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Corporate Bank

Real-time cash-balance reporting: No need to wait

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The global financial crisis underlined a real need for intra-day or real-time liquidity reporting, so that banks were able to measure and track their liquidity flows over the business day. The Basel Committee on Banking Supervision (BCBS) was the main driver for change; in 2013 it recommended that intra-day liquidity reporting be made mandatory and many assumed the proposals would quickly be enshrined in regulation.

As this white paper notes, in particular the world's largest banks undertake intra-day liquidity reporting – yet in the broader community the attention appears to have moved to other issues. Now is the time to revive that momentum. A strong common framework for real-time reporting now exists, while SWIFT's global payment innovation (gpi) initiative has introduced a high degree of payment transparency.

In addition to outlining the current benefits of real-time liquidity reporting, the white paper forecasts that the tech revolution now underway will enhance them further through the transformative power of application programming interfaces (APIs), distributed ledger technology (DLT) and artificial intelligence (AI). But investing right away in real-time reporting capabilities will quickly provide real returns, long before migration to ISO 20022 has been completed.

Published September 2019

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Foreword

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Cast your mind back to 2008. As the global financial crisis rattles the financial system, banks and corporates alike lose confidence in their counterparties' ability to make good on their obligations. In response, the Basel Committee on Banking Supervision (BCBS) issues a paper, proposing guidelines for banks to measure and track their liquidity flows during the course of the business day: a sound recommendation, ensuring banks can always check whether or not they are in a position to fulfil their outgoing payments at a given moment.

In 2013, as momentum for change gathered, a further Basel Committee paper, BCBS 248, included a proposal that this intra-day liquidity reporting be made mandatory by the responsible regulator. It seemed that it wouldn't be long before this recommendation was enshrined in legislation.

Yet today, this concept apparently has slipped down the agenda a bit. Many of the world's largest banks have made it imperative for themselves, but the majority of banks in the correspondent banking arena seem to have simply moved on to other issues.

Our contention is that those banks should think again. While momentum has faltered in recent years, the excellent work of the Liquidity Implementation Task Force – with support from SWIFT – has led to the publication of its Global Market Practice Guidelines, outlining a strong, common framework for real-time reporting. Why does this matter? Because, while real-time reporting may not be a mandatory exercise for most banks, it is certainly a beneficial one.

Beyond the obvious stress-scenario advantages, having a clear view over intraday cash positions enables banks to gauge how well they are managing their flows, and rectify any inefficiencies. This is the level of control that banks should have in this day and age. If a client's payment isn't fulfilled and he or she wants to know why, a bank should not turn around and say, "We don't know"; especially considering the degree of transparency afforded by SWIFT gpi. While many market participants are rightly placing high priority on larger and more impactful programmes, such as the impending migration to the new global messaging standard of ISO 20022, this is a relatively small, but still important issue that can be fixed today.

The banking industry is often chided for failing to act until its hand is forced, conscious perhaps of the complexity and disruption of implementation projects. This is one switch that can be made swiftly and cleanly, while yielding immediate results.

This white paper will show you how.

Background

The concept of reporting cash liquidity positions on an intraday or real-time basis is simple enough. The contention is that banks should be aware of their liquidity positions during the course of the business day – and not simply at the beginning and the end

1.1 Definition and context

The idea was first introduced to banks by the Basel Committee on Banking Supervision (BCBS) in 2008, when it released its "Principles for Sound Liquidity Risk Management and Supervision".[1] Known as BCBS 144, these principles outlined a series of qualitative best-practice recommendations for managing intraday liquidity flows – the funds that are borrowed and repaid by a financial institution within the space of a business day in order to effect payment and settlement – following the 2008 financial crisis.

The crisis had highlighted the global banking system's sensitivity to intraday liquidity flows, making it clear that the impact of a single defaulted payment could rapidly snowball – spreading from one bank to another before the end of a business day. With regulators loath to allow history to repeat itself, full visibility over banks' payment obligations, and the ability to react to changing conditions throughout the day, rapidly rose up the regulatory agenda.[2] The first outcome was BCBS 144, which argued that a "bank should actively manage its intraday liquidity positions and risks to meet payment and settlement obligations on a timely basis under both normal and stressed conditions and thus contribute to the smooth functioning of payment and settlement systems".[3]

Following this, in April 2013 the BCBS issued its "Monitoring tools for intraday liquidity management" (known as BCBS 248),[4] which provided a reporting framework to complement the principles outlined in BCBS 144. The document recommended that internationally active banks adopt a series of quantitative reporting requirements and commence reporting to respective home supervisors from 1 January 2015 onwards.

