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**Measuring Financial Super-
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Role of Central Banks**

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Basel III: Solving the Liquidity Business Challenge

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Abstract

The new Basel III rules for liquidity and funding will have an impact on several areas of the banking business.

As a consequence, it is useful to identify the key areas within a bank where Basel III has the biggest impact and to define the necessary strategies, processes, and new products to tackle the individual business challenges. While this allows the consideration of specific topics, a well-structured and consistent approach requires a general and overarching view, which encompasses and integrates all individual areas. The paper gives an overview of the strategies that banks all

over the world are currently discussing; focusing on funds transfer pricing (FTP), the active steering of LCR and NSFR, deposit analysis and according strategies, as well as assets and investment products. Finally a structured approach for the strategic analysis and implementation of business changes is briefly outlined.

The views in this article are the authors' personal ones and do not reflect in any way the position of their employers.

Introduction

The liquidity regulation within Basel III has already not only changed the way in which banks look at their own liquidity risk but also how they quantify the liquidity risk of potential banks as counterparties. Before the liquidity coverage ratio (LCR) is officially reported by banks and notwithstanding its methodological caveats, the LCR has already established itself as the yardstick for a bank's idiosyncratic liquidity risk. As a consequence, banks will not only have to adhere to the regulatory minimum of a LCR $\geq 100\%$, but will try to demonstrate their strong liquidity situation with the highest possible LCR they can afford.

Like most good things in life, a high LCR does not come for free.

According to the January 2013 revision of the LCR rules by the Basel Committee on Banking Supervision (BCBS), the LCR requirement will be introduced, as planned, on January 1, 2015, but the minimum requirement will begin at 60%, rising in equal annual steps of 10% to reach 100% only in 2019. Given the fact that, for example, many banks in the European Union (EU) currently rely heavily on the ECB's long-term refinancing, the real test for these banks will only take place once the ECB has tightened its monetary policy again and stopped replacing maturing funding to the banking sector with new long-term loans (similar for other regions and markets). Though the delayed application of the "full" LCR requirement gives more time to react to the new Basel III regulations, it does not prevent banks from taking a strategic perspective. On the contrary, being granted a considerable delay in implementation might make it even more difficult for banks to actually challenge the substance of Basel III and to achieve major modifications of the framework through lobbying activities directed towards political decision-makers.

Additional intraday liquidity risk aspects

New rules are also currently in discussion regarding intraday liquidity risk management. On the one hand, the BCBS has been proposing, in consultation with the Committee on Payment and Settlement Systems (CPSS), a set of indicators to monitor intraday liquidity risk. On the other hand, the BCBS has also been discussing the question if and how intraday liquidity risk may need to be included in the final definition of the LCR.¹ Depending on the form of final regulations, the impact of the currently discussed rules for intraday liquidity risk management may be huge, both business-wise and technology-wise. Potential business-related impacts include the following:

- Impact of reporting requirements: banks may manage liquidity very efficiently in a centralized way or, for other business models, in a decentralized way. New reporting requirements could have a negative impact on existing models, depending on their final form.
- Market structure issues: direct participants may have an incentive to reduce or eliminate intraday credit lines to indirect participants

in order to improve their intraday liquidity indicators. As a result, improvement in the indicators of direct participants might adversely affect the performance of indirect participants, as well as the efficiency of the overall payments system. Indirect participants may need to prefund their payments (as suggested in the document) or be encouraged to keep ever-larger amounts of liquidity on deposit with direct participants. In addition to shifting intraday liquidity risk to the indirect participants, impeding efficient use of collateral and reducing the efficiency of the overall payments system, this may result in indirect participants exceeding permissible counterparty large exposures.

- Double duty of collateral: collateral assets are typically also used to support intraday liquidity needs, although the calculated buffer requirement does not take into account these needs (a practice called double duty). If this practice will be punished by the future LCR definition, this would make it necessary to hold more collateral and thus increase the opportunity costs of held collateral.

The upcoming Basel III requirements: impacts on banks

A bank, which complies with the Basel III requirements (for example, has a LCR > 100%) and has no appetite to improve these ratios further, does not incur any direct costs from this regulation.

But, if the bank wants to actively improve its LCR, it will face implications on its balance sheet mechanics, which will normally not be possible without producing additional costs. The bank could either:

- Increase the numerator, the high-quality liquid assets (HQLA). This will create a net expenditure as the interest earnings of liquid assets will be less than the according expenses of most banks' refinancing.
- Decrease the denominator, the total net cash outflows (TNCO) by substituting short-term funds with longer-term monies. This will raise both the term-interest costs and the associated funding premium.

A more technical complication is that for the most part, HQLA and TNCO are not independent. Additional HQLA, for example, need to be refinanced and thus potentially impair the TNCO in return. This effect blurs the calculation of costs and makes the transfer pricing look opaque for the business originators.

¹ At the time of writing this paper, it was not clear whether the notion of intraday liquidity will be considered in the LCR definition. In the 2010 document "Basel III: International framework for liquidity risk measurement, standards and monitoring" (<http://www.bis.org/publ/bcbs188.pdf>), footnote 7 on p. 7 mentioned that "The Committee is currently reviewing if and how intraday liquidity risk should be addressed." In the 2013 document "Basel III: The Liquidity Coverage Ratio and liquidity risk monitoring tools" (<http://www.bis.org/publ/bcbs238.pdf>), which describes revisions made to the 2010 publication, such a statement is omitted and it is only stated that "Banks and regulators should be aware that the LCR stress scenario does not cover expected or unexpected intraday liquidity needs".

Improving one ratio of Basel III in isolation, for example the LCR, might be pointless if the other ratio (the NSFR) is negatively affected or if the result of the transaction needs to be “healed” by a strategically unwanted balance sheet expansion.

Remark: The Basel Committee did change the liquidity accord (Basel III) in December 2012, when this paper had already been finished. The regulatory concerns were “concentration risk,” “too narrow definition of HQLA,” and “excessive buffers” to be held by banks; and, not so outspoken: “industry lobbying.” As a solution the definition of HQLAs is expanded to a new category HQLA2B which now allows corporate debt (A+ down to BBB-), equities, and residential mortgage backed securities (AA or better) to be part of the HQLA. However, only with an additional limit: the additional assets HQLA2B is restricted to 15% of total HQLA. Together with some changes in the in- and outflows (the assumed potential outflows from committed liquidity facilities goes down from 100% to 30% and 40% respectively), the change is definitely material for some banks, but there is not such a structural accommodation in Basel III which would make it necessary to alter the following conclusions concerning the profitability and the business model of banks.

Current liquidity situation: biggest impacts on banks’ business models

In the following we focus on selected topics that are related to the current liquidity and funding situation, which is influenced by Basel III and by the market circumstances. We expect the most significant impacts in the following areas:

- Because customer deposits, in particular retail and SME deposits, proved in the recent crisis to be relatively stable, many banks are tempted to ascribe this behavior in general to customer deposits and compete for “stable” customer deposits. As a result, competition for deposits will increase amongst banks, boosting the rates. In addition, the enticement of customers could work like an uncertainty principle: clients that have been lured away successfully once, might go in the next crisis with the better price or the perceived safe haven. The stable characteristic of customer deposits is so far only perceived, not proven for the future.
- Bank bonds are not accepted as part of the liquidity buffer (with the exception of covered bonds), which will deter other banks from investing in them. At the same time, Solvency II could diminish insurers’ appetite for bank debt, which may be critical for many banks, keeping in mind that insurance companies have traditionally been among the largest buyers of bank debt in many markets. Decreasing access to funding through bank bonds will further increase the bank’s need for alternative sources of liquidity.
- Basel III introduces the notion of customer and deposit “stability.” Distinguishing “stable” from “less stable” deposits has consequences for the calculation of the new liquidity coverage ratio (LCR). If banks can convince the regulator that certain deposits are “stable,” they will get a more favorable treatment in the LCR. However, this does not mean that those deposits are necessarily more stable in reality and will not be called back in a crisis situation, for example.
- The new liquidity rules together with increased capital costs under Basel III for the traditional loan business, will either result in increased prices for longer-term corporate loans, or, as this is unlikely to be enforceable in many markets, in a decrease in profit margins. This may imply a trend towards bond origination and a focus on generating fee incomes, rather than granting loans. For many markets and customer segments (in particular, for small and medium enterprises), however, access to capital markets is not yet given to a sufficient degree – which is a hint that current loan prices in some of these markets (Germany, for example) are so low that they hinder the development of an alternative market for funds.
- If banks are hit by boosting costs of liquidity (and additional regulations, like increased capital requirements arising from Basel III), but cannot increase their interest rates for loans in return, one possibility is to reduce the indirect costs of loans, which are not directly related to refinancing. In practice this means that banks will have to save costs by streamlining their lending processes, increasing automation and possibly shrinking local branch networks. In addition, many banks focus on regulatory as well as economic capital efficiency improvements, specifically by improving their collateral management or by securitizing parts of their balance sheet. Collateral management processes can be optimized in a number of ways; for instance, cross-collateralization can be achieved by making sure that collateral which is not fully needed to secure a specific loan (more precisely, its surplus value) is also utilized to collateralize another position. While the market for structured credit products has, of course, considerably weakened in the past few years, there are still various meaningful possibilities in credit portfolio management that may be successfully pursued. For example, there are national and international programs to promote lending in certain markets such as the EIF First Loss Piece Guarantee in Europe, which structure-wise is equivalent to a synthetic securitization. There is also the possibility to combine such synthetic securitizations with covered bonds. For example, in Germany a guarantee from the major state-owned bank, Kreditanstalt für Wiederaufbau, KfW, could be used on a corporate / SME portfolio, which could then become eligible for a public sector cover pool and allow covered bonds issuance. An alternative to providing loans is factoring, which is increasingly being offered by banks (mostly in independent entities) in various European markets, including, for example, Germany and the Benelux.
- For many banks there will be a trade-off between the pressure (due to increased competition) to price assets aggressively in order to stay in the business and the need to apply a transparent and precise funds transfer pricing (FTP), in order to remain profitable and to act

