INTERNAL bank funds pricing is a key element in liquidity risk management. An inappropriate or artificial internal funds pricing policy may lead to poor business decision-making, and could generate excessive liquidity and funding risk exposure. It is therefore imperative for banks to operate a robust and disciplined internal funding mechanism, one that is integrated into the overall liquidity risk management framework.

In part 2 of this three-part series on bank funding and liquidity challenges, we review the rationale behind the internal term liquidity premium and present a recommended best-practice policy template for internal funds pricing. You can access part 1 by clicking here.

**Background**

Bank internal funds pricing mechanism — funds transfer pricing (FTP), firm liquidity pricing (FLP), liquidity transfer pricing (LTP) or term liquidity premium (TLP) — is invariably operated via the Treasury function. This is logical given that all banks operate essentially the same internal funding arrangement, as illustrated in Exhibit 1. Treasury is also responsible for external balance sheet liquidity risk management, as well as interest rate risk.

A problem arises because banks undertake maturity transformation, funding long-dated assets with shorter-dated liabilities. Moreover, certain assets such as mortgages and corporate loans are frequently illiquid in nature. The combination of a funding gap and illiquid asset base makes it imperative that, each time an asset is originated, business lines correctly price in the term liquidity risk they are generating. Conversely, a business line that raises funds can also be valued at the internal term liquidity premium.

Hence, the internal funding rate is important to the discipline driving business decision-making. For example, a uniform cost of funds (something practiced by many banks during the lead-up to the 2008 financial crisis) will mean that the different liquidity stresses on the balance sheet, created by different types of asset, are not addressed adequately at the aggregate funding level. Different asset types place different liquidity pressures on the Treasury funding desk, thereby demanding a structurally sound internal funding pricing policy that is appropriate to the type of business line being funded.

**Setting the Bank Policy Standard**

A formal internal funding policy is necessary in order to make explicit to business lines the need for the bank to cover the cost of its liquidity risk. The objectives of the policy are to:

- ensure consistent liquidity pricing behaviour among each business line;
- remove interest-rate risk from business lines; and
- include the bank’s cost of liquidity in product pricing.

The policy must also seek to ensure that business lines recognize the impact of asset and liability pricing on the balance sheet of the bank,
and allow for these costs accordingly. The policy document should be formalized and approved at the asset/liability committee (ALCO) level, and Treasury should review the document on a semi-annual basis. The policy should include the treatment for each product asset class in which bank deals.

The Term Liquidity Premium

It is important, then, that all banks put in place an internal funding structure that correctly charges for the term liquidity risk placed on the balance sheet by each business line. An artificially low funding rate can create as much potentially unmanageable risk exposure as a risk-seeking loan origination culture.

The principal debate concerns exactly what Treasury is pricing when it sets the FTP. If one accepts that a bank undertakes maturity transformation, then logic dictates that the FTP charge should be a term liquidity premium. For example, the internal rate from Treasury to the Corporate Banking division looking to price a 5-year bullet corporate loan would be the 5-year TLP. The FTP would then equal:

\[ FTP = \text{Short-term funding rate} + \text{TLP} \]

The proxy for the short-term funding rate is usually 3-month Libor, but it could equally logically be 1-month Libor or the central bank base rate. The bank’s ALCO should approve the appropriate proxy.

Note that this does not necessarily equate to the bank’s 5-year wholesale cost of funds (COF). The bank’s funding rate will incorporate an element of its own credit risk to the market, as well as the term liquidity premium, and it is only the liquidity premium that should be passed on to the business line in the internal FTP.

If we discount the reality of maturity transformation and assume matched funding, then in this example we would have:

\[ FTP = \text{COF} \]

While it is always important to ensure that the correct cost of liquidity is allowed for in the internal funding model, it needs to be set in line with commercial and practical reality.

Calculating the Term Liquidity Premium

The TLP, when used in the way we have defined it here, is not a straightforward exercise when extracting from market and customer rates. Often one needs to have recourse to proxies, and instead of one specific value being available, one may need to be satisfied with a range and/or average.