The tools enable banks to consider impacts under four stress scenarios:
— Scenario One: when the bank itself is under stress
— Scenario Two: when one of its counterparties is under stress
— Scenario Three: when one of its customers is under stress
— Scenario Four: when the wider market is under stress

The tool also provides monthly retrospective reporting on up to seven intraday liquidity monitoring tools.

Banks can decide the most appropriate way to apply these tools depending on their systems, correspondent banks, currencies, branches and subsidiaries. In this way, banks can monitor and manage their liquidity positions more closely to ensure they are able to meet their payment and settlement obligations on a timely basis, under both normal and stressed conditions.

In May 2019, as part of its "Sixteenth progress report on adoption of the Basel regulatory framework", the Basel Committee provided an update on the international adoption of the monitoring tools. The results showed that most of the surveyed member jurisdictions have completed the adoption, including the European Union and United States.[5]

1.2 Market response and continued relevance to correspondent banking

Banks – used to batching payments and noting positions only at the start and end of the day – were caught unawares by these recommendations. In response to BCBS 248, a group of 25 large clearing and custodian banks, including Deutsche Bank, partnered with global brokers to form the Liquidity Implementation Task Force (LITF). Taking the view that the development and adoption of common cash liquidity reporting standards and practices would be essential for addressing future regulatory demands, the group worked together with SWIFT to produce an intraday liquidity reporting rule book, known as the Global Market Practice Guidelines (GMPG) for Intraday Liquidity Reporting Messaging.[6] Published in October 2015, it was designed to outline how banks could fulfil the BCBS 248 requirements by standardised technical means.

As part of this response, the guidelines introduce two important distinctions between different approaches as to what liquidity reporting should be based on:

Distinction 1: Timed data at transaction level vs time bucket level reporting

There is some debate as to how granular real-time reporting needs to be. Should it be carried out at transaction level, with each separate transaction noted and time-stamped individually (the "Timed data at transaction level" approach)? Or can it be carried out on a periodical basis with short intervals of, say, 15 minutes or an hour (the "time bucket level" approach)?

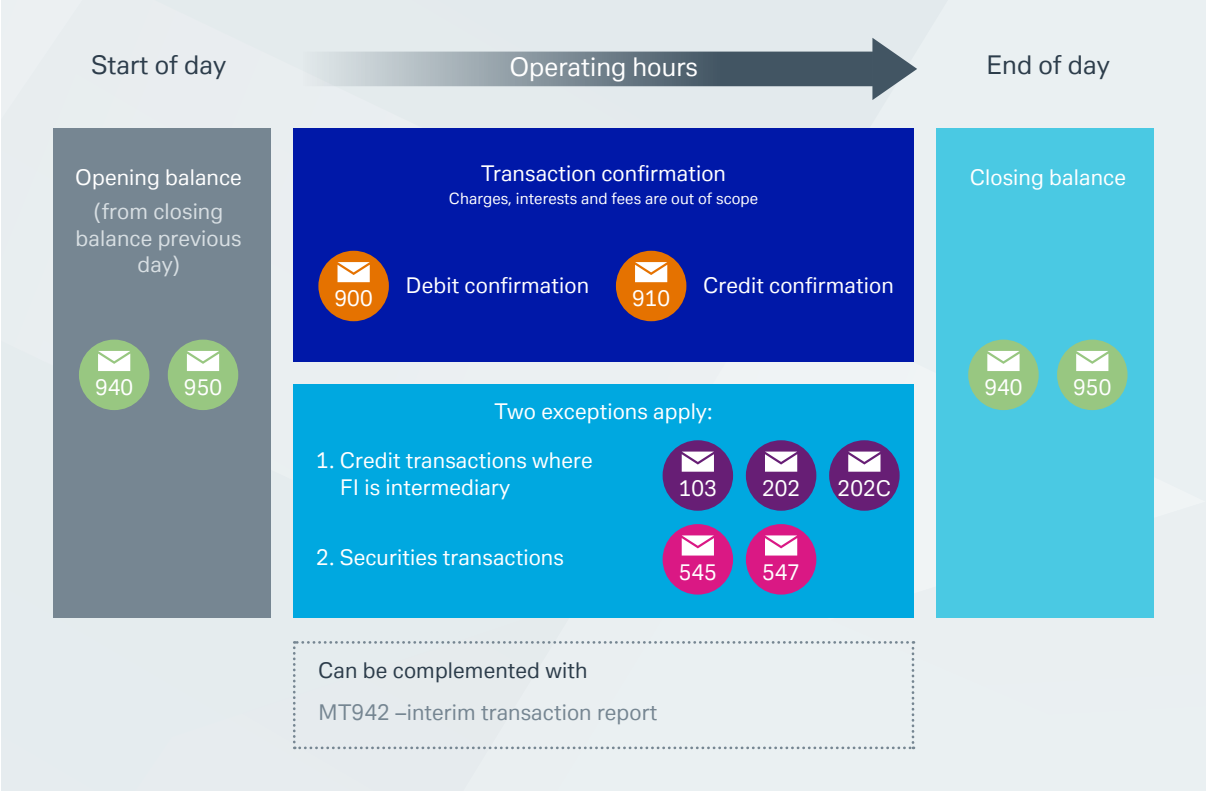
With no regulation currently mandating the majority of banks one way or another, there is nevertheless a clear recommendation adopted by the market practitioners: transaction-by-transaction.[7]