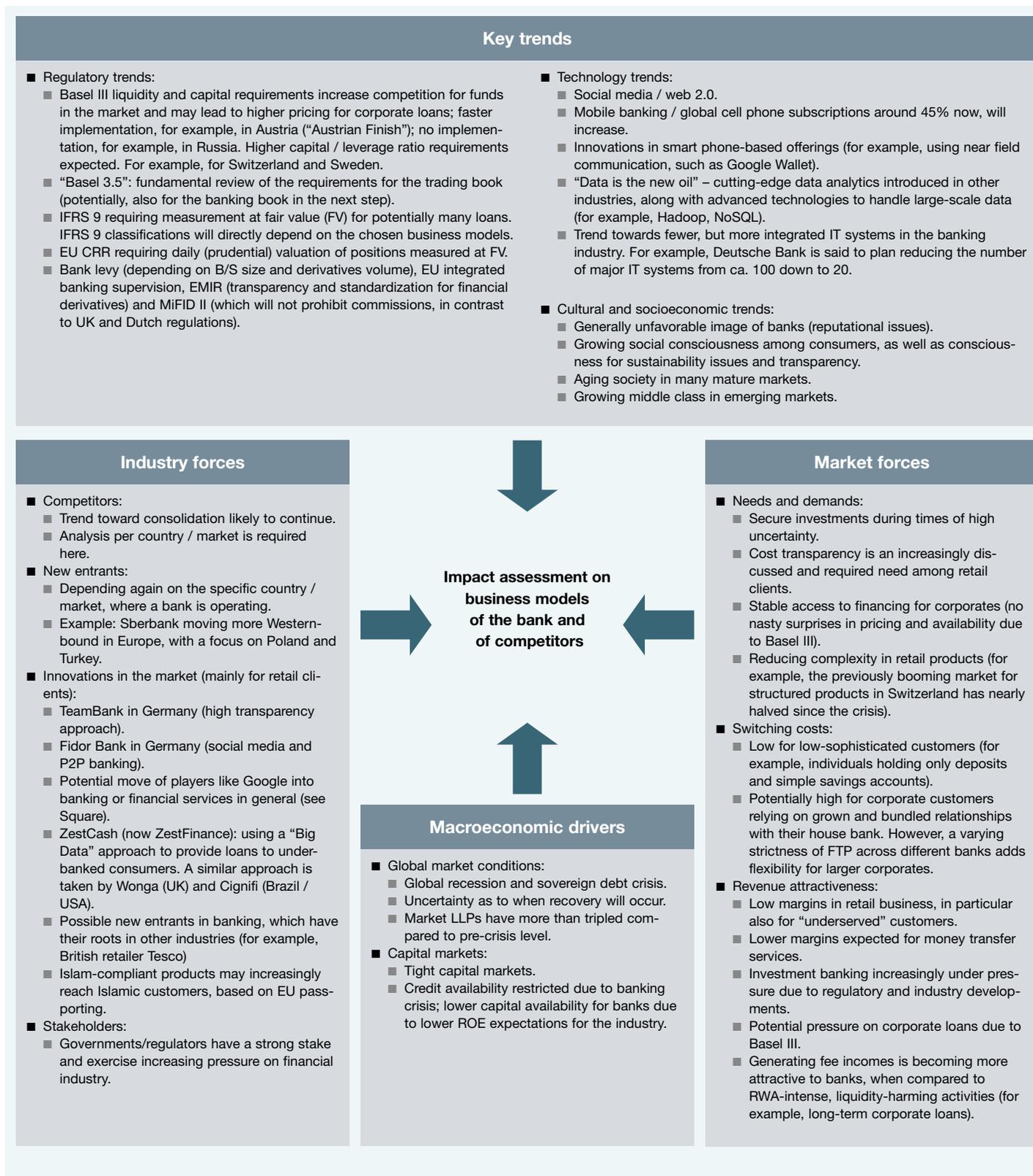


Figure 1 – Banking industry: sketch of a relevant business model environment for Europe

economically. In order to achieve such precision, the impact of individual products on the bank's liquidity has to be quantified and priced accordingly. Economically correct transfer pricing is, however, limited if competing banks try to preserve their existing business models by pricing below their own costs. Then the bank needs to either exit this business or accept loss-making transactions.

When discussing the impact of Basel III on employed business models, a wider perspective needs to be taken. Firstly, this is due to the fact that the challenge to adapt its business model, in one way or another, will apply to every bank simultaneously. This means that an individual bank cannot change its business model in isolation but needs to understand the specific impact of Basel III on its competitors, and how those are likely to react. One example for this is the topic of loan re-pricing. While increasing interest rates for loans may not be enforceable in many circumstances, this situation would change in an environment where other banks are reducing their loan books or even retreating completely from certain areas of the loan market.

Secondly, Basel III is very significant, but not the only driver for business model changes. Rather than focusing in an isolated manner on topics such as deposit strategies, ideally an integrated view of the business model environment should be taken, which is relevant for a specific bank or banking group. A generic example for such a business model environment is shown in Figure 1.

While any existing processes for strategic planning within a bank may be utilized when discussing such business changes on a higher level, it is a good idea to create a consistent picture of the potential impact of Basel III on the firm first of all. Afterwards, the usual steps for discussing the business strategy may be taken, including the potentially very difficult discussion on how multiple business models can be handled efficiently within a bank.

Key areas for tackling the liquidity business challenge

The new Basel III rules for liquidity and funding will have an impact on different areas of the banking business. As a consequence, it is useful to distinguish between various key areas, where strategies, processes and new products may be defined, in order to tackle the business challenges in a well-structured and consistent way. This approach enables a bank to focus its analysis on specific topics, but it should be emphasized that a general and overarching view is required, which encompasses and integrates all individual areas.

There are challenges that can be undertaken on an individual level (for example, to find "cheaper" and "more stable" deposits), whereas other approaches can only be tackled within a whole portfolio or even at bank

level. The size and structure of a liquidity portfolio, for example, should be optimized with a view towards all the potential liquidity needs of a bank. The debt issuing policy cannot be based on the needs of a single department. For example, hedging interest rates is costly if done on a deal-by-deal basis.

Funds transfer pricing (FTP)

A bank needs to track the profitability of its financial transactions but also needs to forecast and manage the future profitability of transactions it has already entered into or is due to undertake.

Basic transfer pricing concepts

In a bank's balance sheet, today the assets and liabilities match by design. For example, if the bank grants a new loan of 100, which is disbursed tomorrow, a new asset will be created. If this asset were created in isolation from the rest of the balance sheet the sum of the bank's assets would exceed the sum of its liabilities² – which is impossible. Therefore the bank needs to either acquire a new liability of 100 by tomorrow or, if possible, reduce other assets i.e., the credit balance on its nostro by 100 (or carry out a mix of both).

The new liability increases the liabilities by 100 and thus matches the increase of the total assets triggered by the new loan. Whereas the reduction of the credit balance is an accounting exchange on the assets side, which diminishes the existing assets by 100 and so leaves the size of the total balance unchanged. In both cases the transaction, which counterbalances the asset, the refinancing, can bear interest expenses.

In order to calculate the profit of a loan, the bank has to take into account that for the above reasons the asset cannot be considered isolated from its refinancing: The income from the asset needs to be held against the expense for the refinancing. The difference between income and expense is called earnings. Because earnings have a term structure, it is not straightforward to calculate the future profit of the loan together with its refinancing. In order to implement this, the income of the asset is firstly expressed as a yield (or rate of return) and then benchmarked against the yield of the refinancing, the transfer price.

A traditional way in which asset driven banks deal with this problem is to benchmark every single asset yield against the average yield of the bank's liabilities (flat mixed rate).

The method is straightforward, but as in practice new deposits can trigger assets or new assets and liabilities can be intermingled, it may lead to difficulties:

² Assuming no new transactions are done or existing ones mature.

