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IMPACT OF INSTANT PAYMENT AND INTRADAY LIQUIDITY ON THE CORPORATE LIQUIDITY MANAGEMENT ECOSYSTEM

EBA Liquidity Management Working Group

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CONTENT

EXECUTIVE SUMMARY

The primary responsibility of all corporate treasurers is to ensure their organisations meet any financial obligations as they fall due. To fulfil this responsibility, corporate treasurers rely on their banks (and other payment service providers) to process payments (both disbursement and collection) accurately and in a timely manner. To be able to do so, banks generally need to have access to multiple payment systems, and they need to manage the level of liquidity they provide to these systems to ensure payments, especially time-sensitive payments, are processed without delay.

Over the last decade, infrastructure supporting instant payments processes has been developed. To date, instant payments have primarily been used by consumers, with limited adoption in the realm of business-to-business (B2B) transactions, largely due to the transaction amount limits currently in place for instant payments. While the increase (or abolition) of these transaction amount limits is expected to increase B2B instant payments, some key constraints to their widespread use for B2B transactions remain, both on the corporate and on the bank sides of the corporate liquidity management ecosystem.

This paper argues that companies are only likely to choose to use instant payments if they already follow a "just-in-time" business model. That said, over time, it is likely that payment service providers, including banks, will migrate their clients from batch-based (ACH) payments to instant payments, compelling corporate treasurers to re-evaluate their forecasting processes and operating procedures. At this point, banks will be faced with twin dilemmas: how to ensure they provide sufficient liquidity to instant payments services to ensure time-sensitive payments are processed instantly (especially outside normal banking hours) and how to manage their own intraday liquidity to the satisfaction of their shareholders and regulators. This paper concludes that both sides of the ecosystem stand to gain by cooperating and sharing information, in the expectation that this will allow both corporates and banks to improve their use of intraday liquidity.

1. INTRODUCTION

The provision of transaction banking services places a bank at the heart of a corporate client's liquidity management activity. Banks need corporate liquidity management business for a range of reasons – to generate revenues, to retain relationships, to maintain regulatory compliance (in the form of capital and liquidity ratios) and to remain competitive. In an environment populated by new entrants, finding ways to remain relevant to corporate clients is critical for banks.

The EBA Liquidity Management Working Group's (LMWG) first paper[1] discussed the corporate liquidity management ecosystem and explained the core interdependencies between banks and their corporate clients.

The second paper[2] examined how banks can use technology to enhance their corporate client relationships. The investment in, and provision of, appropriate technology not only enables banks to stay relevant, but is also critical to helping banks increase revenue and gain and retain valuable corporate cash deposits.

This paper, the third in the series, examines the impact of new European instant payments initiatives and intraday liquidity management guidelines on the corporate liquidity management ecosystem both now and in the future.

Chapter two focuses on the benefits and implications of instant payments for companies. It defines instant payments and identifies the types of companies and use cases that can

1 Managing Corporate Liquidity and Bank Liabilities: The Changing Corporate Liquidity Management Ecosystem, EBA Liquidity Management Working Group, 2018.

2 How banks can harness technology for the benefit of the corporate liquidity management ecosystem, EBA Liquidity Management Working Group, 2019.

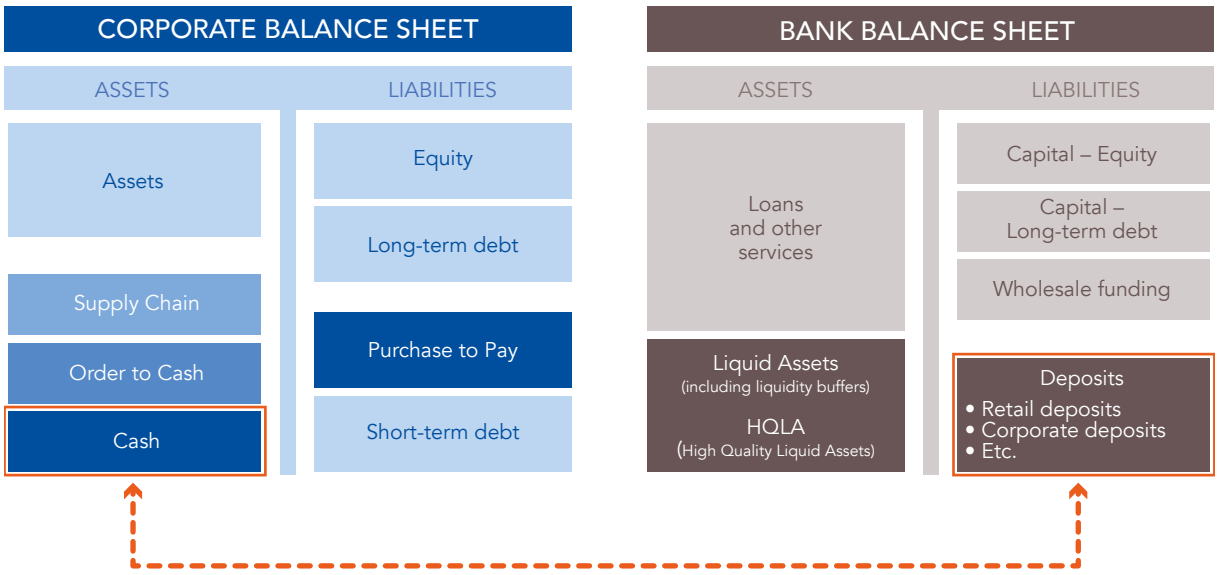

Figure 1: The liquidity management ecosystem

benefit from them as they currently stand (with transaction amount thresholds) and assesses how they could add value to all businesses in the future. The chapter concludes by identifying how instant payments will affect banks, given that they are required to provide liquidity to the various payments systems.

