ctic CORPORATE TREASURY INVESTMENT CONSULTING

AUCTION RATE SECURITIES PRICING: OVERPRICED AND OVERDONE?

Apart from simply not having access to their money, corporate holders of illiquid Auction Rate Securities (ARS) face a number of other related challenges and tasks that they didn't bargain for. This white paper will explain two such challenges: Why more obtuse approaches to mark-to-market accounting for ARS can be seen as misleading, and, why sometimes it is very costly when it shouldn't be. This discussion will also describe better valuation approaches and offer guidance as to what should be viewed as a reasonable cost for pricing services.

Determining Fair Market Value for Auction Rate Securities: Getting Useful Fair Market Values at a Fair Price

Mark-to-market accounting for investments of course means that one must first have a market, and the first and greatest obstacle in accounting for changes in market values for ARS is that there is no market. Cast out into the unfamiliar world of third party securities pricing services, corporations often unwittingly rely on distressed sale data, pricing opinion, or obtuse theory rather than more empirical, market-based calculations, and at times they are being asked to pay far more in fees for these services than is reasonable.

Just because pricing might be theoretical, doesn't mean it can't be realistic.

Because nearly all ARS currently do not provide the periodic liquidity that was originally intended through auctions, they must now be treated as long term holdings, or, in effect, long term bond investments. Municipal debt, student loan, and other asset backed ARS have original stated final maturity dates commonly as long as twenty or thirty years or more and lend themselves therefore to discounted cash flow (DCF) pricing, which requires a horizon date, among other calculation factors. Perpetual forms of ARS like auction rate preferred stock shares and some contingent capital ARS require pricing based on an assumed horizon date, often one contrived based on estimates for projected resolutions like redemptions or refinancing or some other "recovery" date.

In applying DCF models, prices are derived by determining the net present value (NPV) of all future cash flows (interest income and redemption proceeds) associated with an investment. As in all NPV calculations, a rate of return (or market yield) must be assumed. For DCF pricing of ARS, one may choose from among a number of available yields. These can include:

- Market yields on risk-free Treasury securities with identical or nearly identical maturity dates, plus a quantifiable quality or credit-risk spread (additional yield over and above the Treasury rate)
- Implied or forward rates derived from a forward yield curve array for Treasuries or other bond types
- Market yields for similar bonds (e.g., high-grade municipal or corporate bonds) with identical or nearly identical maturity dates

One of these choices is better than the others when it comes to attaining as close a market price as is possible in the absence of any real trading.

The use of Treasury benchmark returns plus a quality spread can triangulate an admissible price for representational purposes, but it ignores the current and real-world market differences between and among treasuries, various quality corporate bonds, and municipal bonds.

Each such bond type trades in its own market which itself involves peculiar and endemic forces. One example is the role of supply and demand. In a time such as today when the Treasury market is flooded with new issue supply, longer Treasury rates can be seen as artificially higher than might be their more natural rate in periods of manageable supply. Similarly, changes in tax legislation can impact municipal bond yields to a greater degree than taxable bond forms, including Treasuries. Corporate bonds may bear rates relative to treasuries in a pattern that is entirely incongruent with the relationship that other bond classes may bear, or even among differing corporate bond issuer types.

More simply, using treasuries-plus-a-spread for market yields in the DCF calculation introduces the value of apples where oranges need pricing.

Should a Model T have been worth more than it was in 1920 because one day cars would go faster?

The use of implied or forward rates drawn from a forward yield curve can be equally if not more spurious than Treasury-based benchmarks, whether used to predict market yields for DCF pricing or to project fail rates on failed-auction ARS.

Forward rates are intended to reflect what current rates imply about expectations for future rates. To illustrate, let's assume a two-year yield curve that plots rates against their respective maturity dates. At the one-year point on this curve, the rate is 6% and at two years the yield is 7%. If one invests $100 in the two-year bond at 7%, they will have $114.49 after two years ($100 + 7% = $107 after one year; $107 + 7% = $114.49 at year two.) For an investor who buys the one-year bond at 6%, forward analysis reveals the necessary rate for year two in order to get the same result, as in, $106 + 8.00% = $114.49 (or, $114.49 ÷ 106 = 1.08.) Thus, the forward rate analysis would imply, based on current rate structure, that one year hence, rates for one year bonds should be 8%.

Forward yield curves are based upon what the current array of market interest rates across the full maturity spectrum (the "spot" yield curve) implies about the future level of interest rates.[1] The important notion here is that the forward yield curve only *implies* what future rates *might* be, but such future rates rarely comport to these predictions in such a way that the putative forward rates turn out to be usefully accurate.[2]

The most reliable explanation for the fact that longer term rates tend to be higher than short term rates is simply because investors demand greater returns to guard against the time-risk element of fixed income investing. To assume that short term investors should ultimately receive an identical rate of interest as long term investors over time, as forward rate analysis does, is to nullify the risk/reward theory upon which nearly all investing is based. Further, and more to the point, market prices in actively traded and normally functioning markets do not make use of forward rates but are based on spot rates. To make use of forward rates for pricing is to ignore the basic principle that market prices are always calculated using market or spot yields that potential buyers of bonds are demanding at the time of pricing. And the truest price of any asset is that price that buyers are willing to pay today, not the price they would pay in the future.

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[1] When the spot yield curve is upwardly sloping, forward curve analysis predicts that rates will rise, as they theoretically must in order to compensate shorter term investors over time for higher rates paid to longer term investors. Conversely, a downwardly sloping or inverted yield curve predicts falling rates as higher short rates must be normalized to parity with lower long term rates. A flat yield curve indicates an expectation for no change in rates.