- It does not account for the term structure of the asset: long and short maturities are held against the same flat rate.
- The flat rate itself will quite probably change every time it is recalculated (i.e., when liabilities mature and/or are newly created) and thus effect the profit calculation.
- It is implicitly assumed that the current liability mix can be replicated to fund every new asset and thus might give the wrong steering impulse to grow assets which then cannot be refinanced at the mix-rate (but only at higher “market rates”).
- It is related to the current funding structure of the bank but not to the prevailing price of funding in the market: a bank with a sound retail base, for example, passes on its low liabilities costs to refinance loans at a yield which maybe comparatively too low.
- Other than for assets, internal and external prices of liabilities are intermingled.

The consequent enhancement of transfer pricing is to progress from the flat rate to individual transfer price rates. Every single asset is linked to an individual refinancing transaction with the same characteristics (for example, amount and tenor). This match-funding is a thought experiment but one which could be executed in principle. In practice, the funding will not necessarily be done in the described way because the asset's amount or tenor might be odd or too small or too long, which would make the execution in the market too costly on an individual basis. To avoid such costs, the asset originator (the department in the bank which creates the loan) refinances the asset not directly with an external counterparty but instead internally with the central refinancing department (we call it the treasury). The treasury makes an internal loan to the originator, which exactly matches the external loan. In the view of the originator this internal deposit match-funds the external loan. The treasury can then decide if it matches the internal transaction with an external transaction in the market – or not, or only partly. The decision of the treasury should cause no effect for the originator. From the asset originator's view the primary external deal is matched with the internal liability (up to the margin between both) and thus the profit in respect to the earning can be ring-fenced. From the treasury's point of view the originator's internal refinancing is an asset, which could be match-funded, but not necessarily. If it decides not to match fund but leave the combined position open (fully or partly) it runs an interest rate risk, which can result in profits or losses. The overall profit of the bank can be calculated as the sum of the profits from the originating department (which are free from interest rate risk) plus the profits of the refinancing department.

The bank's potential cost of neutralizing the interest rate risk of an originated asset can be regarded as a first approximation to “correct” transfer pricing: at the time of origination, the asset is hypothetically replicated with a matching external interest rate swap (IRS) such that the value (NPV) of the sum of asset plus IRS becomes independent from further

changes in actual interests. The so determined interest rate replication rate IRR depends on the original maturity t_M of the asset and the then prevailing term structure of interest rates $IRR = IRR(t_M)$ in the market.

The purposes of FTP

A straightforward purpose of FTP is to give a realistic picture of the bank's economic situation and to fairly evaluate the varying degrees of profitability of the businesses or even identify profitable as well as loss-making business parts.

Allotting the “right” costs to every existing as well as new potential transaction, will not only ensure a fair view on its profitability but will also interfere with the individual decisions of the deal originators: they will reject transactions with low or even negative profitability in favor of transactions with better return. If, however, all possible new transactions in a certain business line are either unprofitable (or at least yield insufficient profits), transfer pricing becomes very complicated. Fair pricing will either force the originators to abandon their business or, if they continue, leave them with creating losses. Fair transfer pricing has, of course, not created the losses, but only unveiled the loss generation. Simply abandoning the transfer price, or calculating it knowingly incorrect, would severely damage the whole FTP process. Instead, the bank might decide to subsidize the business, at least for a limited time period, and thus accept losses to keep it alive.

How is FTP changing through Basel III?

Caused by the deteriorating funding situation and acutely triggered by Basel III, many banks are currently in the process of revising their approach to funds transfer pricing (FTP).

Basel III has various effects on FTP:

- There are direct cost implications from the bank's compliance with the Basel III ratios: If new business changes the LCR or NSFR detrimentally, the banks may be forced to carry out measures to improve these ratios (for example, purchase additional HQLA or lengthen the average duration of its debt), which generate costs.
- Basel III has raised banks' awareness that mainly the cost of liquidity had so far been factored poorly in the price of transactions or products.
- Investigating the latter, some methodological flaws in existing FTP concepts became apparent. Mostly regarding the dealing with the cost of unexpected risk, namely liquidity risk, which can only be hedged by holding surplus counterbalancing capacity.
- After the crisis of 2008 at least some banks have become able to “think the unthinkable”: some business lines (and even sometimes entire business models) might be unprofitable and thus need to be abandoned – even if competitors try to go on with “business as usual”.

Most banks have moved away from dealing with “one” refinancing rate already more than a decade ago, but many of them still focus on the interest rate aspects. The last crisis, however, has shown that the liquidity effects of new business are of equal, if not of greater importance. Consequently it is now best industry practice to apply FTP at a transactional level and incorporate liquidity effects.

However, there are some quite different ways of approaching the FTP from a “Basel” perspective, which depend also on the level of sophistication that a bank has reached in its asset and liability management (ALM).

Fair asset/liability pricing

The most common reaction to Basel III has so far been to incorporate certain types of liquidity premia in the FTP, to ensure that the pricing reflects the impact of assets (or liabilities) on liquidity (or on liquidity ratios like the LCR). It is already common to include a term liquidity premium (TLP) in the FTP, which is the additional spread paid by the bank to compensate the funders of its debt for its idiosyncratic credit risk incurred by committing funds for a defined period of time. While elegant as a thinking model, the decomposition of the bank’s actual funding rate into a liquidity-free interest rate component plus a TLP is in practice neither straightforwardly possible nor necessary: only the sum of both components is relevant for practical purposes.

For many assets and liabilities that the bank has originated, the planned (expected) cash flows are uncertain and thus will differ from the observed real payments, which results in possible unexpected liquidity deficits (or surpluses). As a consequence, many European banks have introduced a contingency liquidity premium (CLP). The CLP is derived from the cost of

holding liquid assets for the counterbalancing capacity (CBC), which is necessary to offset the potential unexpected outflows, and is allocated to the parts of the business that create it. Thereby, the bank properly prices products that potentially degrade its overall liquidity. Unexpected cash flows, however, that improve the bank’s liquidity do not allow a reduction of the actual liquidity buffer (and thus the CBC) and so cannot be rewarded.

A different premium arises if the originated business forces the bank to enhance or “repair” certain regulatory ratios (for example, LCR or NSFR) and thus generates additional costs. We might call this regulatory liquidity premium (RLP). Consider the following example: the bank’s LCR is currently at 100%. Assume the bank gives a new loan of 100 for four weeks and funds it congruently. In the next LCR calculation (which includes the new business) the maturing funding generates 100 outflows, which is only offset by 75% of the inflows from the maturing loan. This would generate an additional 25 total net cash outflows in the denominator of the LCR ratio and thus the LCR would fall below 100%. In order to “repair” this potential breach, the bank will have to either decrease its total net cash outflows (the denominator) or increase its HQLA (the numerator). In both cases, costs emerge which are solely caused by the need to comply with the regulation.

To get a complete and correct picture, a bank should evaluate all of its assets and liabilities with respect to their liquidity characteristics. The relevance of this exercise is underscored by the fact that term liquidity costs in practice are substantial (they typically fluctuate between 20 basis points and 50 basis points). The level of the CLP varies by entity, product, currency, and maturity, for example, and can move in a similar absolute range. It should therefore be evident that liquidity premia are an essential and material ingredient for a realistic FTP. Ignoring this element may lead to overestimating margins on assets and underestimating margins on liabilities, which in turn can cause flawed business and strategic decisions.

In order to give the correct steering impulses to the originating business, a gratification factor should also be incorporated in the FTP, which might be called liquidity enhancing asset refund, LEAR. It rewards certain types of assets that enhance liquidity and thus can reduce the above premiums. For example, assets that are eligible for a cover pool can be used for secured funding which is cheaper than unsecured funding; they thus should receive a gratification. Such an incentive may also be applied on assets that contribute to the bank’s CBC. Additionally, if the bank, for example, owns covered bonds which are eligible for the HQLA, this does not only allow the bank access to cheaper funding (as above), but also potentially reduces the cost of complying with Basel III. Also, for example, as residential mortgage backed securities (RMBS) are eligible HQLA, they may also receive a LEAR in the FTP.

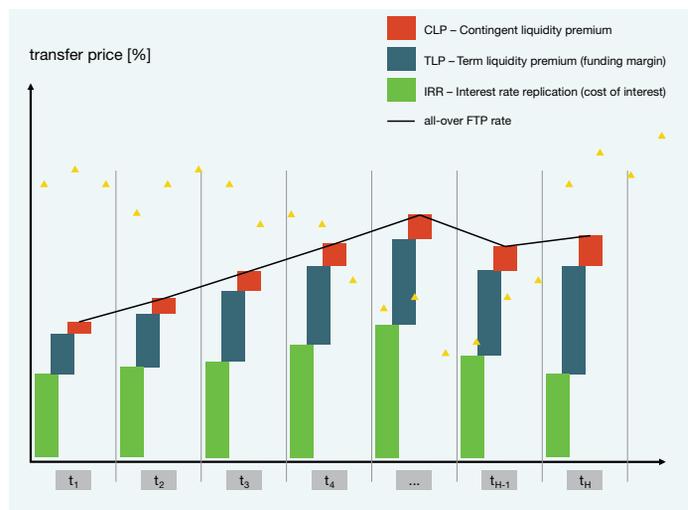


Figure 2 – Cost of interest+liquidity+uncertainty

It should be pointed out that there are three distinct sources of LEAR:

1. Assets that are eligible for the issuance of specific covered debt can directly influence the bank's actual funding operations, saving costs compared to unsecured debt refinancing where costs are expressed in the term liquidity premium (TLP).
2. Assets that are liquid in an economic sense can be used in the bank's CBC and thus reduce the cost expressed in the contingency liquidity premium (TLP).
3. Assets, which are classified as "HQLA" in Basel III and thus only reduce the bank's potential additional regulatory liquidity costs (expressed in the RLP) in cases where regulatory liquidity ratios need to be "repaired".

