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2025

Evolution of Liquidity Management

Speakers

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Evolution of Liquidity Management

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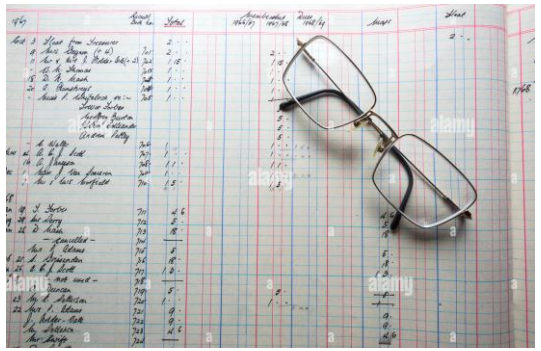

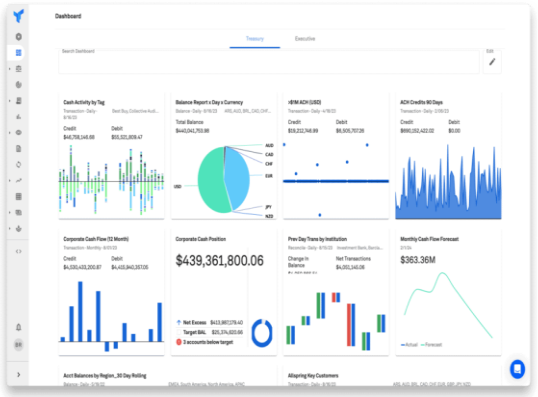

The Evolution of Liquidity Management

- Manual Processes
- Excel Spreadsheets
- Treasury Management Systems
- Automated and Real-Time Solutions

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What is Liquidity Management ?

- **Liquidity Management is the planning for and the use of cash for all of a bank's needs including:**
  - **Customer withdrawals**
  - **Loans**
  - **Payments**
  - **Accounts payable (salaries, operating expenses, etc.)**
  - **Etc.**

Why is Liquidity Management Important?

- **Liquidity Management:**
  - **Raises cash to fund client loans**
  - **Tries to avoid early sales of long-term assets and possible losses**
  - **Should ensure compliance with regulatory standards like Basel III, FDIC guidelines, etc.**
  - **Is needed for depositor and investor confidence**

What does Liquidity Management mean for a start-up or small bank?

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- **It determines:**
  - **The opportunity cost of keeping cash on hand vs. invested in short-term assets vs. invested in long-term assets.**
  - **How much cash to keep on hand for customer withdrawals and payments.**
  - **How much should be invested in short-term assets (such as Treasury bills) vs. long-term assets (such as mortgages, long term loans).**

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How do checks, Fedwire, FedNow, ACH, RTP, Securities and CHIPS impact Liquidity Management?

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Miscellaneous

1914 Coin and Currency

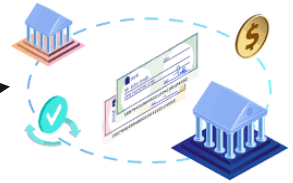
1915

Fedwire Funds Service

2023

FedNow 24/7 INSTANT PAYMENTS

1916 Check Clearing



UNITED STATES FEDERAL RESERVE SYSTEM

2017

The Clearing House RTP Powering Smarter Payments

1921

Fedwire Securities Service

1999 National Settlement Service

THE FEDERAL RESERVE Financial Services

The Clearing House EPN (ACH) 1981

1972

The Clearing House CHIPS 1970

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A Simple Fedwire Transaction Funding of Reserve Account

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Bank A
(Sender's Bank)

- Bank A checks its Reserve Account balance at the Fed
- If insufficient, Bank A transfers funds from its correspondent or other cash sources to its Reserve Account.
- Once funded, Bank A sends Fedwire payment instructions to the Fed.

Federal Reserve
(Reserve Account)

- The Fed debits Bank A's Reserve Account and credits Bank B's Reserve Account.

Bank B
(Receiver's Bank)

- Bank B applies credit to beneficiary's account.

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How is Cash Accumulated and Managed for Large Fedwire Transactions?

