THOMAS HO COMPANY LTD.

Banking Paradigm Shift: Challenges and Solutions

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Banking Paradigm Shift: Challenges and Solutions

2020 sees community financial institutions at the cross-currents of change: low-interest rates, rising regulatory requirements, changing customer needs due to demographics, and technological progress. In short, banking is confronting a rapid paradigm shift.

Customers, investors, regulators, and stakeholders are demanding transparency and efficiency. The days of the KISS (keep it simple and stupid) convention are over. Can bankers focus primarily on yield to determine lending and funding strategies? How can opportunities be uncovered while maintaining the status quo in banking?

THC is introducing three solutions to respond to the changing times:

- Market Interest Rate Forecast (MIRF): to identify value in balance sheet instruments
- Performance Attribution: to identify opportunities
- Latent Transactional Demand (LTD): to bring unprecedented efficiency to the origination and investing

Each solution challenges the KISS convention in valuation, profit generation, and transacting.

1. Market Interest Rate Forecast (MIRF): Market interest rate distributions are implied from at-the-money and out-of-the-money swaptions, unlike other interest rate forecasting, based on proprietary financial-economic forecasts. This innovation benefits CFIs by (1) projecting distributions of rates at any future date; (2) providing an objective forecast implied by market prices; (3) consistency with the model pricing. If a trader's subjective interest rate forecast view is different from MIRF, the trader can buy/sell using the model analysis – the model rate forecast is consistent with the model pricing.

THC's interest rate model, introduced in 1984, is now responding to negative or low-interest rates and can provide MIRF that can fundamentally change the banking processes.

For "simplicity," investors accept forward or static rates as the rate forecast, even though rate forecasting is a crucial component of any non-fixed rate instrument (FRN). Because of this "simplicity," the practice creates complexity in evaluating an FRN.

> *Consider Pricing an FRN:*
> *Goldman Sachs floating rate corporate note> Cusip 38141GWU4. Coupon formula: 3-month Libor + 75bps with no caps. Maturity: 2/23/23. Price: 100.96 for a discount margin of 46 bps. Current yield 2.29%. rated A3/BBB+*
>
> *Floater Yield Advantage: 20bps.*

The yield of an FRN depends on the expected rate forecast, which determines the interest income. Is there truly an advantage of 20 bp? How do we know without knowing the interest rate forecast?

MIRF has many banking applications; pricing an FRN is only one example.

2. **Performance Attribution**: Currently, bond/loan transactions focus on yield, OAS, total return, or book accounting, keeping the "value measure simple" but failing to uncover the true opportunity set. If you take a look at the return attribution numbers, you will see that there are many risk sources, and the risks overwhelm the OAS numbers. THC's performance attribution highlights the value change; each risk driver has its own characteristics that can be leveraged to propose a trade. "Simplicity" masks opportunities.

