



THE BANK OF NEW YORK MELLON



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Divide and Conquer: Enhancing Yield through Cash Segregation

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Agenda

- Liquidity Management Overview
- Account Management Overview
- Account Centralization
- Account Concentration
- Cash Forecasting
- Short-term Investing Overview
- Investment Objectives
- Investment Policy
- Investment Instruments
- Investment Strategies
- Investment Channels

Liquidity Management Overview

Liquidity management can be broken down into two distinct activities

- Account Management
- Short-term investing

Short-term investment decisions should be driven by account management activities

- Centralization of accounts
- Concentration of funds
- Cash Forecasting

The investment policy should guide short-term investment execution

- Risk profile
- Return benchmark

Investment objectives, strategies, and channels are used to create the short-term portfolio

- Active versus passive management
- Income or preservation orientation
- Sweeps, portals, dealers
- Account management/rate outlook

*As of 3/28/2008

Account Management Overview

Account management promotes cash transparency/visibility

- Account management centralization
- Concentration of balances
- Cash forecasts

Cash transparency/visibility leads to an effective liquidity management approach

- Short-term cash requirements
- Short-term financing decisions
- Short-term investment decisions

An effective liquidity management approach boosts performance indicators

- Cost of capital
 - Using operational cash sources as opposed to relying on lines of credit
- Yield enhancement
 - Benefiting from maturity flexibility and balance concentration

Account Centralization

Account centralization can be thought of as the platform on which account management tools and policies are constructed

- Cash transparency
 - Ability to view cash balances across the organization
 - Cash reporting can be centralized and easily accessed
- Efficiency through central access
 - Central access to data
 - Better analyze ebb and flow of cash
- Ability to feed other systems
 - Internal systems can capture data
 - Management better positioned to make decisions
- Building on centralization
 - Cash concentration
 - Cash forecasting

Account concentration

Concentration of balances can lead to reduced costs through reduction in overdraft fees and reduced reliance on credit, while increasing investment yields

- **Benefits**
 - Yield enhancement
 - Cost of capital
 - Funds availability/float minimization
- **Pooling**
 - Fund concentration/aggregation
 - Offsetting of positive and negative balances
- **Notional pooling**
 - Balances totaled for interest calculation
 - Non-physical transfer
- **Challenges**
 - Cross-border and FX
 - M&A activity
 - Tax and cost efficiency

Cash Forecasting

By being able to accurately predict future cash flows, an organization is able to anticipate cash shortfalls and take advantage of opportunities available through investment maturity extension

- **Benefits**

- Investment decisions
 - > Horizon
 - > Market risk
- Financing decisions
- Overall flexibility/liquidity

- **Usage**

- Excel spreadsheet
- Applications
- Treasury work stations

- **Challenges**

- Lack of systems integration
- Sales forecasts
- Reliable data, policies, and procedures

Putting it all together – Account Management

Maximum control

Centralization, concentration, and cash forecasting allows management to better understand and control cash balances

- Centralize accounts to promote access of balances and data
- Concentrate accounts to minimize cost of capital and increase investment balance
- Project cash flows to determine future cash requirements

Maximum results

Investment returns are driven by investment instrument access, tenor, and balance

- An increase in the investment amount will result in more investment opportunities and more interest generated
- Cash forecast output will enable management to divide balances into tenor pools
 - > Cash flows – amount and timing
- The ability to invest in various asset classes and maturities can drive investment performance
 - > Overnight options
 - > Liquidity premium (when available)

Short-term Investment Overview

Account management output drives investment opportunities

- Cash transparency
- Tenor decisions

Investment objectives and policies identify allowable investment vehicles

- Safety, Liquidity, Yield
- Risk profile
- Return benchmark

Develop an investment strategy given account management and policy constraints

- Investment vehicles
- Yield factors
- Investment strategies
- Investment channels

Investment Objectives

Investment objectives should be clearly defined and used as the basis for the formulation of the investment policy

- Objectives
 - Income generation
 - Preservation of principal
- Safety of principal
- Instrument liquidity/marketability
- Investment instrument yield
- Active versus passive
 - Resource constraints
 - Analysis
 - > Risk
 - > Return
 - Investment balances

Investment Policy

The investment policy is based on objectives, and limits the investment choices available to the investment professional

- Risk
 - Counterparty risk
 - Interest rate risk
 - Liquidity risk
 - Concentration risk
 - Reinvestment risk
- Return
 - Reflect risk tolerance
 - Benchmarking
 - > US Treasury yields
 - > Fed funds target
- Acceptable investment instruments
 - Maturity
 - Credit quality (ratings)
 - Diversification
 - Dealers/issuers