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- **Scenario -** A large corporation is sending $200M for a strategic acquisition.
- **Steps Taken**
  - Ensures the customer has sufficient funds their account
  - Treasury forecasts outflows and incoming receipts
  - Matures $100M from a T-bill
  - Sweeps $50M from subsidiaries via zero-balancing
  - Draws $50M from an existing revolving credit line.
  - Verifies cash position via the banks' liquidity dashboard
  - Initiates wire via banking Fedwire portal
  - Confirms acknowledgement, updates the Bank's Fed position and reconciles transaction

Accumulating and Managing Cash for a Large Fedwire Transaction

Funds must be available in your Fed account at the time of payment or you could use the Fed's intraday daylight overdraft facility for a fee or borrow funds using the Fed's Discount Window facility.

Forecasting and Liquidity Planhing

- The treasury or cash management team forecasts cash flow needs days (or even weeks) in advance.
- Tools like liquidity dashboards, cash concentration systems, and intraday cash position monitoring are used.
- Timing of the wire is planned to align with incoming funds, investments maturing, or credit facility availability.

Sweeping and Cash Pooling

- Sweep multiple account balances into a central account (or master concentration account) to consolidate cash
- Intercompany transfers or internal funding movements may be made to pool cash in the account used to fund the Fedwire.

Intraday Liquidity Monitoring

- Use the banks' Fed Account Management Information (AMI) system to monitored your intraday position.
- Intra-day overdrafts (also called daylight overdrafts) are permitted, but banks must stay within approved caps.

Post-Transaction Liquidity Adjustment

- After the wire is completed reassess cash and liquidity: any excess can be reinvested, or shortfalls covered with short-term borrowing.
- Reporting is done for intraday exposure, liquidity risk, and capital usage.

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How do checks, Fedwire, ACH and CHIPS impact Liquidity Management?

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Common Cutoff Times by Payment System

Payment System	Typical Cutoff Time (ET)	Liquidity Implication
Checks	Varies (processing depends on deposit time, usually end-of-day)	Funds availability delayed—affects end-of-day balances
Fedwire	7:00 PM	Real-time settlement; large-value payments must be funded before payment executed
ACH	Multiple batches (e.g., 10:30 AM, 1:45 PM, 6:00 PM)	Delayed net settlement; cash forecasting is key
CHIPS	Final settlement by 6:00 PM	Prefunding required, Net settlement at EOD; intraday position management matters

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How is cash managed for a simple cross-border transaction involving correspondent banks in two countries with the funds delivered in the third country

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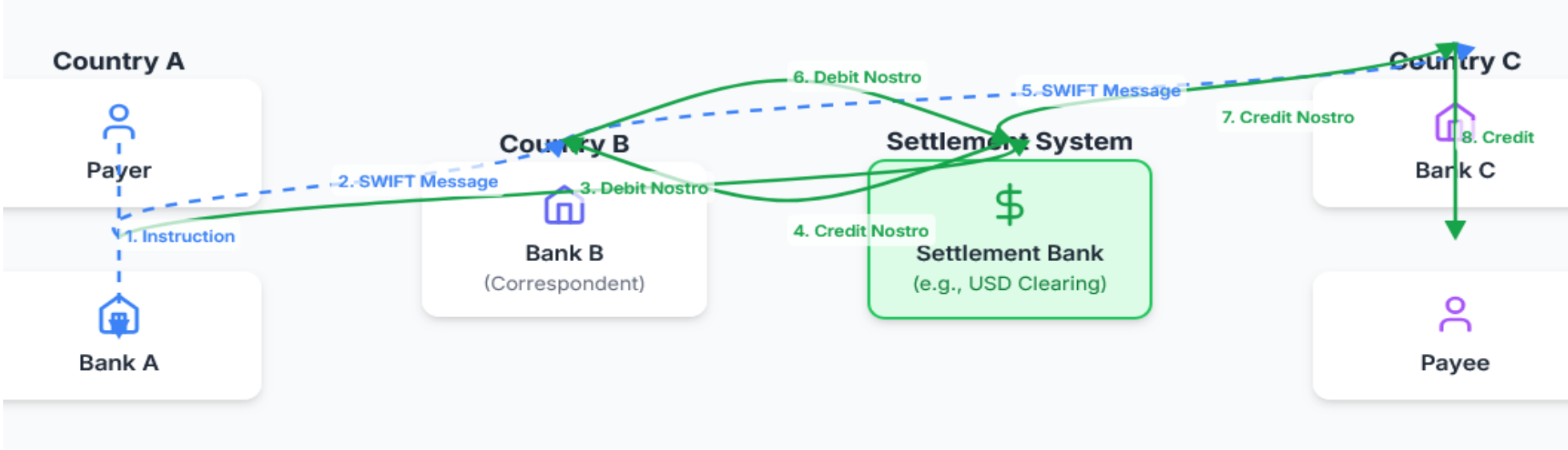
- **Payer (Country A)** initiates a payment with their Bank A.
- **Bank A** holds an account with **Correspondent Bank B (in Country B)** but has no relationship **with Bank C**
- **Payee (Country C)** receives the funds via their local institution (**Bank C**) that has an account relationship with **Correspondent Bank B**.
- Both Banks A and B use ISO 20022 messages via Swift to initiate their respective payments.