In theory, banks should distinguish properly between economic liquidity risk costs that come from their actual liquidity buffer (b) and the regulatory costs, which arise from holding assets for the HQLA, as defined in Basel III for the LCR (c). In practice, however, the calculation becomes tricky, as certain assets exist that qualify for both the economic and the regulatory buffer. This is true in particular for assets that are accepted as collateral by central banks and are also eligible in the HQLA.³

It needs to be mentioned here that cross-border funding has become more difficult, as many countries make capital and liquidity transfers harder to implement in practice and also require their banks to self-fund themselves locally in the country. Likewise, tax optimization strategies across international groups of companies are increasingly scrutinized by governments, which may imply further constraints on cross-border transfers. Such realities have to be reflected in the FTP, as it may not be realistic anymore to include benefits on banking group level, which are not achievable due to local regulatory and legal restrictions. A simple example for this, which also needs to be covered in analyses of the counterbalancing capacity, is legal lending limits.

In most FTP methodologies an originated deal is "immediately" hedged with a mirrored internal transaction ("match-funded"). This internal transaction, however, is not necessarily always fully hedged with a matching transaction by the replication department, for example, the treasury). The treasury might now argue that the cost of Basel III (the LCR) stems from the originated deals, whereas the originator might argue that the originated transaction has been priced on the basis of a perfect replication which means that treasury will have to bear any additional cost because the gap in the bank's LCR stems from the imperfect "real hedging" of the treasury. A closer look reveals that even if the treasury had match-funded all internal deals, due to the 75% rule in the LCR (which is still under discussion in the European Union), the bank would have needed to hold HQLA equivalent to one-third⁴ of the volume of the originated business. Consequently, the replicating department is only responsible

for the costs that go beyond this third, which makes the calculation cumbersome and opaque.

In general, a requirement for fair asset and liability pricing is that both structural refinancing costs for the expected payment structure of the originated deals and unexpected risk costs of the CBC have to be included, as a CBC has to be kept as a reserve to counterbalance unexpected cash flows. A realistic CBC analytical system is required here, which allows stress-testing the liquidity position of a bank in response to economic, market, or other shocks (including reputational shocks and how the bank may react on those).

On a more advanced level, economic profit and loss (P&L) numbers should be calculated per business unit, which contain liquidity charges and which should be reported and monitored in parallel with normal P&L figures, in order to achieve the desired incentivization and effect on steering. Again, such pricing needs to be available at the transactional level.

Strategic business analyses based on FTP

Based on realistic FTP analyses, a central evaluation would have to be performed by a bank on which businesses should be strategically reduced, eliminated, or increased in volumes. Consequences may include reductions of parts of the balance sheet or even the abandonment of certain types of business, i.e., the implication might be a change in business models.

It should be noted that many banks are still shying away from defining such consequences. Typically, in the first step, preliminary test-calculations are being performed as part of the analysis, banks perform workshops and there are plenty of discussions about possible changes for refinancing structures, processes, and similar topics. However, if such an analysis is only done at the level of, for example, a business line and the result would be that the analyzed business is in deficit, it is highly unlikely that the business line will adopt the consequences and its own winding-up. Rather, a bank should perform an integrated analysis centrally and ideally link the results of FTP analyses to similar analyses (which are either in place to analyze the impact of other impending regulations, such as IFRS 9, or as part of structured strategy planning processes).

³ The calculation gets even more complex because the funding spread applied to such positions may vary depending on HLA eligibility on banking group level versus pure entity level (i.e., can the parent company exercise control on the assets with the required flexibility), central bank eligibility for example, only eligible in certain countries or for all major central banks, such as ECB, the Fed and the SNB, and other relevant criteria.

⁴ Assume 100 business volume need to be covered by 25 additional HLA. Even if the HLA is match-funded it creates additional $25 \cdot 25\% = 6.25$ outflows – which again create $6.25 \cdot 25\% = 1.5625$ outflows, etc. All sums up to 100/3.

Banks, which have actively tried to optimize their business by looking at the liquidity costs of their products, took a variety of steps to improve their portfolios. Employed options included, for example, the modification of lending products to reduce indeterminate maturities, tightening the conditions on retail deposits (if enforceable in the respective market), or strengthening the control of rollover conditions in specific products.

The strategic implications of Basel III may be different for asset-driven banks than for liability-driven banks (for example, Deutsche Postbank in Germany). While it should be noted that a bank may be more asset-driven at one time and more liability-driven at another, a potential shift in perspective may be relevant for many banks in this context. Assuming a liability-driven view may be necessary in some cases and could then limit possibilities for the business on the asset side a refined FTP is again necessary here to set the right incentives.

Specific topics of FTP

Time-stamping of transactions – Transactions should be “time-stamped” at their origination, and be linked with their theoretical refinancing (which is not identical to the actual refinancing performed by treasury departments). Thereby, prevailing capital market conditions (for example, yield curves) in the moment of the deal origination are assigned to the originated deal, which enables the setting of clear incentives for the business. The respective interest result can then be viewed in the relevant IT system immediately and it can also be analyzed ex-post in a consistent way. One should conceptually separate in thinking here the (theoretical) replication of the originated transaction with an internal deal from the “replication of replication,” which is done (or partly done, or not even done at all) by treasury departments. Unfortunately, it should be added that such a feature is not yet included and potentially difficult to implement in many off-the-shelf software solutions.

The correct tenor of trading book assets – As an example, a leading German bank has been discussing correct refinancing assumptions for the trading book. For instance, a bond having a maturity of ten years might theoretically be refinancing under an analogous 10-year assumption, but traders are obviously in opposition to such an approach, as they say they could easily sell that bond the day after in the market. The chosen solution here was that the CBC value of the bond (for example, 90% or 95% of the position value) can be applied to it as a “normal” trading position, and only the residual value of the bond needs to be refinanced under a 10-year assumption.

Complex liquidity hedging – Assume that a bank is short €100 million liquidity between month 36 and month 37. The market does not offer a 1:1 liquidity hedge and the theoretically possible “brute-force” mechanism (fund €100 million for 37 months and simultaneously place €100 million for 36 months) would inflate the balance sheet. Such issues are highly

complex to solve in practice, as an optimal strategy of deals has to be searched for, and they certainly require significant sophistication on the part of liquidity management units in banks. Cutting-edge research is required in this context.

Managing the LCR and NSFR

Most banks have been very busy implementing the Basel III requirements for liquidity risk in the past few years, and many of them are still struggling with bringing their systems up on industry best practice levels. At the same time, the discussions in Basel (as well as by national regulators and, in particular, the EU in Europe) are being monitored closely, to be able to deduct adequate LCR optimization strategies. A range of activities is available to banks for the active steering of the new Basel III liquidity and funding ratios.

Simulation of the bank's future LCR

Steering the LCR of a bank requires, in the first place, having a precise understanding of how its LCR is expected to evolve over time. Therefore, forward-looking simulations of the LCR have to be performed, which should comprise a realistic balance sheet simulation, incorporate new business assumptions and contingency actions (as foreseen by the contingency funding plan, CFP, of the bank) and include systematic stress-tests, which are in line with market expectations, regulatory requirements, and the risk appetite of a bank.

Picking the “optimal” liquidity buffer (respectively HQLA)

To achieve an economically efficient steering of the LCR, identification of the cheapest available HQLA-eligible assets is required. This analysis should be based on a risk-adjusted view of those assets and correctly integrate the consideration of refinancing costs for these assets.

Unfortunately, for almost every bank the risk adjusted yield of highly liquid assets is lower than its own funding costs, which makes the cost-of-carry positive (a real cost). Moreover, with increasing tenor, the term liquidity premium of the asset will normally grow more slowly than the liquidity premium of a matching refinancing. Therefore, banks might want to purchase the shortest possible assets as they have the lowest net cost of carry. On the other hand, HQLA-eligible assets in their last residual month of life are neutral in the LCR, which means that for example, a two months asset will on average be useable only 50% to the HQLA calculation in the ratio (a three months asset only 66%, etc.), which will boost the costs from a different angle.

On an advanced level, optimization algorithms may be employed, but these are not readily available in commercial standard software solutions.

LCR/NSFR improvement transactions

Banks that dispose of excess liquidity/HQLA can utilize those assets to

make profits by servicing other banks that are in need of LCR (or NSFR) improvements in order to meet the Basel III minimum ratios. Given the stochastic nature of available liquidity, such transactions are also helpful. For example, at times of highly fluctuating deposit volumes.