Distinction 2: Real-time, near-real-time and retrospective reporting

In the day-to-day practice, there remain several open questions when it comes to operational details around reporting. The current market guidelines define the lowest granularity of the time-stamp on a minute-by-minute basis. This time-stamp represents the point in time where cash liquidity is made available to one customer and ceases to be available to the other; yet booking systems and reporting systems are not necessarily the same.

So, in practice, it is assumed that real-time reporting should take no longer than five minutes from booking to notification. This is by means of SWIFT messaging types MT900 for confirmation of debit and MT910 for confirmation of credit on the part of the service provider. Other methodologies, including near-time or retrospective reporting, can complement the real-time account balance calculation (see Figure 1).

Figure 1: Guideline for real-time account balance calculation



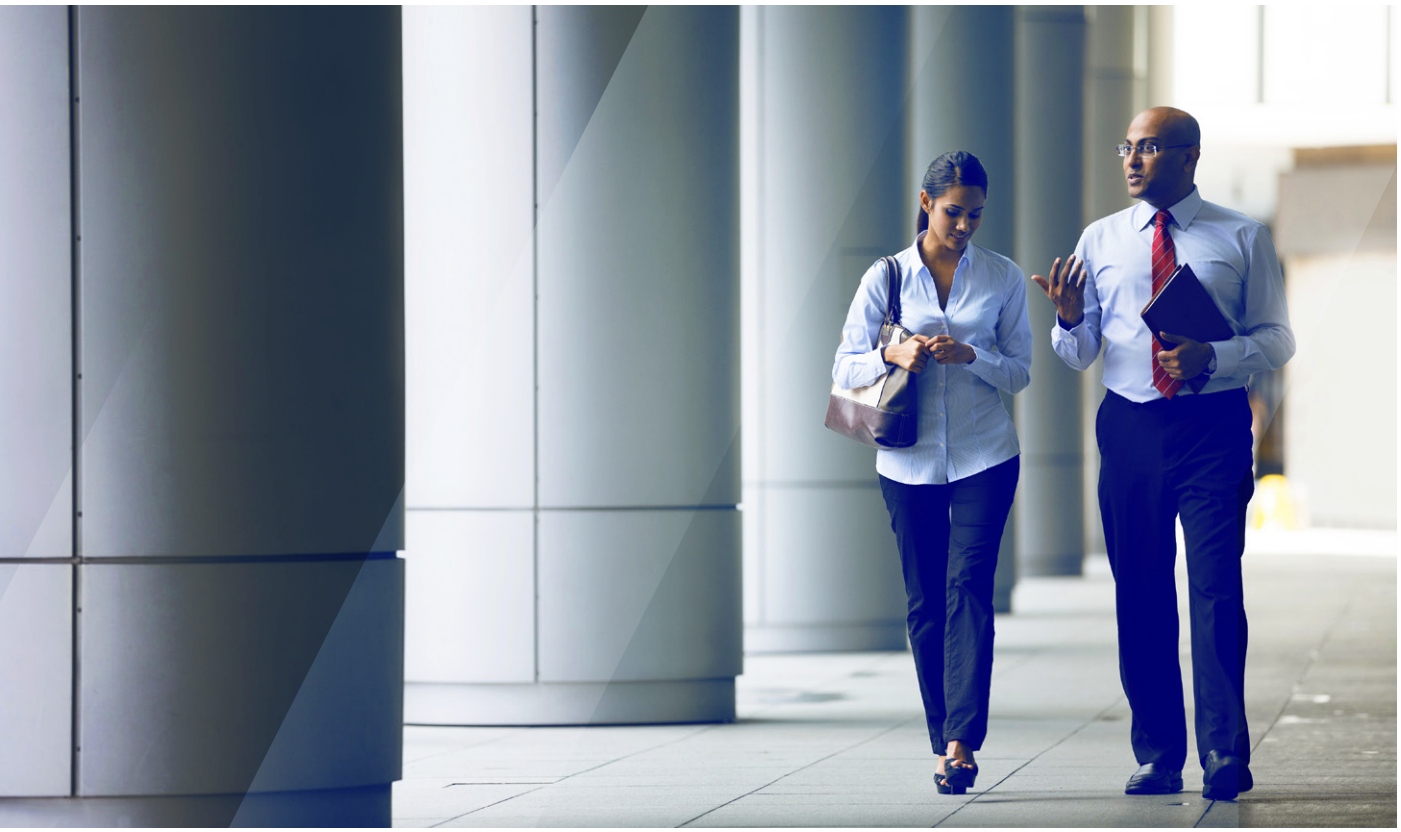
Source: Global Market Practice Guidelines for Intraday Liquidity Reporting Messaging 2015

