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Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Written By Treasury Strategies



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Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

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Executive Summary

Since their inception more than 40 years ago, money market funds (MMFs) have become a vital short-term cash management tool for public and private sector entities. Several distinctive characteristics make MMFs the favored short-term investment and finance vehicle for these organizations.

- **Principal Preservation**—The safety of MMFs is one of their most critical characteristics. Principal preservation is a primary objective within most institutional investment policies, and MMFs are able to meet that requirement.
- **Same-Day Liquidity**—The ability to redeem shares and receive cash on a same-day basis makes MMFs a practical way to fund daily cash disbursements such as payroll and supplier payments.
- **Risk Diversification**—Given regulations requiring diverse underlying assets within MMFs, they provide an effective and efficient way for organizations to hold a diverse portfolio of high-quality, short-term securities.
- **Administration**—The stable \$1 net asset value (NAV) share price dramatically eases the accounting and administrative burden for investors.

In 2010, the Securities and Exchange Commission (SEC) made changes to the Investment Company Act Rule 2a-7, strengthening MMFs by reducing risks associated with liquidity, credit, and interest rates. These changes required modifications to MMF systems and processes but did not impact the systems and processes of investors.

In June 2013, the SEC proposed additional changes to Rule 2a-7, including requiring institutional prime and tax-exempt MMFs to change from a stable NAV to a floating NAV. Other types of MMFs would continue using the fixed NAV protocol. Unlike the changes of 2010, this proposed change represents a fundamental redesign of the structure and nature of MMFs that would directly impact the systems and accounting processes used by institutional investors to manage their funds.

The purpose of this paper is to explore the dramatic cost and operational impact of what might seem to be a small change in share price accounting protocol. The research in this paper examines the compliance costs across key stakeholders within the MMF industry if all MMFs changed to a floating NAV. We believe that the loss of economies of scale associated with a dual system of pricing some funds on a fixed NAV basis and others on a floating NAV basis—as the SEC has proposed—would be more expensive and complicated than the costs and system upgrades described in this paper.

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Our key findings regarding the compliance burden associated with moving from a stable to a floating NAV include:

- The operational complexity, systems alterations, and business process changes needed to support a floating NAV threaten continued use of MMFs for most investors, including corporations and municipalities.
- We estimate that total up-front costs for U.S. MMF institutional investors to modify operations in order to comply with a floating NAV will be between \$1.8 and \$2 billion. Further, we estimate that new imposed annual operating costs will be \$2 to \$2.5 billion (net present value).
- Total investor compliance cost figures do not include opportunity costs related to lower returns and higher financing costs. In a floating NAV environment, these costs will be considerable and will impact investors' decisions to use MMFs.
- States, municipalities, and other public institutions, already operating within tight budgets, will also have additional costs for compliance.
- Because of the complexity and interdependence of various fund service providers, time required by market participants to fully comply with a floating NAV will be more than two years.

The loss of the primary benefits of MMFs—principal preservation and liquidity—coupled with the significant complexity and high cost of operational compliance resulting from a floating NAV will force many investors from the MMF marketplace.

We are especially concerned that same-day liquidity currently associated with MMF investments will end or be severely constrained through earlier cut-off times for investments and redemptions. This will render MMFs inoperative for management of corporate cash and could increase overall financial risk in settlement and clearing systems. Moreover, we believe that some current treasury products, such as investor sweep accounts, may not be able to be sufficiently modified and will no longer be offered at all.

We conclude that the loss of the primary benefits of MMFs—principal preservation and liquidity—coupled with the significant complexity and high cost of operational compliance resulting from a floating NAV will force many investors from the MMF marketplace. If they are willing to sacrifice some of the key benefits of MMFs, only the largest MMF investors will be able to absorb the high cost of compliance. Middle market corporations, states, and municipalities that rely heavily on MMFs as stable liquidity tools will have to bear disproportional cost and disruptions or be compelled to move cash out of MMF Instruments into bank deposits or other less regulated short-term investment vehicles.

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Analytical Methodology

The objective of this analysis is to provide a thorough understanding of the operational impact and cost to investors and MMF industry participants of converting from a stable to a floating NAV. In addition, the analysis within this report identifies the specific operational impacts of a floating NAV on the complex internal operations of MMF stakeholders.

Treasury Strategies identified and interviewed key MMF stakeholders in order to understand and document the operational cost and impact of converting stable MMFs to a floating NAV share price protocol. These key stakeholders interact with MMFs in different ways and will each face their own unique challenges in a floating NAV environment. Key stakeholders analyzed included officials from:

- Corporations
- States, municipalities, and universities
- Government sponsored enterprises
- Treasury management systems
- Custodians
- Fiduciaries
- MMF portals and other brokers
- Fund advisors
- Fund transfer agents
- Sweep account providers
- Fund accounting departments

As detailed in the body of this report, we combined in-depth interviews and observations with our extensive body of prior research and consulting work with treasurers and financial service providers. For each of the stakeholder groups listed above, we analyzed their current business processes with respect to money funds and identified changes that would be necessitated by a floating NAV requirement. We also estimated the one-time and the ongoing costs that would be incurred. The major areas of required change and cost that we identified are:

- Investment policy development and administration
- Trade process reengineering
- General ledger and accounting
- Treasury systems and technology
- Tax reporting
- Post-trade confirmation and reconciliation
- Compliance

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Chart 1

Key Stakeholder	Stakeholder Description	Floating NAV Consequence Summary	Operational Cost Components
Corporations	Largest users of money market funds (MMFs). These investors consist of not just the largest corporations, but also middle-market and small businesses that rely on MMFs as a source of liquid, interest-earning funds on a day-to-day basis.	It is unlikely the majority of corporations would continue investing in MMFs should a floating NAV become a reality. The costs and resource requirements for one-time and ongoing compliance would not be justified at most corporations, especially those in the middle market.	Process reengineering and reporting development costs for corporations vested heavily in complex enterprise risk management or treasury management system technology can be as high \$2 million dollars, whereas for corporations who choose to continue to invest without making major system and process changes they will be closer to \$250,000.
States, Municipalities, and Universities	Large MMF investors. States, municipalities, and universities differ from corporations in that they generally have tighter budgets, stricter investment policies, and a smaller number of staff to manage investment activity.	Many public institutions are leanly staffed and do not have the budget to support changes required to account for a floating NAV. This would make it extremely unlikely that these institutions invest in required changes and continue to invest in MMFs, post-floating NAV regulation.	Operational costs relate to policy modification, investment reengineering, and intraday liquidity management changes. Costs ranges will be similar to corporates. However, public entities will be constrained by tight budgets and the inability to grow staffing levels.
Government-Sponsored Enterprises (GSEs)	GSEs are financial services corporations created by Congress that function as suppliers of credit to targeted sectors of the economy. GSEs are large investors of MMFs. MMF instruments play a key role in helping GSEs meet treasury operation objectives.	GSEs are one of the many current MMF investors that will migrate cash away from MMFs in a floating NAV world. The inability to leverage MMFs as a tool for intraday liquidity removes the primary benefit of MMFs to GSEs. GSEs will not tie up funds in investment instruments that cannot be redeemed in real time.	Major cost components for GSEs relate to system enhancement, investment process reengineering, and intraday liquidity management. Cost ranges at GSEs will be similar to those at the very largest corporates, or greater than \$500,000.
Fiduciaries	Fiduciaries include bank trust departments, retirement plans, pensions, and in some cases insurance companies. Fiduciaries invest funds in MMF instruments on behalf of beneficiaries.	A floating NAV would have significant consequences for fiduciaries by requiring that policies, procedures, and systems be modified in order to accommodate the change. Both trust departments and the retirement and pension industry would feel the effects of these regulatory changes. It would likely eliminate a safe and liquid option that millions of consumers utilize in their trust and retirement accounts.	Fiduciaries will incur costs reengineering investment processes, reconfiguring reporting, and updating systems. Fiduciaries must develop reporting to illustrate changes in underlying investment value to each of their clients. One-time project costs will be \$400,000 to \$425,000.
Treasury Management System Providers	Software that corporations and other investors leverage to manage daily treasury functions. This software may be available as a module within an Enterprise Resource Planning (ERP) system, or it may be within a dedicated Treasury Management System (TMS). These systems generally track and automate the accounting and reporting associated with MMFs.	Updating system functionality is no small task for vendors and will potentially limit the ability for investors to automate the management and tracking of MMFs within a preferred system, making MMFs that much more undesirable for corporations.	One-time costs for floating NAV adoption at treasury management system (TMS) vendors relate primarily to labor required for upgrades in deal management, accounting, and reporting areas. Project costs for each vendor will vary depending on functionality already available. Costs will be at least \$350,000 for most vendors.
MMF Portals and Other Brokers	MMF portals are systems that provide access to a wide selection of MMF instruments through a single application for investors. Portal providers act as brokers sitting between funds and investors.	Operational compliance and the shrinking of the MMF portal market will devastate many broker-dealers. Floating NAV legislation represents a very real danger to the continued profitability and existence of MMF portals as a result of a large number of current and potential customers migrating away from MMFs.	Costs relate to the reengineering of the transaction processing and settlement workflows, as well as the reestablishment of fund advisor and client interfaces. One-time project costs will be between \$500,000 and \$600,000 at larger broker-dealers and portals.
Fund Advisors	Fund advisors provide MMF products to investors directly and indirectly through intermediaries such as brokers and MMF portals. They manage fund assets and perform transaction and recordkeeping duties.	Both one-time and ongoing costs for compliance would be extremely high. Additionally, the size of the MMF industry as a whole will shrink. The overall impact will be a significant reduction in the number of fund participants.	Project costs relate to operational, system, and interface modifications. A large team consisting of fund portfolio management, accounting, transfer agent, information technology (IT), third-party vendors, system specialists, and clients could accomplish compliance at an estimated cost of \$10 to \$15 million dollars at a large fund advisor.
Transfer Agent Systems	Transfer agent systems perform an array of shareholder recordkeeping services for the MMF industry. Fund advisors use these systems for recordkeeping and tracking of all fund activity.	A floating NAV would require system rework at transfer agent software providers. The shrinking of the MMF industry as a whole will make absorbing the costs themselves that much more challenging.	System upgrades related to transaction processing, recordkeeping, reporting, and intraday settlement functionality will require significant resources. For large transfer agent systems, this will cost approximately \$2 to \$2.5 million.
Sweep Account Software Providers	Sweep software companies provide systems to banks and fund advisors that perform automated, same-day and next-day sweeping of cash between Demand Deposit Accounts (DDAs) and MMFs. The systems are critical, because they automate many aspects of the complex MMF sweep investment process.	A floating NAV MMF would complicate the ability for sweep account software providers to facilitate a sweep for clients. If software providers choose to accommodate a floating NAV, this could take more than two years to develop.	The redevelopment of sweep systems to accommodate a floating NAV will require cross-functional project resources from sweep system providers, banks, fund advisors, and sweep system users. Costs for system changes would be at least \$2 to \$3 million, per system vendor.
Fund Accounting	Banks play a critical role in the MMF industry, acting as both fund providers and custodians. A key role of custodian banks is fund accounting. Fund accounting departments at custody banks compute and report fund NAV values.	Requiring a floating NAV would be an extremely painful adjustment for fund accounting groups. Fund accounting systems are currently not able to handle a floating NAV, and would require significant redevelopment in order to accommodate their use.	While one-time costs for compliance will be between \$400,000 and \$425,000, ongoing costs for compliance with a floating NAV are the major pain points for fund accounting groups. Approximately one-fourth of an FTE would be required for each fund managed with a floating NAV.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Background

Money market funds have a long history as investment vehicles for a variety of investors, the first fund having been created in 1971. The use of MMFs has increased dramatically since that time due to attractive characteristics, such as a stable share value, intraday liquidity, and risk diversification. A stable NAV has been an especially important feature, providing investors with a simple and straightforward means of accounting and recordkeeping, while allowing for ready access to cash. A wide range of investors including corporations of all sizes, states, municipalities, government sponsored enterprises (GSEs), fiduciaries, individuals, and others rely on MMFs as a critical liquidity tool to manage daily financial operations.

In 2007, compromised credit underwriting standards in U.S. residential mortgage lending triggered a chain reaction of events affecting global debt and equity markets. In the fall of 2008, one of the most stable of all short-term investments, MMFs, was affected by an expanding global financial crisis. In September 2008, a single MMF, the Reserve Fund, experienced a downward movement in its price from \$1.00 to \$0.97 due to its significant holdings of Lehman Brothers securities. While Reserve Fund investors subsequently recovered more than 99% of their investment, the fact that a U.S. MMF was unable to sustain its traditional \$1.00 per share price triggered redemptions from MMFs of approximately 15%.

In 2010, the SEC amended the Investment Company Act Rule 2a-7 to make MMFs more resilient by reducing risks associated with liquidity, credit, and interest rates. These regulatory amendments caused MMFs to make critical changes to the operations of their funds and enhanced their resiliency. Since these changes were implemented, funds have operated without incident. None of these changes dramatically impacted the internal financial operations of institutional investors nor compromised the liquidity of their investments in MMFs.

Because of the events that occurred in during the 2008 financial crisis, regulators and others have focused on reducing the risk of runs on MMFs as a way to reduce systematic risk in the financial sector. For example, the SEC has allowed investors to access detailed information about MMFs, including information regarding a fund's investments and the market-based price of its portfolio, known as its shadow NAV. One additional alternative being proposed is requiring prime MMFs to adopt a floating NAV. Proponents of this change believe a floating NAV will reduce the risk of runs and increase the transparency of MMFs.