Improving the LCR numerator can be achieved, for instance, with the following types of transactions:

- Repo with securities comprising ineligible collateral (for example, equities, certain bonds, but potentially also illiquid assets such as convertibles, ABS or loans).
- Securities lending (where the cash leg of a repo is effectively being replaced with high quality liquid government securities).
- Improving the numerator without purchasing new high-quality liquid assets (HQLA):
 - Reducing usage of HQLA-eligible bonds (in repos, for collateral)
 - Improving the use of HQLA-Level 1 assets versus HQLA-Level 2 assets
- Improving the numerator with balance-sheet growth:
 - Purchase HQLA
 - Exchange non-HQLA with HQLA

Reducing the LCR denominator may be achieved through contingent claims, which embed leveraged derivative transactions within note structures. A globally leading Swiss private bank has offered similar transactions, for example.

Improving the NSFR numerator can be achieved, for example, through a term repo on illiquid ineligible securities, against which a required stable

funding weighting of 100% is applied. This cheapens funding costs while satisfying the NSFR.

Swapping non-eligible versus eligible assets

The bank can borrow (HQLA) eligible assets and collateralize them with non-eligible assets. Such “asset/asset-swaps” are less risky for the counterparty compared with uncovered lending. Nevertheless, a specific premium needs to cover the restricted saleability of the non-eligible asset.

Insurance companies often have long-term assets that are eligible as HQLA for the purposes of banks. Such swapping has been taking place within integrated banking and insurance groups, for example, at a leading Benelux insurance, banking and investment management group. While Solvency II may diminish insurance companies’ appetite for bank debt (since capital has to be put aside for bank bonds), such transactions could be searched for in cooperation with certain insurance companies.

A similar logic applies also to liability-driven banks, which have a lack of natural assets and thus need to invest in “substitution assets” (for example, banks that have saving deposits they cannot match against consumer loans, and are thus are forced to invest these monies in other assets). If they have purchased HQLA type assets, they can enhance the return by entering into “asset/asset-swaps.”

Deposit analysis and strategies

A major focus of discussions related to the business impact of the new Basel III liquidity rules certainly lies on deposit strategies. It should,

Bonds	<ul style="list-style-type: none"> • SME bonds. • Credit-linked notes (CLN). • Banks can generate fee income by supporting their corporate customers in issuing such instruments. 	<ul style="list-style-type: none"> • Distributing these products (with smaller volumes) to the bank’s retail customers. • Alternatively, deposits may be created where rates paid depend on success of bonds held by the bank.
Islamic products	<ul style="list-style-type: none"> • Sukuk (“Islamic bonds”). • Investments in Islam-compliant financial transactions and activities (but might be cumbersome for standard” banks without Islamic experience). • Investing in Islamic fund products (in particular, equity funds are widely available, and the performance generated by Islam-compliant equity investments is on average the same as for normal equity investments). 	<ul style="list-style-type: none"> • Distributing Sukuk (with smaller volumes) to the bank’s retail customers is possible but an Austrian bank is not expected to generate client fees with Sukuk in the same way as intended for SME bonds. • Islam-compliant investment deposits can be created where the deposits raised have to be invested by the bank in a dedicated Islam-compliant way. Depositors do not receive any interest but receive a share in the profits generated by the investments made by the bank with the paid-in money. If an appropriate (Islamic) legal structure is chosen, the shares of the profits (percentages) can be freely chosen while the full loss risk is borne by depositors.
Ethical products	<ul style="list-style-type: none"> • Similar approach as for Islam-compliant products is employed but either (for example, “sustainable”) fund constructions are implemented or normal lending to (for example, “green”) customers or projects is performed. 	<ul style="list-style-type: none"> • Similar methods as described above are possible. Alternatively, normal deposits may be created with, for example, lower rates and/or structure pay-offs, which depend on the returns gained by, for example, “green” loans.
Product bundling	<ul style="list-style-type: none"> • Integrated view on offered deposit products and assets. • Allowing, for example, a partial offset of interest between loans (for example, retail mortgages) and deposits. • Creating flexibility for clients to combine features of different investment and/or deposit products. • Requires high flexibility in terms of IT (integrated landscape of solutions), a correct pricing, and a customer-centric approach (no product silos), as well as unified and more efficient customer relationship processes. 	

Figure 3 – Integrated view on asset side and on deposits (examples)

however, be noted that an exclusive look at the deposit side may be dangerous, for two reasons: on the one hand, any competition on price, which would not lead to a sustainable benefit for any bank, should be avoided. In fact, there is a high risk that a new equilibrium evolves in a market. This implies higher rates paid for deposits (as all banks are competing for them), but with unchanged access to liquidity and potentially even unchanged customer satisfaction (except for highly rate-sensitive clients of course, which may be less stable clients as defined by Basel III).

On the other hand, an integrated view on the asset side and the liability side of a bank is not helpful for the FTP. Rather, a combined product strategy for both sides of the balance sheet is required in various cases. Some examples are given in Figure 4 and are described in more detail in other parts of the paper.

Deposit analysis and customer segmentation

Many banks are becoming aware that a more granular differentiation of customer segments is required, which is based on statistical methods (behavioral segmentation) and on key influencing factors, such as the tenure of the relationship, credit usage, rates paid, use of internet (for retail customers) and various other indicators, which are statistically proven to be relevant for depositor behavior and decisions.

A precise behavioral segmentation enables banks to identify the most attractive customer segments to invest efforts in, to identify pain-points in the relationship with customers earlier, and more clearly, and to choose appropriate pricing and customer relationship management strategies (depending in particular, but certainly not only, on the varying rate sensitivity among different customer types). For instance, internet-using retail clients may demand dedicated information services in the first place (for example, specific types of applets); private wealth advisory clients may have a lower rate sensitivity, but require high-touch banking; clients having a lower rate sensitivity may focus very strongly on fees paid – in this case, transparency should be aimed for, and potentially higher margins may be achieved in turn thanks to lower required rates.

Smart bundling of products

An integrated view of offered financial products should be achieved. Thereby, flexibility is created for clients to combine features of various deposit (or investment) products. For example, partial offset of interest may be allowed between loans and deposits. Combining financing and deposits, for example, for retail mortgages with interest paid on the net amount of the outstanding credit and deposit, is provided by some banks. In practice, an integrated view on deposit products and asset-side products offered is necessary to achieve such an innovative offering. Also, high flexibility is required within the bank in terms of its IT (IT boundaries and non-integrated systems may need to be overcome), a correct and precise pricing (for each involved product feature in a product bundle)

and a truly customer-centric business approach (as grown product silos typically are an obstacle).

LCR-optimized product design

Several banks have been discussing how they could adapt their deposit product design, in order to meet Basel III requirements on the LCR pragmatically. In other words: what could banks do to make life easier for themselves under the LCR, in terms of trade and product designs. While Basel III rules have not yet been finalized, one idea is that a bank could tie customers into deposits lasting one year or more, while giving them an option to withdraw their cash at 35 days' notice meaning the funds aren't caught by the 30-day maturity threshold in the LCR.

Pushing transparency

As mentioned already briefly above, pushing transparency may be a better recipe (at least, for certain customer segments) than simply increasing rates on deposits (which are anyway not the only driver of deposit customer loyalty). An innovative example in this context is the German bank TeamBank, which successfully follows a similar high transparency approach in the context of consumer credit. "Fair banking" (avoiding hidden costs and, thereby, related reputational "time bombs") is another key term used in current discussions in the industry.

Financial education and management tools

Another focus in several banks is to provide financial education (for example, via YouTube), a stronger community-orientation, and dedicated services such as free online money management tools and applets. For example, Lloyds Banking Group is debating whether to implement systems that inform customers not just about how much money is currently in their accounts, but also how much money those customers are expected to have available, as soon as all of their usual bills will be paid.

It should be noted that financial educational activities are not merely undertaken via the internet; some retail banks have been pondering on providing financial education through their branches or through specialized communication centers.

Offering non-financial benefits or other innovative benefits

One example of this is an American bank which offers its clients customer reward points that can be redeemed for virtual goods on Facebook (in order to attract young customers / young adults). Another example is an American bank where customers who deposit a certain amount of money for a defined time period can participate in a lottery for various prizes.

Using client-owned assets in custody for external repos versus cash or HQLA

In this case, the client gets a fee for ceding its assets temporarily to the

bank. However, if the bank fails to pay back the cash at the end of the repo, the ownership of the asset is transferred to the repo partner. In some jurisdictions this might induce legal issues, which have to be analyzed in detail in order to prevent any potential reputational risks.

Minimum fees

Some banks introduced minimum fees for accounts that do not meet a minimum balance. This creates incentives for clients to behave in a foreseeable, “stable” manner (at least, as far as the minimum balance is concerned). Controversially, however, it creates the risk that some clients will move to another bank.

This is a good example to illustrate how measures, which seem appropriate for improving customer deposit stability and liquidity, may not be optimal from a different business perspective. For instance, there are also banks that introduced extra fees for accounts that do not fulfill a minimum number of transactions per period, with the goal of increasing the activity of the customers on their accounts and thus optimizing the bank’s income from these transactions. While both fee types could also be combined for a single account, this may not be an optimal solution either. On the one hand, the clients might hold higher balances on their accounts but on the other hand, they are likely to produce more cash flow uncertainty. A more holistic view is required here.