Chapter three recognises the effect of an increased use of instant payments on the ability of banks to manage their intraday liquidity. The chapter examines how companies currently provision intraday liquidity before discussing how this might change in the near future. The chapter goes on to address banks' responsibility to retain sufficient liquidity to execute all time-sensitive payments, including increased volumes and values of instant payments. The chapter concludes with a discussion of different regulatory approaches towards bank intraday liquidity management.

Chapter four brings the discussions of the previous chapters together by showing how an increased use of instant payments will have a direct impact on both corporates and banks. The chapter identifies a number of areas in which current operating procedures will be affected on both sides of the corporate liquidity management ecosystem. Both corporates and banks will need to manage their intraday liquidity more efficiently in the future. The paper concludes that both corporates and banks will benefit from exchanging information with one another (i.e. banks to corporates and vice versa) on the dynamics of their use of liquidity. That way, they both will develop a better understanding of their interdependencies which will ultimately help them use liquidity more efficiently in the overall environment.

2. INSTANT PAYMENTS

A number of domestic and pan-European instant payments systems are operational in the different local European currencies. Each has the same fundamental objective: for the beneficiary to receive the payment as soon as possible. The Euro Retail Payments Board (ERPB) defines instant payments as follows:

> Instant payments are "electronic retail payment solutions available 24/7/365 and resulting in the immediate or close-to-immediate interbank clearing of the transaction and crediting of the payee's account with confirmation to the payer (within seconds of payment initiation). This is irrespective of the underlying payment instrument used (credit transfer, direct debit or payment card) and of the underlying arrangements for clearing (whether bilateral interbank clearing or clearing via infrastructures) and settlement (e.g. with guarantees or in real time) that make this possible."

Beyond that, the characteristics of individual services vary significantly in terms of speed and availability, clearing and settlement, and payment limits, as illustrated in Table 1.

2.1 DEFINITIONS OF INSTANT PAYMENTS

Because of the different characteristics of instant payments systems and services, this paper focuses on instant payments systems that build on the EPC's SCT Inst scheme which meet the following criteria:

1. The service operates continuously (24/7/365).
2. Each transaction is irrevocable and is debited from/credited to the sending/receiving end customers within seconds (this includes all monitoring and screening of the transaction).
3. If the payment is not sent to the end beneficiary in any transaction, the service should generate an immediate "reject message".[3]
4. Participants are either currently mandated to provide liquidity to guarantee the finality of all transactions in real time or will be required to do so.[4]

The payment types that will gain traction in the near future are the SEPA Instant Payment clearing and settlement mechanisms (CSMs) being rolled out throughout Europe, both in-country and on a pan-European basis, which adhere to this definition.

2.2 IMPACT AND CURRENT USE CASES

Currently, due to the various transaction amount limits, instant payments are most prevalent for consumer-initiated payments (either person-to-person [P2P] or consumer-to business [C2B]), followed by business-to-consumer (B2C) and then business-to-business (B2B) payments.

As the LMWG is primarily interested in the impact of instant payments on the corporate liquidity management ecosystem, this paper focuses on the implications of instant payments use for C2B/B2C and B2B transactions. Of those, C2B payments are more commonly used, as a consequence of the transaction amount limits in

3 While the sending of a reject message is mandatory if a transfer cannot be made, some banks may also choose to enable beneficiary receipt messages.

4 The UK Faster Payments Service was built based on deferred settlement using collateral.

Table 1: Characteristics of European instant payment systems and services

Instant payment system/service	Maximum processing amount per transaction	Settlement	Payment processing time
RT1 (complies with the European Payments Council's SEPA Instant Credit Transfer System – SCT Inst)	EUR 15,000; closed user groups with other maximum amounts possible	Real-time	Within 3 seconds
TIPS[5] The new TARGET instant payment settlement (TIPS) service (complies with SCT Inst)	No upper limit	Real-time	Within 10 seconds or less
Domestic systems complying with SCT Inst in Belgium and the Netherlands	no maximum transfer amount limit as long as the payment is made within the country[6]	Real-time	Within 10 – 20 seconds
Sweden – BIR (SWISH)	SEK 150,000	Real-time	Within 15 seconds
Denmark – Strakclearing (Express clearing)	DKK 500,000	Periodic – net intraday	Within 1-10 seconds
Norway – Straksbetaling (Instant payment)	NOR 500,000	Periodic – NIBE Clearing -– six cycles a day, only on banking days.	Within 20 seconds
United Kingdom – Faster Payments	GBP 250,000 (planned to increase to GBP 20 million)	Periodic – three cycles a day, only on banking days	Within 15 seconds
Currently in development: P27 Nordic clearing house DKK, SEK, EUR	EUR 15,000	Real-time	Within 10-20 seconds

5 https://www.ecb.europa.eu/paym/target/tips/facts/html/index.en.html

6 In practice, banks can set their own limits, which may be equal to, or higher than, EUR 15,000.

place in most services. However, B2B payments have the potential to become important in sectors, for example telecoms and e-commerce, in which:

1. A high volume of low-value instant payments would create a high aggregate value of transmitted payments.
2. Transactions take place outside of regular banking hours, whether on- or off-line. In addition, if transaction amount limits are removed (or raised), then instant payments services will increasingly be used in B2B transactions.

In addition, if a payment system can carry more data than a current RTGS system, it is likely to provide significant value to corporate treasurers by helping them to streamline payment reconciliation and improve forecasting and credit management analysis.

2.2.1 Benefits

Companies must be able to identify sufficient added value in order to replace existing processes (which are largely based on ACH, batch-style payments) and adopt instant payments. From a financial perspective, potential advantages include improved working capital use. Reducing the time between invoicing and cash receipt leads to faster collection times, which could, in turn, reduce the amount of working capital financing a company requires, or increase its investment returns.