Blue Dashed Arrows: Represent payment *messages* (Swift instructions)

Green Solid Arrows: Represent the actual *settlement* or movement of funds through the central clearing bank

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How is cash managed for a simple cross-border transaction involving correspondent banks in two countries with the funds delivered in the third country?

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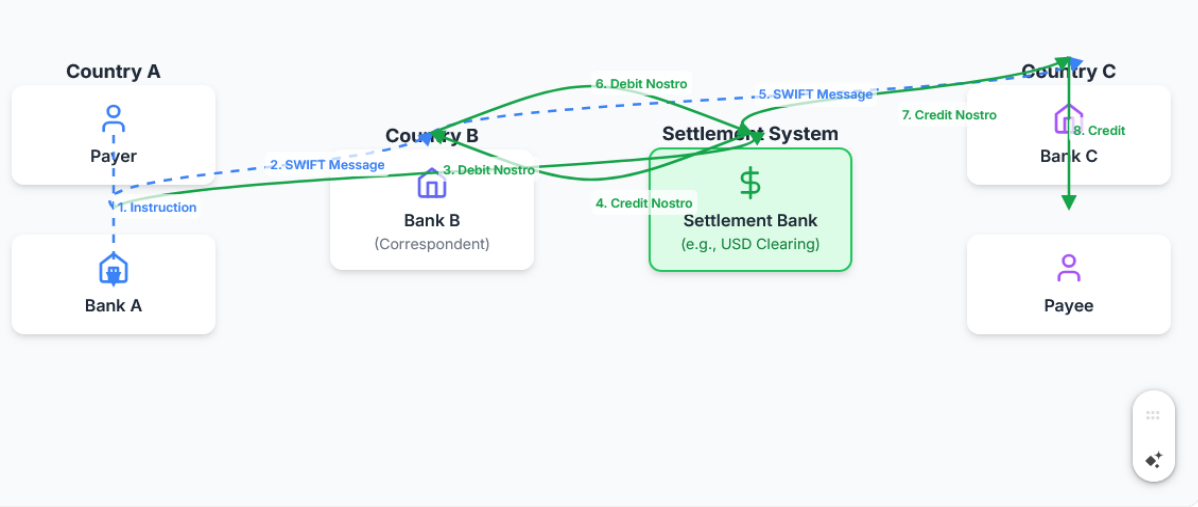
- **Prefunding's**
  - Bank A needs to ensure their customer has sufficient funds in the customer's account and Bank A has sufficient funds in their account with Bank B
  - Bank B needs to ensure they have sufficient funds in their account with Bank C
- **Payment Instruction- Use of Correspondent Banking Chain**
  - Bank A debits Payer's account and instructs its correspondent Bank B to pay Bank C
  - Bank B uses its correspondent account with Bank C (in Country C) to credit the Payee's account
  - Bank C credits the funds to the Payee's account in Country C, in the designated currency



This example, for simplicity, assumes all transactions are in the same currency.

How are the cash needs of cross-border transactions using Swift and correspondent banks different from domestic transactions using Fedwire, CHIPS, RTP or FedNow?