[2] Forward rate theory is based upon the "expectation hypothesis" for interest rates, the logical conclusion of which is that rates rise continually. The history of interest rates shows that this hypothesis is false for the majority of time.

Forward rates are an unreliable predictor of future short term rates

In pricing ARS, there are two rates, or yields, that must be estimated: The market yield to maturity (this is the discounting factor in the DCF model) and the stated interest rate. For ARS, the stated interest rate can only be what is or can reasonably be expected to be the fail rate or the maximum rate, whichever pertains at a failed auction according to the fail rate formula found in the prospectus or official statement. Because a potential investor (the real world's pricing agent) in a security that has the same features and characteristics as a failed-auction ARS will want to have some sense of what the expected stated interest rate (or coupon rate) will be, some estimate of this rate must be reached when pricing ARS. The use of forward rates to predict fail rates or maximum rates is highly unreliable in today's circumstances and of little value in most times for two reasons.

Short-term interest rate measures such as those used to set fail rates at failed auctions are usually either LIBOR or indices such as a commercial paper index or the SIFMA index. All such rates or indices have exhibited extraordinary volatility in the last eighteen months and are at this time at all-time historical and rather artificial lows. This is largely because of sovereign government intervention in the money markets, both in the U.S. and abroad. Should government support be relaxed or eliminated, these rates would instantaneously move back to higher levels, more reflective of their true corporate or sovereign credit risk features, rather than fulfilling the prophecy of forward rates. Should expectations for inflation (or deflation) turn higher at the same time that central banks cease credit interventions, even greater rate dynamism can be expected.

The second reason that forward rates can be less than useful in the ARS pricing exercise is due to the fact that forward analysis has lesser application in the short term money markets, where the forward curve of short term rates (one year and less) must be derived from spot rates that can and are regularly influenced by the hand of central bank policy manipulation.

Forward curves that span, say, one to thirty year maturity points may well and on occasion accurately infer future rates because the forward analysis relies on the market's expectation based on the term structure of spot rates that prevail. Such spot curves are the natural market result of natural market factors and forces, i.e., inflation expectations, supply of and demand for investment securities, tax law changes, corporate earnings health, etc. On the other hand, money market rates (commercial paper, T-bills, LIBOR, Fed Funds, *et al*) are much more influenced by central bank policy and the simple demand for cash.

When the U.S. Fed decides it is in the best interest of the U.S. economy to slow or stimulate activity, they unilaterally decide to set their target for Fed Funds (the basic cost for banks of U.S. dollars) at whatever level they deem necessary. Increases or decreases of fifty or seventy-five basis points in one action are not uncommon and can quickly negate the view that forward rates might have implied about the direction of money market rates, and serial central bank actions can dramatically alter outcomes. Here's how it happened recently:

One year ago (March, 2008), six month LIBOR stood at 4.39%. At the same time, twelve month LIBOR was also at 4.39%. A forward curve analysis of this condition would predict that six months later, rates for six month LIBOR would be the same, as there was no requirement to compensate for a higher or lower one year rate.

As it turned out, in September 2008, six month LIBOR was a meaningfully 77 basis points higher than the forward 4.39% prediction – it was 5.16%. More telling is the fact that at that same later date, one year LIBOR was at 5.32%. This coupled with six month LIBOR at 5.16% forecasted a six-month rate for today (March, 2009) of 5.48%. Today's rate for six month LIBOR: 1.89%.

Doing the best that you can

One of the primary motives for the requirements of FAS 115, 115-1, and 157 is to provide to stakeholders as accurate a depiction of the condition of a corporate investor's holdings as can be achieved. The goal for reporting entities and their audit partners should be to strike a valuation as near to the price result as that which a normally functioning market would produce. An estimate of a failed-auction ARS's stated interest rate is best based on a sampling of historical auction and fail rates and analysis that produces a conservative rate data point. The market yield that best approximates what a market maker (bond trader) or potential investor would demand for a bond-like instrument is the current spot market yield for a highly similar or nearly identical security that trades in a fully-functioning and active secondary market.

Be sure that your pricing agent is making use of these reality-based parameters and not adding an element of speculation to an already tenuous exercise by employing incongruent yield data or predictions of the future, as with forward rates. The difference in these choices can be seen as the difference between Level 2 and Level 3 inputs under FAS 157 and stakeholders will take greater assurance from Level 2 data than from Level 3.

The Price of Pricing: A Seller's Market

While the discussion above might seem to indicate that ARS pricing is a highly complex and esoteric research and calculation exercise, for trained professionals it isn't. Nevertheless, and perhaps for these mythical reasons, it seems that some price providers are inclined to impose rather large costs on customers and, in the view of some, these costs are overstated.

A skilled and experienced market professional will accomplish this work readily and will bring to the assignment four basic tools:

- Experience in and fortitude for reading prospectuses
- Ability to set a reasonable and defensible recovery (horizon) date, in the absence of a stated final maturity date
- A conservative method for making an estimate of the stated interest rate based on auction rate and fail rate history
- Market insight that allows the pricing agent to readily identify the appropriate reference market and reference security for benchmark yields

For the untrained, any one of these tasks can be daunting. The last can be challenging for those without direct market experience of the kind associated with bond traders, portfolio managers, and fixed income research analysts. But for an experienced and highly skilled pricing agent, hand-pricing securities numbering between five and twenty individual holdings, the cost should not exceed about $5,000 per pricing event (usually once a quarter) and can often be well less than this amount. Quarterly charges for pricing that exceed $10,000 should raise questions. And if your pricing result relies at all on matrix pricing, there should be significant discounting of fees.