To take advantage of the opportunities offered by an increased use of instant payments, companies are likely to be in one of the following categories:

- companies with new business models which rely on "just-in-time" processes and payments, e.g. those with subscription models or machine to machine payments in which payment, information and delivery processes are fully integrated

- companies with more traditional business models that have already restructured their processes to enable similar payment, information and action chains, with delivery again triggered once funds have been received

For companies in either of these two categories, there are a number of scenarios in which the use of instant payments could add value (Table 2):

Companies that do not meet either of these criteria are unlikely to decide to move to instant payments. These companies are likely to continue to deploy well-established physical and financial supply chain processes (forecasting, production and delivery) that use batch payment processes and overnight risk evaluations. Until these processes change to real time (i.e. when their payment service providers migrate them to instant payments), there will be no added value from the adoption of instant payments as payment and information flows will not be aligned. Instead, instant payments are only likely to be used in "emergency" circumstances in which manual intervention is required anyway (such as a missed supplier payment). In such circumstances, the treasury department would be able to take advantage of the continuous availability of instant payments to rectify the mistake very quickly.

Table 2: Scenarios for the use of instant payments

Benefit	Application	Future use
Reduce counterparty risk, as instant payments are irrevocable, providing payment certainty.	Instead of excluding clients with poor credit ratings or reputations, companies can accept instant payments (as payment in advance). The same benefits apply in trade finance: payment could be made after custom clearance has been obtained (subject to an increase in transaction amount limits in many cases). The beneficiary receives guaranteed funds, as (unlike card payments) the payment cannot be withdrawn.	Payment confirmation is an evolving feature with instant payment. The SEPA instant payment rulebook includes confirmation, but it is not compulsory for banks to provide the service to clients.
Achieve process efficiency gains.	Instant payments facilitate just-in-time supply chain optimisation: orders can be set up and production can start once payment is received.	It enables the "internet of things" and add-on/in-app purchases, with payments against delivery of goods and services, e.g. in the utilities and telecoms industries.
Improve working capital and liquidity management, thereby optimising credit lines.	Instant and irrevocable collection of receivables will affect many companies' days' sales outstanding. Companies will also be able to pay later during the day, because instant payment services do not apply cut-off times.	Companies will be able to manage their liquidity more efficiently by only paying out after funds are received. They may be able to reduce credit lines by optimising their use of intraday liquidity.

Ultimately, instant payments will only gain more traction with treasurers if additional services can be built on top of them. Furthermore, treasury and finance will need to work with the wider business to link "just-in-time" business processes with "just-in-time" financial processes to achieve full benefit from a transition to instant payments.

2.2.2 Impact on operation processes

Whenever a company does migrate to instant payments, it will probably need to adopt certain "just-in-time" processes to derive maximum benefit. This may have implications for treasury department working practices. For example, it may result in:

- **Extended operating hours**
  In general, most treasury departments only function during standard workday business hours. Current instant payment volumes, combined with similar financial market opening hours, do not justify a change. However, if more treasury-related activity starts to take place in real-time outside these hours, there may be a case to extend operating hours.

- **Timed invoice deadlines**
  Current business practice is to issue invoices with a due date that reflects pre-agreed payment terms between the supplier and its customer. With the potential for 24/7 payments, companies could, in theory, decide to specify a due time, as well as a due date, on their invoices. In reality, such a change may not have much impact on corporate treasury practices, because senders could simply plan to pay the day before to meet the due time (as payments would be considered "on time" and the beneficiary would still have use of the funds the next day).

2.2.3 Risk implications

If increased use of instant payments alters the timing of payment disbursement and collection, there will be associated changes to the risks that corporate treasurers will need to manage. As with potential operational costs, treasurers will need to identify the changed risks and make decisions on how to manage them. The potential risk implications include:

- **Changes to payment initiation and approval workflows**
  At present, high-value, urgent payments are processed within normal operating hours, typically with additional layers of approval to reflect the additional risks represented by the higher values. With increased use of instant payments for lower-value payments, how will treasurers manage the increased risk of error and fraud, especially as instant payments are irrevocable? At present, there is no support for bulk payment processing within instant payments (although some payment service providers can convert bulk payments into instant payments) and no incentive for treasurers to process bulk payments individually. Any corporate use of instant payment services to process bulk payments probably requires enhancements to enterprise resource planning (ERP) and treasury management systems.

- **Changes to confirmation practices**
  With instant payment services providing a reject message if a payment fails (or an optional confirmation message of receipt), a corporate treasurer will have confirmation that a counterparty has received payment. This feature will allow companies to close accounts payable items. It is also a significant potential benefit when a payment has to meet a time-sensitive transaction deadline.

- **Changes to collection processes**
  In the future, if the value thresholds on instant payments increase, companies may receive more high-value payments outside standard business hours. How will corporate treasurers manage such receipts? Will it lead to greater adoption of artificial intelligence and robotics, subject to rules set by each company's treasury policy? For example:

  - Systems powered by artificial intelligence may forecast upcoming payment receipts.

  - Rules covering the use of any surplus cash could also be automated. For example, surplus cash would first be used to pay down any external overdraft facilities, with any remainder invested (if possible).

- **Changes to hedging practices**
  If companies receive significant volumes of cash outside normal business hours, or after existing money market cut-off times, how will corporate treasurers hedge any additional exposures?

2.2.4 Conclusion

For two reasons, there is not yet a critical mass of corporates intending to adopt instant payments for the majority of their payments. Firstly, existing instant payments services are not relevant for higher-value payments, although this may change as amendments are made to the services in the coming years, notably in the form of an increase to (or abolition of) the current transaction value limits. Secondly, most corporates do not meet the pre-conditions for the adoption of instant payments. This will also evolve with any increase in transaction value limits more generally, as processes are digitalised and in response to wider changes in consumer and B2B behaviour.