The widespread use of MMFs by large and small institutional investors would not have been possible without a stable share value characteristic. The ability of funds to round to the nearest penny and use the amortized cost method of valuation dramatically reduces the administrative and accounting costs for both fund companies and

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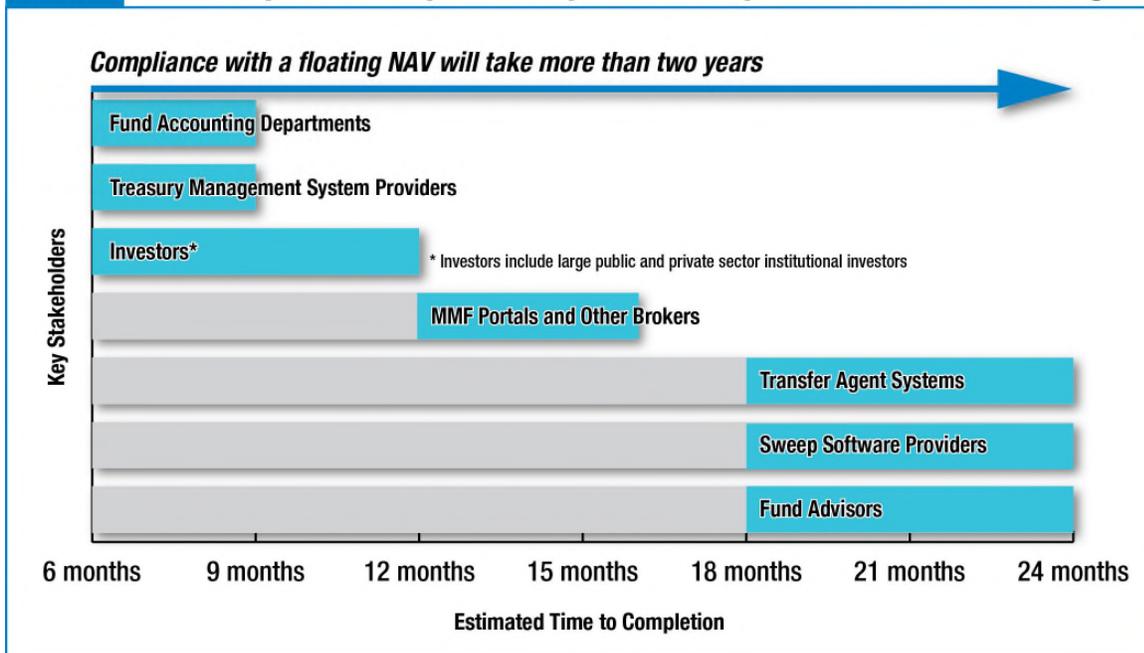
investors. The migration from a stable NAV to a floating NAV will have a detrimental impact on all participants, or key stakeholders, within the MMF investment community.

In order to understand the impacts felt by these key stakeholders in a floating NAV environment, chart 1 provides a description of each of the key stakeholders and also a brief summary of the consequences of a floating NAV.

The migration to a floating NAV share protocol will be a long, complex process with many interdependencies. Fund advisors are dependent on transfer agent systems to upgrade software. Broker-dealers are dependent on changes required from both fund advisors and transfer agent systems. Investors are dependent on both cash management system providers and sweep software providers to update systems. While some tasks can be completed concurrently, because of the sequential nature of moving a MMF transaction through multiple systems controlled by multiple organizations, not all of the work can be completed in parallel. Large blocks of programming will need to be done sequentially and then be tested to ensure the many systems interfaces are working correctly. A number of these dependencies are explained in greater detail within each key stakeholder chapter. Chart 2 illustrates these dependencies and the time required to implement individual system and operational process changes at a high level. Because some of the changes need to be done sequentially, the time needed to execute and test all changes will take more than two years.

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Chart 2 Time Required to Implement System and Operational Process Changes



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Key Stakeholder Operational Impact Analysis

I. Corporations

Background

Corporations are the largest users of MMFs. Treasury Strategies estimates that between 8,000 and 10,000 corporations actively invest cash in MMFs.

These funds provide a practical way for these investors to both diversify risk and increase investment earnings. The cash held in the accounts is used to fund payroll accounts, tax payments, and payments to suppliers and vendors.

Corporations could hold this cash in banks or in short-term bond funds. However, MMFs with their unique mix of stable \$1 share price, risk diversification, same-day liquidity, and a market yield provide the ideal combination of attributes to hold these critical operating cash balances. Should regulators require a floating NAV corporations will be

forced to change investment policies, procedures, and systems. Many businesses will not be able to devote the financial and human resources required to implement all of these changes. One of the unintended consequences of the floating NAV concept is that corporations are likely to shift funds from MMFs to bank deposits. This will increase their diversification risk, while concentrating risk in the banking sector.

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Impact

Corporate treasury groups within companies will be forced to make a variety of changes within the following areas in order to continue using MMF products in a floating NAV environment:

- Policy development
- Investment process reengineering
- Intraday liquidity management
- Accounting practices
- Tax reporting
- System reengineering
- Debt issuance

Policy Development

The adoption of a floating NAV for MMFs will require corporations to reassess and, in most cases, rewrite or modify investment policies. There is a misconception that the redrafting of policies is a fast, easy change for companies to make. The process of rewriting corporate policy is generally very expensive as a result of the senior resources required to rewrite, review, and approve policies. A policy change involves a number of internal and external players and can take several months, depending on the scope of the policy. Policies are often overseen,

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developed, or approved by executives and boards.

Many corporations would be excluded from continuing to invest in MMFs altogether, simply based on existing policy language that permits investment only in stable NAV funds. The vast majority of corporation investment policies, which do not address investment in a floating NAV MMF instrument, must be modified. Policies must address the new additional risk of minute gains and losses in principal as shares float. Corporations will have to address policies in the following areas:

- Investment
- Counterparty risk
- Accounting

The section of investment policies governing MMFs must be modified to reflect potential realized and unrealized gains and losses from a floating NAV. Currently, corporate investment policies generally establish specific investment limits for each approved investment instrument and counterparty. In the proposed iteration, MMF policies must go beyond simply setting limits by counterparty. They must define acceptable NAV fluctuation parameters and procedural actions for NAV values below acceptable values. Corporations will also scrutinize the existing rating requirements for acceptable MMFs within policies. This will likely shorten the list of acceptable MMFs for investment.

Counterparty risk policies generally exist as both a subset of a larger investment policy as well as a standalone policy. Standalone counterparty risk policies specify the total amount of counterparty risk across all instruments (e.g., credit facilities, bank balances, investments, derivative positions) that a company is willing to accept. Comprehensive counterparty position calculations must now factor in the calculation of mark-to-market (MTM) positions for all MMFs, as opposed to simply using a current investment balance.

Throughout the policy development/modification process, treasury and investment departments will have to work with accounting, audit, and tax authorities in order to confirm that procedures and policies are in compliance with generally accepted accounting principles (GAAP) and applicable tax codes. These accounting and tax governance/rule changes will become critical for investors should a floating NAV be adopted.

The additional effort required for new policy compliance spans all MMF activities, from investment initiation to MTM reporting. Additional compliance efforts must be allocated to new or current roles, and new processes must be defined to ensure compliance with new policies.

Investment Process Reengineering

Procedures and supporting systems at corporations associated with the initiation, tracking, and redemption of MMFs will have to be significantly reengineered with a floating NAV. While

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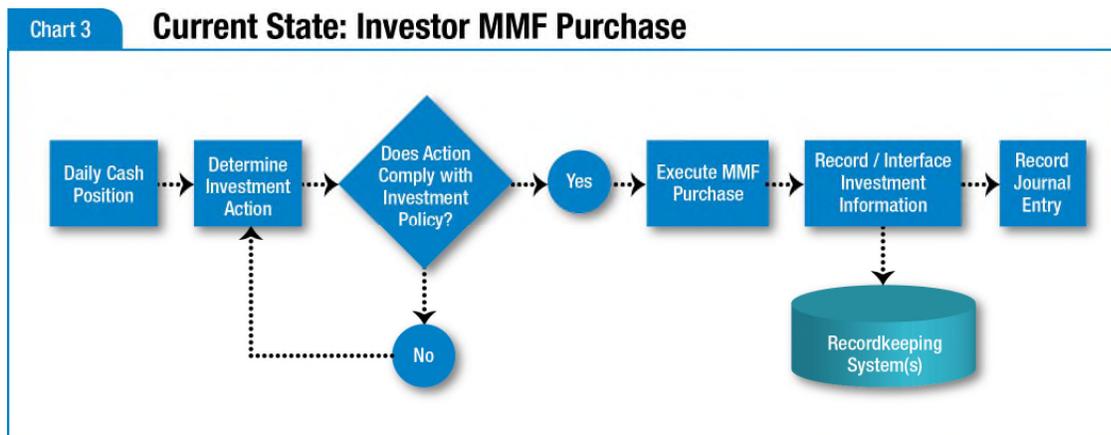
current MMF procedures differ from corporation to corporation, normally these are as simple as transferring funds into and out of accounts. These processes become elongated and more complicated with a floating NAV.

Chart 3 displays the typical current MMF purchase process flow at a corporation. The MMF initiation process at corporations is very simple with a stable NAV—the company initiates a trade electronically, via telephone, or through an automatic sweep, generally from the main concentration account. Current procedures do not require the receipt and matching of a confirmation form.

Chart 4 displays the same process with a floating NAV. In this environment, corporations must now take the extra step, prior to initiation, of evaluating NAV positions in order to ensure compliance with policy (e.g., NAV threshold qualifies investment instrument as acceptable). The trade initiation process itself then involves a new element of confirmation. With a floating NAV, MMFs will be required to transmit price confirmations to clients, who will then confirm trade details, specifically the NAV. Corporations must create confirmation procedures and configure their current systems to accept and match electronic trade files, or else confirm these manually.

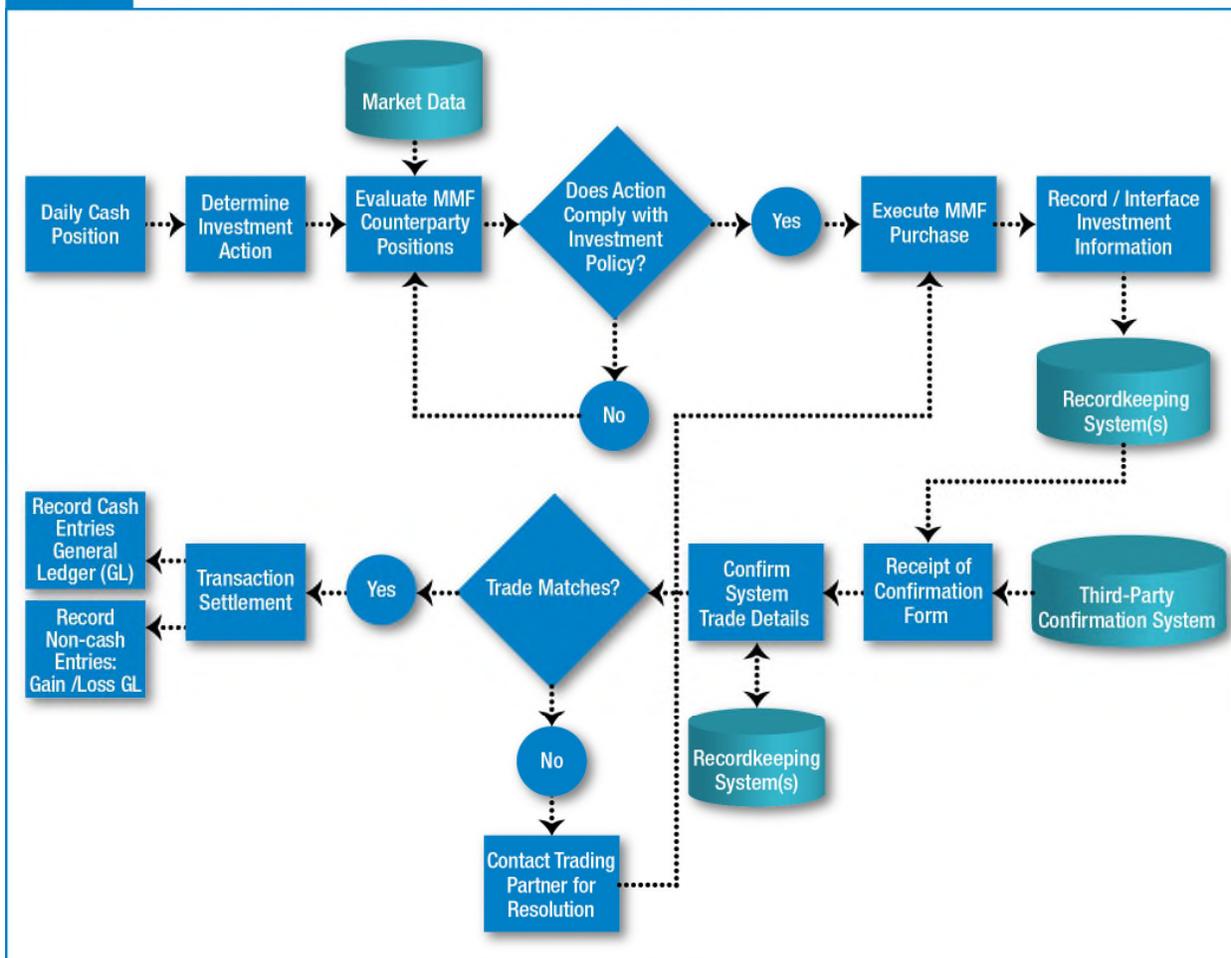
Procedures and supporting systems at corporations associated with the initiation, tracking, and redemption of MMFs will have to be significantly reengineered with a floating NAV.

Automatic sweep procedures are especially complicated by a floating NAV. In order for corporations to continue the automatic sweeping of funds from demand deposit accounts (DDAs) into MMF accounts, a control mechanism has to be designed to identify small gains and losses and to ensure compliance with corporate investment policies. Because current technology does not accommodate these new requirements, the management of sweeps will become much more complex and manually intensive.



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Chart 4 Future State: Investor MMF Purchase



The redemption process is also more complex with a floating NAV. The current settlement process displayed in chart 5 is as simple as executing a sell and recording the settlement detail. It is simple because the shares do not vary from the \$1 per share price.

Chart 6 displays a floating NAV redemption. Prior to selling MMF shares, procedures and systems must be in place to identify any gains or losses. Because the recent SEC proposal contemplates basis point rounding to four decimal places there may be frequent movements in prices. After recording the NAV settlement detail, the corporation must then go through a new confirmation process, confirming not only interest but also settlement amount, ensuring the bank's MMF share price matches that recorded by the corporation. This new redemption process may in some cases take more than one day to complete. For example, a trade may be made and settled on different days, and confirmation/settlement will take additional time.

