR</b>  | 1.52%         | 1.51%              | 1.51%            | 1.51%          |
| <b>110% AFR</b>   | 1.67%         | 1.66%              | 1.66%            | 1.65%          |
| <b>120% AFR</b>   | 1.82%         | 1.81%              | 1.81%            | 1.80%          |
| <b>130% AFR</b>   | 1.97%         | 1.96%              | 1.96%            | 1.95%          |
| <b>Mid-Term</b>   |               |                    |                  |                |
|   | <b>Annual</b> | <b>Semi-Annual</b> | <b>Quarterly</b> | <b>Monthly</b> |
| <b>AFR</b>  | 2.11%         | 2.10%              | 2.09%            | 2.09%          |
| <b>110% AFR</b>   | 2.32%         | 2.31%              | 2.30%            | 2.30%          |
| <b>120% AFR</b>   | 2.54%         | 2.52%              | 2.51%            | 2.51%          |
| <b>130% AFR</b>   | 2.75%         | 2.73%              | 2.72%            | 2.71%          |
| <b>150% AFR</b>   | 3.17%         | 3.15%              | 3.14%            | 3.13%          |
| <b>175% AFT</b>   | 3.71%         | 3.68%              | 3.66%            | 3.65%          |
| <b>Long-Term</b>  |               |                    |                  |                |
|   | <b>Annual</b> | <b>Semi-Annual</b> | <b>Quarterly</b> | <b>Monthly</b> |
| <b>AFR</b>  | 2.64%         | 2.62%              | 2.61%            | 2.61%          |
| <b>110% AFR</b>   | 2.90%         | 2.88%              | 2.87%            | 2.86%          |
| <b>120% AFR</b>   | 3.16%         | 3.14%              | 3.13%            | 3.12%          |
| <b>130% AFR</b>   | 3.44%         | 3.41%              | 3.40%            | 3.39%          |

| <b>Adjusted AFR for December 2017</b> |               |                    |                  |                |
|---------------------------------------|---------------|--------------------|------------------|----------------|
|                                       | <b>Annual</b> | <b>Semi-Annual</b> | <b>Quarterly</b> | <b>Monthly</b> |
| <b>Short-term</b>                     | 1.12%         | 1.12%              | 1.12%            | 1.12%          |
| <b>Mid-term</b>                       | 1.57%         | 1.56%              | 1.56%            | 1.55%          |
| <b>Long-term</b>                      | 1.96%         | 1.95%              | 1.95%            | 1.94%          |

Source: <http://apps.irs.gov/app/picklist/list/federalRates.html>

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