2.3 IMPACT ON BANKS

Whether companies adopt instant payments in significant volume or not, the implementation of instant payments has serious implications for banks, in two key areas:

1. Firstly, banks have to ensure they have the operational capability to process instant payments on behalf of their customers.
2. Secondly, a shift to instant payments will deepen the liquidity management challenges banks are already experiencing via the adoption of same-day bulk payments.

2.3.1 Operational impacts

For banks to be able to accommodate instant payments, a number of issues need to be addressed, including the following:

- Banks must have the capability to process a large volume of individual transactions at any time (instead of processing batch files of payments at specific times of the day), which will have implications on the number of resources banks will have to devote to technical support.
- The core banking system will need to be online at all times, so banks will need to have contingency and back-up plans that will maintain service. This will require banks to have multiple processing engines, to cover both planned system maintenance and upgrades and to take over processing in emergency situations.
- As the execution times decrease, so does the time available for anti-money-laundering (AML) analysis. In the case of instant payments, although the time available reduces to almost zero, banks must continue to perform AML analysis to ensure a secure payment environment for both customers and financial institutions. In effect, this means that any payment flagged for any reason will have to be rejected immediately, simply because all instant payments have to be executed (or rejected) immediately.

2.3.2 Liquidity management

For banks, one of the main day-to-day challenges is liquidity management. The processing of payments through a batch-based system has so far allowed banks to have predictable liquidity flows, aiding liquidity management. With real-time payments, cash inflows and outflows become more unpredictable as they can occur at any time of the day. Even though the challenge of striking a balance between keeping sufficient liquidity (to process incoming payment orders) and not holding useless cash (that could be used to make investments) remains the same, it is intensified with the provision of instant payments. Simply

by increasing uncertainty, any higher use of real-time payments complicates banks' liquidity flow forecasting and, therefore, management.

For banks, it is important to stay in control of the liquidity needs of the different payment infrastructures they participate in. As payment infrastructures are open during the day, banks can rely on the financial markets and central bank reserves to manage liquidity when deficits occur.

Because instant payments can take place outside normal banking hours, banks have less control over the management of their segregated accounts. The challenge of calculating the amount of liquidity to place in those accounts is magnified over weekends. How will this dynamic change when transaction amount limits are abolished, and instant payments are used for unlimited quantities of high-value transactions?

As banks transition to instant payments, it will be more difficult for them to manage liquidity. Banks cannot risk any instant payment transactions being rejected due to insufficient liquidity, but they will not have any historic data of processing patterns from which to forecast their liquidity requirements. At the same time, because institutions are likely to migrate to instant payments at different times, banks will not be able to rely on counterparty reciprocity (in terms of sending and receiving instant payments) to manage liquidity. In the short term, this means that banks are likely to set their liquidity requirements as a multiple of the value they expect to send over the forecast period (defined as the period during which time no additional funding can be provided).

As the adoption of instant payments stabilises, banks will expect to experience sufficient reciprocity, meaning they will no longer need to fund the total value of transactions over a particular period. Instead, they will define their funding requirements by focusing on the spread during peak hours. Experience from existing real-time payment systems suggests that, by this point, liquidity efficiency will have increased, to an extent that the same liquidity will be able to be reused for multiple transactions during the day.

It is also in the banks' interest to develop new payment instruments that take advantage of the real-time finality of instant payments.

Note that it is anticipated that regular SEPA credit transfers and direct debits will move from a time-designated settlement model to a continuous gross settlement (CGS) model. From a liquidity management perspective, the CGS will work on the same basis as instant payment systems, meaning participants will maintain a position in the system, to be used to continuously settle payments as long as liquidity is available. However, in contrast to instant payment systems, the CGS will not be open 24/7/365 and bulk transaction exchanges will be possible.

Banks hold segregated accounts (referred to as dedicated cash accounts – DCAs) that are used to manage payment system liquidity. At the beginning of each day, a bank places an amount in cash on its segregated account. The amount is calculated to be sufficient to cover the net expected non-stressed outflow during that day. If the cash on the segregated account falls below zero, then the bank borrows intraday from the central bank.

Together, the combination of the roll-out of instant payments, high-value payments moving to ISO 20022 and regular SEPA payments moving to CGS, means that banks and their customers will soon be able to ask themselves for each payment, does it need immediate finality or should it be made as liquidity-efficient as possible?

Therefore, liquidity has to be managed on a much more frequent basis and banks will attempt to accurately forecast instant payments patterns. High-value payments will be settled through the regular gross settlement systems (i.e. RTGS), while (currently) low-value instant payments will be settled through instant payment settlement systems where liquidity has to be prefunded (e.g. RT1 or TIPS). Financial institutions need to allocate their liquidity to each service (i.e. RTGS, T2S, TIPS, ancillary systems) for which they have dedicated cash accounts (DCA).

There are different settlement systems in operation throughout Europe, each with its own value proposition. Participants will want to utilise any liquidity (liquidity efficiency) set aside as much as possible and so they are likely to:

- be connected to more than one system, as is the case for regular SEPA payments at present
- reciprocate the use of liquidity by using the same systems as their counterparts
- use systems that facilitate additional services on top of instant payments. This will have the effect of increasing the number of transactions during the day through those systems, all of which will reuse the same liquidity.

Although it is not possible to predict exactly how the use of payment systems will develop, there are four specific areas where change is likely:

1.	Alignment of value dates	There is a difference between the way banks receive value at their dedicated cash accounts, and the way clients receive value when using instant payments.[7]This is not a major concern now, because of the relatively low use of instant payments and the current low interest rate environment. If either of the two changes, value date treatment may need to be realigned.
2.	Bank management of DCAs	At present, banks are unable to add liquidity to the instant payment settlement systems on non-TARGET opening days (including weekends). This may need to change, if instant payment volumes and values do. (Note that such a change may have further, and much wider, implications for bank liquidity management.) There are a number of potential solutions, see example 1.
3.	Changes to cash concentration processes	It is likely that cash concentration cut-offs will move towards midnight, meaning that banks and corporates will need to adopt more efficient processing models.
4.	Focus on forecasting and payment flow prediction	Because of the increased importance of intraday liquidity management, cash flow forecasting will become more important for both corporates and banks. Understanding their corporate clients' cash flow patterns will help banks forecast and manage their own intraday positions.