The base case scenario would be for a bank to have access to the wholesale markets at Libor across the entire term structure. There is a case here for saying that the FTP can be Libor-flat; however this is the current state now, with the future state of the markets being unknown. Thus a zero FTP spread can be justified only on a match-funded basis. Given this logic, a bank needs to determine its cost of liquidity. There may be more than one answer, so an element of judgement is called for.

The starting point is the rate at which the bank can raise funds in the market. For a large bank, its primary issuance level will, in a stable market, lie above the secondary market level. If we ignore this difference for the time being, a logical first step would be to take the cost of its funds in the market as the primary input to its internal funding curve. Two things must be considered: (i) this funding rate includes the credit risk of the bank, which needs to be stripped out and (ii) not every bank has a public funding curve. It is necessary then to consider proxies to establish the cost of liquidity.

While a number of proxy measures can be considered, we recommend the following:

- The difference between the funded and the unfunded rate for the bank; that is, the swap rate versus the bond rate paid by the bank. In other words, what it pays fixed in an interest-rate swap against what it pays fixed on a bond it issues (of the same tenor);

- The difference between:
  - Paying fixed on a term interest-rate swap, and
  - Paying fixed on the same-tenor money market swap or OIS swap.

- The increase in the cost of funds for the bank for each incremental upward change in tenor; for example, a bank’s cost of borrowing along the term structure, as a spread over Libor, may look like this:
  - 1-year: 20 bps
  - 2-year: 30 bps
  - 3-year: 35 bps
  - 4-year: 40 bps
  - 5-year: 50 bps

While the above approach assumes a flat credit term structure for the bank (which, from observation of the credit derivative market we know not to be accurate), it does still give some idea of the liquidity premium.

- The difference between the bank’s CDS spread and the asset-swap spread (ASW) for the bank. This is the CDS basis, and in theory represents the cost of cash borrowing and liquidity premium for the bank against its pure credit risk. Since a CDS is, theoretically, the price of credit only, the basis should represent its liquidity premium.

The FTP charge can be based on a simple average of the above measures. Alternatively, given an individual bank’s operating model, it may choose to give higher weight to certain proxies. Since there is no transparent explicit cost of liquidity, a bank will have to exercise some judgment when setting the rate.

A worked example of this calculation will be presented in the next issue of iRisk.
Funds Transfer Pricing Curve

The actual internal funding curve template, be it the TLP or all-in FTP curve, should be included in the bank’s funding policy document and reviewed on a regular basis. While it is common for the FTP rates to be posted as a grid (as shown in Exhibit 2), this is not recommended because of the implied linear interpolation relationship between odd-date tenors. Instead, the FTP curve should be drawn as a curve such as Exhibit 3. Here we illustrate an example for a bank that operates across the retail, corporate and wholesale banking space and has also calculated a “weighted average” funding curve (WACF). Many banks choose the grid presentation, however. When a grid is used, assets or liabilities with maturities that are not exact full years, and thus fall in between the tenors on the grid, should be priced on a straight-line interpolation basis between the shorter and longer date prices.

Exhibit 2 — Bank FTP grid

<table>
<thead>
<tr>
<th>Tenor</th>
<th>GBP</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;3M</td>
<td>0</td>
</tr>
<tr>
<td>6M</td>
<td>7</td>
</tr>
<tr>
<td>12M</td>
<td>14</td>
</tr>
<tr>
<td>2Y</td>
<td>25</td>
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<td>3Y</td>
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<td>4Y</td>
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</tr>
<tr>
<td>5Y</td>
<td>42</td>
</tr>
<tr>
<td>7Y</td>
<td>68</td>
</tr>
<tr>
<td>10Y</td>
<td>99</td>
</tr>
</tbody>
</table>

Exhibit 3 — Bank FTP curve and other funding curves

The FTP curve will state explicitly the rate paid or received by the business lines for assets and liabilities across the term structure. If the FTP policy assumes matched funding, and applies full marginal cost pricing (FMC), then this disregards the fact that, in reality, the bank is engaging in maturity transformation. While this is logically tenable, it may not be practical for commercial or economic reasons. This is why the more robust regime is for Treasury FTP to apply the TLP add-on to the short-term funding rate, rather than FMC. The final customer pricing would incorporate cost of capital, required margin and an add-on for customer credit risk.

Of course, the final choice for the FTP policy is a matter of individual bank judgment, and again, should be decided by ALCO.

