Using Illiquidity Premiums on the Risk Free Asset to Measure Illiquidity Discounts

Date: January 23, 2012 10:34 AM
Author: Front Desk
Source: BV Insight Blog
Permalink: http://bit.ly/AqKNj8

Valuation practitioners commonly rely upon restricted stock studies to estimate the discount for lack of marketability. Restricted stock studies, however, are subject to several problems that make estimating reliable marketability discounts problematic. For example, recent research suggests that restricted stock discounts are not entirely related to lack of marketability (see Robert Comment's article entitled "A Skeptical Restricted Stock Study"). Furthermore, the companies underlying restricted stock study transactions are usually unprofitable, non-dividing paying firms in very risky sectors of the U.S. economy. Moreover, the most relevant restricted stock study transactions (i.e. 2-year holding period transactions) are dated and do not provide timely market evidence of marketability discounts. These factors, among others, create problems for valuation practitioners who rely upon this data to quantify discounts. Consequently, valuation practitioners need alternative and more reliable methods to quantify the discount for lack of marketability.

One alternative method is to compare the yield of non-brokered certificates of deposits to the yield of on-the-run U.S. treasury bonds of the same maturity. A non-brokered certificate of deposit is a bank issued fixed income instrument that is federally insured (up to $250,000) by the U.S. Government. This investment is risk-free but, because of prepayment penalties and the absence of a liquid market, is relatively illiquid. On-the-run U.S. Treasury Bonds, however, trade in one of the most liquid markets in the world. Therefore, the primary difference between non-brokered certificates of deposit and on-the-run U.S. Treasury bonds is their liquidity. Consequently, the difference in yield between these two securities provides a market derived benchmark for the additional return demanded for illiquidity.

The chart below summarizes the historical average weekly yield spread between the 5 year certificate of deposit and the 5 year on-the-run U.S. Treasury bond from 1999 through 2011. The yield on the 5 year certificate of deposit is measured by Bankrate.com US 5 Year CD National Avg. (BLOOMBERG: ILSONAVG Index). The yield on the on-the-run U.S. Treasury bond is measured using Bloomberg's Generic United States 5 Year Government Bond Index (BLOOMBERG: GT5 Govt).

As one can see, the yield spread between these two investments has ranged from a negative premium of 0.27% in 1999 to a positive premium of 1.02% in 2008. The average premium over the entire period (not shown) was 0.41%, which suggests that market participants demand an additional 0.41% per annum to invest in comparable, but illiquid, 5 year certificates of deposit relative to liquid 5 year U.S. Treasury obligations. The table below summarizes the historical yields on U.S. Treasury Bonds and Certificates of Deposit, the yield spread between these two investments, and the relative yield premiums (i.e. yield spread expressed as a percentage of the U.S. Treasury Yield).Several notable characteristics can be identified from the chart and table above. First and foremost, the illiquidity premium demanded by the marketplace fluctuates over time. More importantly, the illiquidity premium appears to correlate highly with macroeconomic conditions. For example, the illiquidity premiums were very low prior to the 2000 and 2008 recessions. Those premiums, however, rose rapidly during the recessions, and started to decline during the expansionary/recovery periods. This is an important observation because it suggests that the illiquidity premium is not static, but rather time specific and macro-dependent. Consequently, the best evidence of marketability discounts must take into consideration current macroeconomic variables.Using the Illiquidity Premium from the Risk-Free Asset to Estimate Illiquidity DiscountsA useful feature of the illiquidity premiums observed from the risk-free asset is that they can be used to develop a illiquidity discounts (via the cost of capital) for a private company. For example suppose we are valuing a firm at year-end 2011 that has a cost of capital (before application of an illiquidity discount) of 20%. We observe that illiquid certificates of deposits are generating a yield of 1.92% vs. 1.50% for comparable U.S. treasury bonds (see table above). This represents a yield spread of 0.42%, which is equivalent to a 28.2% relative yield premium (i.e. 0.42% / 1.50% = 28.2%). Therefore, assuming investors require the same relative return premium on the equity investment, we can quickly compute the equivalent "illiquid" cost of capital for the security as follows:If the firm generated $100 million in free cash flow with a long-term growth rate of 4% we could compute the illiquid value of the security as follows:$100*(1.04)/(.256-.04) = $481.48 million.Notice that the liquid security would have been valued as follows:$100*(1.04)/(.20 – .04) = $650 millionTherefore, the implied illiquidity discount is 25.93%. (i.e. $481.48/$650 – 1 = 25.93%), which is consistent with the illiqudity discounts commonly applied using other valuation analyses. Some of the attractive features of this approach are as follows1. The cost of capital adjustment is time specific and based upon current market data. Therefore, the illiquidity discount obtained from this method should reflect current macroeconomic conditions specific to the valuation date. This is an improvement over restricted stock studies, which are based upon out-dated data2.The methodology provides a market based mechanism to estimate the increment to the discount rate for use in models such as the Quantitative Marketability Discount Model (QMDM). In the QMDM, one of the primary inputs is the "incremental holding

period return." Therefore, using the relative yield premium as of the valuation date, the valuation analyst could estimate a market derived incremental return to add to the base cost of capital in the QMDM.3.The methodology specifically isolates the incremental return demanded by market participants for illiquidity by comparing the yields on two comparable investments that differ primarily in terms of liquidity only. This is an improvement to restricted stock studies which may have other factors contributing to the observed discounts4.The methodology is a cost of capital based model. Therefore, factors such as dividend yield, do not have to be "qualitatively" analyzed, as the dividend yield is explicitly considered by computing the present value of future cash flows. This is an improvement to the restricted stock studies because those underlying companies generally do not pay any dividends. Therefore, unlike restricted stock analysis, a subjective adjustment is not necessary for the dividend yield of the investment.5.The methodology is a relative return model. Therefore, the risk of the underlying security does not have to be directly considered, as the risk is implicitly considered by multiplying the relative return by the security's cost of capital. For example, suppose you have two investments of different risk. One has a liquid return of 10% the other has as liquid return of 20%. The relative return premium observed in the marketplace is 30%. Therefore, the illiquidity premium on the first investment is 3% (i.e. 10%*(30%) = 3%), while the illiquidity premium on the second investment is 6% (i.e. 20%*30% = 6%). As one can see, the illiquidity premium added to each security automatically factors in differences in the underling risk via the cost of capital.The primary unattractive feature of the model is that it is based upon a risk-free investment maturing in 5 years. Therefore, the illiquidity premium demanded on this investment may not be comparable to the illiquidity premium demanded on a common stock investment. This factor is partially addressed by using the relative yield premium, instead of the simple yield spread. However, the assumption that investors would require the same relative return premium maybe unreasonable without further empirical verification. Either way, this methodology provides an alternative method for computing the illiquidity discount.ConclusionThe yield spread on certificates of deposit and U.S. Treasury Bonds can provide useful information for quantifying the illiquidity discount. In particular, by analyzing the relative yield premium (i.e. yield spread expressed as a percentage of U.S. Treasury Bond yield), valuation analysts can compute an equivalent "illiquid" cost of capital for a private business. The underlying assumption is that investors should, at a minimum, require the same relative compensation to invest in an illiquid equity security as they require to invest in an illiquid risk-free asset. This methodology provides an alternative to other illiquidity models such as restricted stock studies. Furthermore, the incremental rate of return obtained from this methodology can be used as model input to other theoretical models, such as the quantitative marketability discount model.