1.3 Who needs to be thinking about real-time reporting?

However, while BCBS 248 proposed that banks be mandated to report their intraday liquidity positions on a regular basis, six years down the line mandates have been put in place inconsistently across geographies. Most have been implemented quietly, on a bilateral basis, for top-tier banks. So where does that leave other banks (local champions of medium-size but with international exposure, or specialised niche players that nonetheless move substantial amounts of cash on a daily basis)? Although not necessarily mandated by their local regulatory bodies, there remain compelling reasons why these banks may consider implementing real-time reporting as part of their own liquidity programmes.

The BCBS 248 report was upbeat on the potential wider application of real-time liquidity reporting beyond the largest mandated banks, stating that "these tools may also be useful in promoting sound liquidity management practices for other banks, whether they are direct participants of a large-value payment system (LVPS) or use a correspondent bank to settle payments."[8]

Many non-mandated banks have large international portfolios, meaning their cash liquidity positions vary significantly throughout a given 24-hour period. By implementing real-time reporting, they will be able to report on relevant account balances across different currencies more accurately and identify patterns and techniques that will help them manage their cash liquidity more efficiently. Accurate and comprehensive real-time reporting enables banks to assess their payments flows and respective funding strategies. But are they applying it on a daily basis? Is it right for their business model and is it working? Many banks simply are not applying such a strategy and are missing out on potentially huge efficiencies.



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The benefits of real-time reporting

Not everyone is convinced of the benefits of real-time reporting. That only a few – mostly mandated – institutions have adopted the service suggests that many are unaware of just how great an impact this information can have on control and efficiency

Fortunately, this impact is something that can be illustrated with striking immediacy. As a correspondent banking provider offering a range of reporting solutions to financial institutions with various business models and resulting payment flows, Deutsche Bank conducted a study into the daily cash positions of four different financial institutions (see Appendix for methodology). The findings of the study indicate that there is a clear distinction between institutions that consistently use real-time reporting service and those that do not (as demonstrated by Figure 2).