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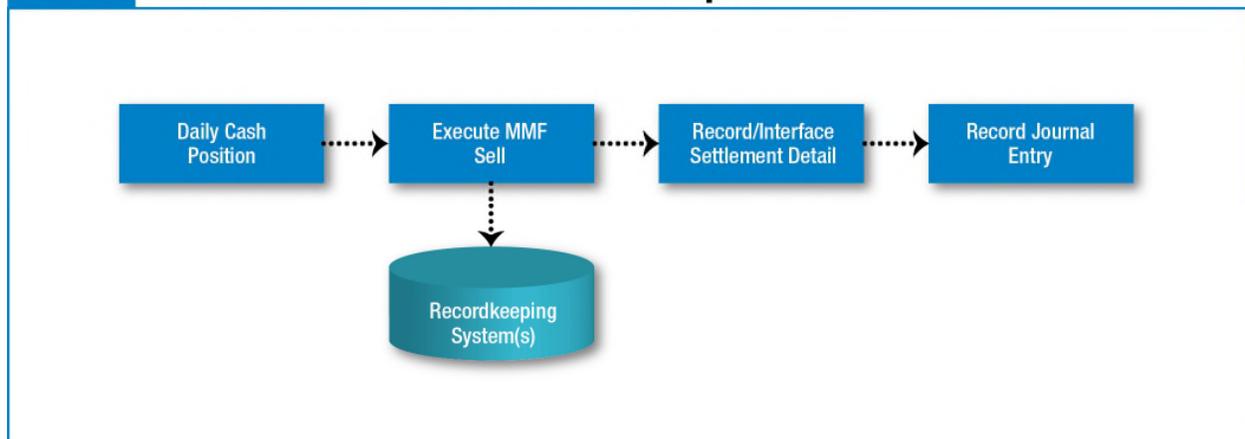
Intraday Liquidity Management

Compounding the additional effort required to initiate and redeem MMFs is the fact that financial institutions may no longer be able to accommodate intraday settlements. This limits the ability of corporations to use this money on a same-day basis, a very common practice for many companies. This represents a significant problem for many corporations. A floating NAV will require corporations to redeem funds from MMF investments on a prior-day basis, for next-day value. This effectively eliminates MMFs as a practical cash equivalent liquidity instrument for corporations.

Certain industries that have large, frequent intraday redemptions from MMFs are more sensitive to the loss of the intraday liquidity access utility. Certain energy sector, financial services, and insurance companies rely on intraday access to funds within MMF accounts. Being unable to invest in MMFs would eliminate much of the interest income generated and would force firms to use riskier or non-interest-bearing accounts.

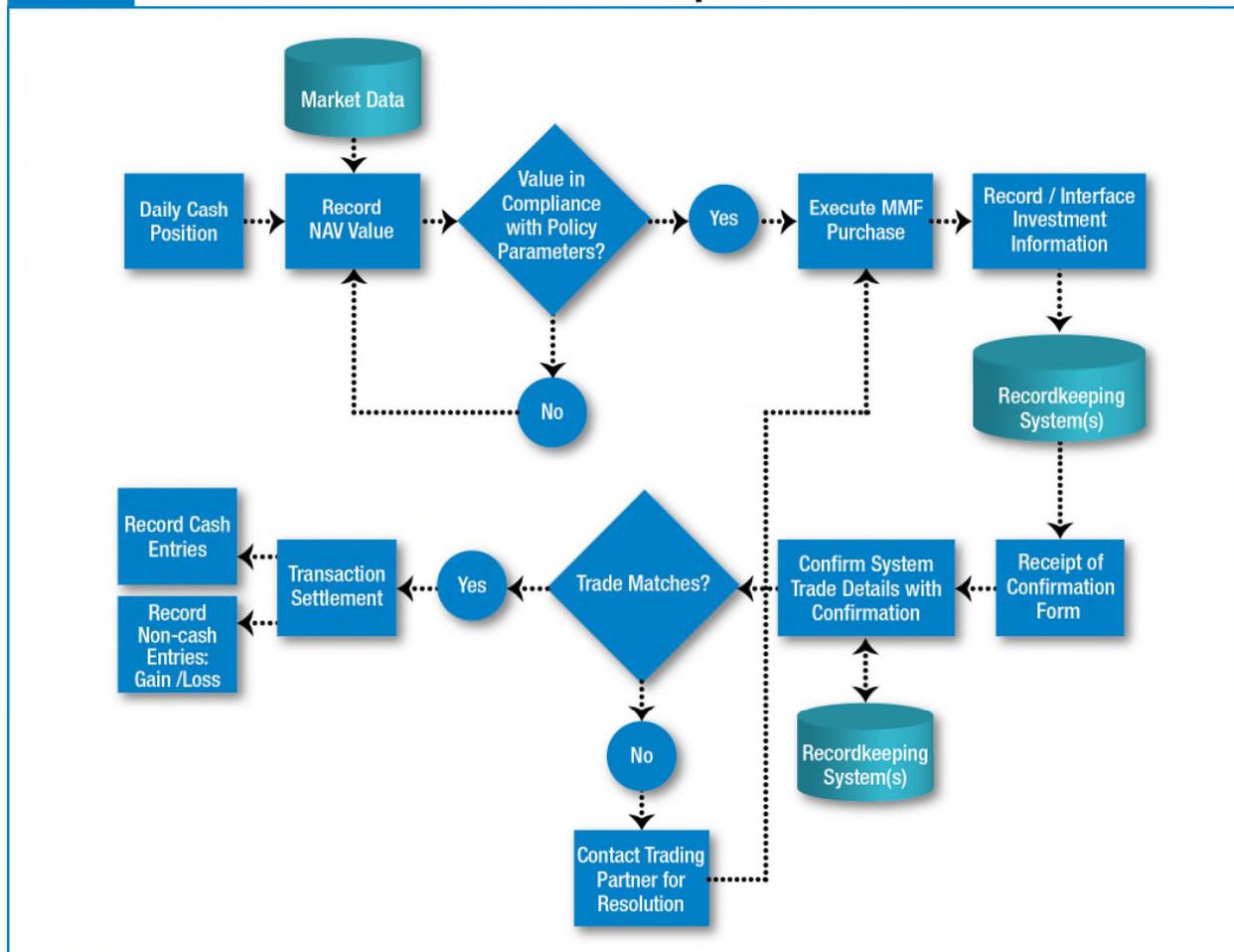
Chart 5

Current State: Investor MMF Redemption



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Chart 6 Future State: Investor MMF Redemption



Accounting Practices

With the introduction of a floating NAV, there has been uncertainty as to whether MMF instruments will change from cash equivalent instruments to available-for-sale securities for GAAP accounting purposes. The impact of a change to available-for-sale would be significant at corporations for both operational and debt covenant compliance purposes. Currently, corporations are allowed to record MMF holdings as cash equivalent investments without having to report on the daily change in the value of their portfolio. Should funds change to a floating NAV, companies would have to assign resources to monitor their MTM value and report on any minute gains or losses because available for-sale securities are reported on the balance sheet at fair value. Changes in value to the MMF security itself would then be recorded as unrealized gains/losses. Additionally, debt covenants requiring strict cash equivalent levels will force more corporations to migrate from MMFs into other cash equivalent vehicles.

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With a stable NAV, there is no need for companies to account for unrealized gains and losses. A floating NAV will require the modification of accounting systems and procedures to calculate and record unrealized gains/losses associated with MMF instruments. Complying with this new unrealized gain/loss accounting requirement will be a burden for corporations.

The changes to systems and processes will depend on how the corporation is managing the journal-entry process for MMF instruments. Large corporate MMF users that leverage systems to automate journal-entry postings for instruments such as MMFs must work with their technology vendors to reconfigure accounting formulas. Because none of these systems currently offer fair-value MTM reporting functionality for MMF instruments, this endeavor becomes a long and costly one.

Accounting system modifications are dependent on vendor development. When this patch or upgrade is available to corporations, users must first be trained on the new functionality, and then the new journal-entry formulas and reporting must be thoroughly configured and tested. The configuration and testing period will require dedicated IT, accounting, and system vendor personnel to program MTM formulas, generating accurate gain/loss entries.

For the majority of companies, especially those middle-market corporations without automated accounting functionality, the accounting process will become more time-consuming and error-prone. The simplicity of current MMF accounting will be replaced with something similar to accounting for an equity portfolio. Procedures and reporting must be established for the MTM and gain/loss calculations for all MMF instruments.

Tax Reporting

Additional tax tracking and reporting measures must be established if MMFs are forced to adopt a floating NAV. In the new floating NAV environment, all MMF share sales become tax-reportable events. Each trade will have very small gains and losses. This compounds the tracking and reporting burden for corporations.

Corporate treasury and tax departments must work together to create reporting that captures the following information for each trade:

- Share identifier/name
- Acquisition cost
- Holding period defined as either long term or short term

Additionally, decision-making tools would have to be developed to identify Internal Revenue Service (IRS) “wash rule” scenarios where, if a replacement security is purchased 30 days before or after the redemption of the MMF, the corporation would be prohibited from recognizing a loss on the sale of the security. While the IRS has proposed new guidance that offers relief to investors as long as the loss is not more than a specific number of basis points, treasury departments must still be equipped to identify scenarios where the wash rule would apply.

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Treasury departments are not equipped to manage and report on MMF investments in this way. Because standard treasury management reporting software is not able to accommodate the tax reporting requirements out of the box, a high degree of customization would be required by corporations.

System Reengineering

Corporations use a number of different systems to manage investment activity. They may use a treasury management system (TMS), enterprise resource planning (ERP), or other specialized software packages to manage activity. In many cases, all of the above systems may be used. Throughout this subsection, any reference to a “system” applies broadly to any system used by a corporation, as all of these systems offer investment management functionality and will be impacted by a floating NAV. The chapter of this report detailing corporate system vendors goes into greater detail regarding the specific changes that system vendors will be required to make. This section describes only those changes specific to corporations.

Companies do not have financial systems configured to account for a floating NAV and would have to invest significant resources into modifying these systems. Corporations will rely heavily on system vendor experts to make many of these complex system configuration changes. The changes made by corporations mirror many of the changes that would have to first be made by system vendors in order to accommodate a floating NAV. These system changes fit broadly into the following categories:

- MMF initiation and redemption
- Accounting
- Reporting
- Policy compliance

Once updated functionality is introduced by vendors, corporations must be trained on the new deal management tools. Procedures for entering, confirming, and settling MMFs must then be redefined within these systems by corporations, ensuring sufficient automation and controls. Additionally, corporations must work with MMF counterparties and system vendor implementation specialists in order to configure the acceptance of an electronic file for confirmation processing purposes. New interfaces must also be developed or modified to include the NAV.

An additional significant system reengineering initiative will involve the accounting for MMF investments. Corporations will be required to configure new journal-entry formulas for MMF instruments in their systems. Treasury departments must work with IT and accounting to complete this task. For small to mid-sized companies, securing the resources to complete the accounting systems configuration will prove difficult, and they are likely to discontinue using MMFs as an investment.

Corporations must work with system vendor report-writing specialists to modify system-generated reporting for tax, accounting, and counterparty risk reporting. Companies must also

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work with system vendor reporting specialists to configure MTM position reports for all MMF investments, as well as profit/loss reports that calculate the change in fair market value of all MMF deals from one previously generated MTM report to another. Additionally, counterparty risk reports must be modified to factor in floating NAV positions. Corporations will rely on systems to automate the viewing of counterparty exposure positions—these will likely have to be modified to include new NAV metrics.

Debt Issuance

A reduction in MMF investment levels would adversely impact corporations that issue commercial paper (CP) for financing. Close to 2,000 U.S. corporations issue CP. MMFs hold approximately one-third of the CP that these corporations issue to finance operations. These corporations rely heavily on MMFs to purchase CP.

For large corporations, CP is a lower-cost, short-term borrowing method than drawing from a line of credit with a bank. CP is also a convenient source of financing for corporations because of the ability to quickly obtain funding and define various short-term maturities.

Although borrowing through the CP market is less expensive, most large companies still maintain credit facilities as a backup option should they not be able to issue CP. In a scenario where the CP market dries up, many of these corporations will experience higher borrowing costs, by being forced to tap into these backup lines of credit. How much higher borrowing costs are will depend on each company's loan agreement credit quality and prevailing market conditions. One corporation interviewed indicated that the cost of borrowing from a backup facility would be between eight and 10 times higher than issuing CP.

The fate of MMFs in a floating NAV environment is tied directly to the severity of the impact felt by the corporations that use them.

Consequence Summary

The fate of MMFs in a floating NAV environment is tied directly to the severity of the impact felt by the corporations that use them. Because the impact is very high within treasury departments and other functional areas such as tax and accounting departments, it is very unlikely that the majority of corporations will continue investing in MMFs should a floating NAV be implemented. The costs and resource requirements for one-time and ongoing compliance would not be justified, especially at smaller companies with less free cash flow for a floating NAV compliance project.

Although all businesses will be impacted, middle-market companies will experience the greatest impact at the highest cost should a floating NAV become reality. Many middle-market companies that use MMFs today simply cannot afford the costs of a floating NAV compliance initiative.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

One-time costs for floating NAV adoption at corporations relate primarily to treasury operations process and system reengineering, reporting development, and policy development. The costs vary from company to company, depending on size and MMF portfolio. The costs for businesses vested heavily in complex enterprise risk management or treasury management system technology can be as high \$2 million dollars, whereas corporations on the other end of the spectrum that choose to continue to invest without making system and process changes will be closer to \$250,000. Additional cost information noted below represents a conservative estimate for a corporation investing actively in MMFs.

One-time project costs will be between \$400,000 and \$450,000 for a corporate MMF user that has standard or typical investment management technology and procedures, including a system to track and report the MMF. One-time costs for all corporate users would be at least \$1.3 billion dollars. On an ongoing basis, the equivalent of between one-half and one additional full-time employee (FTE) would be required to manage additional processing, policy compliance, and reporting tasks.

Chart 2 displays corporate investors as the last stakeholders to comply with a floating NAV. The start date for changes is dependent on both fund advisor system upgrades, as well as corporate system vendor upgrades. The start date is also dependent on the timing of the business' budget cycle. Should funding get approved for the floating NAV compliance project, this would have to be prioritized among competing projects. It would also have to go through the normal budgeting process and approval process that occur annually. As resources are limited, it is likely that other important projects or areas of the company will lose funding to accommodate the MMF reengineering project. These factors will significantly elongate the time between request for project approval and actual start of the transition. Treasury Strategies estimates that project completion time for corporations will between eight and 12 months.

As resources are limited, it is likely that other important projects or areas of the company will lose funding to accommodate the MMF reengineering project. These factors will significantly elongate the time between request for project approval and actual start of the transition.

Insurance Industry Considerations

Insurance companies and their brokers are key investor stakeholders in the MMF industry. Insurance is one of the largest industries in the country, with more than 6,000 companies dealing in some form of insurance, many of which actively invest in MMFs. They will be faced with all of the same reengineering requirements that corporations have, along with additional challenges specific to the insurance industry. Their fiduciary duties may limit investment of cash in a floating NAV instrument.

Insurance brokers collect premiums from clients and deposit them in insurance premium trust accounts. These funds are invested in MMFs until the broker pays the premiums to the insurance underwriter.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Insurance premium trust accounts are regulated by state insurance regulators who define the permitted investments. The investment options are always low-risk, to minimize the risk to the brokers' clients. Because of their stable NAV, highly rated MMFs are common investment choices for insurance brokers.

Gains and losses associated with a floating NAV may prohibit investing premium trust funds in MMFs. For MMF use to continue, brokers will need additional reporting to record gains/losses. New procedures would be required to allocate gains/losses to the appropriate client, because clients' funds are frequently pooled together in the investment accounts. Additionally, contracts between insurance underwriters and brokers must address the potential for minute gains/losses on investments and how, and by whom, they are absorbed.

