WORLDWIDE SECURITIES SERVICES

J.P.Morgan

CREATING A SUSTAINABLE LIQUIDITY MANAGEMENT STRATEGY

CENTRAL BANKS AND SOVEREIGN INVESTORS

Now, more than ever, sovereign investors are seeking to manage cash assets as conservatively as possible. In recent years, yield had begun to play an increasingly important role as global reserve levels of cash rose dramatically. Today, the emphasis has shifted again as global markets and economies have come under stress. Capital preservation and access to liquidity are rightly the dominant themes in any prudent framework; but as the markets continue to change, so must liquidity management disciplines. This does not mean that an investor is not entitled to some level of renumeration on cash balances, but this can at times appear to be at odds with the objectives of liquidity and security.

At J.P. Morgan, our experience working with leading institutions has shown us that a well-planned approach to liquidity management is an essential part of 'futureproofing' their activities. The approach is not just about surviving in times of need, but also about complementing and enabling strategic and risk management objectives for the future.

The principles that define a good liquidity management strategy apply to central banks, sovereign wealth funds, government finance departments and other public sector institutions across the wider sovereign universe. Obviously, the application of these principles varies, but the ability for the right strategy to add value to reserve management does not.

This paper will provide some insight into how a well-executed and sustainable liquidity management strategy can contribute to reserve management principles, in terms of managing risk, preserving capital, ensuring access to sufficient liquidity and seeking yield within a well-controlled framework.

"A fortress balance sheet is a strategic imperative. No matter what conditions are, we always want to have the capital, liquidity, reserves and overall strength to be there for our clients and to continue investing wisely in the business."

Jamie Dimon, Chairman & CEO, JPMorgan Chase & Co.

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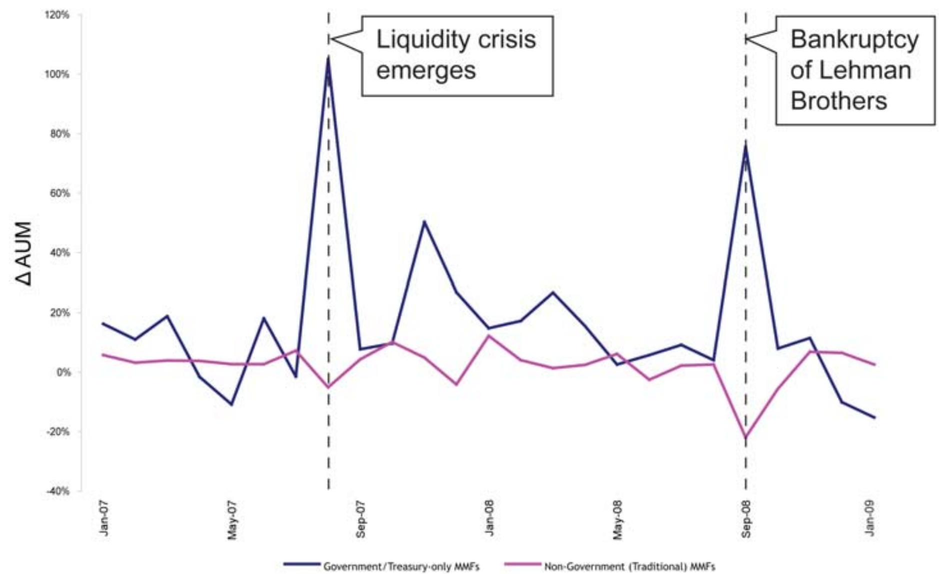
Preserving the Liquidity and Security of Cash

Summary & Executive Considerations

Understanding counterparty credit risk and the implications of ensuring liquidity in times of need has never been more important. Information transparency and knowing the levers of control are essential enablers to making cash work within your reserve and portfolio strategies, now and in the future.

- In brief, how would you describe your institution's approach to liquidity management?
- Which types of counterparties currently hold your cash?
- Has your approach to counterparty usage and management changed?
- Have you moved deposits away from commercial banks? If you have, do you have a strategy for moving them back in the future?
- Who performs the assessment of commercial bank counterparties, and how often is it done?
- How have Lehman Brothers, Iceland, mutual funds' gating and breaking "stable NAVs" impacted your views?

Growth of Offshore Money Market Funds



Source: iMoneyNet, 3/2/2009

Our Experience

Liquidity Preservation

Ensuring access to liquidity is a very close relative of credit risk assessment. The key distinction is the timing of access to cash in all circumstances, not just guarding against a formal default scenario. Understanding the investment objectives, the timing and the levels of cash required is the foundation to constructing the right liquidity profile. This needs to take into account known or scheduled cash flows (including those between a central bank and government, for example), as well as allowing for unexpected events or urgent calls on cash, such as the need to support monetary policy, emergency funding, or currency stability goals.

For a sovereign cash manager, an extra layer of impact occurs if currency cash flows are heavily linked to exports. The actual size and timing of cash flows can be, at times, influenced by export partners, commodity markets and prices. Volatility in those prices – oil being a classic example – can be a further complication that adds to the uncertainty and potential unpredictability of cash flows. The liquidity profile should also reflect the various related activities that can generate or influence cash transactions (such as currency payments, securities settlements, in-house or at a custodian, and interaction with external managers, to name a few). A "one-size-fits-all" approach may not be realistic or appropriate and, similarly, cash can become cumbersome to manage and increasingly fragmented.

With these operating constraints understood, it is possible to look at opportunities to aggregate cash, increase scale, create fungibility and improve investment results. This can be done without sacrificing vital availability. Reducing fragmentation and simplifying access to cash can be invaluable in times of stress. This reduces the operating connections between institutions and the intraday liquidity mismatches that can cause delays.