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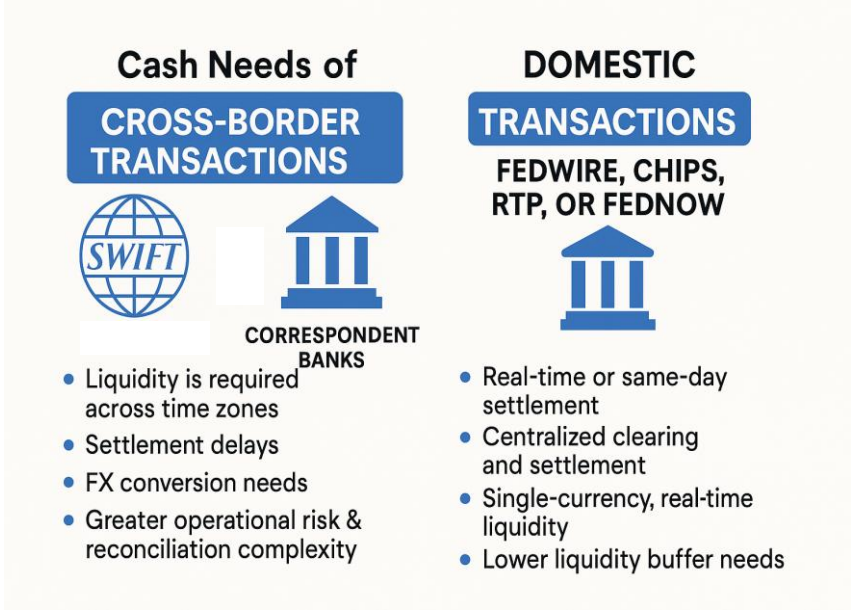
Feature	Cross-Border (Swift, correspondent bank)	Domestic (Fedwire, CHIPS, RTP, FedNow)
Settlement Speed	Slow (hours to days)	Real-time or same day
Currency Complexity	Multi-currency	Single (USD)
Liquidity Location	Offshore pre-funding at correspondent bank	Onshore central bank, bankers bank/correspondent bank, or clearinghouse
FX Risk	Yes	No
24x7x365 Availability	Limited	RTP/FedNow: Yes CHIPS/Fedwire – Normal Hours
Liquidity Buffer Needs*	Higher	Lower
Reconciliation Complexity	Higher	Lower



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*A Liquidity Buffer refers to a stock of easily convertible and readily available liquid assets that a financial institution or organization maintains. This buffer serves as a cushion to meet expected and unexpected cash outflows and collateral needs, particularly during periods of financial stress or market disruption.

How does using RTP or FedNow and their 24x7x365 operations change Liquidity Management?