7 ECB, AMI-Pay document: https://www.ecb.europa.eu/paym/initiatives/shared/docs/6e133-ami-pay-2018-11-19-item-04.4-value-dating-sct-inst-transactions-crossing-different-time-zones.pdf

Example 1: Funding of instant payment transactions in the ECP SCT Inst Scheme

The settlement certainty required by the EPC SCT Inst Scheme can be ensured via available liquidity funded to a specific account. In both the ECB's TIPS and EBA CLEARING's RT1, transactions are instantly settled, resulting in an immediate adjustment of the participant's positions which are held in central bank funds in a technical account in TARGET2.

It is clear that an increased use of instant payments will have significant implications for how banks manage their own liquidity. In particular, banks will be required to execute instant payment orders within a few seconds. As a consequence, banks will not be able to control cash outflows to prevent outflow peaks, which will increase the complexity of managing intraday liquidity.

For instant payments to add sufficient value to corporates one of the key preconditions is to raise the transaction value limits (currently EUR 15,000). In this case, though, the 100% cash prefunding requirement will have serious implications for a bank's treasury and liquidity management. In addition, because banks are not able to manage this liquidity on non-banking days (including weekends), they would be required to place very large amounts of money in these prefunded accounts for the systems to keep working, creating significant balance sheet management challenges for banks. In other words, gaining traction for instant payments is not simply a case of raising transaction value limits.

One possible alternative to 100% cash prefunding, at least from a bank treasury perspective, would be to allow the banks adhering to the SCT Inst Scheme to use a combination of both cash and non-cash (ECB-eligible assets) as payment collateral. This could ensure the smooth working of the system at increased volumes without increasing potential future liquidity and balance sheet issues that could stand in the way of an efficient functioning of the system.

High-value payment systems are moving to the same technical standards (ISO20022) and are considering widening opening hours. With these developments it will become easier for institutions to offer different processing methods to the corporates in which they can choose between time-critical versus liquidity efficient.

3. INTRADAY LIQUIDITY

Banks have a primary obligation to their customers to ensure all payments are executed and settled in a timely manner and within specified and regulatory parameters (e.g. credit, AML, etc.). At the same time, they have a fiduciary responsibility to their shareholders to ensure their balance sheets are managed within specific regulatory guidelines and with optimal efficiency.

These responsibilities overlap in a number of areas, notably intraday liquidity management. Each bank needs to ensure it has a sufficient liquidity buffer to meet regulatory requirements that supports its intraday payments infrastructure.

3.1 DEFINITIONS OF INTRADAY LIQUIDITY

Intraday liquidity relates to the funds which can be readily accessed during the business day by a bank to make payments:

Intraday Liquidity Management is an important element of a bank's sound liquidity management, whose risk is described by BCBS as "A bank's failure to manage intraday liquidity effectively could leave it unable to meet its payment obligations at the time expected, thereby affecting its own liquidity position and that of other parties" and it is defined by the Committee on Payment and Settlement System (CPSS) as: "Funds which can be accessed during the business day, usually to enable financial institutions to make payments in real-time".[8]

3.2 CURRENT COMPANY USE OF BANK INTRADAY LIQUIDITY

Companies often access intraday liquidity via intraday credit limits from their banking providers. From a corporate treasury perspective, access to intraday credit is a cost-efficient alternative to pre-funding a bank account or arranging an overdraft facility. As well as the cost benefit, treasurers are also able to implement a more efficient payment process, as intraday credit allows companies to process outgoing payments in the morning, before their accounts are balanced during clearing cycles later in the business day.

The provision of intraday limits is treated differently both by bank and regulatory jurisdiction. In some cases, it is not specifically discussed (and it is seen as part of the bank's core service), in others, an intraday limit is considered to be one of many liquidity management products. Intraday liquidity may be actively and effectively managed within a cash pooling structure. Outside such a structure, it is either provided at the discretion of the company's relationship manager or as an intraday credit facility, subject to a limit.

8 https://www.bis.org/publ/bcbs248.pdf

3.3 FUTURE CORPORATE USE OF BANK INTRADAY LIQUIDITY

With regulatory pressure on banks to maintain tighter control over their intraday liquidity, as well as corporate needs to exercise more visibility and control over cash, there will be a greater focus on corporate use of intraday credit over the coming years. There are three areas of particular focus:

3.3.1 Real-time treasury

As outlined in the previous chapter, instant payments will have an impact on corporate intraday liquidity management in different ways. Initially, the impact will be limited for the reasons outlined above. However, if amount limits increase and/or current bulk payments are moved to instant payment schemes, then the impact will be greater. Notably, if higher transaction volumes (whether individually or in aggregate) are booked instantly, corporate treasurers will need to move towards a real-time treasury to help to manage intraday liquidity fluctuations.

3.3.2 Forecasting

One area where this will be most noticeable is in the corporate approach to cash flow forecasting. The LMWG's second paper identified areas in which technology can help to make integration and automation of cash flow forecasts more efficient.

However, when shifting from a batch- and end of day-oriented business towards a real-time economy, forecasting requirements also change. Instead of relying on daily cash flow and position forecasts, treasurers will now need to aim for real-time forecasts.