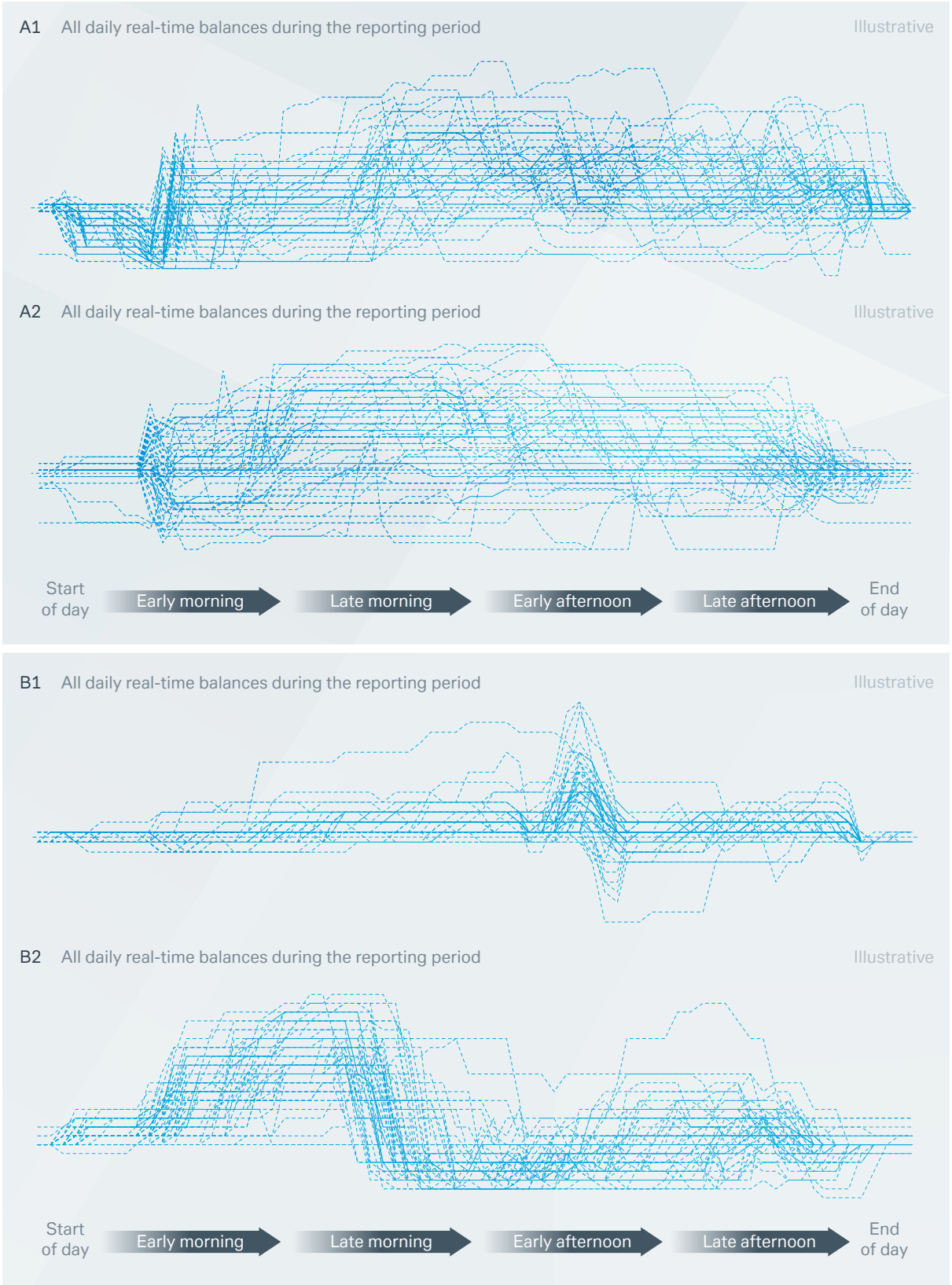
The banks using the extended real-time reporting service (those in Group B in Figure 2 overleaf) show a clearly defined pattern day after day. The non-users in Group A, however, exhibit more random patterns. As a result of this, there are many points on many days where the underlying account of a bank in Group A is either over- or under-funded – meaning they are either wasting cash liquidity (where they have a surplus), having to borrow at additional costs (if running a deficit), or risking a situation where they may fail to meet their payment obligations (if no alternative funding sources could be made available).

These are inefficiencies the Group A banks could eliminate, if they had visibility over their intraday flows. What is more, in conjunction with innovative industry solutions like SWIFT global payment innovation (gpi) initiative, payment execution delays can be spotted faster. There is a clear correlation between those banks that use real-time reporting and those banks that manage their account balances efficiently intra-day. Whether this implies causation is another matter; it is unclear whether those banks conscious of the value of intraday liquidity management seek out real-time reporting or the results of the analysis prompt them to take note and devise more efficient strategies. Either way, there is a symbiotic relationship between the two – and one that demonstrates the value of tracking account balances, and the resulting cash liquidity, on a real-time basis.

"There is a strong need in the industry for real-time reporting. From the discussions I hear in the market and the strong growth numbers for MT 900/910 on the SWIFT network, more and more banks are unlocking this capability"

Wim Raymaekers, Global Head, Banking Market, SWIFT

Figure 2: Comparison of the daily flows of non-users (Group A) vs users (Group B) of real-time reporting