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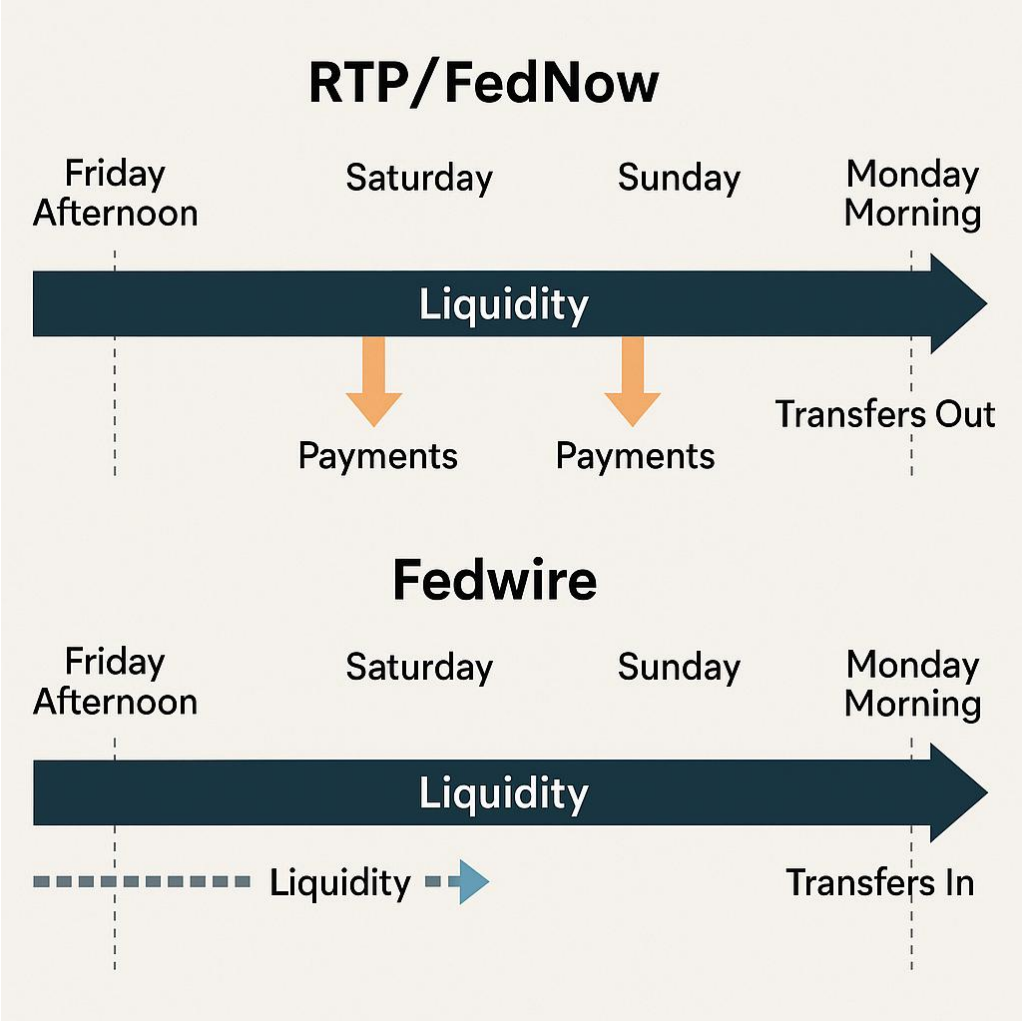
- **Continuous Liquidity Demand**
  - Need to hold sufficient balances at all times (including weekends) because payment requests can occur any hour.
  - Requires 24/7 liquidity monitoring rather than business day-only treasury operations.

- **Pre-Funding Requirements**
  - RTP requires funds pre-positioned in the RTP joint account at the Fed.
  - FedNow requires sufficient balances in a dedicated FedNow master account or subaccount.
  - If you are both an RTP and FedNow participant, you have maintain cash in both of these accounts at all times



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How is Cash Managed for Weekend Real-Time Payment transactions?

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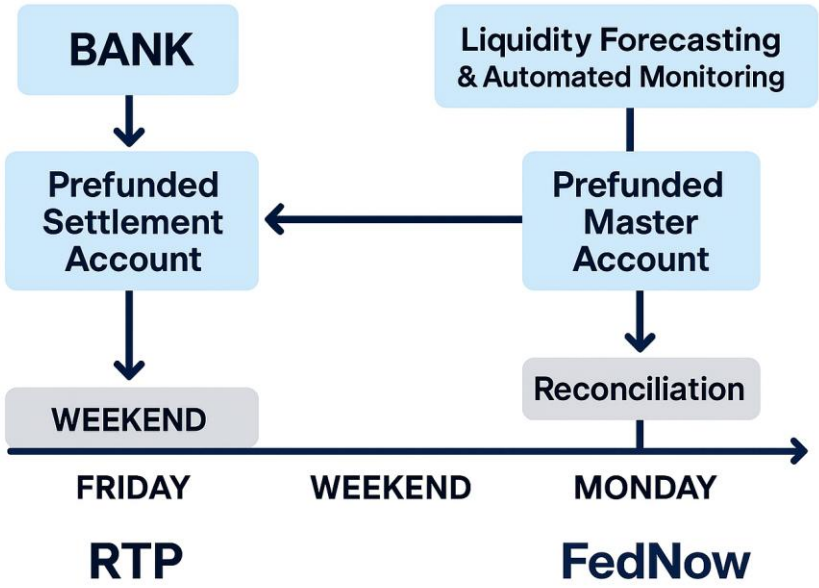
- Cash management for a weekend real time transactions hinge on prefunded cash and automated monitoring, since real time services operate 24/7—including weekends and holidays
- **Prefunded Settlement Account**: Banks must maintain a balance in their real time settlement accounts at all times.
- **Liquidity Forecasting**: Treasury teams estimate weekend transaction volumes based on historical data, customer behavior, and expected events (e.g. payroll, bill payments). This helps determine how much cash to park in their real time accounts.
- **Automated Alerts & Monitoring**: Many banks use real-time dashboards and alerts to track real time account balances. If the balance dips too low, some institutions have automated triggers to replenish funds from reserve accounts..