Requiring a floating NAV would significantly change the short-term investment landscape for the insurance industry. If the operational impact does not cause insurance brokers to exit the MMF market, policy may force it. As noted above, state insurance regulators define appropriate investment instruments for insurance companies and brokers, and companies establish investment policies that conform to state requirements. Both state regulators and insurance companies will have to modify investment regulations and policies to accommodate the floating NAV.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Case Study 1: Corporations

MMF Stakeholder Function: Investor

- Publicly held company with revenue over \$50 billion
- U.S.-based with headquarters in Midwest
- Leverages an MMF portal, which interfaces with corporate accounting systems, to execute and track investments
- Invests the majority of excess cash in MMFs
- Key challenges of a floating NAV include system changes, policy changes, and policy compliance

Key Challenges of Floating NAV	Description	Quote
Policies and Procedures	Modify policies and procedures to ensure the safety and liquidity for MMF instruments.	<i>“We would have to decide what funds were appropriate for investment in a floating NAV environment, make policy changes, and then reassess the entire MMF investment process to ensure adequate controls.”</i>
Systems	Update treasury management systems to accommodate a floating NAV.	<i>“We don’t have the resources here to go through some mini-system implementation. We’d be relying heavily on system vendors to do most of this for us, at some price.”</i>
Policy Compliance	Actively monitoring the NAV to ensure compliance with new policy.	<i>“We would likely have to set up new procedures to review NAVs as frequently as they are changed to ensure compliance with new policy.”</i>
Resource Requirements		
<p>One-Time Activities: Small implementation team would be led by treasury department, accounting, and third-party system providers. Team would focus on system modifications to comply with a floating NAV. Company would work closely with MMF portal provider and treasury management system provider in order to establish new interfaces and required reports. New reporting must be developed within core systems and Microsoft Office to accommodate floating NAV.</p> <p>Ongoing Activities: Manage additional processing, policy compliance, and reporting tasks. Incremental activities relate to the additional effort required to execute, confirm, and settle trades. Additional reporting requirements related to investment MTM and counterparty positions will be required.</p> <p>Cost of Transformation: \$350,000—\$375,000</p> <p>Timeline: 6 to 9 months</p>		

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

II. States, Municipalities, and Universities

Background

A number of public sector entities including states, municipalities, and universities have strongly objected to a floating NAV. Objections have been driven not only by higher operational costs, but also by higher borrowing costs. MMFs are the largest investor in short-term municipal securities. The migration to a floating NAV, followed by the shrinking of the MMF investor market, could reduce the demand for these securities, thus raising the borrowing cost of public sector entities.

As with private sector organizations, there are several operational challenges for public institutions in a floating NAV environment. These institutions will be forced to make expensive system changes in an environment of constrained budgets. In addition, states and municipalities will have to reassess investment policies, processes, and staffing to support the more complex administration associated with managing a floating NAV MMF investment.

Many of the local government investment pools (LGIPs) that public institutions rely on for the placement of excess cash must also reassess investment policies and procedures, because LGIPs are operated in a manner consistent with Rule 2a-7.

Impact

Public institutions and LGIPs will be required to address the following areas if MMFs have a floating NAV:

- Investment policies
- Operational changes with limited staffing and expertise
- Intraday liquidity
- Budgeting
- Bond proceeds
- Debt issuance
- LGIP investment guidelines

Investment Policies

The policy development and approval process is far more complicated at public institutions than at corporations. The method of drafting and approving policies is a very long one that requires input and approval from a number of different parties. The subject of acceptable investment vehicles for public entities would in most cases require involvement from state lawmakers and other legislators. The changes to various laws, across the country, given the inconsistent and shorter sessions of state legislatures, could take many years.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

With a floating NAV, states and municipalities will have to reassess statewide policies and legislation in order to determine appropriate investment vehicles that meet the needs of their constituents and comply with state regulations and guidelines. State legislatures will be required to pass legislation with revised investment guidelines reflecting the introduction of floating NAV MMFs. The floating NAV will force some public institutions out of the MMF market. The inability to invest in MMFs will limit short-term investment options for public institutions.

Operational Changes with Limited Resources

Even if investing in a MMF with a floating NAV were permitted, the operational changes required would strain thinly staffed municipal finance and accounting departments. Many local government entities lack the resources to manage the operational, administrative, and accounting burden inherent in floating NAV funds.

The complexities of migrating to a floating NAV illustrated in charts 3 to 6 will be applicable to all public institutions investing directly in MMFs. Procedures and supporting systems associated with the initiation, tracking, and redemption of MMFs will have to be significantly reengineered to accommodate a floating NAV. While current MMF procedures may differ slightly from one institution to the next, normally these are as simple as transferring cash between a bank account and an MMF. These processes become elongated and more complicated with a floating NAV.

Larger states and municipalities use TMS or ERP software to manage MMF transaction processing. Required changes to these systems will be significant and in most cases require third-party technical consulting assistance. A range of functionality including transaction processing and reporting must be upgraded, after which staff must be trained to use the modified system. Reporting for tax, accounting, and counterparty risk must all be changed. Public institutions will be faced with the decision to dedicate funding to an upgrade project or to move away from MMFs, into less attractive investment alternatives.

The ease with which public institutions can account for MMF investments is an important attribute of this type of investment. Public institutions will face the additional effort, similar to corporations, of performing MTM accounting. The accounting burden alone was cited by one interviewee as a reason for moving cash out of MMFs. It will be difficult for states to allocate more funds for finance staff in a period where other critical state and municipal functions need funding.

Operational limitations, exacerbated by limitations in resources, will be one of the main drivers in forcing local governments and other public institutions to abandon MMFs. Interviews conducted by Treasury Strategies with these institutions indicated that most will migrate away from MMFs in a floating NAV environment. The inability to invest in MMFs would harm struggling local governments by limiting their access to safe, liquid, short-term investment options.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Intraday Liquidity

The same-day availability of funds held in MMF investments is a critical characteristic for many state and local governments. These institutions need immediate access to their cash to fund payments to vendors, employees, and so forth. MMFs allow these institutions to place and redeem the cash without advance notice. In this way, MMFs act as convenient cash management tools that offer a safe investment alternative for local governments to earn interest. The inability to access funds on a same-day basis will decrease the amount of cash kept in these instruments by state and local governments.

Budgeting

State and local governments will need to budget for the systems work and any increase in staffing that will be needed to accommodate the increased administrative burden of managing floating NAV MMFs. Because of the periodic nature of most public sector tax and revenue receipts, these entities rely heavily on a robust budgeting process in order to properly plan for current and subsequent years. The cost of system changes and additional staff will need to be included in the annual budgeting process for work actually done in the following year. This could add a year onto the expected timeline of a public sector entity doing systems work needed to support floating NAV MMF investments.

Bond Proceeds

Public entities use bonds to cover gaps in funding for specific projects or purposes. Many public sector entities would be unable to invest proceeds from bonds and notes in floating NAV MMFs. This is due to both local laws and bond resolutions, depending on the entity, that require proceeds to be held in cash or cash equivalents. The proceeds of these issuances are required to be held in a liquid account until their intended use. Limiting one of the most commonly chosen investment options could force public entities into investments that have less risk diversification or lower investment yields.

Debt Issuance

MMFs hold nearly two-thirds of the short-term debt that finances state and local governments. The federal government, states, and municipalities issue both short-term and long-term debt to fund daily operations and special projects. A form of debt structure offered by public institutions that is widely held by MMFs is the variable rate demand note (VRDN). VRDNs are typically offered by public institutions supported by the creditworthiness of the institution together with some form of a credit guarantee provided by a bank. VRDNs are often offered with a seven-day hard put, which allows MMFs to treat the debt as if it is maturing within Rule 2a-7 maturity restrictions, irrespective of the duration of the underlying obligations, which may be for longer periods.

The amount of VRDNs outstanding has been trending downward during the past three years as a result of credit quality issues of liquidity enhancement providers. Additional declines in the number of MMF investors will further damage the ability of public institutions to obtain financing. The floating NAV, coupled with additional financial institution downgrades, will increase public sector financing costs and help to worsen the financial conditions at many local

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

governments struggling to recover from the recent recession.

Higher financing costs will be partnered with additional one-time operational costs. Operationally, public institutions will be forced to modify debt issuance procedures after arranging new methods of financing. Procedures and systems will have to be changed to accommodate these new approaches to financing.

Local Government Investment Pools Investment Guidelines

LGIPs are funds used by municipalities, counties, school districts, utilities, and other local government entities to invest public funds. LGIPs are critical investment tools for these public institutions because they provide a safe place for funds, while at the same time offering a competitive yield. LGIPs may be managed internally by government employees or externally by investment firms. The Government Accounting Standards Board (GASB) states that LGIPs must operate in a manner consistent with Rule 2a-7 and may use amortized cost-to-value securities.

Should the NAV float, LGIP boards will have to reassess compliance with investment guidelines. LGIPs are governed by a set of investment guidelines imposed by the board, derived from the GASB. LGIPs must reevaluate these guidelines and modify policies should the floating NAV become a reality. For those states that manage LGIPs internally and comply with state investment regulations, the reassessment process will be more cumbersome and require additional resources.

One significant challenge for LGIPs relates to continued compliance with the now-modified Rule 2a-7. Existing GASB rules state that those LGIPs not complying with Rule 2a-7 must report to each participant their share of any unrealized gains or losses. Participants must also report these gains or losses on their balance sheets. Because this is not an acceptable option for most public entities, many LGIPs will be faced with higher operational costs related to floating NAV compliance.

Consequence Summary

The move to floating NAV will ultimately cost states, local governments, and other public institutions millions of dollars at a time when they are experiencing severe financial pressures. A floating NAV would deprive communities and other public institutions across the country of an efficient cash management tool with historically higher returns than other investment options. A floating NAV requirement would alter the short-term investment landscape for public institutions in a period of tight budgets. Many public institutions do not have the ability, expertise, or budget for changes that need to be made in order to account for a floating NAV themselves. This will make it unlikely that states and municipalities will invest in the required system and procedural changes necessary to support floating NAV MMF investments.

Case Study 2: Public University

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

MMF Stakeholder Function: Investor

- Public university with enrollment of more than 40,000 students
- U.S.-based headquarters in the Midwest
- Key challenges in a floating NAV environment include resource requirements, liquidity, and policy changes

Key Challenges of Floating NAV	Description	Quote
Policies and Procedures	Modify policies and procedures, assessing new safety and liquidity of MMF instruments.	<i>“The complex operational and systematic requirements we would have to make would not be justified given the small returns we’re getting— the ease of dealing with a stable NAV is why we put up with a small return.”</i>
Resources	Ensure the appropriate skill set is available within treasury to apply MTM accounting to MMF instruments and manage new counterparty risk procedures.	<i>“We would need to hire an additional person to develop and manage new procedures. Skill set would probably be hard to find because everyone else will be looking for the same skill set.”</i>
Liquidity	Requirement for same-day, immediate access to funds held in MMF accounts.	<i>“We need minute-by-minute liquidity as a result of our current financial situation; a floating NAV would likely delay transfer of funds.”</i>
Resource Requirements		
<p>One-Time Activities: A joint IT, treasury department, accounting, tax, and third-party system vendor project team would be required for process reengineering, reporting development, and policy development. All procedures related to the initiation, tracking, and redemption of MMFs will have to be significantly reengineered with a floating NAV. New counterparty risk, accounting, and tax reporting must be developed to accommodate minute changes in NAV values.</p> <p>Ongoing Activities: Manage additional processing, policy compliance, and reporting tasks. Incremental activities relate to the active monitoring of MMF investment to ensure compliance with policy. Additional fair value, tax, and counterparty risk reporting requirements will also be significant.</p> <p>Cost of Transformation: \$275,000—\$300,000</p> <p>Timeline: 6 to 9 months</p>		

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Case Study 3: Municipality

MMF Stakeholder Function: Investor

- U.S. city located in the Northwest
- LGIP participant
- Invests in multiple MMFs through LGIPs
- Key challenges of floating NAV include counterparty risk, liquidity, and policy changes

Key Challenges of Floating NAV	Description	Quote
Liquidity	Obtaining same-day, immediate liquidity to MMF investments for support of critical government functions.	<i>“Residents are relying on government funds to provide the most basic day-to-day support services, i.e., taking out the trash. The liquidity characteristic of funds is a critical benefit for the city.”</i>
Policy and Procedures	Policy changes in order to ensure continued compliance with Rule 2a-7.	<i>“First order of business would be for LGIP board to assess the impact of a floating NAV and determine appropriate policy changes.”</i>
Counterparty Risk	Balancing the placement of large cash balances with safe counterparties in a world where MMFs may no longer be an acceptable investment instrument.	<i>“Safety of cash is critical; we don’t want all our funds with few counterparties. Diversification strategy will be a challenge without MMFs.”</i>
Resource Requirements		
<p>One-Time Activities: Make changes to both local and LGIP investment policies. After this, develop a project team to redesign and establish investment procedures with a floating NAV. All procedures related to the initiation, tracking, and redemption of MMFs will have to be significantly reengineered with a floating NAV. Define new reporting requirements, many of which are unique to government institutions.</p> <p>Ongoing Activities: Ensure resources are available to manage additional processing and active monitoring of MMF positions. Ongoing effort will be required to not only ensure compliance with strict policies, but also to manage a more complex trading process. Additional fair value, tax, and counterparty risk reporting requirements must also be managed by existing or new resources.</p> <p>Cost of Transformation: \$325,000—\$350,000</p> <p>Timeline: 6 to 9 months</p>		

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

III. Government Sponsored Enterprises

Background

GSEs are financial services corporations created by Congress that function as suppliers of credit to targeted sectors of the economy. GSEs effectively reduce the risk to investors and other suppliers of capital and reduce the cost of credit to borrowing sectors. MMF instruments play a key role in helping these GSEs meet their objectives. The imposition of a floating NAV will require significant process reengineering within GSEs.

Impact

The floating NAV will impact liquidity management operations at GSEs. The changes required at GSE treasury departments will be similar to those at very large corporate treasury departments. Large GSEs, especially those in the housing sector, deal with far greater amounts of cash; therefore, small movements in NAV amplify gains/losses. All procedures and policies must be revised to ensure that cash is kept safe and liquid, while realizing a fair return. A floating NAV will force a change in GSE policies as they reconsider both the safety and liquidity of MMF products.

