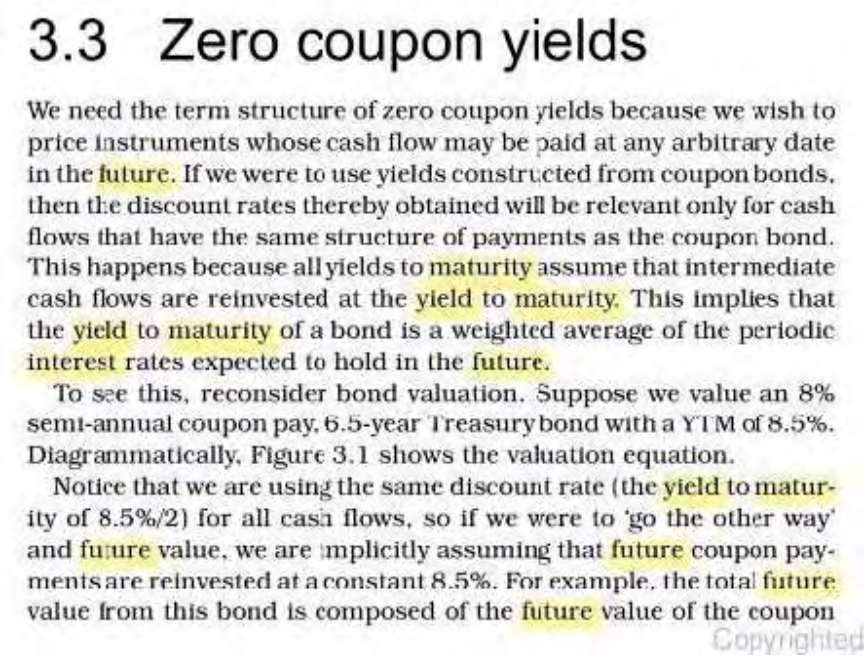
Pricing and hedging interest and credit risk sensitive instruments

By Frank Skinner

http://books.google.com/books?id=2OAkxj2hAkgC&pg=PA52&dq=yield+to+maturity+future+interest&ei=M31YSpjcCI7okATNl4GuBw&ie=ISO-8859-1&output=html



3.3 Zero coupon yields

We need the term structure of zero coupon yields because we wish to price instruments whose cash flow may be paid at any arbitrary date in the future. If we were to use yields constructed from coupon bonds, then the discount rates thereby obtained will be relevant only for cash flows that have the same structure of payments as the coupon bond. This happens because all yields to maturity assume that intermediate cash flows are reinvested at the yield to maturity. This implies that the yield to maturity of a bond is a weighted average of the periodic interest rates expected to hold in the future.

To see this, reconsider bond valuation. Suppose we value an 8% semi-annual coupon pay, 6.5-year Treasury bond with a YTM of 8.5%. Diagrammatically, Figure 3.1 shows the valuation equation.

Notice that we are using the same discount rate (the yield to maturity of 8.5%/2) for all cash flows, so if we were to 'go the other way' and future value, we are implicitly assuming that future coupon payments are reinvested at a constant 8.5%. For example, the total future value from this bond is composed of the future value of the coupon

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Asked yield =Yield to maturity =Internal rate of return =Discounted yield to maturity of a bond over a fixed investment period. <<***Asked yield*** =(Coupon income–Asked premium) / ASKED PRICE>>. ***Asked yield*** hence is a function of the ***Asked*** (or BID) ***price***. As the bond is only cashed out at maturity, the ***ASKED PRICE*** reflects/discounts the future income that is only paid at maturity. Hence the "***ASK***" or "***BID***" premium. **The consequence however is that *Asked yield* constitutes a *present/discounted value of a future interest*** (eg the gross bond payout). A ***2nd distinction*** is that ***Asked yield*** as consequence of its making as ***yield to maturity,*** DOES NOT represent a ***recurrent cash flow stream*** in accordance with the mantra of yield maintenance reinvestment protocol.

CEJ/Kartago Inc, July/11 2009

The everything investing book

By Michele Cagan, Brian O'Connell

http://books.google.com/books?id=o9VedDgmyhoC&pg=PT166&dq=ask+yield+future+interest&ei=i3xYSoKSOZuOkQT51sGuBw&ie=ISO-8859-1&output=html

How Are Bonds Priced?

So you want to sell a bond or buy one on the bond market. First, you need to know the latest in bond prices. For this information you can go online, to a financial newspaper such as the *Wall Street Journal* or *Barron's*, or to the financial section of *USA Today* or your local paper. Bond prices do fluctuate, so the price you see quoted may change several times throughout the next business day.

Since there are far too many bonds to list—1.5 million in just the municipal bond market alone—there is no single complete listing. A single listing would not be practical, as many bondholders hang onto their bonds until maturity. Therefore, the listings you will see are benchmarks from which you can determine a fair price. Interest rates play a role on bonds in a broad sense. Fixed-income securities, as a rule, will therefore be affected similarly.