3.3.3 Visibility

In turn, real-time forecasting relies on having real-time visibility on liquidity and associated costs. To achieve this, corporates need fully automated enterprise resource planning (ERP) systems and highly specialised teams that include a good knowledge of local practices (e.g. knowledge of local collection products in order to maximise their days' sales outstanding). Treasury departments with extensive international bank accounts will most likely not be using the banks' own proprietary portals. Instead, they are likely to centralise control through a Treasury Management System (TMS) (see second paper of the LMWG) linking to banks with intraday reporting or real-time information provision, wherever banks offer API reporting or other means of real-time communication.

Moving towards a real-time economy, also through instant payments, treasurers need to constantly monitor limits and work in partnership with their banks to make sure their group companies are able to meet their ongoing needs. With regulators increasingly requiring ongoing monitoring of banks' intraday liquidity, it might be advantageous for both banks and corporates to negotiate pre-agreed lines for intraday balances in order to manage the day-to-day transactional activity.

3.4 IMPACT ON BANKS

Given the interdependencies that exist within and between the financial ecosystem, a bank's failure to meet certain critical payments could lead to liquidity dislocations that cascade quickly across many systems and institutions. Four distinct types of stress scenarios have been identified by regulators and market practitioners:

1. A credit or liquidity shock affects the bank directly. The other counterpart will be wary of making timely payments, causing delays in the conveyor belt of payments.
2. An operational, credit or liquidity shock impacts a major counterpart in the payment system. This will impair their ability to make payments to the settlement bank.
3. A credit or liquidity shock affects a major customer or group of customers of the settlement bank. This will prevent them from receiving payments as expected.
4. Market shocks could mean that a given pool of liquid assets generates less intraday liquidity thereby impacting the ability of the settlement bank to fulfil all its payment obligations.

Timing differences will result in a bank being either a net lender to/a borrower from a given payment/settlement system or clearing bank during the day[9] One way for a bank to stress test the adequacy of its intraday liquidity buffer is to add the average value of outward daily payments of its largest customer to its largest observed net debits.

An efficient and dynamic approach to the management of available collateral and liquidity is essential to the bank ensuring that the liquidity ecosystem remains on a stable footing.

3.4.1 Bank obligations

According to principle 8 of the Basel Committee for Banking Supervision (BCBS) Principles for Sound Liquidity Management and Supervision (BCBS248),[10] a bank should actively manage 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.

Specifically, a bank should:

- adopt intraday liquidity management objectives that allow it to identify and prioritise time-specific and other critical obligations in order to meet them when expected, and settle other less critical obligations as soon as possible
- address the challenges associated with managing and forecasting uncertain cash inflows and outflows as comprehensively as possible
- ensure that where it relies on correspondent banking arrangements to conduct payment and settlement activities, the arrangement allows the bank to meet obligations on a timely basis, and manage intraday liquidity risks under a variety of circumstances

9 Cash inflows and outflows are driven by a combination of a bank's obligations (e.g. new or maturing customer loans/funding transactions, deposit inflows and outflows), and a bank's clearing and payments obligations (i.e. payments to and from customers).

10 Monitoring tools for intraday liquidity management, BIS, April 2013. https://www.bis.org/publ/bcbs248.pdf

3.4.2 Bank operational requirements

Looking at these in more detail, a bank's strategy to achieve its intraday liquidity management objectives should include at least six operational elements:

- the capacity to measure expected daily gross liquidity inflows and outflows, anticipate the intraday timing of these flows where possible, and forecast the range of potential net funding shortfalls that might arise at different points during the day
- the capacity to monitor intraday liquidity positions against expected activities and available resources (balances, remaining intraday credit capacity, available collateral etc.)
- the ability to arrange to acquire sufficient intraday funding to meet the bank's intraday liquidity management objectives in each currency
- the ability to manage and mobilise collateral as necessary to obtain intraday funds
- the capacity to manage the timing of liquidity outflows where possible, in line with the bank's intraday liquidity risk management objectives
- the readiness to deal with unexpected disruptions to intraday liquidity flows, and incorporate intraday liquidity risks within the bank's stress testing and contingency funding plan