Direct banking and recent developments

A relatively simple-to-implement option to acquire deposits (if not pursued already by a bank) is to set up a retail direct bank. For example, the German bank IKB and the Royal Bank of Scotland have both taken this route successfully. The potential for such a strategy is also underscored by the fact that one new direct banking franchise in Germany has acquired €3billion in its first year of operation.

A potential drawback of a direct bank, which is often mentioned, is that certain types of highly rate-sensitive direct banking customers may be quicker in switching institutions if they get better conditions there. While this is, of course, true in certain cases, it would be wrong to state that all (or even the majority of) direct banking customers lack loyalty and that they are merely constant bargain hunters. In fact, experience within various leading direct banks proves that a significant portion of clients can successfully be bound to the bank, even though, for example, only new customers enjoy certain types of benefits. Promotions for existing clients are one helpful tool in this context.

Banks that have decided not to pursue this route should also monitor developments in this area and in related areas of “direct” financial services:

- There are various innovative new entrants in the market, which may become relevant competitors on deposits for existing banks. One

example is Fidor Bank in Germany, which is a pioneer in its use of social media and Web 2.0. For example, the Fidor Bank Community includes bonus programs for customers who are using the bank’s platform to exchange ideas. There is high user interactivity for crowd funding, P2P lending and for information sharing over the platform, for example. In addition, Fidor successfully cultivates the image of an open and community-oriented bank for the internet era. A relatively simple example for this was a promotion where the deposit rate was set the higher, the more “likes” Fidor got on Facebook.

- In direct banking there is a considerable risk that completely new competitors arise. For example, it is known that Google has a banking license already. Its former CIO, Douglas Merrill, founded ZestCash and, subsequently, ZestFinance. One of the creators of Twitter, Jack Dorsey, established the mobile payments company Square, and in Fall 2012, Amazon Capital Services started its new program Amazon Lending, which offers loans to its online sellers. The focus of some of those companies has so far been on payments, and competition in this area is becoming tougher for banks, due also to regulations such as the possible consequences in the EU of the payment services directive (PSD), which was intended to increase participation in the payments industry and to ease cross-border service offering. However, future moves beyond payments into banking, in particular direct banking and comparable direct financial services, seem realistic, and such competitors would certainly be very difficult to cope with for retail banks, which typically have a much lower sophistication and degree of maturity in terms of both data science and social media-based customer relationships. In addition, some of those potential competitors enjoy higher acceptance and reputation among consumers than the banking industry, and of course this is true especially among the growing segment of clients that can be classified as so-called digital natives. In addition, competitors may also arise out of other industries. For example, the large British retailer Tesco already offers credit cards and loans, and has plans to introduce full bank accounts. The fastest growing bank in Japan is Rakuten Bank. Here, Rakuten (similar to the Chinese Alibaba Group) has created an entirely new business ecosystem by adding financial services to its original e-commerce business, combining travel services, portals, and others. Such ecosystem expansions may be viewed as game-changing moves, which might also be considered by traditional financial institutions. Rakuten has already been reinforcing its global trading presence buying online retailers in the USA, France, Germany and the UK, and similar approaches may be considered by non-banks in the future.
- A type of finance company has recently emerged, which might threaten traditional banks’ core business of lending in a direct way. P2P lending services such as Lending Club and Prosper not only bring private individuals together for consumer loans, but they are also increasingly attracting institutional investors, including hedge funds

and wealth management firms, which currently account for about half of the outstanding loans for both of the companies. Lending Club, for instance, has even created a special subsidiary called LC Advisors, which allows investors to commit capital and then lets them allocate it and re-invest it constantly, providing first-come, first-serve liquidity from the cash repayment flows. In contrast, companies such as Funding Circle and FundingKnight in the UK now focus on (unsecured) crowd lending for business customers, while ThinCats offers secured loans to business, directly attacking banks' core business.⁵ Some of these lending platforms also cover business invoices, which can at the same time be traded directly on platforms like Platform Black and MarketInvoice.

- Other, relatively new companies are not actually financial services providers, but they offer information management, money management, or investment tracking tools, which enables them to become the primary and central contact point for their retail clients. A very successful example for this is US-based Mint, which pulls all financial accounts of its customers (across most US and some Canadian banks) together in one place. While Mint is not a bank, there is a risk that banks may lose the position of being the first direct contact point for their customers. This might, in the worst case, even lead to a situation where banks could merely be "product manufacturers" working in the background for other firms who manage the relationships with their customers directly.
- Direct banks may make greater inroads into retail loan issuance and may increasingly add real (physical) service points in selected locations. While at first glance this seems like a departure from the principles of direct banking, service points can be a highly valuable addition to the activities of a direct bank, if implemented properly. They typically follow a different style and approach than normal branches. For example, ING Direct U.S.A. calls its San Francisco location a café, with beanbag chairs, coffee and cakes, and free WLAN access. It works especially well in well-populated cities such as Vienna and Budapest, where an exceptionally large share of the population of Austria and Hungary live. Communication with the customer can be enriched by personal contact, for example when it comes to more complex financial products or when a direct bank wants to extend its offering and to develop into types of services in need of explanation. In parallel, various retail banks are considering reducing the number of branches, as neighborhood branches are less important for many customers. "Concept stores" may become more attractive, which focus on communication and education, rather than being transactions-oriented. Such stores will include integrated electronic media for customer education and interaction.
- Beyond serving retail clients, direct banks might also opt to increase services to business customers. Given the highly cost efficient set-up of direct banks, this could enable them to provide loans to small businesses or to corporate clients at more attractive rates, for example.

- Last but not least, it is possible that in the future, bank accounts may become increasingly decoupled from banks. This is due to the fact that the ability to store value is no longer the domain of banks and that other value stores (for purchasing) are gaining importance and market share. Mobile wallets may be the most important source of this development, especially in some African markets where mobile phone penetration is increasingly connecting consumers who do not have access to traditional bank accounts. With mobile phones being linked to a variety of value stores (for example, former Facebook credits and various types of prepaid cards), the battle for retail money deposits and, ultimately, for cost efficient and stable sources of liquidity could become even more challenging for banks. Momentum will ultimately depend on future regulations and on the business models pursued by non-traditional banks entering the market from various industries.

Assets and investment products

When discussing the impact of Basel III on their business, many banks are increasingly looking at how they could create or change products on the asset side of their balance sheet and adapt related processes.

Ensure that all possible assets can be placed into covered bonds and standardized for securitizations

Here, the purpose is to reduce reliance on unsecured funding and to decrease funding costs for the bank. In the chapter on FTP, we mentioned that the FTP may be adapted to reward liquidity enhancing assets, such as assets which qualify for a cover pool. Looking at such assets only from a FTP perspective may not be sufficient, however. Instead, an integrated strategy that is actively supported by the relevant business lines should be pursued.

Based on the January 2013 revision of the LCR rules by the BCBS, residential mortgage backed securities (RMBS) may also be included in HQLA, subject to a number of pre-conditions (such as a long-term rating of AA or higher). Therefore, what was said about placement of assets into covered bonds above is equally applicable to highly rated residential mortgages.

Moving from corporate loan issuance to corporate bonds

Given the potential impact of Basel III rules on corporate loan issuance, this is one of the most intensively discussed topics among several banks. In theory, it would be more beneficial for banks to generate fee

⁵ More specifically, it would not be the platforms that attack banks' core businesses but rather the institutional investors that make use of them. Hedge funds and other "shadow banks" can often provide credit in a more cost efficient way than banks – especially if they can save the costs of regulation, and they could more extensively enter the market for loan issuance (for both retail customers and corporate clients) through specialized platforms. The economic potential for such activities might, of course, be reduced by future regulations that could be aimed at such shadow banks.

incomes from corporate customers, when compared to RWA-intense, liquidity-harming activities (like long-term corporate loans). In practice, however, bond markets in many countries (for example, in Europe) are not yet sufficiently developed to support such an approach for the majority of enterprises. In Austria, for example, the state-owned bank Austria Wirtschaftsservice (AWS), which deals with promotional SME finance, tried to promote national bond issuance in 2004 through a so-called “Mittelstandsbond” (SME bond), which it initiated together with Investkredit Bank. This instrument was effectively a credit-linked note (CLN), which bundled a number of SME bonds in a portfolio, where the equity tranche was partly covered by a guarantee from AWS. The transaction, however, remained unique for Austria.

One possible approach for banks is to support corporates to issue bonds rather than borrowing from banks, and to pass on these bonds to the bank’s own retail clients. However, if structured credit products (like the above-mentioned CLN) are to be used, there is a potential reputational risk regarding retail customers. Another possibility might be to create deposits where the rates paid depend on the success of bonds held by the bank.

Applying typical Islamic banking methods for assets and deposits

Islamic current accounts pay no interest but there are also profit and risk-sharing types of deposits (investment deposits). For these deposits, the returns paid out to the clients depend on the success of (Islam-compliant) financial investments, which are managed by the bank, and where the generated profits are shared between the bank and the deposit investors.