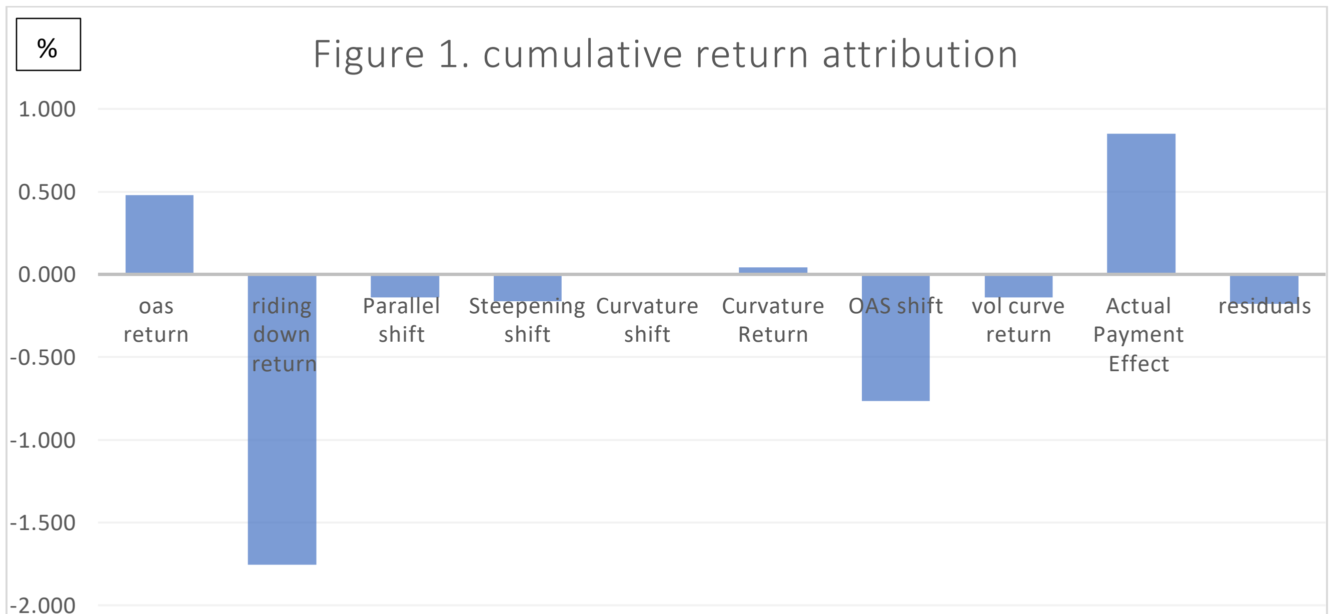
Consider the cumulative returns of a balance sheet over 12 months. The portfolio value lost 1.7%. Figure 1 depicts the attribution below. The results show that the assets and liabilities are well-matched, whereby the returns are not affected by any movements of the yield curve. However, other risks are inherent in the portfolio:

- *Riding Down the Yield Curve: the impact of the yield curve shift relative to the forward curve results in a significant loss.*
- *OAS Shift: the basis risk between the funding curve and the swap curve also results in a significant loss.*
- *Actual Payment Effect: the gain from the actual paydown is less than that predicted by the prepayment model.*

It is also important to note that the residual is small relative to the other factors, showing the robustness of the model and, hence, the usefulness.

Typically, ALM focuses on the key rate duration match. However, return attribution reveals other equally, if not more, important factors affecting profitability. For example, this illustration shows the importance of:

- *allocating the key rate durations of funding to manage the basis risk*
- *managing the "riding down the curve" effect using funding*
- *managing the prepayment risk*



Attributing returns is only one of many applications in banking. Other examples include recurring backtesting per regulatory requirements, balance sheet strategy design, and management feedback loop.

3. Latent Transactional Demand (LTD): Currently, loan trading is order crossing, keeping the focus on the bulletin board and relationships. However, loan transaction relationships are about knowing the balance sheet needs of both the buyers and sellers. The complexity is to match opportunities and needs. Latent Transactional Demand (LTD) uses rigorous models to unmask opportunities.

LTD has access to 10,000 community financial institutions (CFIs) to determine their needs using rule-based artificial intelligence (AI). The cloud-solution can match investment strategies and loan tapes in Loan Central with CFI needs; the efficiency gained in accessing potential buyers (Latent Demand) is significant.

LTD makes structuring and selling loan participations more efficient, letting CFIs arrange co-operatives, such as the national agricultural loan association, to manage seasonal cash needs and diversify commodity production risks. CFIs can seek investors of loans beyond the agencies.

Research Support

THC has recently completed and published five papers and related product documentation. The well-recognized papers Ho-Lee (1984) in interest rate modeling and Ho-Stoll (1981) on market microstructure form the basis of these solutions.

Each solution challenges the KISS convention in valuation, profit generation, and transacting. Together, these solutions are moorings of a new paradigm of banking.

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