GSEs are governed by the federal policy on payment system risk (PSR). Because of changes made in 2007 and 2008 to PSR policy, GSEs are required to have minute-by-minute liquidity. Before policy revisions, GSEs were able to have accounts in daylight overdraft with the Federal Reserve. Policy revisions went into effect in 2011; GSEs are limited in their ability to overdraw accounts intraday and so must have immediate access to cash or be penalized. A floating NAV with next-day liquidity, therefore, could force GSEs to sharply reduce the level of investment in MMF instruments, because of the delays in liquidity access.

Faced with the inability to continue to invest in MMFs, GSEs would have to reengineer investment procedures in order to place large sums of cash (the typical MMF trade at the largest GSEs is perhaps a billion dollars or more) in alternative investments. If a floating NAV MMF instrument were allowed, the investment would have to be actively managed, meaning trading staff would have to continuously monitor NAV values for changes in NAV. Counterparty risk reporting at GSEs would become an additional area of rework with a floating NAV.

Consequence Summary

GSEs are one of the many current MMF investors that will migrate cash away from MMFs in a floating NAV environment. The inability to leverage MMFs as a tool for intraday liquidity removes a primary benefit of MMFs to GSEs.

Resource requirements needed at GSEs to comply with a floating NAV are similar to those needed at the largest corporations. One-time costs for floating NAV relate primarily to treasury operations process reengineering, reporting development, and policy development. One-time

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

project costs will be \$500,000 to \$550,000 and take six to nine months. On an ongoing basis, the equivalent of between one-half and one additional FTE would be required to manage additional processing, policy compliance, and reporting tasks.

IV. Fiduciaries

Background

Fiduciaries include bank trust departments, retirement plans, pensions, and, in some cases, insurance companies. A floating NAV will negatively impact operations at fiduciaries in a variety of ways, similar to both insurance brokerage companies and corporations. The end result of a floating NAV for many fiduciaries will be the elimination of a low-cost and highly liquid short-term investment option that millions of consumers use in their trust and retirement accounts.

Impact

Trust Departments

A floating NAV would have significant operational consequences for banks investing on behalf of trust customers. Unlike the case with a stable NAV, each purchase and sale transaction—which typically happens daily for many investors—would be a taxable event with associated tax reporting obligations. These banks would be required to develop additional reporting and recordkeeping procedures in order to comply with the IRS wash rule, which states if a replacement security is purchased 30 days before or after the redemption of the MMF, the investor would be prohibited from recognizing a loss on the sale of the security. Although the IRS has offered relief to investors as long as losses are not more than a specific number of basis points, systems must still be configured to identify scenarios where the wash rule would apply.

Similar to insurance brokers, the reporting of gains and losses on MMFs would be operationally complex. Additional reporting will be required for fiduciary funds in order to record gains/losses for these funds and allocate them to the appropriate client accounts. Additionally, contract clauses must address the potential for minute gains/losses on investments and how and by whom those are absorbed.

Trust banks do not currently have the systems necessary to undertake the above recordkeeping procedural changes that would be required for the frequency of transactions inherent in MMFs.

Trust department investment policies will have to be revised to factor in a floating NAV. Because the fiduciary duty of trust banks is to invest in stable instruments, policies, bond indentures, and state statutes and regulations will likely change to exclude MMFs as an acceptable investment option. Even if policies permitted floating NAV MMFs, the additional operational and system configurations costs could steer these groups away from MMFs.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Retirement Plan and Pension Industry

MMFs are used in the retirement plan industry as a low-risk investment alternative by plan participants, and as a qualified default investment alternative for plans that automatically enroll participants into the employer's plan. Participants also use MMFs as a temporary investment when reallocating retirement balances.

Because MMFs are widely held within plans, each plan service provider would have to reassess policies and procedures associated with a floating NAV. If continued use of MMFs were authorized, providers would be required to implement extensive and costly changes to systems in order to accommodate a floating NAV to MMFs and ensure accurate recordkeeping of a plan participant's retirement balance.

Financial institutions acting as fiduciaries on behalf of plan participants are generally responsible for the recordkeeping, communications, tax reporting, and other operational and servicing functions associated with retirement plans. A floating NAV will require modification of systems and processes that support broker-dealers, banks, insurance companies, trusts, 401(k) recordkeepers, or other institutions tasked with processing MMF transactions. Many aspects of the transaction processing and reporting workflow, from the investment of funds through the participant distribution process, will have to be changed to accommodate a floating NAV MMF environment. The reporting of plan balances on a scheduled basis will be dependent on the receipt of NAV data and the ability for systems to accommodate the NAV in new calculations. The participant distribution process is complicated by a new requirement for funds to apply NAV values to balances prior to redemption.

Consequence Summary

A floating NAV would have significant consequences for fiduciaries by requiring that policies, procedures, and systems be modified in order to accommodate the change. Trust departments and the retirement and pension industry will feel the effects of this proposed change in MMF regulation. It may eliminate a low-cost and liquid investment option that millions of consumers use in their trust and retirement accounts.

Resource requirements for fiduciaries to comply with a floating NAV will slightly exceed those needed at corporations, because along with all the changes corporations require, fiduciaries must report changes in underlying investment value to each of their clients. One-time project costs will be \$400,000 to \$425,000 and take between six to nine months. On an ongoing basis, the equivalent of between one-half and one additional FTE would be required to manage additional processing, policy compliance, and reporting tasks.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

V. Corporate Treasury Management System Vendors

Background

Corporate treasury departments leverage three broad categories of technology:

- Treasury management system
- Enterprise resource planning system
- Specialized solutions

The core piece of technology many large corporations use is a treasury management system. The TMS is a multifunctional software solution used to accomplish a variety of tasks including the management and tracking of MMF investments. The TMS provides a single, consistent system architecture to manage treasury activity around the world. Notable TMS system vendors include SunGard, SAP, and Wall Street Systems.

In addition to using a TMS, many corporations use an enterprise resource planning system to manage the accounting for the transactions. Certain corporations may also leverage ERP for treasury functionality—many large ERP systems such as SAP and Oracle offer cash management functionality. Frequently, a TMS and ERP may exchange data with one another, depending on the specific purpose for which each system is configured.

Specialized software can also be employed for other activities, such as foreign exchange management, investment management, or bank account administration. MMF portals are a type of specialized software offered by third-party vendors or banks that corporations use to access information about, and invest in, MMFs offered by multiple fund companies. Specialized software may exchange data with an ERP, TMS, or both.

Corporations track and manage MMF investments as “deals” within TMS software. Within the deal management module of a TMS, corporations enter the details of purchases and redemptions after these trades have been executed. In other cases, corporations will initiate an MMF deal within an MMF portal, at which point the portal will interface data directly into a TMS and populate the details of the MMF investment. After the MMF deal is input into the TMS, the system automates all aspects of the tracking and management process, including the settlement, accounting, and reporting across the life of the instrument. Because the share price of MMFs is a constant \$1 per share, purchases and redemptions are free of the complexity associated with small changes in share price. This permits large corporations to use TMSs to streamline all aspects of the MMF investment management process.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Impact

TMSs will require significant functional enhancement in order to accommodate a floating NAV. Enhancements and additional training for clients will be needed within the following modules:

- Deal management
 - Confirmations processing
 - MMF portal interface
- Reporting
- Accounting
- Tax

Deal Management

Deal management functionality and workflow will have to be modified significantly within TMSs in order to accommodate a floating NAV. TMS vendors will have to create a new “deal type” in their systems. Currently, TMSs do not offer a specific MMF share price field within the deal entry screen. This field must be created and stored within the deal input screen and then linked to other key modules in the system, such as accounting and reporting. The NAV field will become central to all aspects of the deal tracking and management process. This field will need to be populated by the user for each MMF purchase and redemption.

The MMF deal workflow must be reengineered to mandate the updating of the floating NAV at deal redemption. Under the existing constant dollar-per-share pricing method, all shares are equally priced. However, with the introduction of a floating NAV, shares purchased on different days or even different times within the same day, will have different prices. As with equities, corporations will need to develop a first-in, first-out (FIFO) or last-in, first-out (LIFO) liquidation protocol. The system must link the sale (redemption) to the original purchase share price to calculate any gain or loss. In this modified deal workflow, when the corporation sells shares, the gain or loss is calculated within the TMS after the user populates the NAV field with the final redemption price. This also facilitates the reconciliation of the MMF within the TMS.

TMSs will not be able to track the multiple NAV price points throughout the day without an interface from the fund advisor or MMF portal. This will make new floating NAV policy compliance extremely costly because the NAV will have to be manually monitored for compliance without an interface in place. In a practical sense, most large corporations will be forced to incur the additional cost of developing a seamless interface with MMF data into the TMS in order to automate the updating of their systems to reflect the changing prices associated with a floating NAV.

TMSs are expensive systems frequently used by large corporations with more than \$1 billion in annual revenue. Small to mid-sized companies do not have these systems, so they will be forced to track small share price changes manually in spreadsheets. For the vast majority of corporations, the complex work of managing MMFs in a floating NAV environment will be a manual process.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Confirmations Processing

Most treasury systems have built-in confirmations processing functionality for a number of different deal types. This functionality enables corporations to enter a trade into the TMS and then receive an electronic confirmation file back into the system from a trade counterparty or bank. At this point, the system will automatically match the trade details to the confirmation file from the bank for accuracy. If these trade details match, the deal can proceed to settlement; if they do not, the deal will be flagged in the system.

TMSs are not programmed to accept and match MMF deal confirmation files. Developers will have to program this functionality to allow the system to match specific new fields from the bank for matching purposes, including the NAV. New workflows will also have to be built to accommodate the new confirmations processing workflow for MMFs.

MMF Portal Interface

Many systems have established standardized interfaces in order to help streamline the transmission of data from MMF portals into the TMS. For example, the Kyriba TMS has a standard interface in place with the ICD investment portal. Similarly, SunGard's treasury systems interface with the SunGard MMF portal, SGN. These interfaces have become a necessity for those corporations managing a large number of MMF investments. They automate the tracking and management of these funds.

Corporations will have to work with both their TMS vendor and MMF portal provider to modify not only data within the interface, but also the frequency with which the data are transmitted. The interface file from the MMF portal provider must be changed to include a field for the share price reflecting a floating NAV.

Corporations will have to work with both their TMS vendor and MMF portal provider to modify not only data within the interface, but also the frequency with which the data are transmitted. The interface file from the MMF portal provider must be changed to include a field for the share price reflecting a floating NAV. The TMS must also have a corresponding field to accommodate the share price (NAV). Because the share price has not previously needed to be tracked in TMSs, the transmission of new data into a new field will require significant reengineering and testing. Furthermore, the TMS must be configured to accept the updated NAV at multiple times throughout the day. The frequency with which the NAV is received is critical because of how the settlement process functions in a future floating NAV environment. Should the NAV float throughout the day, the time at which an MMF transaction is initiated or redeemed will determine the exact settlement amounts. This timing change requires interface scheduler functionality (functionality that triggers receipt of the data) to also be reconfigured.

Reporting

TMS users leverage the system for all aspects of treasury reporting. Much of the reporting functionality within these systems will require changes in order to accommodate a floating NAV. Two primary areas that will require change include the MTM and counterparty risk reporting areas.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Standard MTM reporting functionality must be created in the system for MMF instruments. Reporting must not only provide valuation of any individual or group of MMF investments but should also track the change in investment value from one valuation date to another. Systems must be able to generate the following MTM reports:

- **Fair Value:** Provides MTM calculations for all MMF investments. The system would provide a MTM value by multiplying the shares outstanding by the most recent NAV.
- **Profit/Loss:** Reports the profit and loss for all MMF trades in the company portfolio. This report should track the change in fair market value of all MMF deals from one previously generated MTM report to another. Running this report should enable the organization to report profits and losses at any customized frequency—yearly, quarterly, or daily.

Basic counterparty risk reporting would have to be adjusted in the TMS to accommodate a floating NAV. Reports that determine total counterparty exposure (bank balances, investments, MTM positions, credit facilities) must be modified to include MTM positions for MMF instruments. In addition, counterparty risk reporting will have to be adjusted to report new metrics (minimum, maximum, average) associated with NAV.

Accounting

Treasury departments leverage the accounting modules of TMSs in order to automate the creation of journal entries for transactions, including financial instruments such as MMF investments. When MMF shares are bought or sold, the TMS will automatically create a journal entry reflecting the transaction. System users build journal entry formulas during the implementation process, which read the instrument or transaction type, and book as appropriate. Because the nature of accounting for MMF instruments will change as a result of the floating NAV, system vendors must ensure that accounting modules can support new treatment for these instruments.

Vendors will have to ensure that journal entry functionality can accommodate not just the basic cash and interest entries for MMF instruments but also the gain/loss entries. The system should also be configured to display summary accounting entries that break down the total profit and loss changes across all MMF instruments. The recording of the additional gain/loss accounting entries and tax reporting items can then be easily derived from this summary.

Tax

Vendors will also have to modify tax modules to support additional tax tracking and reporting measures with a floating NAV. In the new floating NAV environment, all MMF share sales become tax-reportable events. This creates more complex system requirements related to the tracking and reporting of MMF transactions. Additionally, systems must be configured to identify wash rule scenarios previously described in the corporation stakeholder section of this report.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Consequence Summary

A floating NAV MMF would create significant challenges to TMS vendors and their customers. This regulatory change in how the value of MMFs is calculated would complicate and require system updates for deal management, reporting, and accounting of MMF transactions. Updating these modules is no small task for vendors and will potentially limit the ability for investors to automate the management and tracking of MMFs within a preferred system, making MMFs that much more undesirable for corporations.

Treasury Strategies has estimated TMS vendor costs and resource requirements based on interviews with TMS vendors and in-house system development experience. One-time costs for floating NAV adoption at TMS vendors relate primarily to labor required for upgrades in deal management, accounting, and reporting areas. Training costs for the new functionality will be passed on to system users. Developers must first gather new business requirements from customers then allocate development resources. Project costs will be between \$350,000 and \$400,000 for most vendors and take between six and nine months to complete. Implementation costs for the new functionality will be passed on to customers.

VI. MMF Portals and Other Brokers

Background

MMF portals and other brokers provide access to a wide selection of MMFs to investors. While smaller corporate or retail investors may deal with a non-portal broker, larger investors often use MMF portals. MMF portals provide a menu of funds through a single channel to corporate investors. Portal software permits investors to program the risk constraints of their respective investment policies into the software application. Portal software is critical for large investors because it allows the investor to efficiently purchase and redeem shares from different funds while ensuring compliance with corporate investment policy. Most large MMF investors leverage portal technology and interface portal data with internal TMS or ERP systems.