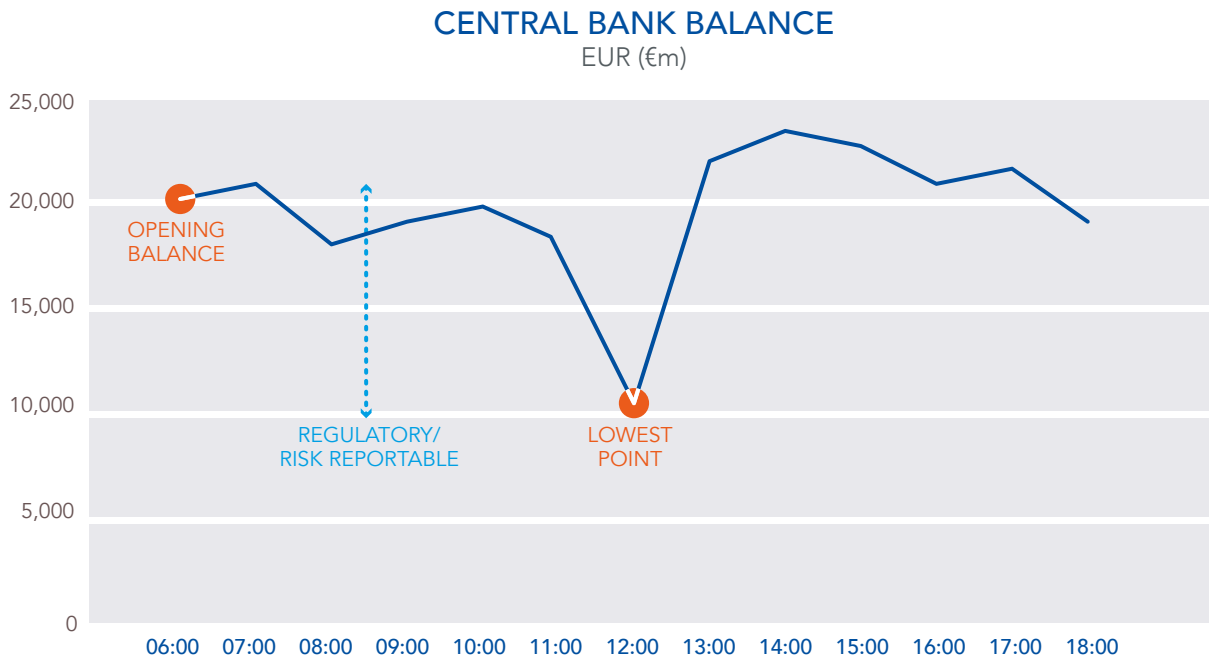

Figure 2: Illustration of a bank's changing intraday balances

To meet these objectives, a bank should have sufficient liquidity to absorb any unexpected shocks, such as higher than expected (or earlier than expected) payment outflows. This requires a bank to have policies, procedures and systems to support these operational objectives in all of the financial markets and currencies in which it has significant payment and settlement flows.[11] Figure 2 illustrates how a bank's liquidity can vary during the day.

3.4.3 Liquidity buffers

The Bank of England (BoE) and the Basel Committee on Banking Supervision (BCBS) have both provided significant thought leadership in the area of intraday liquidity management. Due to its relatively early adoption, the UK intraday liquidity policy can be used as a guide to what to expect more widely.

The Financial Stability No. 11 and Pillar 2 Liquidity papers from the BoE along with BCBS 248 are the industry cornerstones for monitoring, recording and reporting of intraday liquidity. Both institutions point to the concept of recording maximum net debits. Maximum net debit is the point at which the value of payments sent by a corporate most exceeds the value received by that corporate during a business day. Both BCBS and BoE require banks to hold an intraday liquidity buffer (a stock of high-quality liquid assets [HQLA] to support the infrastructure of intraday payments). These assets must be easily accessible, unencumbered and not form part of a bank's LCR (end of day liquidity/ liabilities) or other liquidity metrics. In essence, they are "redundant assets" a bank has to carry on its balance sheet to ensure the continued flow of liquidity to its payments network.

11 The BCBS interpretation is: where a currency accounts for a minimum 5% of a bank's balance sheet, the currency should be incorporated into the bank's intraday liquidity management planning and reporting.

12 A simple example of a stress uplift is for a bank to assume its biggest customer does not receive any inflows during the business day and needs to fully utilise its intraday credit line. This figure then becomes the bank's stress uplift and by adding it to its already observed maximum net debit for the period, the bank can size its intraday liquidity buffer requirement.

Although similar, the institutions' views on how a bank's intraday buffer should be calculated show minor differences: the BoE favours a mean average net debit approach plus a stress uplift[12], whereas the BCBS advocates a maximum net debit exposure plus a stress uplift. The BoE says the maximum net debit approach may include known pre-funded flows and therefore be overly punitive. In contrast, the Bundesbank outlines the importance of implementing the regulatory guidelines from BCBS to increase financial stability. The Bundesbank refers to the ECB Supervisory Review and Evaluation Process (SREP) for details regarding the calculation of intraday liquidity buffers. However, a vital element of SREP is that banks are responsible to self-assess, as long as buffer sizes are reasonable. This methodology provides outcomes in which buffer calculations are essentially similar, with variances for each financial organisation depending on its individual intraday profile.

The LMWG is sympathetic to the BoE position and advocates that known pre-funded flows be manually stripped out (e.g. own bond redemptions, own dividends etc.). The remaining data can then be used to calculate the intraday liquidity buffer more accurately. In brief, the LMWG supports the net debit approach advocated by both the BoE and BCBS but with a hybrid methodology that is more reflective of a bank's business as usual payment activities (in other words, based on a bank's maximum net debits minus its known prefunded large payments). The LMWG recognises there is no ''one-size-fits-all approach" and ultimately each national regulator should engage with its reporting institutions to agree what is an acceptable approach when calculating its intraday liquidity buffer.

4. COLLABORATION – MAKING BETTER USE OF INTRADAY LIQUIDITY

With the significant impact on intraday liquidity that an increased use of instant payments is going to have, there are a number of areas of likely change, where cooperation between banks and their corporate clients has the potential to add real value for both parties.

4.1 JUST-IN-TIME LIQUIDITY

As a concept, just-in-time liquidity refers to situations where bank accounts are funded almost at the same time as payments are debited. With these technological advances, the prospect of 24/7/365 banking will eventually become a reality. While bank treasury departments may not have to be manned at all times, they will need to ensure they have ample liquidity at all times, and the ability to direct it wherever needed, in a manner that satisfies both customers and regulators.

4.2 LIQUIDITY COVERAGE FROM FROM A BANK PERSPECTIVE

Intraday lines will also affect a bank's liquidity (see the LMWG's first paper). This means regulators will need to determine the maximum amount of a bank's liquidity that can be utilised any time. As an example, an overnight facility requires capital allocation depending on maturity, whereas a fully utilised intraday line (on a portfolio level) requires (at most) one day's capital and HQLA (part ring-fenced for intraday liquidity). In practice, this implies that the cost of funds will decrease, if improved visibility and control over cash flows allow part of an overdraft facility to be converted to an intraday facility. It is not yet clear how banks will transmit any change in regulatory requirements to their corporate (and other) clients.

4.3 CORPORATE LIQUIDITY MANAGEMENT

An increased use of instant payments will have a significant impact on corporate liquidity management. Firstly, settlement of instant payments will impact a corporate's ability to balance accounts across its entities and/or countries using instant sweeps or target balancing structures. Notably, if target balancing takes place via instant payments (rather than normal clearing cycles), in some cases it will disrupt existing settlement practices within cash pooling structures.