One possibility for non-Islamic banks to implement such deposits relatively easily is by using Sukuk (Islamic bonds), which may also be distributed to retail clients. One Turkish bank in Germany has offered something similar to its customers in Germany and Austria. Another possibility considered in the European banking industry (for example, by banks in the Netherlands) in the context of Basel III is to use fund structures. Again a link between the retail (deposit) side and investment products can be built.

Such innovative solutions can help a bank differentiating itself in the funding market and could also improve the bank’s ability to self-fund its lending business. In countries where many Muslims live but do not form the majority population (such as in Europe), a conservative estimate is that 5-15% of Muslim citizens are a target group, especially if the product offering is coupled with “ethno” marketing. An example for a pure (non-Islamic) “ethno” bank is Deutsche Bank’s subsidiary BankAmiz.

However, there is still a lack of Islam-compliant financial products across Europe and other regions. For the EU, passporting opportunities

therefore need to be mentioned in this context, as well. Keeping in mind that regulators like the FSA or the BaFin are already familiar with Islamic banking products, and that countries such as Ireland aspire to become a hub for Islamic finance, there is certainly a trend towards more Islamic finance in Europe.

In a current research project, a leading Swiss University is extending its cutting-edge asset allocation model for various Islamic banks that are active in the Middle East. In Islamic banking, such investment deposits are typically called PSIA (profit sharing investment accounts). It is important to distinguish between unrestricted PSIA (where the bank is authorized to invest the funds at their discretion) from restricted PSIA (where conditions are specified for investing the funds, such as limitation to real estate financing, for example). Islamic banks generally apply two types of reserves: investment risk reserves (IRR), formed out of returns attributable to deposit holders, and profit equalization reserves (PER), accumulated from general profits of the bank before the bank has been paid its portion of returns. Both types of reserves are used to smooth returns paid out to investment account holders, and as PER includes profits attributable to the bank, this effectively implies subsidizing account holders.

While this may look complex to conventional bankers, it is important to understand that the situation faced by Islamic banks is quite a special one: in the Islamic banking industry (which is still heavily coined by many small and less sophisticated institutions), if the bank is not able to pay out returns that are comparable in size to the returns (i.e., normal interest rates) paid out by their competitors, it runs the risk that customers will withdraw their funds and place them elsewhere. The underlying issue is called “displaced commercial risk.”

This risk is not present at all in conventional banks. European banks should thus view profit-sharing deposits as an opportunity to target a specified clientele and to offer a product, which enables banks to provide real investor-like risk and return profiles. The required investment security for retail deposit holders may be achieved by investing in relatively secure financial products such as Sukuk.⁶

Application of Islamic techniques to non-Muslim customers

Such techniques are also relevant to the discussion around sustainable themes in banking. Typically, fund constructions are being planned in this context, coupled with the use of normal savings accounts. For example,

⁶ In certain jurisdictions, Sukuk will become eligible for the LCR under the Basel III alternative liquid assets (ALA) framework. While the BCBS stated that Shariah-compliant financial products (such as Sukuk) may be defined as alternative HLA applicable to Islamic banks only, it is likely that in some markets (including the EU), given the general principle of equal treatment, such products may also become eligible for other, non-Islamic banks, thus adding to the diversity in the range of eligible assets and helping to diversify the HLA / CBC buffer.

deposit returns may be linked to returns generated from green lending activities. This allows banks to offer value, beyond risk and return, to specific customer segments.

Structured pay-offs are possible, as well, and would be helpful for the bank's funding purposes, but they may imply reputational risks for "ethical" consumers. Banks typically consider two options. One consists in offering such assets and deposits bundles directly to the bank's own customers. The other one is to create such products for other banks which can pass them through in smaller volumes to their clients. This option is being considered by a major Swiss cantonal bank.

Similar techniques could be employed in other contexts, for example SME bonds that have already been discussed. For example, a French bank could create a "France small and medium enterprises account" with a structured payoff that is linked to a managed portfolio (rather than a securitized structure) of SME bonds held by the bank.

Moving from a traditional product focus to a truly customer-centric approach

Pursuing this strategy from an integrated asset and deposit perspective requires integrated customer data, which can be accessed from any location. This assumes that a bank has an integrated IT target landscape and strategy in place. For example, a single credit underwriting process is required per customer and also in the case of multiple loans granted to customers. Banks should also avoid asking customers to fill out redundant forms in order to speed up processing and to improve the customer experience.

"Serve the underserved" (migrants and under-banked consumers)

An interesting niche strategy can be to gather deposits of migrants (migrant banking) and provide them with loans. A key motto here is to "bank the unbankable." Migrants have a specific life cycle in terms of their financial needs, which typically evolves across different stages and even generations. In the first instance, they normally require remittances. Then savings products, payment services, loans for consumption, start-up of economic activities (self-employment or microenterprises), and mortgages come into play. A third stage involves more sophisticated needs such as investment and asset management, as well as pension schemes.

An interesting European example is Agenzia Tu, a subsidiary of Italian UniCredit, which takes the view that migrants have higher savings rates and undertake more entrepreneurial activities, which makes them attractive long-term customers. Products offered by Agenzia Tu include personal loans, small enterprise financing, card products, and special money transfer services, which are provided in cooperation with Western Union. Although Western Union is not a bank as such, it should be noted that the company has banking licenses in both Austria and Brazil, which may

further support and leverage the evolution of the company's business in the future.

The potential drawbacks of such an approach might be limited volumes and potentially higher risks. On the other hand, this customer segment can certainly be attractive as part of a longer-term niche strategy.

Finally, it should not be overlooked that the underserved customer group goes well beyond migrants since it includes all those consumers who are underbanked because of their bad or non-existing credit histories. The US firm ZestFinance has specialized in providing loans to such people, based on a cutting-edge "big data" approach. It looks at thousands of indicators instead of just standard credit scores. These include the length of time that potential customers spend on the firm's website before applying for a loan. Likewise, the London-based digital finance company Wonga, which offers loans for very short time periods, looks at many different types of data, such as social network sites (similar to US Movienbank which has a credibility score called CRED), while the behavior-based credit scoring engine of the Brazilian-American firm Cignifi analyzes mobile phone records and looks at variables such as the frequency and whereabouts of callers to help determine the credit worthiness of its customers. Beyond improving the accuracy and reliability of credit scoring methods, this approach also enables companies to get access to an even wider range, depth, and diversity of data about their customers.

Increased product selling based on data science

The ability to process large amounts of data can also be used to try selling more financial and non-financial products. Every week, for instance, Santander sends out lists to its branches about clients who may be interested in particular products, such as home insurance, while Citigroup in Singapore has the ability to send text messages to its clients offering a discount at a suggested restaurant, based on an analysis of credit card transactional data. This allows the bank to derive information about the nutritional preferences of the customer, as well as the current location of the customer (if he or she has just swiped a credit card). Customers have to sign up for the service, which was apparently inspired by Amazon's online store, which also recommends products to a customer based on analysis of a customer's previous buying behavior.

Setting up integrated strategies: typical issues

When evaluating potential changes in business models or setting up other types of integrated strategies, there are a number of issues which banks typically experience:

- FTP analyses may lead a bank to question and challenge existing business models. However, to actually implement such changes, significant political support and a systematic approach to strategy planning is usually required within major banks.

- “Silo” activities (for example, on the liability side) may only lead to increased costs. An integrated approach and business view is needed but difficult to implement, especially if banks are aiming for a customer-centric approach.
- The implications of other regulatory drivers (such as Basel III RWA rules or the impending new classification rules from IFRS9) for business models have to be analyzed carefully.
- IT: data and analytics need to be available in a comprehensive and granular way.
- Some competitors do not have the burden of Basel III at the group level, as Basel III is not implemented in countries such as Russia. The Russian industry leader Sberbank, which is moving westwards into Europe with the recent acquisitions of CEE banking group Volksbank International (VBI) and of DenizBank, has such a dominant position in its home market that current accounts there are generally priced at 0%. While cross-border funding may be limited in various ways due to legal impediments, this may nevertheless constitute a relevant competitive advantage on the level of the banking group.

In the following chapter, we will try to describe a systematic approach to the analysis and implementation of changes due to the new Basel III liquidity rules.

Analysis and implementation of business changes: a structured approach

Based on the experience with liquidity risk management projects at other banks, a structured approach is generically described here, which is based on five stages of analysis and implementation. An overview of the whole process is provided in the diagram below. The different stages are described in more detail in the following chapter.