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What are the Available Liquidity Management Tools?

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Feature	FedNow (Fed)	RTP (TCH)
Liquidity Transfer Tool	LMTs via FedNow**	Prefunded RTP accounts
Credit Access	Intraday credit via Fedwire	No credit; prefunding required
Settlement Model	Real-time, 24/7	Real-time, 24/7
Funding Agent Support	Yes (via LMTs)	Yes (via RTP funding agents)
Regulatory Oversight	Federal Reserve	Private consortium (TCH) but regulated by the FED
Stress Testing & Contingency	Required under Fed supervision	Institution-specific, less standardized
Limits*	Currently $1MM	Currently $10MM

***It should be noted that in addition to the system limits Banks set transaction limits at client levels**

****FED LMT -** stands for Liquidity Management Transfers This functionality allows financial institutions to transfer funds to one another to manage their liquidity needs, particularly in the context of the 24/7 nature of instant payment services. LMTs have specific limits and operating hours designed to support liquidity management during times when other services like Fedwire® Funds Service might be unavailable. LMTs are available from 7PM to 7AM on weekdays and 24 hours per day on weekends. and holidays.

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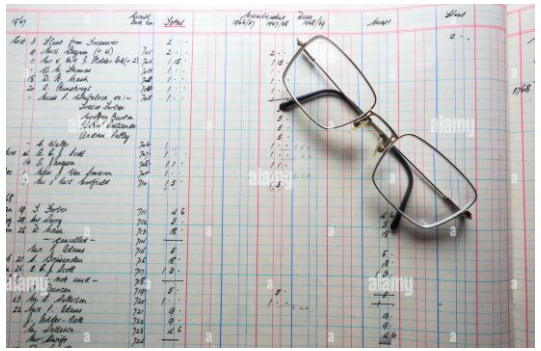
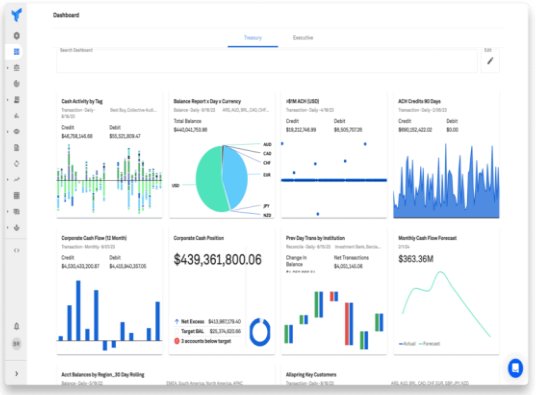


From Spreadsheets to Automation in Liquidity Management

Before	After
Manual data entry	Automated data integration
Time-consuming forecasts	Real-time analytics
Manual tracking of liquidity	Intelligent decision-making



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The Continued Evolution of Liquidity Management or Summoning the Ghost of Liquidity Management Future

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- **Autonomous treasury systems**: AI-powered platforms that self-adjust liquidity positions in real time.
- **Continuous forecasting**: Driven by AI and machine learning, adapting instantly to market changes.
- **Smart liquidity routing**: Automatically choosing the optimal payment path based on cost, FX rates, and available liquidity.
- **Integrated digital ecosystems**: Unified dashboards pulling live data from banks ERPs, and markets.
- **Digital currencies & tokenized liquidity**: Central bank digital currencies (CBDCs), stablecoins and tokenized cash could redefine how cash is held, and liquidity managed and maintained

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Questions?

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Thank You!