Impact

Conversion to a floating NAV will cause MMF portals and smaller broker-dealers to incur high costs associated with process reengineering, system configuration, and interface development. Two high-level streams of work will be required to comply with a floating NAV for MMF portals and broker-dealers:

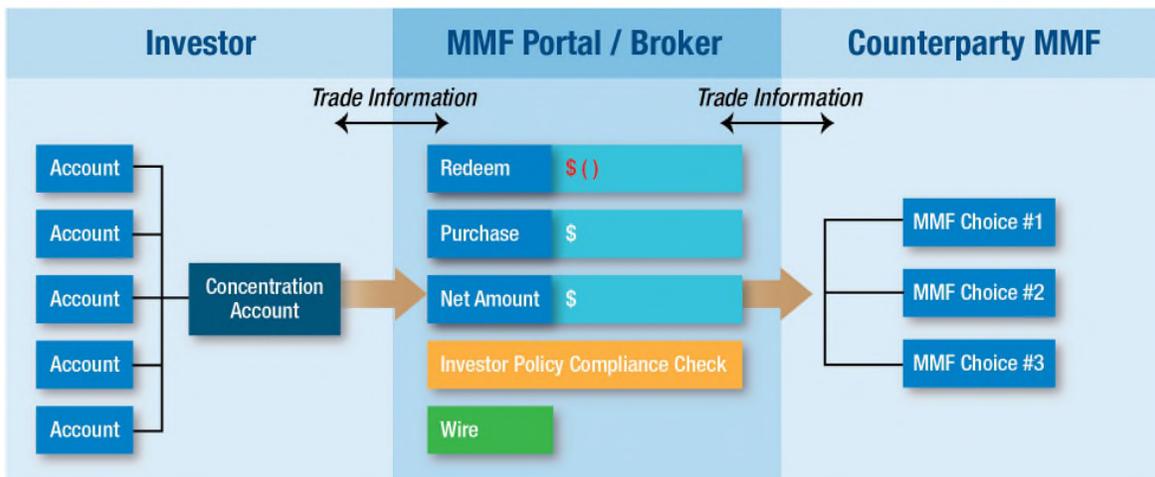
- Reengineering of investor transaction processing workflow
- Reengineering of fund advisor transaction processing workflow

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

The current broker/MMF portal workflow is displayed in chart 7. The portal or other broker accepts orders on behalf of the investor; portal systems then determine compliance with corporation investment policies (broker systems do not), at which point they execute trades with the fund advisor on behalf of the investor. The fund advisor's transfer agent systems communicate all key data back to the broker for delivery to the investor.

The future process is displayed in chart 8. A same-day settlement would first require modification to portal functionality that evaluates funds for compliance with corporate investment policy. Current policy compliance functionality offered by portals simply evaluates fund investment amounts for compliance with customized limits set by the investor. Investors will require new functionality that analyzes the NAV for compliance to policy. In order to achieve this, scheduled interfaces from fund advisors to brokers would have to be in place to receive multiple feeds of the NAV throughout the day, or as frequently as NAV values are published.

Chart 7 High-Level Current State MMF Transaction Processing



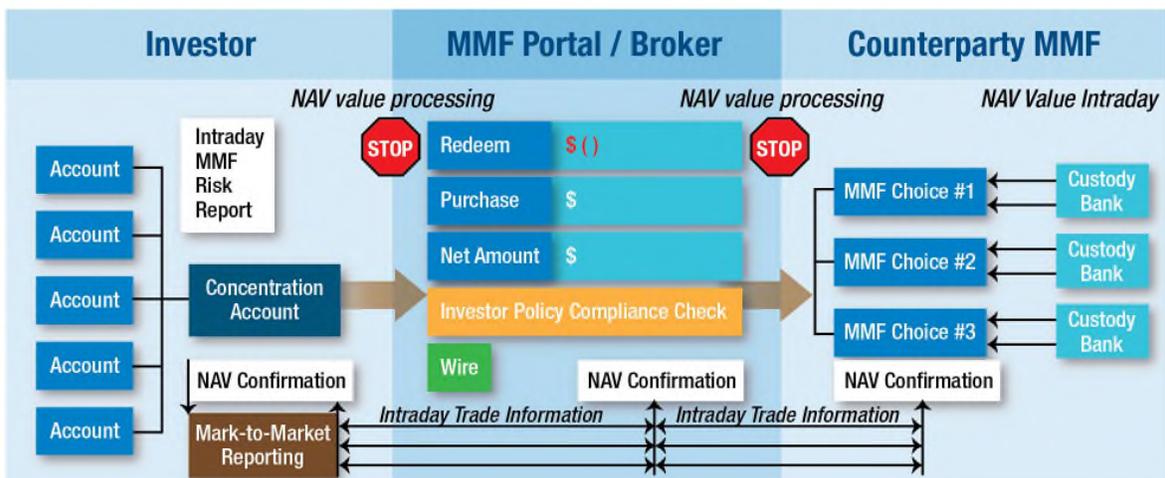
Characteristics

- Straight-through processing, simplified processing of transactions
- Real-time, intraday liquidity access
- Data transparency across processing steps
- Limited interface frequency and simplified processing of data
- Limited number of processing errors

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Chart 8

High-Level Future State MMF Transaction Processing



Characteristics

- Manual intervention required for basic trade processing across all parties
- Longer processing times resulting in limited intraday liquidity access
- Greater number of interfaces and data exchange points
- Greater complexity in data processing
- High number of processing errors

This frequent intraday feed from funds to brokers to investors will also be required for transaction processing. The processing of orders from investors includes an additional step where purchase price values are applied against shares before the trade can be fully settled. A similar process occurs during redemption. This additional confirmation step in the order and settlement processes throughout the day will require systems to be reconfigured to make these calculations before completing a trade.

Interfaces with investor and fund systems must be modified for a floating NAV. The MMF portal to TMS interface is explained in detail in the TMS section. Portals will rely on a NAV data feed from fund advisor systems to interface back to investor systems. The interface file from the MMF portal provider must be changed to include a field for the floating NAV, and the investor system must have a corresponding field to accommodate the NAV.

Additionally, portal and broker systems must be configured to interface with the NAV calculation feed at multiple times throughout the day. The frequency with which brokers receive the updated NAV is critical because of the settlement process changes in a future floating NAV environment. Should the NAV float throughout the day, the time at which an MMF transaction is initiated or redeemed will determine the exact settlement amounts. For this reason, portals and brokers must reestablish interfaces with every fund they offer.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Smaller and medium-sized brokerages will have some unique challenges to address in a floating NAV environment. Today, MMFs are typically used by broker-dealers and investors as core accounts. A core account is an account used by investors for settling transactions or holding balances that are to be invested in another instrument. A customer may use a core account to purchase other securities, pay bills, writes checks against, or to send wires from. Because a floating NAV will complicate many of these core account functions, it is likely that broker-dealers may no longer use MMFs as core accounts. Should broker-dealers continue to use MMFs, the operational costs will increase dramatically, as a single regional broker may send out instructions for thousands of trades in a single day. All of these trades will need paper confirms, statement reporting, and cost-basis tax reporting.

Consequence Summary

During interviews with portals, it was clear that while the costs for operational compliance were a concern, the diminished market for MMF investments in a floating NAV environment was a greater concern. New regulations that deviate from a stable NAV represent a very real danger to the continued profitability and existence of MMF portals as a result of a large number of current and potential customers migrating away from MMFs.

For smaller broker-dealers the consequences of a floating NAV will also be significant. Should the floating NAV become a reality, broker-dealers will need to reassess whether MMFs remain a product that is suitable as a core account option for retail investors. It is likely many broker-dealers will determine that floating NAV MMFs are no longer appropriate as a core account option.

Operational compliance would be costly not just for MMF portals but also for smaller broker-dealers. Resource requirements are mostly one-time and relate to the systems' reengineering that would take place with a floating NAV. These resources would be tasked with reengineering the transaction processing and settlement workflows, as well as the reestablishment of fund advisor and client interfaces. Project costs and timeline will depend heavily on the size of the broker-dealer. For MMF portals, the project would take between 12 and 16 months and cost at least \$500,000 to \$600,000.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Case Study 4: MMF Portal

MMF Stakeholder Function: Investment and Risk Management Software Leader

- U.S.-based company headquartered in Southwest
- Broker providing technology that allows for investor access to multiple funds
- Most large MMF investors use portal technology and interface portal data with internal TMS or ERP systems
- Technology and broker services provided to between 10% and 20% of corporations investing in MMFs
- Key challenges include intraday settlement, interface redevelopment, and additional resource requirements

Key Challenges of Floating NAV	Description	Quote
Intraday Settlement	Delivering a price at multiple points throughout the day.	<i>“Our systems and procedures are nowhere near ready for this. Intraday settlement would require an overhaul of all MMF processes and supporting systems.”</i>
Interface Changes	Modification to all investor and fund manager interfaces.	<i>“We have interfaces already established with many system vendors. These would have to be changed, and vendors would then have to modify interfaces with investors.”</i>
Resource Requirements	Additional resources required to process transactions and provide reporting to investors.	<i>“We would need additional staff to perform the day-to-day blocking and tackling, in all areas from operations to customer service.”</i>
Resource Requirements		
<p>One-Time: IT groups at MMF portals would be tasked with reengineering the transaction processing and settlement workflows, as well as the reestablishment of fund manager and client interfaces. The bulk of the reengineering effort is related to interface reestablishment and intraday settlement procedures. Portals must design processes and systems to ensure that funds can be settled factoring in a floating NAV.</p> <p>Cost of Transformation: \$500,000— \$600,000</p> <p>Timeline: 12 to 16 months</p>		

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

VII. Fund Advisor

Background

The fund complex includes fund advisors, transfer agents, fund accounting departments, and sweep software providers. Fund advisors play a role within every aspect of the fund complex. They provide MMF products to institutional and retail investors directly and indirectly through intermediaries such as brokers and MMF portals. The investment advisor manages fund assets, and the fund transfer agent (whether affiliated or a third-party vendor) performs transaction and recordkeeping duties for fund investors. Fund advisors are one of the few key stakeholders that have direct contact with nearly all of the other key stakeholders in the MMF industry. This 360-degree view gives the fund advisor a greater understanding of the overall negative impact that a floating NAV will have on the MMF economy. Many fund advisors have been vocal in their position against a floating NAV.

Impact

In a floating NAV environment, fund advisors' one-time and ongoing operational costs will increase dramatically. The small price changes (less than one-half of one cent per share) associated with a floating NAV will require modification and development to virtually every MMF-related system and procedure at these companies. Impacts can be categorized as follows:

- Transaction processing
 - Confirmations
 - Settlement
- Reporting
- Interface redesign
- System changes

Transaction Processing

Processing share purchase orders becomes more complex in an environment with a floating NAV. Funds will have to work closely with transfer agents in order to ensure software is able to manage a greater number of funds with a floating NAV. Currently, fund transfer systems are able to simply accept orders and apply order values to shares. This simplifies tracking, reconciliation, and accounting procedures. Should the NAV float, order values must be applied against NAV values either at the time the order was placed or after the NAV is struck in a forward pricing environment. Processes must accommodate the computation of the value of shares purchased against funds received. The effort to match trades or to pend trades for processing may create a bottleneck and delay processing. The reconciliation effort will also be greater.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Confirmations

With a constant NAV of \$1 per share, there is no need for a price confirmation when buying or redeeming MMF shares. These are currently captured in a monthly statement to the customer. In a floating NAV environment, a price confirmation process will be required similar to that which exists for bond and equity funds. This entails new interfaces with broker and investor systems to support the confirmation transmission. One-time costs for internal system modification and the cost of establishing client-by-client transmissions will be high. Ongoing costs to manage the new confirmation process coupled with additional paper and postage costs are also significant.

Settlement

A floating NAV radically changes the trade settlement process. If the NAV is published intraday, individual queues are created throughout the day pending published NAVs. This creates a problem for investors that settle and need access to their liquidity throughout the day. Many industries would find such access delays incompatible with the intraday funding requirements of their business.

In a floating NAV environment, prices would have to be established a limited number of times throughout the day in order to process all transactions. Because transactions are currently completed in batch jobs throughout the day, the floating NAV would place all of these items in a queue to be processed when the NAV is published, likely delaying the settlement of transactions. This would be unworkable for investors who require same-day access to their investments.

Reporting

Several aspects of internal and external reporting will have to be modified to accommodate a floating NAV MMF. Current reporting does not show gains/losses associated with a MMF portfolio. In a floating NAV environment, MMF transactions will be taxable events, and a 1099-B will have to be delivered to all investors by the fund transfer agent or intermediaries servicing beneficial owner customers. The 1099-B lists earnings and losses from brokered transactions, such as the sale of stocks or bonds, over a 12-month period.

Interface Redesign

Within the fund complex a number of different systems have existing interfaces, which enable the day-to-day processing of MMF transactions. These interfaces provide substantial aggregate fund data to brokers, investors, and other data providers, such as Bloomberg and Reuters, including prices, factors, net assets, time stamps, weighted average maturity, and other fund characteristics.

There are many different interfaces within the entire fund complex. Transfer agent systems continuously process transaction data with buy/sell requests from clients and intermediaries. These systems provide trade data such as confirmations and statements direct to investors and intermediaries. Many intermediaries will then update their own recordkeeping systems and transmit statements to investors. Prices and dividend factors are sent by fund accounting (internal or external) to transfer agent systems and then to intermediaries and pricing services. Fund accounting departments rely on pricing services interfaces to obtain critical security data.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Reconfiguring the data content and frequency of all these interfaces will be a large endeavor for the fund complex. One fund advisor interviewed has hundreds of daily transmission interfaces today, each of which would have to be reconfigured and tested. Transmission file fields would also have to be reconfigured to accommodate a floating NAV. More frequent transmissions will be required if the NAV floats throughout the day. Each interface configuration and testing process will require a joint team from the fund complex entities, intermediary and institutional investors, and respective service providers. Making the intraday NAV delivery possible will be the fund accounting groups at fund complexes and/or the custodian banks. Multiple data feeds from fund accounting to fund transfer agents will be required in order for transfer agents to process transactions and provide this data to clients. Fund accounting departments at custodian banks interviewed indicated they would charge additional fees for striking the NAV intraday.

System Changes

While capable, fund advisor and other systems within the fund complex are not ready to handle a floating NAV. Many fund advisors use external recordkeeping and transfer agent system software to process investor transactions. Some of the largest fund advisors rely on proprietary systems to perform the fund's transfer agency function, and other fund advisors may use some combination of third-party and proprietary systems. Imposing a floating NAV will require substantial changes to these systems as well as those ancillary systems (including those used to track orders for same-day settlement) that interface with core systems. The transfer agent and sweep software sections of this report detail the required changes that would have to be made to those systems to accommodate a floating NAV.

Reconfiguring the data content and frequency of all these interfaces will be a large endeavor for the fund complex. One fund advisor interviewed has hundreds of daily transmission interfaces today, each of which would have to be reconfigured and tested. Transmission file fields would also have to be reconfigured to accommodate a floating NAV.