Investment Instruments

The investment professional must assemble an investment portfolio given policy constraints and requirements

- **US Treasury Securities**

- Issued by the US government
- Examples
 - > T-bills
 - > STRIPS
 - > T-notes

- **Agency securities**

- Government corporations
 - > Ginnie Mae
 - > Department of Veteran Affairs
- Government Sponsored Entities (GSEs)
- Notes, bonds, MBS

- **Municipal Securities**

- Issued by state and local government
- Tax exempt status – federal, state, local
- Notes and bonds

- **Bank financial instruments**

- Time deposits
- CDs
- Bas

- **Corporate obligations**

- Debt and equity obligations suitable for the short-term portfolio
- Commercial paper and Asset-Backed commercial paper

- **Other**

- Money market mutual funds (2A-7 and other)
- ABS
- CMO
- Repo and tri-party

Investment Strategy Overview

Investment strategies involve various security issues and maturities, given account management information and policy guidelines

- Balance information
- Cash flow forecast information
- Acceptable investment instruments

By selecting from a range of securities and maturities, investment strategies help to enhance investment yield

- Yield curve
- Liquidity premium
- Risk premium

Investment strategies can enhance yield and generate liquidity needed to meet future financial obligations

- Matched strategy
- Riding the curve
- Ladders
- Bullets
- Barbells

Investment Strategy – Matched Strategy

Strategy basics

Given account management information including balance and cash forecasting, the investor purchases investment vehicles with maturities that match outflow requirements

- Benefit from yield enhancement associated with longer maturities
 - > Overnight rates versus longer-term rates
- Requires cash forecasting precision – overdrafts, un-invested balances, and investment risks can result

How it works

Identify daily and longer term cash requirements, and select investment maturities that match cash outflow requirements

- Daily cash requirements - overnight investment vehicles
 - > Eurodollar deposits
 - > Overnight time deposits
 - > Repurchase agreements (tri-party)
- Longer-term cash requirements – tenor options
 - > Longer-term investment vehicles with a shorter maturity than future cash outflow

Investment Strategy – Riding the Curve

Strategy basics

Purchasing tenor securities with the intent of selling the securities at a gain as short-term rates decline

- Short-term rate outlook
- Yield curve shape
- Risks
 - > Increases in short-term rates
 - > Short-end yield inversion

How it works

Identify cash that is not needed to meet daily financial obligations, define timeline, form an opinion on future rates, and purchase securities out on the yield curve

- Future rate expectations
- Securities with varying maturities
- Rate changes
- Sale of security
- Capital gains
- Reinvest (if necessary)

Investment Strategy – Ladders

Strategy basics

Funds are invested in equal amounts to incremental maturity dates

- Securities are invested in a constant maturity
- Cash flow needs drive maturity decision and increments
- Ladder provides steady liquidity stream
- Typically, longer-term securities will generate better yields
- Maturities can be matched to cash requirements or reinvested
- Reduction of interest rate risk by spreading across maturities

How it works

When securities reach maturity, the funds are re-invested into the longest permitted maturity

- Choose overall portfolio maturity and interval length
- Purchase an equal amount of securities within intervals
 - > For example, one year securities, two year securities, and so on, until intended maturity is reached
- As securities mature, use proceeds to purchase the longest maturity securities
- Benefit from yield generated from longer-dated securities in a normal yield curve on the short end
- Investors can mix and match securities (CDs, USTs, etc)

Investment Strategy – Bullets and Barbells

Bullets

Securities maturities in a portfolio are highly concentrated to a single maturity

- Interest rate projection play
- Concentrate accounts to minimize cost of capital and increase investment balance
- Project cash flows to determine future cash requirements
- Challenges include level of sophistication required to generate an interest rate forecast

Barbells

Concentrating investment balances on the short-end and the long-end of the investment horizon

- Investment horizon (based on account management information)
- Purchase ultra-short securities
 - > Overnight securities and other short-dates securities
- Purchase securities that mature towards the end of the investment horizon
- Belief that best rates are at the extreme ends of investment horizon
- Challenges include level of sophistication required to generate an interest rate forecast

Investment Channels

After strategic decisions have been made, securities purchases must be executed

- **Passive investment management**

- Sweeps
 - > Investment vehicles
 - > Maturity choices
- Managed accounts
 - > Fees
 - > Minimum balances

- **Active investment management**

- Portals
 - > Investment choices
 - > Fees
 - > Reporting
- Broker/dealers
 - > Decentralized
 - > Diversification
 - > Price shopping

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