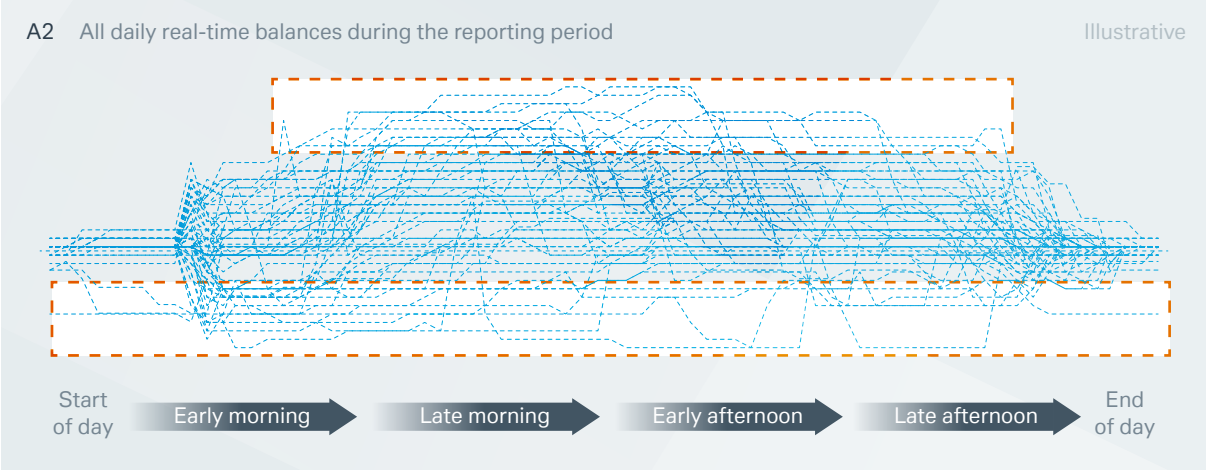


Source: Deutsche Bank analysis 2019

2.1 Maximising efficiency and control

The comparison between A2 and B1 (see Figures 3 and 4 below) provides a good example of how confirmed debits and credits and the resulting controlled real-time balance can identify and reduce the occurrences and endurance of over- or under-funding during the business day.

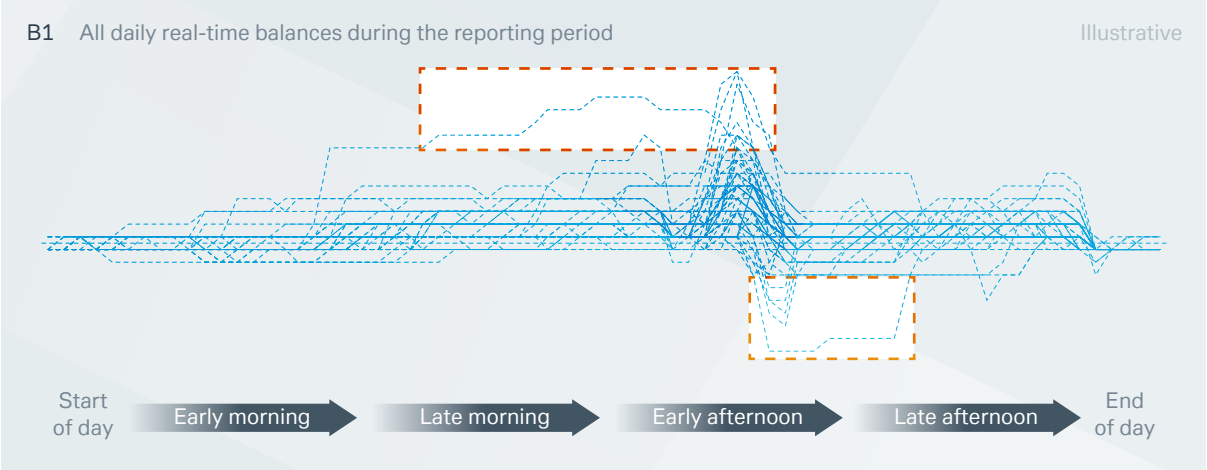
Figure 3: Analysis of A2 (non-user) daily flows



Source: Deutsche Bank analysis 2019

At least two symptoms of inefficiency can be identified in A2's graph. The first is the number of instances where the account is over-funded (see the highlighted areas). These show that the bank is frequently holding onto surplus cash in this account – money that could be put to better use elsewhere – settling outstanding obligations or transferring funds to another account with tight liquidity, for example. Likewise, there are many cases where the account is short of cash liquidity, meaning the bank is either relying on intraday credit lines, incoming payments, or lacks sufficient funding for queuing outgoing payments not settled yet. A quick look at B1's graph shows that over- and under-funding are rare occurrences by comparison.

Figure 4: Analysis of B1 (user) daily flows



Source: Deutsche Bank analysis 2019

The other element to factor in here is the length of time during the day for which the bank is exposed to over- or under-funding. In the case of A2, there are occasions where the account is short of liquidity or sitting on excess cash for almost the entire day, which amplifies the inefficiency. In contrast, B1 demonstrates a clear ability to react quickly and decisively to address outlier positions.