A floating NAV compliance project would be a joint effort of key system users and system developers. After new business requirements were communicated to system providers and upgrades available, fund advisors would require a long implementation period. A significant amount of resources would be devoted to reconfiguration and training in transaction processing, reporting, and interface management. A change in functionality, such as daily fund activity reconciliation, will require many hours of training and system reconfiguration for each fund.

Ancillary systems must also be in scope as a subcomponent of the larger implementation process. Client service management software will also require updates to information feeds in order to process service requests. Reporting software and specific reports must be created, modified, and rewritten in order to factor in the floating NAV.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Consequence Summary

Many fund advisors are concerned with regulatory reforms that would impose a floating NAV. Not only will costs for compliance be large, but also the size of the market for MMFs will decline because of many investors' reluctance to invest in a MMF with a floating NAV.

Both one-time and ongoing costs for floating NAV compliance at fund management companies will be significant and are correlated with the number of funds offered. The largest fund advisors will have greater one-time and ongoing costs than smaller fund complexes.

One-time project costs relate to operational, system, and interface modifications. A large team consisting of fund portfolio management, accounting, transfer agent, IT, third-party vendors, system specialists, and clients could accomplish compliance in 18 to 24 months at an estimated cost of \$10 to \$15 million at a large fund advisor. Smaller and medium-sized fund advisors will be faced with costs between \$4 and \$7 million. Certain key aspects of this project would be dependent on transfer agent system changes, as displayed in chart 2.

Ongoing costs are related to staff expansion. Portfolio management staff levels, including portfolio managers, traders, and analysts, would nearly double as a result of increased pricing monitoring responsibilities. These estimates do not reflect any changes/additions to personnel that fund investment advisors would need to consider should clients flee to separate accounts—separate accounts are far less efficient from an investment advisor perspective. At one fund advisor interviewed, ongoing annual costs would be an additional \$10 to \$12.5 million.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Case Study 5: Fund Advisor

Stakeholder Function: Fund Investment Advisor

- U.S.-based fund management company
- Provides investment management services to more than 10 million individuals and institutions
- Managed assets of more than \$1 trillion
- Key challenges include system enhancement, process reengineering, reporting, and resource requirements

Key Challenges of Floating NAV	Description	Quote
System Enhancement	Working with system vendors to upgrade systems and getting trained on new functionality. Testing and implementation periods are estimated to be both long and expensive.	<i>“Our systems are programmed to treat MMFs as cash instruments, something which will change with a floating NAV. We’ll have to overhaul every system processing MMF transactions.”</i>
Process Reengineering	Reengineering all initiation, confirmation, and settlement procedures.	<i>“All processes would have to be reevaluated with a floating NAV to ensure some degree of STP for investors.”</i>
Reporting	Modifying internal and external reporting resulting from new floating NAV requirements.	<i>“Not only would we have to incur development costs by changing statement reporting, we incur and experience greater paper and postage.”</i>
Resource Requirements	Additional portfolio management resources required on an ongoing basis.	<i>“Additional annual resource costs are required. Staffing for a floating NAV project would be a project in itself.”</i>
Resource Requirements		
<p>One-Time Activities: One-time project costs relate to operational, system, and interface modifications. A large team consisting of portfolio management, IT, third-party system specialists, and clients would be required to accomplish the transition.</p> <p>Ongoing Activities: Increase portfolio management staff – analysts, portfolio managers, and traders by 60% to 70%.</p> <p>Cost of Transformation: \$15— \$20 million</p> <p>Timeline: 18 to 24 months</p>		

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

VIII. Transfer Agent Systems

Background

Transfer agents perform an array of shareholder recordkeeping and services for the MMF industry. Fund advisors may have an affiliate that performs this function or may outsource some or all of the transfer agent function to third-party vendors. Transfer agent systems are used to process and track investor activity including purchases, redemptions, exchanges, dividends, transfers of shares, shareowner identification, and the related share ownership records. Transfer agents also reconcile cash and share activity; process and disburse commissions to brokers and other distributors; report sales; and process shareowner trade confirmations, statements, and related tax reporting.

Impact

While transfer agent systems and ancillary systems are capable of supporting a floating NAV, these systems will still be forced to undergo changes and implementation in order to manage MMFs with both a floating and stable NAV. Changing these systems to support a floating NAV across many funds will require significant resources. The following system areas will require the most noteworthy modifications:

- Transaction processing
- Reporting
- Intraday settlement processing

Transaction Processing

Transaction processing and recordkeeping, from the purchase of shares through reconciliation and settlement, will be impacted by a floating NAV. Transaction processing functionality must be configured to receive an intraday NAV feed, calculating the order amount by the NAV price, before processing a transaction. This will require upgrades to order entry systems, compliance procedures, and client servicing systems. A confirmation file must be generated for the trade; a new interface may have to be established to the intermediary and/or investor with this confirmation detail.

Cash and share activity reconciliation will need to be reconfigured to reflect the slight changes (less than one-half of one cent) associated with a floating NAV share price. In a floating NAV environment, software must validate the purchase amounts and the exact share price of each transaction, versus simply comparing the total number of share purchases against a stable \$1 share price. Today, MMF reconciliations occur at the account balance level, i.e., do the ending share positions match. In a floating NAV environment, each transaction will need to be reconciled. This may, in some cases, be a two-day process and errors identified can take several business days to rectify resulting in impact to income accruals. Error monitoring systems would have to be configured to identify mismatched trades resulting from incorrect purchase price calculations.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Ongoing position reporting must also be established to track and report individual investor positions, factoring in the changes resulting from a floating NAV. Ancillary systems, such as client service management systems, will also require updated information feeds in order to process service requests. Settlement positions must also be calculated, factoring in the intraday NAV position.

Reporting

Transfer agent systems provide a great deal of internal and external reporting. System vendors will have to reconfigure most standard investor-faced reports for a floating NAV environment. Confirmations, tax statements, and investment balance detail reports will have to be reengineered to reflect changed client account balances and related transaction activity resulting from a floating NAV. A trade confirmation will need to be generated for each MMF transaction resulting in additional production and oversight costs. This will also be the case for tax statements since MMFs will now have gains/losses that need to be reported to the IRS. Additionally, reporting of the NAV across systems must be changed from 1.00 to 1.0000.

Internal cash availability reports at fund management companies will have to be enhanced. These reports must be modified to properly reflect account balances. Cash availability will change daily and increase or decrease operating cash balances in the fund while adding additional complexity to the reporting process.

Intraday Settlement Processing

The Depository Trust and Clearing Corp. (DTCC) automatically settles a significant number of MMF trades each day. Currently, MMF trades processed through DTCC are netted together once per day in order to settle. A floating NAV with same-day liquidity would require multiple intraday settlements rather than the current single daily settlement associated with stable NAV funds. This will create a technological challenge for the MMF industry and create significant reengineering of processes across all MMF system providers to accommodate intraday settlements.

The system capability to transmit intraday pricing for MMFs does not exist today. All recordkeeping systems used by fund advisors and intermediaries must be reconfigured to net trades throughout the day, in order to facilitate limited intraday settlement. This reconfiguration, along with new intraday settlement procedures, will represent significant costs for software providers and even greater ongoing operational costs for system users. Today, there is only an end-of-day NAV recorded. Systems are not coded to store multiple intraday NAVs.

If intraday settlement processing cannot be reconfigured, all trades would settle on a T +1 basis. This would eliminate the intraday liquidity characteristic of MMFs that many corporations and public institutions rely on and, therefore, discourage many investors from using floating NAV

A floating NAV would require significant rework to transaction processing, reporting, and intraday settlement functionality by transfer agent service providers, proprietary mutual fund transfer agents, and intermediaries conducting shareholder recordkeeping for beneficial owners of mutual fund shares.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

funds.

Consequence Summary

Notable transfer agent companies, such as DST and SunGard, have already voiced opposition to a floating NAV. A floating NAV would require significant rework to transaction processing, reporting, and intraday settlement functionality by transfer agent service providers, proprietary mutual fund transfer agents, and intermediaries conducting shareholder recordkeeping for beneficial owners of mutual fund shares. The shrinking of the MMF industry as a whole will make absorbing the costs themselves that much more challenging.

One-time resource requirements for transfer agent system development and modification are considerable. Resources will be required in order to upgrade transaction processing, recordkeeping, reporting, and intraday settlement functionality. Additionally, dedicated training and implementation staff will be required once new functionality is developed. For large transfer agent systems, this would take 18 to 24 months and cost approximately \$2 to \$2.5 million.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Case Study 6: Transfer Agent System Vendor

MMF Stakeholder Function: Fund Management System Provider

- Industry leader in transfer agent system software
- U.S.-based company headquartered in the Midwest
- Provides an array of recordkeeping services to fund advisors
- Key challenges of a floating NAV include system enhancements, training and implementation, and interface redevelopment

Key Challenges of Floating NAV	Description	Quote
System Enhancement	Developing new system functionality that can accommodate floating NAV business requirements. Intraday pricing functionality does not exist today in the industry for MMFs.	<i>“Enormous amount of functionality would have to be redesigned, reprogrammed, and tested. It could be two years before new functionality was ready.”</i>
Training and Implementation	New functionality would increase training of shareholder servicing representatives, transaction processing personnel, cash reconciliation staff, portfolio accounting, audit, legal, and compliance.	<i>“Even minor pieces of changed software such as reconciliation would require a major effort to train staff and educate system users.”</i>
Interface Redevelopment	Accommodate new, more frequent interfaces.	<i>“Would require a lot of hand holding between our implementation staff and clients.”</i>
Resource Requirements		
<p>One-Time Activities: The enhancement of transaction processing, reporting, and intraday settlement capabilities. Transaction processing and recordkeeping, from the purchase of shares through reconciliation and settlement, will require enhancement. System vendors will have to reconfigure most standard investor-facing reports for a floating NAV environment. All recordkeeping systems used by fund managers and intermediaries must be reconfigured to subtotal individual trades throughout the day, to facilitate intraday settlement.</p> <p>Cost of Transformation: \$2— \$2.5 million</p> <p>Timeline: 18 to 24 months</p>		

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

IX. Sweep Account Software Providers

Background

Sweep software companies provide systems to banks, broker-dealers, and fund advisors that perform automated same-day and next-day sweeping of cash between demand deposit accounts and MMFs. These platforms also provide dividend, capital gains, fee processing, and comprehensive customer statements. The systems are critical because they automate many aspects of the complex MMF sweep investment process—DDA account surplus balances may be swept into multiple funds from several different fund companies.

Impact

Sweep products treat MMF shares as an alternative form of money, and the stable value characteristic of MMF shares is what allows a sweep to work.

Sweep software is not configured to acknowledge a floating NAV. Many key features of sweep systems would have to be completely overhauled in order to accommodate a floating NAV sweep option.

The current process for sweep purchase and sell is relatively simple, as illustrated in charts 9 and 10. Sweep systems evaluate balances in MMF investor DDA accounts. If balances exceed a threshold established by the investor, funds are swept into selected MMFs. If DDA balances are below a threshold, a sell is executed. Reporting is provided to the sweep system user (bank, broker, etc.) with critical information including interest accruals, fee computation, and tax withholding. Investor statements are supplied for distribution to clients. Future sweep purchase and sell processes are displayed in charts 11 and 12. One major change to the purchase process involves a new requirement for systems to confirm NAV values for compliance with investor-defined limits before any sweep is made. While sweep providers are not certain to offer this functionality, this step will be required for investors to ensure that sweeps are not made into MMFs with NAVs valued below (or above) policy limits. To provide this capability, sweep platform providers must work with transfer agent systems and fund accounting departments to obtain intraday feeds of NAV values—should this not occur, any trade submitted via a sweep vehicle will receive the next available NAV price. Systems must be programmed to accept or reject sweeps based on investor input values. This functionality does not exist today and would be time-consuming and costly to develop.

Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Chart 9 **Current State: Sweep Purchase**

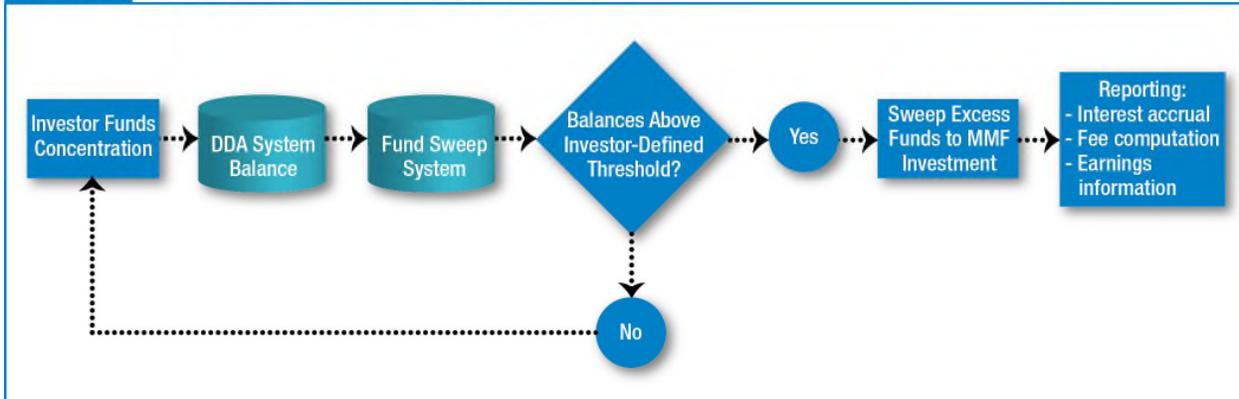
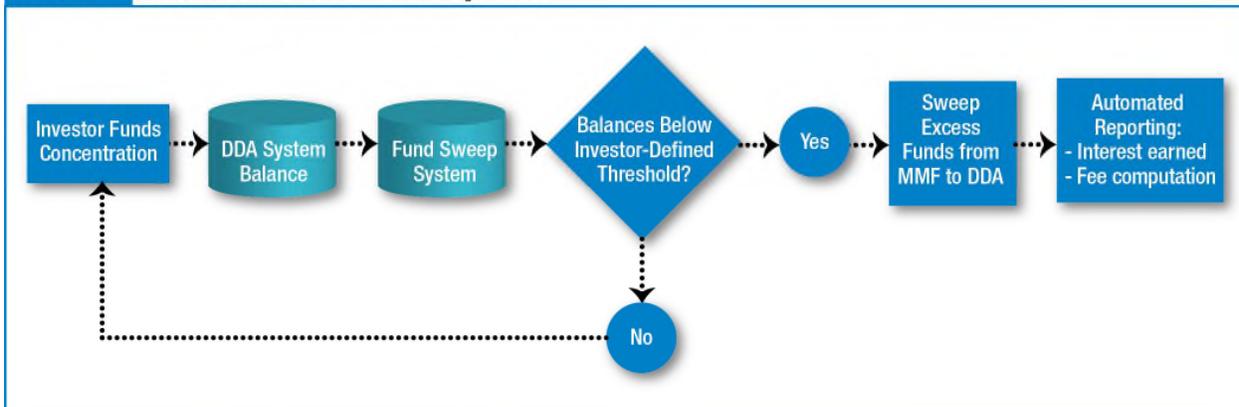


