Yields, Swaps, & Corporate Finance
Financing Tactics Teaching with Bloomberg

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University of Delaware

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In this web version of the slides, you can click on the outline at the top right to navigate. You can zoom in on any graphic to examine it in more detail.
Gratitude

Thanks, Rich, for our Conference.

Thanks to all of you for the opportunity to show you some of my teaching ideas.
The teaching application I have to share is from an undergraduate capstone course, “Advanced Corporate Finance.” As a capstone, the point is to integrate the students’ prior learning and send them on their way to apply it. Especially, the course links financial markets to corporate finance applications. This application specifically links yields and interest rates to swaps to corporate financing opportunities.
Outline

1. Teaching thoughts
2. Yield curves
3. Swap pricing
   - Swap Manager intro
   - The value of fair value
4. Corporate finance
   - Benchmarking borrowing costs
   - Application to fixed rate loans
5. More teaching thoughts
Thoughts on a teaching approach

- Never miss the chance to reinforce and link the basics to practice; “Everything I needed to know I learned in…”
  - Example: Yield curves poster—assigned as pre-work, review in a prior class or podcast
- Bloomberg analytics apps build finance concepts into practical form, e.g., as in Swap Manager for swap pricing
  - The details can be a bit intense, but also open doors for extended study later
- Markets solve problems...interest rate and swap markets solve corporate finance problems
  - Market information is of practical help even for those who may never transact in the specific market
The big picture of yield curves...

... reinforcing and extending with little pictures: see paper poster

... can't use swaps unless can use interest rate reasoning

Yields, Swaps, & Corp Fin
Paul Laux

Teaching thoughts

Yield curves

Swap pricing

Corporate finance

More teaching thoughts
Next: Bloomberg Swap Manager

Start with 5-year plain-vanilla interest rate swap.

Type SWPM <Go> to enter Bloomberg's "Swap Manager" facility. Pricing rooted in present values of cash flows forecasted using OIS swap rates as the basis for discount rates and forecasting cash flows based on cash/futures interest rates and yield curves. Three screen regions (red boxes) show each counterparty (leg) details and market pricing.

Zero premium indicates semiannual USD fixed coupon at 1.778% pa over 5 years is market-value-equivalent to quarterly USD LIBOR floating (recently at 0.263% pa).
Cross-currency basis swaps
A basis for making cost of finance comparisons across currencies

SWPM can also value cross-currency basis swaps (float-float swaps across two currencies). Use PRODUCTS pull-down menu to chose this swap.

Quarterly- reset quarterly-pay 5-year x-crvncy basis swap across USD-EUR has zero premium for deal to receive USD LIBOR and pay EUR LIBOR minus a 23 b spread. Market conditions are USD LIBOR at 26.310 bp and EUR LIBOR at 22.6bp pa.

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<tr>
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<td><strong>MV</strong></td>
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<td><strong>Premium</strong></td>
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**Market**
- **Descending Curve**: 42 Bid USD OIS Swaps
- **Forward Curve**: 23 Bid USD Bloomberg Curve
- **Curve Date**: 08/19/2013
- **Valuation**: 08/21/2013
- **Currency**: USD
- **FX Rate**: 1.335200

**Valuation**
- **Principal**: 0.00
- **Accrued**: 0.00
- **Market Value**: 0.00
- **Calculate**: Premium
- **Premium**: 0.00000
- **BR01**: EUR Basis Swaps
- **Eur**: -5,029.46
- **DV01**: 0.00
- **Gamma (1bp)**: 0.00
This is useful info...and not only for swap counterparties

- **Usefulness:** If I’m a treasurer with a borrowing need, this analysis tells me what interest rate in someone else’s currency is a good deal in my currency
- **Claim:** Borrowing five years floating at semiannual USD LIBOR is the same as cost of financing as borrowing five years floating at quarterly EUR LIBOR minus 23 bp
- **Evidence for claim:** One can be swapped into the other, with zero premium paid/received...a zero NPV trade
Swap manager is flexible…

… to deal with various deals. Here is an annual pay swap.

Use pull-downs to change reset and pay freq to "Annual".