As previously noted, where behavioural analysis indicates that the term to maturity of an item differs from its contractual term to maturity, the expected maturity is used to set the appropriate FTP rate. For assets and liabilities, the best example is as follows:

Residential mortgages: in the UK, the legal final maturity of such assets is 25 years. However, from observation and behavioural analysis the expected life is around 7 years, hence we would apply a 7-year rate, or lower, for new asset origination pricing.

Current accounts: this product has a 1-day (or 0-day) contractual maturity but balances are sticky and, typically, at least half of the aggregate balance is static over 2, 3 or even 5 years. It is logical to assign such tenors for FTP purposes. In a similar vein, if a call account balance is shown to be 50% sticky for one year, the 1-year FTP would be earned on 50% of the funds.

For trading book assets, which are generally assumed to be liquid and expected to be sold within 6 months of being bought, the FTP charge would be set according to the expected holding duration and not the legal maturity of the traded asset. Typically this will be at the 6-month FTP rate; however this depends on the type of asset and the level of liquidity. In general, a bank will set different tiers of liquidity, with Tier 1 (such as G7 government bonds) being the most liquid and thus attracting a 1-week or 1-month FTP, down to Tier 3 for the least liquid and attracting the 6-month internal funds rate.

Template FTP Regimes

Though there is no “one size fits all” FTP regime, we present here best-practice guidelines for the FTP approach in retail, corporate and wholesale market business lines.

The guidelines assume a standard internal funding arrangement, whereby internal funding operations are arranged via a bank account in Treasury. When a loan is made, this internal account is overdrawn and then funded on an overnight basis to the business line. The standard overnight FTP charge is 3-mo Libor, but it could be 1-mo Libor or 6-mo Libor, or the central bank base rate, depending on the opinion of bank’s ALCO. Assets or liabilities are set at the relevant tenor FTP, although another option is to operate a net rather than gross funding basis and either charge or pay the net position long or short in each relevant tenor bucket at the relevant FTP.

Retail Bank FTP regime

A retail bank is stable funded, and in large part funded by zero- or low-rate liabilities (termed non-interest bearing liabilities or NIBLs). The asset FTP tenor can generally be set safely at less than
the contractual tenor, often the expected life (EL) tenor. This preserves competitive position. Liabilities are also priced at behavioral tenor. So here FTP = TLP and not COF. For residential mortgage assets we assume capital and repayment products, with no interest-only mortgages. The main principles are shown in Exhibit 4.

Note here that tenors quoted are behavioural or, as is common, can be adjusted downwards for competitive reasons. If operating a net charging regime, it is possible to net off nearly matching tenors, for example, 3-year deposits against 3-year assets.

(See Exhibits 4 and 5 below.)

From Exhibit 4, for the floating rate asset, FTP is 3M Libor + TLP. The TLP tenor will be the behavioural life of the asset, so we have suggested 7-year. For the fixed rate asset, FTP is the fixed rate equivalent to 3M Libor plus TLP where the TLP tenor matches the product life (for example, a 2-year fixed rate in a mortgage that moves to floating variable or can be re-fixed at new rate after 2 years). This transfers interest rate risk from the business line and centralises it in Treasury, which is recommended.

Exhibit 6 shows our recommended template behavioural tenors, but it must be emphasized that each bank should set the level appropriate to its own product analysis.

(See Exhibit 6 below.)
The reality of FTP policy is that it must reflect the two-way relationship between assets and customers. We summarize, with reference to Exhibit 5, that the practical considerations for FTP should reflect:

- Actual rates paid by both sides
- Competitive position
- Properly priced products:
  - in the Exhibit 5 illustration, deposits pay 150bps, so loans must earn above this rate
- Behavioural match-funding where applicable, for example match-funded or not:
  - banks that treat current account balances as 5Y or even longer tenor
  - banks that treat such liabilities as shorter tenor.

The longer-dated assumption allows a retail bank to consider itself as “almost match-funded”. This is the attraction, from a liquidity risk management point of view, of stable customer deposits (“stable” liabilities as opposed to “non-stable” in the Basel III terminology).