2.2 Adapting to stress

Of course, how a bank chooses to interpret its figures will depend on their overall funding strategies and business models, including the products, niches and locations they generate their payments flows from, the nature of their client base and economic activities, as well as their operational processes, standards and even location.

But while these will generate varying patterns, they do not detract from the benefits of applying the BCBS 248 guidelines and integrating them into a sound system of intraday cash liquidity management. These benefits are clear: a good understanding of your intraday account balance, as well as your expected, yet outstanding payments, and the flexibility to adapt to any kind of “stress” – be it grounded in your own operations, with your counterparties or in the overall market. Banks can access this data and start driving these efficiencies now – with minimum effort.

3

Future developments

It is well-documented, both in the banking industry and beyond, that technology is evolving at an ever more rapid pace and many of the major ongoing developments will have knock-on effects on real-time reporting. Potential impacts range from improving the richness of the data reported and streamlining reporting channels to enhancing the analysis of reporting data and even – in the much longer term – redefining the concept of reporting altogether

3.1 Global convergence

Perhaps the most immediate development likely to affect the workings of real-time reporting is the rise of global convergence through the widespread migration to the ISO 20022 financial messaging standard.[9] Spearheaded by many of the world's major payment market infrastructures, including the Eurosystem, the US Federal Reserve and the Bank of England, the standard is effectively mandatory for any bank that wishes to retain access to central bank money and continue to participate in the correspondent banking chain.

The immediate impact of the migration when it comes to reporting will be the replacement of traditional MT900 and MT910 confirmation messages with the new camt.054 format – providing richer and more structured data for reporting on payments and other postings on the cash account. This is good news for real-time liquidity reporting, with better data leading to better analysis and greater control.

Further factors driving global convergence have been introduced and discussed in detail in our white paper, "Preparing for real-time liquidity", published in 2018.[10] Next to the aforementioned BCBS 248 paper, the following features were also identified as necessary to formulating a real-time treasury set-up:
— Instant payments;
— Faster cross-border payments;
— Extended clearing hours; and
— Open banking

At the same time, however, the impending ISO 20022 migration has perhaps also served as a barrier to immediate adoption of real-time reporting. Many banks question whether they want to invest in new reporting services in the present, only to have to upgrade, possibly within a few months, to comply with the new messaging standard.

Fortunately, there is no such dilemma in practice: adopting real-time reporting is a minimal investment compared to ISO 20022, which has far-reaching implications right across the workings of a given bank that will need to be assessed and addressed. When the time comes to migrate, the transition of real-time reporting should be seamless – given the message format will change, not the methodology. This means little to no additional work is needed in terms of implementation, with most of the burden incumbent on the software provider.

> "The transition from MT 900/910 to their ISO equivalent will happen smoothly thanks to the global change programme that SWIFT is facilitating"
>
> *Wim Raymaekers, Global Head, Banking Market, SWIFT*

3.2 Application Programming Interfaces (APIs)

The development of application programming interfaces (APIs) offers a different proposition – holding the potential to provide an alternative channel for reporting. Currently, transaction confirmation and end of day cash balance reporting is carried out with the help of SWIFT as a network provider, which ferries messages between service provider and client.

With the right API, however, banks can connect their systems with those of their clients and service providers to create a direct channel of communication. This stands to streamline the exchange of information, cutting down on latency as well as the cost of involving an intermediary. How such a platform would look, as well as the value-added services that could be layered on, was outlined in a Deutsche Bank article from October 2018 entitled "Banking on Platforms".[11]

Banks are working now on developing API solutions for this purpose, but it will take time to establish the standards and solutions necessary to achieve this connectivity. Once issues around standardisation have been resolved, direct API connections could prove an alternative to traditional messaging networks. While API connections retain similarities to today's messaging, correspondent banks can also offer services such as real-time booking confirmation or allow customer banks to execute an "end-of day pull" – letting service users extract a full list of daily timestamped confirmations at once.

3.3 Distributed Ledger Technology (DLT)

One of the more intriguing developments is the growth of distributed ledger technology (DLT). The principle that underpins DLT is the lack of a central system that acts as processor and arbiter for all transactions. Instead, the technology relies on all parties holding their own copy of the transaction chain, to which further transactions can only be added if all parties in the chain agree at the same time.

If applied to correspondent banking transactions, the effect of using a DLT solution would be to make all reporting data immediately available, since the transacting parties must agree to all transactions and update their chains simultaneously for the transaction to be successful. This finding was shared by SWIFT's "gpi real-time Nostro Proof of Concept (PoC)", conducted in 2017/2018.[12] Real-time confirmation for each debit and credit entry could provide accurate visibility over intraday liquidity curves.