At annual reset and pay frequency, the -23 bp spread results in an "off-market" premium swap, with a positive market value of 0.5955 bp, i.e. $5954 per $10 million of notional principal.
The fair-value annual swap

Ask SWPM to calculate EUR LIBOR spread for zero premium. The at-market swap has a spread of -21.81 bp pa. Comparing to the quarterly EUR LIBOR case, increasing the rate paid to the EUR LIBOR leg a little reduces the PV of the deal to the USD LIBOR paying leg, so it is no longer positive.
Behind the scenes...
Curves, cash flows, and valuation scenarios are on the SWPM tabs
BB help docs provide pricing and key-punch details

... green help key explains a lot of the finance I am skipping over
What’s it got to do with corp fin?

If I’m a treasurer with a borrowing need, this analysis can tell us what interest rate in someone else’s currency is a good deal in my currency.

Type XCF, for pictorial cross-currency basis swap premium analysis. Choose single currency analysis from Views pulldown, EUR (vs USD LIBOR) and 5 year term. Note results show spreads for a zero premium at various dates (including Today). Note this is bid view, i.e., the leg receives USD LIBOR.

Recall -23 bp is same spread we say with quarterly reset in earlier detailed analysis---numbers here are result of same analysis.
USD vs EUR LIBOR floating rates

A lower EUR rate is PV-equivalent to a higher USD rate. Differential level at 22-23 bp for maturities of 2+ years; was 45-ish bp last year.

Same analysis (XCF <Go>), but now choose more maturities and mid-point quotes. We are moving toward a full comparison of financing opportunities in dollars and euros, from the point of view of a US based treasurer. The x-currency basis swap market tells us what spread (EUR LIBOR differential vs USD LIBOR) would make for an at-market swap today---thereby telling us what would be an at-market deal comparison on floating rate loans.

Today's market is the rightmost set of bars, with history to the left.

Today's market, for various maturities
Can view info in various formats...  
... to answer various questions; e.g., a yield curve view helps treasurer evaluate floating rate loan comparisons of various terms
Analyze x-crnncy fixed rates too
... by snapping on same-currency fixed-for-floating swap to each leg
... remember, swap manager prices those too

Here is the USD side of the analysis. We have seen both these SWPM screens before. On left is a USD fixed-for-floating swap. On right is a USD-EUR LIBOR floating-floating swap (cross-currency basis swap).

1.78% fixed is PV-equivalent to USD LIBOR floating (i.e., with timing details as shown).

And USD LIBOR floating is PV-equivalent to EUR LIBOR - 23 bp. So if treasurer with a 1.77% fixed USD borrowing opportunity can beat EUR LIBOR - 23 bp, it is a good deal (in PV terms; appropriate-for-the-use is a different question). To compare to a fixed rate EUR loan, snap a EUR fixed-for-floating swap onto this analysis.
Not a fantasy

... research has established that searching for good funding opportunities this way is profitable for AA-rated credits


Foreign currency-denominated borrowing in the absence of operating incentives

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Abstract

It is well known that corporations issue foreign currency-denominated debt to hedge foreign currency cash flows with offsetting interest payments. We test an alternative “opportunistic” motive for foreign currency-denominated borrowing. We do so by constructing a comprehensive sample of foreign currency-denominated bonds issued by sovereign government and agency issuers with no foreign currency cash flows or foreign operations. We find strong and consistent evidence that the borrowers in our sample consider cross-currency differences in covered and uncovered interest yields in choosing the currency in which to denominate their international debt. We estimate the average gains to opportunistic covered yield borrowing to be 4 to 18 basis points. Interestingly, we also find that the average bond offering in our sample precedes a large and beneficial depreciation of the issue currency over the course of the following year. These results support what has been a frequent conjecture in the foreign debt market.

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Teaching tactics

• This sort of thing works best hands-on—but pound the points, as students will want to lose the forest for the trees
• My favorite routine: See one, do one, teach one
• Force more than is comfortable: Detailed, graphical briefing books; recordings; class lab exercises
• Better for depth than breadth; takes a lot of time
The end. Thank you for your time and effort!

That’s all I know about Bloomberg and most of what I know about fixed income.

Questions?