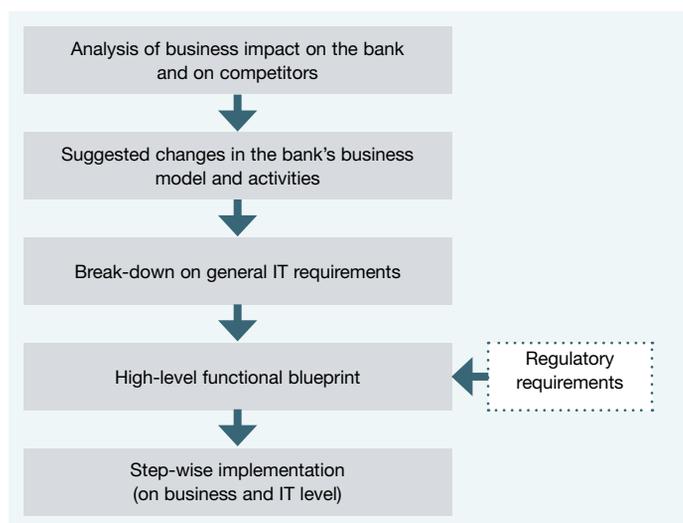


Figure 4 – Structured approach for the analysis and implementation of business changes in five stages

Integrated analysis of business impact on the bank

This typically consists of the following activities:

- Breakdown of the situation facing a specific bank, along with quantitative modeling and analysis. This is done through example calculations, which show the impact of the new Basel III rules on the FTP of the bank (for example, on the level of “typical” products).
- Integration of related topics, such as Basel III RWA rules and the analysis of potential new intraday liquidity risk rules. In addition, topics such as new IFRS 9 classification rules (still to be clearly understood) may enrich the analysis.
- Analysis of the expected impact of all considered topics on competitor banks within the relevant markets.
- Regular workshops performed to communicate the results after each step of analysis.

Suggested changes in the bank's business model and activities

Based on the insights generated in the first stage, in the second stage concrete proposals and consequences should be discussed:

- Which types of business have to be reduced?
- Which types of business need to be abandoned?
- Which new opportunities arise, due to possible new product offerings on the asset side, for example, or due to expected competitor reactions? For example, some competitors exit market niches, given the unfavorable impact of Basel III on their activities in that area.
- Analysis of interdependencies. For instance, reduction in a certain type of business, coupled with a new strategy (deposits, for example) may have a cross-business impact which needs to be addressed explicitly.
- Integration of such discussions, at a later stage, into any existing structured strategy planning processes. Ideally once a general strategic picture of liquidity has been drawn.
- Decision on which business model changes shall be pursued by the bank.
- Conclusion: planned future businesses of the bank:
 - Planned deposit structure
 - Planned asset structure
 - Which part of the plan can be achieved by funds transfer pricing, for which part are limits required?
 - What are the auxiliary requirements?
 - Can the LCR and the NSFR be actively steered to facilitate the new business plan?
 - Is the bank able to gather the necessary liquidity?

Breakdown on general requirements (focus on IT)

As soon as business changes have been decided, the bank has to perform the necessary modifications in all the usual areas that are relevant

in general for business model changes (for example, processes and HR). We want to focus here on the level of IT. From our experience this is one of the most demanding challenges for banks when realizing integrated, group-wide liquidity management strategies.

First of all, the business change decisions have to be broken down according to very general IT requirements. In other words, if a certain product strategy should be pursued, what are the general IT requirements that follow? Initially, this analysis should be performed for all identified business individually, before moving towards an integrated view, which is the high-level functional blueprint described in the next chapter.

High-level functional blueprint

Liquidity management and risk management

An example of a functional blueprint, which was utilized at a major European banking group in a liquidity risk management project, is shown in Figure 5.

It should be noted that such a functional blueprint has to fulfill two overlapping goals if created for liquidity management and risk management: on the one hand, strategic business decisions have to be supported, on the other there are increasingly sophisticated legal and regulatory requirements, which have to be fulfilled by a bank.

Moving from product silos to a truly customer-centric view

A similar blueprint may also be created in the context of other strategies. A particularly demanding strategy would be to shift the bank’s focus from a traditional product perspective (which in practice often comes with the drawback of product silos) towards a customer-centric view. Obviously, a broad range of different customer-centric approaches and related strategic options are available here. The impact of such a strategy on functional and IT requirements should not be underestimated. As this will involve quite different software systems and databases, when compared to liquidity management (or liquidity risk management), it is advisable to create a functional blueprint explicitly for such strategies, where required.

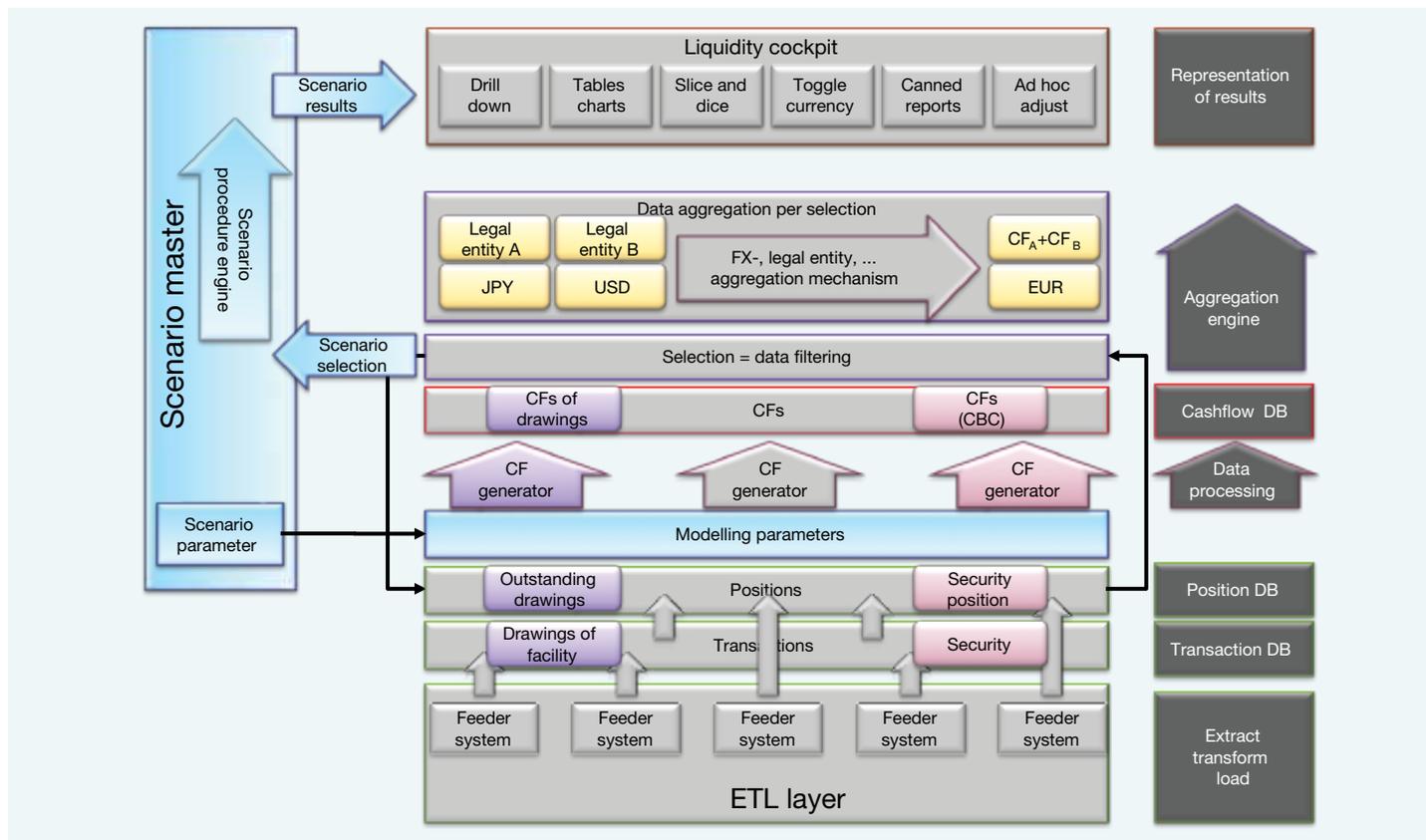


Figure 5 – Example of a high-level functional blueprint for liquidity risk management used for a major European bank

Step-wise implementation

The rationale for such a functional blueprint is that there needs to be an infrastructure, which can then be extended and developed step by step. For example, when implementing a consistent liquidity management and risk management infrastructure, the following areas may be covered and extended iteratively:

- All transactions of the bank.
- All securities.
- Aggregation possibilities.
- Cash flow details and calculations.
- Moving from simple to complex simulation possibilities, etc.

This means that both regulatory requirements and economic liquidity risk management can be supported in a consistent way – starting pragmatically at a relatively low level of sophistication, but enabling a bank to implement future requirements thanks to a complete view.

Conclusion

Basel III presents significant challenges on the business side for many banks. Given the fact that these challenges affect the whole banking industry at the same time, the complexity and uncertainty regarding the involved strategic questions is tremendous. As a consequence, a completely integrated view is required on both the impacts on the business level and on required actions on the IT side, for example.

Therefore, Basel III should not be regarded merely as a compliance topic located exclusively in the responsibility of a bank's CRO or CFO. Instead it should be part of strategic analysis undertaken at overall senior management level. For this purpose, a structured approach is strongly encouraged, and ongoing monitoring should be performed. This includes the need for the revision of any assumptions in the case of significant modifications of the Basel III framework or of any relevant shifts in the market.

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