Chart 10 **Current State: Sweep Sell**



Operational Implications of a Floating NAV across Money Market Fund Industry Key Stakeholders

Chart 11 Future State: Sweep Purchase

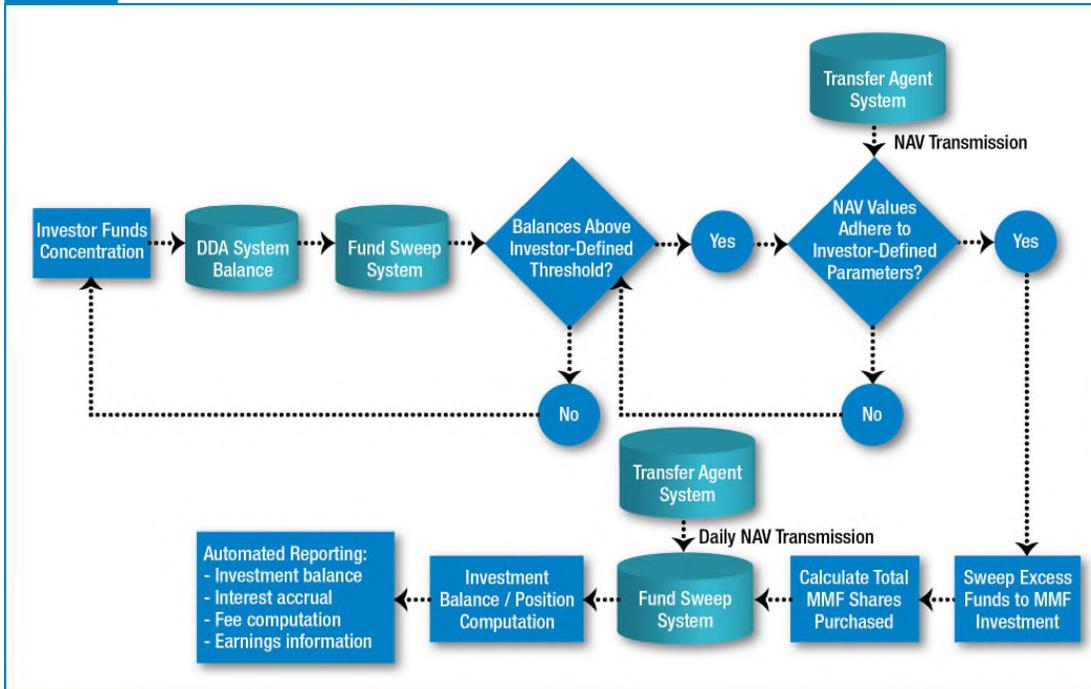
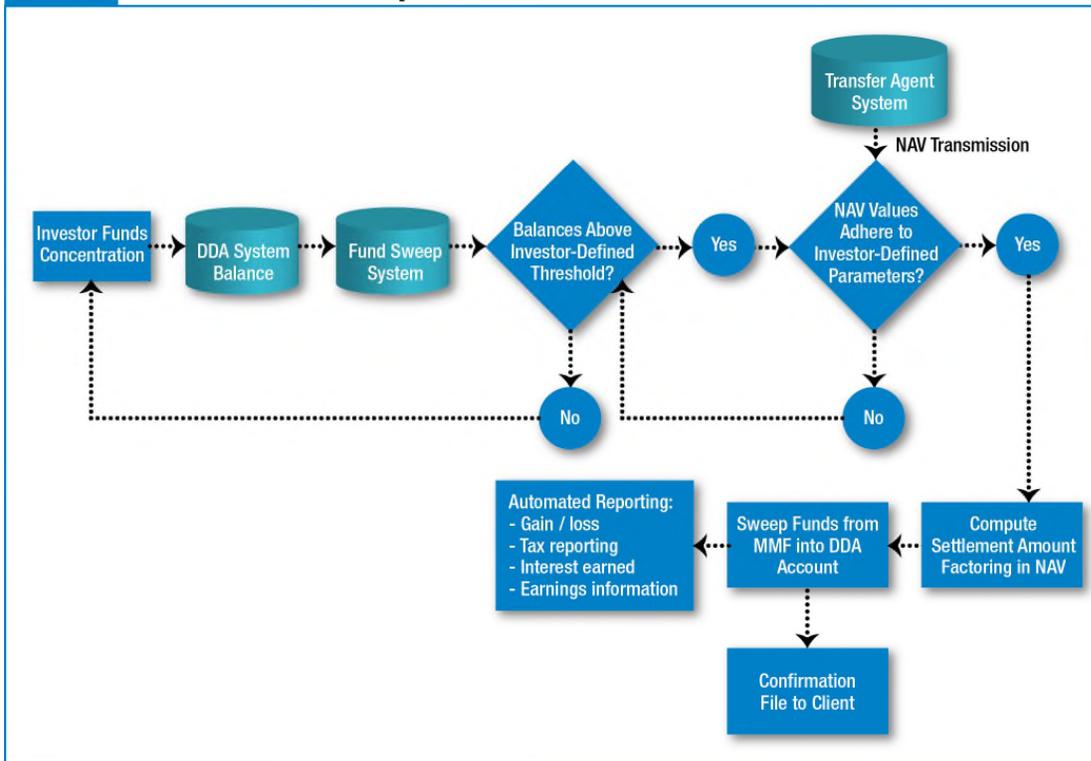


Chart 12 Future State: Sweep Sell



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After funds are swept from a DDA into a MMF, the system must generate a confirmation file for the investor. It should provide the final value of the investment by multiplying funds swept by the NAV at the time of the sweep. Intraday, the sweep system must receive NAV updates from the fund transfer agent system, which are required for settlement.

Settlement involves many of the same new procedures that will occur in the purchase process. Prior to initiating a redemption transaction, real-time or forward pricing NAVs must be acknowledged for investor policy compliance. During settlement, a new gain or loss calculation must be determined and then delivered to the client along with principal and interest amounts. The gain or loss calculation is based on the settlement NAV received from the transfer agent systems.

Certain redemption scenarios complicate the settlement in a floating NAV environment. One problematic scenario involves a redemption requirement for balances that decline as a result of a minute dip in share value. For example, an investor requires redemption of \$100,000 in order for his DDA account to remain above its target balance level. The MMF balance originally invested was \$100,000 but is now \$99,999.98 as a result of a small fluctuation in the NAV. The system will have to perform additional computations in order to complete the redemption transaction, because the redemption amount is insufficient to reach the target balance of the investor's account. These accounts are widely used for check writing, debit card, and online bill payment transactions. All of these transactions need to be settled for specific, exact dollar amounts.

The change in sweep software is so significant that it was difficult for interviewees to estimate the total costs and resource requirements needed.

Consequence Summary

A floating NAV MMF would significantly compromise the ability for sweep account software providers to facilitate a sweep for clients. The change in sweep software is so significant that it was difficult for interviewees to estimate the total costs and resource requirements needed. The redevelopment of sweep systems to accommodate a floating NAV would take at least 18 to 24 months and require cross-functional project resources from sweep system providers, banks, fund advisors, and sweep system users. Costs for system changes would be at least \$2 to \$3 million, per system vendor, possibly more once all specific new sweep requirements have been scoped by software providers.

The significant delay in redeveloping systems will push investors to alternate products that can be riskier or to leave excess liquidity in bank accounts that receive no interest. Additionally, dedicated resources would be required for training and implementation purposes.

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X. Fund Accounting

Background

Banks play a critical role in the MMF industry, acting as both fund providers and custodians. Custodian banks are responsible for holding and monitoring the underlying assets of the funds. This custodial element is in place to protect fund holdings in the event of a fund bankruptcy or dissolution.

An additional key role of these custodian banks is fund accounting. Fund accounting departments may exist within a fund advisor or reside with their custodian bank. The fund accounting function calculates the fund NAV on a scheduled basis and provides critical reporting to transfer agents and vendors so investor transactions can be processed in a timely and accurate manner.

Impact

Fund Accounting

The floating NAV has major ramifications for the fund accounting duties. Fund accounting departments would be faced with process reengineering, system modification, and administrative changes should a floating NAV requirement be adopted. External pricing vendors, such as Reuters and Bloomberg, would also play a major role in allowing intraday pricing to occur.

Fund accounting systems' functionality cannot accommodate a floating NAV today. An intraday reporting requirement would mean a complete overhaul of systems with the addition of functionality that does not exist today, and an end-of-day requirement would require major system enhancements to functionality that exists in some form (i.e., systems would treat MMFs as short-term bond funds).

Much of the current system functionality that has been built to accommodate a daily NAV publication is in its infancy and actually does not take place in core accounting systems because the cost to augment these systems would be high. These computations have been built in user-defined technology (UDT) systems that are ancillary to core systems. UDT is generally a sophisticated Microsoft Excel or Access database that gathers data from other systems in order to complete the daily NAV calculation for a fund. These UDT components already require additional IT resources to maintain and would require many more and probably entirely new systems in an environment with a floating NAV.

Procedures in fund accounting departments could only accommodate a floating NAV through additional resources. Fund accounting departments have dedicated pricing teams responsible for the calculation of fund NAVs. Pricing MMFs is already difficult for these groups, because valuing underlying assets in funds that do not have an active secondary market, such as CP, can be difficult. The increased frequency with which NAV calculations would have to be published in a floating NAV environment would require significantly more people assigned to pricing

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teams. This has already been evidenced by the fact that fund accounting groups have had to staff additional resources as a result of the increase in demand for those funds that are publishing NAVs just once per day. Fund accounting departments have passed these costs on to customers where possible.

Current procedures do not allow for an intraday NAV to be published efficiently. While fund accounting departments have achieved this once-per-day reporting for a small number of total funds managed, it has not been without major ongoing effort. Pricing feeds from market data services are currently processed at the end of the day. Midday processes and jobs would have to be scheduled to gather and calculate prices, something that market data and fund accounting systems are not ready to do. Pricing vendors would have to work together with fund accounting departments to customize the delivery of data.

Additional legal and administrative costs would also be incurred in a floating NAV environment. Contracts would have to be rewritten to reflect the additional possibility of inaccurate NAV values being published. Service level agreements will have to be revised to reflect these new process changes.

Consequence Summary

Requiring a floating NAV would be a significant adjustment for fund accounting groups. Fund accounting systems are currently not able to handle a floating NAV and would require significant redevelopment in order to accommodate their use. In addition, customer contracts must be revised in order to safeguard the potential for an inaccurate NAV value being published.

Ongoing costs for compliance with a floating NAV are the major pain points for fund accounting groups. On an ongoing basis, additional resources would have to be hired to manage the more frequent reporting required. The number of additional resources depends on the number of funds managed, but approximately one-fourth of an FTE would be required for each fund managed with a floating NAV. Fund accounting groups would pass ongoing costs to customers where possible. Additionally, resources would be required in order to upgrade systems and processes to handle the calculation of a NAV multiple times per day. One-time fund accounting changes would take between six and nine months and cost at least \$400,000.

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Case Study 7: Fund Accounting

MMF Stakeholder Function: Fund Accounting Service Provider

- Responsible for fund administration duties, specifically NAV calculation provided to fund
- U.S.-based bank headquartered in Northeast
- Fund accounting challenges include system enhancement, intraday pricing requirements, legal obligations, and resources required on an ongoing basis

Key Challenges of Floating NAV	Description	Quote
System Enhancement	Changing systems to facilitate the delivery of a floating NAV.	<i>“We’ve built new technology to handle a daily NAV for some funds, but if the NAV truly floated for additional funds, we would have another large-scale project on our hands.”</i>
Intraday Pricing	Delivering a price at multiple points throughout the day.	<i>“Intraday pricing is impossible with current systems; no pricing vendor could provide this in the near future.”</i>
Legal Obligations	Changes to service level agreements and other customer contracts to set expectations in a new floating NAV environment.	<i>“Computing a floating NAV has significant legal ramifications —what if the NAV is delivered incorrectly, and there is a panic?”</i>
Resources	Additional resources required to compute NAV for funds.	<i>“We’re already strained for resources as a result of the new daily NAV reporting requirements for some funds.”</i>
Resource Requirements		
<p>One-Time Activities: Fund accounting system and process reengineering changes would require a team consisting of IT, fund accounting, fund managers, and third-party software specialists. This team would have to reestablish interfaces with pricing vendors and develop procedures to ensure NAV computations could be completed in a more efficiently than today. All customer SLAs and contracts would have to be changed to reflect additional risk taken on by fund accounting groups in publishing the NAV more frequently.</p> <p>Ongoing Activities: Approximately 1/4 a FTE would be required for every additional fund managed with a floating FTE. Pricing teams would be required to compute the NAV more frequently, which would require working with pricing vendors in order to reconfigure interfaces to multiple times per day and then manage data transmitted through these interfaces.</p> <p>Cost of Transformation: \$350,000 —\$400,000</p> <p>Timeline: 6 to 9 months</p>		

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Glossary

1099-B: A tax form issued by a broker that summarizes the proceeds of securities transactions.

Available For-Sale Securities: A security purchased with the intent of selling it before reaching maturity.

Demand Deposit Account (DDA): A standard checking or savings account.

Enterprise Resource Planning (ERP) System: Systems that integrate internal and external management of information across an entire organization, embracing finance/accounting, manufacturing, sales and service, customer relationship management, etc.

Fair Value: The relationship between the futures contract on a market index and the actual value of the index.

First-In, First-Out (FIFO): An asset management method in which the first assets acquired are used first.

Last-In, First-Out (LIFO): An asset management method in which the last assets acquired are used first.

Mark-to-Market (MTM): A measure of the fair value of accounts that can change over time, such as assets and liabilities.

Net Asset Value (NAV): A fund's price per share value. The per-share dollar amount of the fund is calculated by dividing the total value of all the securities in its portfolio, less any liabilities, by the number of fund shares outstanding.

Rule 2a-7: A section of the Investment Company Act of 1940 that defines the required quality, maturity, and diversity of investments in MMF portfolios.

STP: Straight-through processing. The processing of a financial transaction without manual intervention.

Sweep: Automatic transfer of excess balances into an interest-bearing account.

Treasury Management System (TMS): Software that compiles financial data from internal and external sources to assist with analysis and decision making for the treasury department.

Value Date: A date used in determining the value of a product that fluctuates in price.