In the proof of concept, Deutsche Bank concluded as follows: "Although DLT shows promise, unanswered questions – as well as challenges to adoption – remain. So, it is still early days for DLT to be considered mature enough as a basis for a global mission critical financial infrastructure".[13]

The good news is that banks need not wait for DLT to get their hands on the real-time data in question – the reporting tools are already available and the benefits can already be realised.

3.4 AI and automation

Having granular real-time data is an important step. But to realise the value of this data, banks will have to analyse the information, considering their daily payment flow patterns and identifying ways to drive efficiency. As stated in Section 2, there is plenty to be done here and one way to ensure no stone is unturned in the quest for optimisation is to employ automation, with artificial intelligence solutions capable of identifying patterns, spotting outliers and proposing solutions – and typically far faster and more thoroughly than a human could.

This plays into a more futuristic vision in which many of a bank's treasury functions are executed automatically, enabling employees to focus on more strategic concerns, while managing any exceptions that slip through the system. As with DLT solutions, the ultimate vision here is still some way down the line, but the capability to analyse real-time transactions and liquidity data is not – and poses an excellent way to maximise efficiency.

4

Seize the opportunities

Real-time reporting has undergone a complex journey from concept to reality and today it can be carried out to a high standard. This is data that can be put to strategic use – guarding against stress situations, ensuring constant control over payment execution and enabling bank treasuries to optimise their daily positions in line with their funding strategies

These efficiencies appear to be going under the radar of most participants in the correspondent banking network, perhaps due to the concept's regulatory origins. Yet real-time reporting is not a burden: as with any data-gathering exercise, there are rewards to be reaped from careful analysis. And, in combination with SWIFT gpi, banks can enjoy vastly improved visibility over cross-border payments, including the status of the payment.[14]

There is no need to wait. Though new technologies and standards loom on the horizon, history teaches us that they always will; the benefits of real-time reporting are there to be seized now and there are only positives to be taken from investing early. With the right application, the investment in real-time reporting services could come to fruition and pay for itself, long before ISO 20022 migration.

The overall message that may be taken away from this white paper is this: there are clear benefits to adopting real-time reporting as an exercise in internal efficiency – and they can be realised today.

> "The benefits of real-time reporting are there to be seized now and there are only positives to be taken from investing early"
>
> *Christian Westerhaus, Head of Cash Products, Corporate Bank, Deutsche Bank*

5

Appendix

Deutsche Bank's real-time cash-balance reporting study

To conduct the study, Deutsche Bank selected accounts from four different financial institutions; headquartered in Asia, Europe and the US respectively. All share a similarity: their daily flows – both outgoing and incoming – could be regarded as statistically significant when it comes to values and volumes. Samples were chosen based on the following criteria:

— All data comes from the reporting period 2Q 2019 (62 business days in total)
— All accounts are denominated in euros (for simplicity)
— The largest daily gross payments sent or received during the reporting period per account (see Monitoring Tool A(iii) in the Basel Committee's BCBS 248 paper)[15] are greater than €1bn
— The daily volume per account is usually well above 1,000 transactions
— Two banks subscribe to Deutsche Bank's real-time reporting service; the other two do not

The four banks in the study differ when it comes to:

— Funding strategies: Some clients draw from available overnight balances, some use pre-funding from LVPS, others consume intraday credit lines or wait for incoming payments from counterparties before recycling this cash liquidity for their own payment obligations
— The nature and composition of outgoing flows: Some clients instruct category 1 or 2 messages only, some move between outgoing MT103 and MT202 messages, and others release low amounts first at the start of the day, followed by a steady increase in amounts
— The point in time when payment instructions are submitted to us: Payment instructions reach us at different times from different clients, depending on our local business opening hours as well as differences in time zones between Frankfurt and the location where payment operation teams and treasury teams of the clients are located

These variations give diversity to the study, but also drive necessary variation in payment patterns.

Methodology

Deutsche Bank applied its newly available "Intraday Liquidity Metrics" report to the flows of all four banks in the sample and analysed the two different report outputs:

1) An overview holding the different monitoring tools as described in the BCBS 248 paper:
   — Daily maximum intraday liquidity usage
   — Available intraday liquidity at the start of the business day
   — Total payments

2) A list with all transactions booked on the account in the selected time period, each holding the individual time-stamp as specified by the Intraday Liquidity Standard.[16]

For the illustrative purposes of this paper, daily real-time balances were calculated – structuring every business day from start of day until end of day into 10-minutes time windows – to create graphical representations (the line charts in Figures 2-4).

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