In the bond listings you will find key information for treasury, municipal, corporate, and mortgage bonds. The numbers you will see listed may vary in format from paper to paper, but will essentially they look like the following:

- **Rate 6½ percent:** This is the yield that the bond is paying.
- **Maturity March, 06:** This is the date of final maturity—in this case, March of 2006.
- **Bid 103:12:** This means a buyer is offering a bid of $1033.75 on a $1,000 bond, or a profit of just over 3 percent to the bondholder who bought the bond at a par, or face value, of $1,000. The numbers before the colon represent the percent of par value of the bond (in $1,030). This math works the same way for both the bid and ask.
- **Ask 104.0:** This is the seller's lowest asking price, in this case $1040.00.

You might also see an Ask/Yield entry, which gives you the bond's yield to maturity based on the asking price. This means how much the buyer will earn on the investment based on interest rate, plus how much he or she paid for the bond. A buyer who bought the bond at more than the face value will receive a lower yield-to-maturity value. The opposite is true if the bond was purchased at a discount, which means it was purchased for less than par.

"RATE 61/2 percent: This is the YIELD that the bond is paying".

Therefore the listings you will see are benchmarks from which you can determine a **fair** price (…***fair meaning future interest discounted to a present value***). Interest rates play a role on bonds in a broad sense. Fixed-income securities, as a rule, will therefore be affected similarly. *"You may also ASK/YIELD entry, which gives you the bond's yield to maturity based on the **asking** price. This means how much the buyer will earn on the investment based on interest rate, PLUS HOW MUCH he/she PAID FOR THE BOND".*

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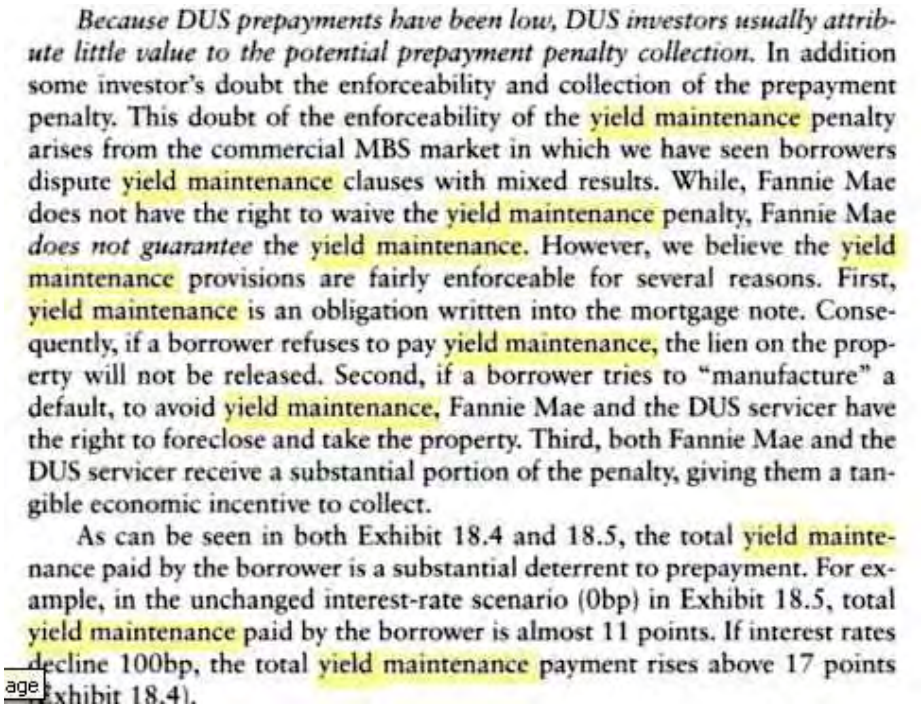
Salomon Smith Barney guide to mortgage-backed and asset-backed securities

By Lakhbir (*2000 edition*)

http://books.google.com/books?id=8NqyIhxktQAC&pg=PA484&lpg=PA482&ots=MkvEfp1dG4&dq=Yield+Maintenance+Period&ie=ISO-8859-1&output=html



Because DUS prepayments have been low, DUS investors usually attribute little value to the potential prepayment penalty collection. In addition some investor's doubt the enforceability and collection of the prepayment penalty. This doubt of the enforceability of the yield maintenance penalty arises from the commercial MBS market in which we have seen borrowers dispute yield maintenance clauses with mixed results. While, Fannie Mae does not have the right to waive the yield maintenance penalty, Fannie Mae *does not guarantee* the yield maintenance. However, we believe the yield maintenance provisions are fairly enforceable for several reasons. First, yield maintenance is an obligation written into the mortgage note. Consequently, if a borrower refuses to pay yield maintenance, the lien on the property will not be released. Second, if a borrower tries to "manufacture" a default, to avoid yield maintenance, Fannie Mae and the DUS servicer have the right to foreclose and take the property. Third, both Fannie Mae and the DUS servicer receive a substantial portion of the penalty, giving them a tangible economic incentive to collect.