Secondly, forecasting the use of instant payments may also lead to a reduction of required intraday liquidity. If a corporate can develop intraday forecasts, credit buffers can potentially be tighter. This will make processes more efficient, and potentially decrease operational costs.

Thirdly, if the amount booked after cut-off via instant payments becomes substantial, it might trigger new ways of looking at working hours to enable efficient liquidity management. However, it is reasonable to make the following assumptions:

- Liquidity management related to cash concentration can be automated.
- For interest-bearing and accounting reasons, there will need to be a defined cut-off time.
- If the defined cut-off moves towards midnight, efficient processing becomes critical and, thus, operational risk will increase.
- For the more strategic liquidity management, accurate forecasts become key.

Fourthly, any impact on corporate liquidity management operational practices may change over time. Initially, an intraday facility may only be used to overcome errors and/or erroneous or incomplete forecasting data. Over time, other factors will become more important. For example:

- How will companies, and banks, monitor and update actual positions, as incoming funds are received? Intraday reconciliation of instant payment flows will also place expectations on service providers to develop solutions that will aid real-time payment matching. Users will also want flexibility in formats and be able to receive the information in the channel of choice, e.g. API driven or push notices to mobile devices.

- How will technological improvements affect processing capabilities and information flows, both within banks and their corporate customers? How will technology meet the requirement to record transactions and positions in real time, instead of at the end of the day? When shifting from a batch-oriented economy to a real-time ecosystem, certain features (including notifications and the capability to track payments) become crucial to enable adjustments to the current forecast position.

- Will changes in the corporate and bank relationship, e.g. instant payments, extend into other sectors of the financial markets towards instant transactions, such as money market investment?

4.4 THE POTENTIAL FOR NEW PRODUCTS

Given the extent of potential change, it is likely that banks, and other parties, will develop a range of new liquidity management products in the near future. Potential examples include:

- Real-time sweeps: some providers already offer corporates the ability to concentrate funds in real time. For example, if the subsidiary account receives cash, it immediately triggers the automatic movement of that balance into the concentration account. This creates a very different dynamic when compared to end-of-day zero balancing structures and requires the treasurer to manage concentrated funds on an intraday basis.

- Real-time investments: is it possible to move away from rigorous daily investment cut-off times? Could money market funds and deposit accounts stay open after working hours and at the weekend?

Even without new products, any move towards real-time liquidity will require the overhaul of corporate treasury policies. As an example, current treasury investment policies are typically approved by the board and stipulate counterparty credit risk, concentration limits and liquidity risk parameters. These will need to be adjusted so treasurers are permitted to manage cash within the approved risk framework on a real-time basis. Corporates may also need to revise their intragroup funding policies in order to accommodate any charges for the supply of intraday liquidity.

4.5 ADDITIONAL OBSERVATIONS

The focus of this paper has been on the impact of instant payments and regulation on intraday liquidity. It has identified the relatively low-value thresholds of instant payments as one of the hurdles preventing higher corporate use of such payments. However, it has also recognised that increasing these thresholds is not straightforward: it is incompatible with the current requirements for banks to prefund instant payment schemes, especially outside normal banking hours.

It is important to recognise that the changes discussed in this paper have much wider implications for the global financial system as a whole. Despite the emergence of instant payments, many parts of the financial system are misaligned with real-time payments. Many markets retain existing settlement conventions, with, for example, foreign exchange transactions, fixed income securities and equities settling on a T+1, T+2 or even T+3 basis.

In theory, it is possible to plot a transition from the use of real-time payments to fully real-time financial markets. In practice, there are significant hurdles to achieving that end-point. As an example, many treasurers place short-term surplus cash in money market funds. At present, the funds in a particular market have similar subscription and redemption cut-off times, and none permit investment or redemption outside regular business hours. Similarly, in foreign exchange, currency pairs typically settle in one or two days, making it impossible for treasurers to manage foreign exchange exposure and hedges in real time.

As companies increase their use of instant payments, treasurers will also need to improve the quality of their intraday liquidity forecasting processes. Treasurers will likely demand enhancements to liquidity management platforms and treasury management systems to identify the intraday surpluses, and then to integrate those systems to investment platforms to manage the surpluses. If the values of these surpluses grow, whether through higher volumes or the elimination of value thresholds, treasurers will want to manage the associated risks in real time.

Treasurers will also need access to real-time reconciliation in order to achieve the full potential benefits of instant payments. Real-time reconciliation will require the ability to extract relevant data in real time, placing additional demands on server capacity and API functionality. More generally, companies will need to align their operational and financial processes more closely, so achieving the full value of instant payments will have an impact across the whole company, not just treasury and finance.

From the banks' perspective, legacy systems were not designed to manage real-time monitoring and processing. In most cases, these systems need further development (or replacement), which comes with additional costs. Banks will probably wait to update those systems until the regulatory treatment of instant payments and intraday liquidity is updated and further implemented in the relevant jurisdictions.

The logical conclusion is that an entirely new end-to-end process and automated technological structure needs to be established. Such a structure would make treasury highly efficient, but only after major disruption to existing processes and systems. The question for all parties is, does the promise of future efficiency gains justify the investment needed, both in terms of resources and personnel, to take full advantage of a 24/7/365 treasury world?

5. CONCLUSION

Instant payments and the upcoming regulations of intraday liquidity will change the dynamic between banks and their corporate clients and will evolve to include increased two-way sharing of information, especially with respect to payments processing. Both parties stand to benefit as improved information enables streamlined efficiency. The LMWG believes this exchange of information between banks and their corporate clients, and not just that regarding payments processing, but also about each other's requirements, expectations and objectives in that field, will help develop a clearer understanding of the interdependencies in the corporate liquidity management ecosystem. Specifically, this improved understanding will help to use intraday liquidity more efficiently on both sides.

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