Corporate Bank FTP regime

Compared to retail banking, corporate banking encompasses a wider range of products that attract FTP. As noted above, the treatment of specific product types should be articulated in the detailed funding policy statement.

Per the orthodox approach, business lines originating assets or raising liabilities will have funding and interest rate risk transferred to Treasury and made up to an equivalent interest basis. In the process, the model assumes that all assets are funded at the short-term FTP rate, let us again assume 3m Libor, and all liabilities are rewarded at 3m Libor. The key consideration here, which also applies in retail banking but to a lesser extent, is the hedging side, as a significant amount of corporate bank lending is at a fixed or capped interest rate that must be hedged against interest-rate risk. Note that variable rate products that are linked to the central bank base rate generally fund internally on a 3m Libor basis, but often are un-hedged for interest rate risk due to the lack of depth in the Base Rate swap market.

This raises a key management point. Since internal FTP-Base Rate-Libor basis risk cannot be hedged externally, a bank’s origination policy should dictate that fixed-rate, fixed-term assets are hedged with cash fixed-rate liabilities, in order to match repricing tenor and matching interest rates bases. In other words, the bank’s IRR hedging policy document should influence product origination strategy, to ensure basis risk is minimized at the point of origination.

The recommended corporate bank FTP regime is illustrated in Exhibit 7. Exhibit 8 shows a template tenor convention.

Note that there are two alternative approaches here, shown in Exhibit 7: (i) the internal FTP that Treasury charges the business for funds lent out at a fixed rate to the customer is also at a fixed rate for the (behavioural) life of the loan or (ii) the internal FTP is at a floating rate. Option 2 does not remove the interest-rate risk for the business line and so Treasury then also has to put in place an internal swap hedge with the business line.

The transparent approach is the first one, consequently that is recommended.

(See Exhibits 7 and 8 below.)

Wholesale bank FTP regime

The wholesale banking business model, where one exists in a bank, requires a more prescribed FTP regime. There is little, if any, concept of a “customer deposits” funding business and the asset side is funded with repo (secured funding) and wholesale funding

Exhibit 7 — Corporate banking FTP regime, asset example
This makes the FTP model more straightforward to implement. For example, a summary template might look like this:

- **Trading book**: funded in repo at repo rate. Any unsecured funding is funded at 6-month or 12-month Libor. However, not all trading book assets are of an equal liquidity level. The funding policy may break down the asset types into the following:
  - Tier 1: G7 currency bonds
  - Tier 2: Bonds denominated in AUD, CHF, DKK, HKD, NOK, NZD, SEK, SGD
  - Tier 3: Bonds rated below A-/A3

Most European banks will not have FTP grids for currencies other than their domestic currency and USD and EUR. The base currency grid can be converted to a required currency rate by applying the FX basis swap rate to it — not an exact science but the approach should be sufficient for most purposes.

- **Securitizable assets**: origination of assets that are eligible for securitization often receive a lower funding rate, say a specified reduction in basis points, because in theory they do not expose the bank to a need for more unsecured wholesale funding.

- **Derivatives book**: contractual and collateral funding cash flows are modelled into tenor buckets, as expected positive exposure (EPE) and expected negative exposure (ENE), with the net number (“expected exposure” or EE) charged or credited with the appropriate wholesale market COF, rather than the TLP. *(See Part 1 of this series by clicking here.)*

A bank that operates across all markets will need to consider carefully how to construct its FTP curve. Ideally there should be one unified curve across the bank, and not variations by business line.

**Conclusions**

The concept of internal funds pricing and the term liquidity premium is quite a complicated one, and there is no “one size fits all.” It is important that the mechanism put in place is the one most appropriate to the business model of the bank in question, and set up to reflect the type of business that the bank’s shareholders and board want it to do.

Implementing an internal funds pricing policy that explicitly charges each business line for its cost of liquidity is not always a painless task, due in part to inertia and resistance from the business lines themselves. This is particularly acute when the businesses have historically always paid a Libor-flat or Libor + fixed spread charge. The bank’s FTP policy, whether it is an update or it is being set up for the first time, should always be owned by the Board, delegated to ALCO, and implemented by the Treasury and Finance departments.

**References**

Parts of this article first appeared in *The Principles of Banking* (John Wiley & Sons Ltd 2012) and are reproduced with permission.

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