As can be seen in both Exhibit 18.4 and 18.5, the total yield maintenance paid by the borrower is a substantial deterrent to prepayment. For example, in the unchanged interest-rate scenario (0bp) in Exhibit 18.5, total yield maintenance paid by the borrower is almost 11 points. If interest rates decline 100bp, the total yield maintenance payment rises above 17 points (Exhibit 18.4).

Because DUS prepayments have been ***traditionally low***, DUS investors usually attribute little value to the potential prepayment penalty collection. In addition some investors doubt the enforceability of the yield maintenance prepayment penalty. However we believe the yield maintenance provisions (*revised….*) are fairly enforceable for several reasons. ***First***, yield maintenance is an obligation written into the mortgage note. ***Second*** if a borrower tries to "manufacture" a default to avoid yield maintenance, Fannie Mae & the DUS servicer have the right to foreclose & take the property.

THIRD, both Fannie Mae & the DUS servicer receive a substantial portion of the penalty, giving then a tangible economic incentive to collect *(Fclose).*

As can be seen in both Exhibits 18.4 & 18.5, the total yield maintenance paid by the borrower is a substantial deterrent to prepayment. For example, in the ***unchanged interest rate scenario*** *in Exhibit 18.5, total yield maintenance is almost* ***11 points****. If interest rates* ***decline 100bp****, the total yield maintenance payment rises above* ***17 points*** *(Exhibit 18.4).*

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The handbook of non-agency mortgage-backed securities

By Frank J Fabozzi, Ph.D., CFA, CPA, Frank J. Fabozzi, Chuck Ramsey, Michael Marz

http://books.google.com/books?id=bz9PnOBMgFQC&pg=PA389&lpg=PA388&ots=re7_Qmlw8R&dq=yield-maintenance+prepayment++%E2%80%9Cflat%E2%80%9D+Treasuries&ie=ISO-8859-1&output=html

Yield Maintenance Agreement

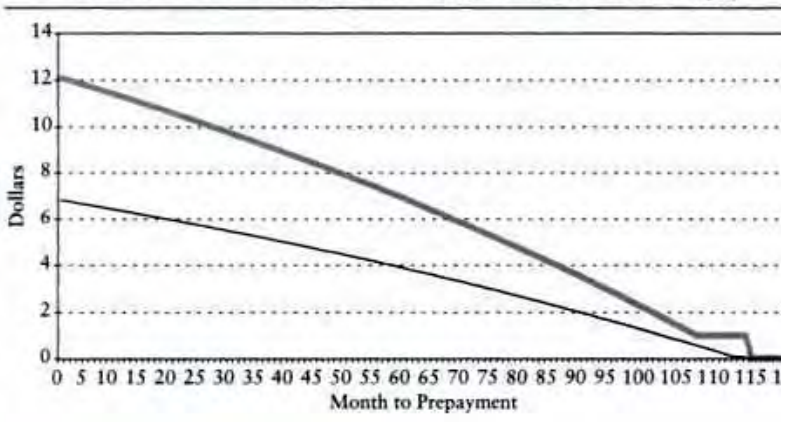
The yield maintenance penalty is designed to compensate the lender for the early retirement of principal. If prevailing interest rates are lower than when the loan was originated, prepayment will cause the investor to reinvest at a lower rate and lose interest income. The yield maintenance penalty calculates the present value of this lost income, and imposes this amount as a prepayment disincentive to the borrower and protection to the investor. If current interest rates are higher than when the loan was originated, there is generally no penalty and the investor is not worse off because he can reinvest at higher rates. In many cases, the yield maintenance penalty equals the present value of the future cash flows of the commercial loan discounted by the yield of the Treasury with an average life equal to the remaining term of the commercial loan. In this case yield maintenance is truly a prepayment penalty since the lender or investor receives more than the present value of the lost income.

*In may cases the yield maintenance penalty equals the present value of the **future cash** flows of the commercial loan **discounted by the yield of the Treasury** with an average life equal to the remaining term of the commercial loan. In this case the yield maintenance is **truly a prepayment penalty since the lender OR investor receives more than the present value of the lost income**.*

Salomon Smith Barney guide to mortgage-backed and asset-backed securities

http://books.google.com/books?id=8NqyIhxktQAC&pg=PA484&lpg=PA482&ots=MkvEfp1dG4&dq= Yield+Maintenance+Period&ie=ISO-8859-1&output=html

EXHIBIT 18.4 Yield Maintenance Values versus Month of Prepay



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