September 1, 2016

Weekly Post:**Risk and Returns of Callable Agency Bonds**

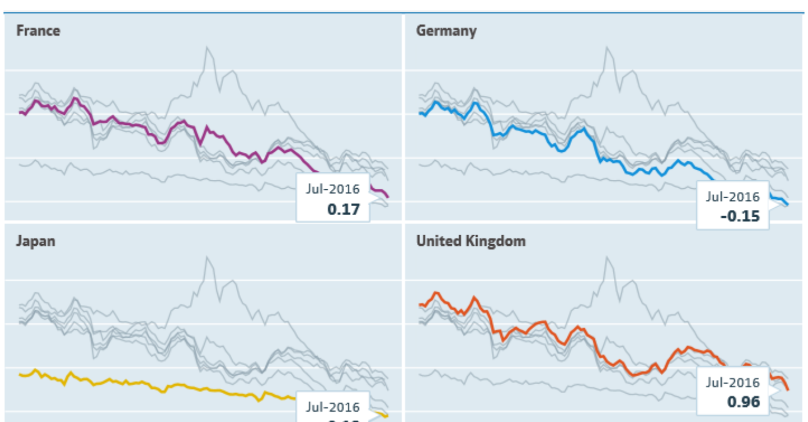
Dear Clients-

The 10 year rate fell in Q2 from 1.82% to 1.46% resulted in a drop in fixed rate residential mortgages weighted average life and its related duration values. There was also an increase in prepayments and more callable bonds called. As the asset's duration falls, the balance sheet becomes more asset sensitive.

I've recently had many discussions with THC clients regarding investment strategies for asset sensitive balance sheets. The questions tend to be centered on what do you do with excess cash or how to leverage your balance to increase earnings. Frequently these discussions seek investment alternatives to loans, especially if loan demand is soft.

Previous posts have dealt with pre-trade analysis of different loan products and funding options to understand their impact on risk and reward. This post discusses investments strategies for those posing the above concerns.

The discussions begin with forming a view of the projected interest rates. Let me first consider the global long rate trends (source: OECD data).



The trends show that major economies' long rates have been fall-ing, and all are lower than the US 10-year rate of 1.46% with Japan and Germany actually having negative rates.

Market Wisdom - Art Hilliard*

Not Just for Residential Loans

Although the discussion has been mainly about residential loans, sales and acquisitions can cover many different asset types. to name a few:

- Auto loans
- Commercial/SBA
- Commercial real estate loans
- Equipmemt loans and leases
- REO
- NPL

An institution can market just about any asset type they have using TFO:

- The system provides for ready made buyers and sellers
- The process is pretty much the same for different asset types with the exception of REO and NPL.
- Banks and credit unions typically are not buyers of REO and NPL , however TFO will be able to facilitate transactions with non-bank buyers

TFO truly is game changing. For the first time, TFO is creating a new market between institutions that gives banks and credit unions automated access to the secondary market for all asset types.

Art Hilliard has been in the mortgage industry for 29 years. He has originated, managed secondary marketing, securitizations and settlements, provided mortgage financial advisory and performed multiple mortgage portfolio sales and acquisitions.He was past president of the Illinois Mortgage Bankers Association.

The state of global economies and interest rates may suggest that there is minimal pressure for the long rate to rise. Given this view of the market, this Post evaluates the risk and returns of investing in bonds when capital market pricing of some bonds differ from this view.

Challenges

- How should I invest my cash given the low interest rates?
- Why would I invest in a long term agency bonds when interest rates can only rise?

Solution

I will use an analysis of a step-up coupon agency bond. Risk Officer ™ Trade Simulation shows the following results for 3130A4RH7 FHLB 1.25% 4/17/2020. The bond is quarterly callable at par. The bond is priced around par. For a bond with remaining life of four years getting 1.25% may not sound exciting. However, using THC cash flow projections based on standard capital market models in deciding when a bond would be called, Risk Officer ™ provides the following cash flow projection. The results show that the bond in fact is expected to be called October this year. If rates rise 50 bpts and 100 bpt, then the bond is expected to be called on 4/17/2017 and 4/17/2018.

Cash Flow:
Scenario: base

#	Date	Cash Flow
1	8/30/2016	0
2	10/17/2016	1,003,125

Cash Flow:
Scenario: u50

#	Date	Cash Flow
1	8/30/2016	0
2	10/17/2016	3,125
3	1/17/2017	3,125
4	4/17/2017	1,003,125

Cash Flow:
Scenario: u100

#	Date	Cash Flow
1	8/30/2016	0
2	10/17/2016	3,125
3	1/17/2017	3,125
4	4/17/2017	3,125
5	7/17/2017	3,750
6	10/17/2017	4,375
7	1/17/2018	5,000
8	4/17/2018	1,005,625

Therefore, if you do not believe that rates can shock up, then the expected life of the bond is probably less than one year. In this case the income of 1.25% seems reasonable.

But there is risk…

Numerical Example

The risk arises primarily from your EVE policy limits. Economic Value Equity (EVE) has to be determined objectively and not based on your view of future interest rates. For that reason, the risk and valuation has to be determined by the "forward curve," which is constructed from the prevailing yield curve. If the yield curve is upward sloping, then the yield curve is projected to rise. In Risk Officer™, you can evaluate the current forward rates under "customized rate" on the homepage. The projected forward rates used in preparing your June cycle are presented below. As you can see, the rates are projected to rise, not remain constant. Hence, the objective view differs from the subjective view.

Index	09/30/16	12/31/16	03/31/17	06/30/17	09/30/17	12/31/17
3mo Treasury	0.422%	0.643%	0.739%	0.854%	0.925%	1.033%
6mo Treasury	0.529%	0.693%	0.796%	0.887%	0.977%	1.086%
1yr Treasury	0.662%	0.791%	0.882%	0.982%	1.062%	1.110%
2yr Treasury	0.867%	0.958%	1.021%	1.084%	1.144%	1.205%
3yr Treasury	0.983%	1.069%	1.136%	1.202%	1.267%	1.332%
5yr Treasury	1.250%	1.329%	1.394%	1.460%	1.527%	1.592%
7yr Treasury	1.506%	1.557%	1.597%	1.637%	1.675%	1.710%
10yr Treasury	1.633%	1.674%	1.706%	1.738%	1.769%	1.798%

Because of this difference, the model valuation does not assume the bond life is short. Furthermore, under rate up shocks, the bond life extends, and % change in value becomes significantly negative. Risk Officer ™ simulates the impact. The results below show that the loss in values are 0.85% and 2.7% under 100 bpt and 200 bpt shocks. That means. the loss accelarates as rates increase. The implication is that your balance sheet becomes more liability sensitive (longer duration) and your EVE % change may become significant under 400 bpts shocks.

base	u50	u100	u200
1,002,946	1,000,226	994,332	975,376

This analysis shows that these structured agency bonds can offer reasonable income if we expect the bonds to be called. And, when your balance sheet duration is low (as discussed in the introduction), then the balance sheet can absorb the increase in interest rate risk exposure under EVE% change.

Conclusion:
An EVE calculation is not based on any subjective view of future interest rates and therefore, you may disagree with the “forward rates.” In these cases, you may consider using structured agency bonds as part of your investment portfolio.

If you have any questions regarding using Value Attribution in your ALM, please do not hesitate to contact THC.

Regards,
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