These operating considerations also relate to investment product choice. Using a wide range of cash investment products (perhaps to improve diversification or even to improve yield) can be contrary to the objectives of simplicity and control. Suitable levels of diversification and competitive yields are actually both possible within a choice of one or two investment products – which, when properly integrated with other services provided, can be very effective at preserving liquidity.

When evaluating investment choices from a liquidity perspective, diligent analysis is required. Initially, it is sensible to align duration or weighted average maturity with the nature of the flows or the structure of the portfolio. However, recent market events have shown a need for greater inspection. For example, the collapse of Lehman Brothers Holdings in September, 2008 led to a series of important events. First, there was a rapid migration of investors to Treasuries and cash. Treasury money market funds also rose dramatically versus standard money market funds (see chart above). Second, there were forced and unforced exits of fund providers from the industry.

Due diligence shows that prospectuses and regulators make clear that money funds are not legally required to keep their share prices at or above a dollar, or to redeem investors' shares immediately. Like all regulated mutual funds, their share prices are determined solely by dividing total portfolio assets by the number of shares outstanding, and they have seven days to meet redemption demands. Further, the assumption that bank term deposits could always, in extreme circumstances, be broken has been challenged in a market where the

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deposit taker has insufficient liquidity to return funds prior to maturity.

Credit Risk

Managing credit risk as it relates to liquidity is one of the foundations for a sustainable approach to liquidity management. Successful management relies on understanding where and how cash is held, regular flow of information about counterparties and a risk management strategy that is practical but robust. As principles, these are elementary, but their application needs to be considered in relation to the client's overall reserve management and risk framework.

A simple way to decompose credit risk is to think of it in layers. The core is the counterparty risk of primary providers – the custodian, asset management bank, cash management bank and so on. Even where some reserve managers in the current market are (temporarily, but deliberately) eschewing unsecured counterparty exposure, there is most likely still a cash dynamic related to payments, securities or other activities which still needs to be managed. Often, clients feel they have little choice to mitigate risk in this layer, as they are tied to the wider considerations of provider choice. This is not the case, as there are ways to optimise the necessary levels of cash held and classify or invest as appropriate to mitigate this concentration risk with core providers.

Of course, sovereign institutions have unique options available to them that are different from those available to other investors. For example, sovereign investors can place deposits with each other and with official institutions, such as the Bank for International Settlements (BIS). Many of our clients value the role of both the commercial banks and the official institutions, recognising that commercial banks often bring additional expertise around cash management and custody within a "full service" model.

The next layer relates to instrument choice and legal behaviour. Most would consider this straightforward, but there are key distinctions and recent changes that make a closer look worthwhile. Widespread introduction of government guarantees on the debt or deposit obligations of banks has made credit position more opaque and highly inconsistent across borders. The differences in negotiability of time deposits versus certificates of deposit are meaningful, especially when liquidity is scarce and interest rates are volatile. Money market mutual funds, reverse repos and direct securities investments are further choices for cash investment that require clear analysis.

At J.P. Morgan, our experience with each of these layers in recent times has been revealing in terms of client behaviour and interpretation. Assessment of counterparty risk in "AAA" money market mutual funds has received particular attention. At a passive level, these funds carry the top credit rating and are, for the most part, rated by several ratings agencies. They are collective investment funds and hold a wide range of different instruments in differing concentrations from different underlying issuers. In this layer, the risk evaluation needs to be about determining if this type of asset meets a client's risk assessment criteria. The same is true of reverse repos and the risk considerations around the counterparty to the repo itself.

The final layer to consider, and the one widely missed in the recent credit crisis, is the quality of the underlying holdings or collateral. For money market funds, we have seen client reactions vary widely – from complete product exit and demands for detailed holdings reviews to transitions to 100% government risk and even investing more balances. In each case, the level of understanding is different, and the process of matching product choice with risk assessment criteria varied in terms of how passive or active that analysis was.

For reverse repos, we have seen clients be much more sensitive to the quality of collateral used and the concentration risks in the collateral issuers. One tool to streamline the weight of analysis implied by a layered approach is to lay out a clear and complete investment policy for cash, while allowing for flexibility and change control. This policy should consider the requirements for ongoing inspection; the type, level and frequency of disclosures; and clear triggers for escalation or review.

Connecting Business Goals with Liquidity Drivers

Transparency and Control

Weakness and shifting risk profiles across the financial markets have caused reserve managers to look more closely at the strength of their counterparties and cash investment service providers, and to seek assurances that their cash assets are protected wherever possible. Clients are revisiting their long-held assumptions and reviewing how their assets are held, moved, managed and invested. Bank deposits, for example, are not necessarily the most conservative or risk-free investment, and certainly not all banks are the same in terms of counterparty risk.

A common observation is that changes in governance are producing more incisive questioning, demands for greater transparency and clearer control processes. Information transparency is the essential precursor to adequate risk analysis. Reporting should enable regular and appropriate levels of risk diligence, and provide insight into key indicators of risk. There are two ways to approach such analysis: a passive approach, using guidelines and public ratings, or a more active approach, using internal and external analysis. This decision is not simple, and there are arguments for both approaches.

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CASE STUDY 1: SOVEREIGN WEALTH FUND

A sovereign wealth fund with significant fixed income and equity portfolios.

Turning to a trusted partner	
CHALLENGE	• As with many sovereign wealth funds, this institution has substantial daily liquidity to manage from multiple sources, primarily relating to cash positions generated from securities and custody activities, as well as general payment and cash management flows. • The sizes of these balances and flows were steadily increasing during 2008, coinciding with the multiple market challenges that came to a head in September, 2008. • Concerned over the security of significant cash positions, as well as the desire to retain immediate access to liquidity, the client reacted promptly by reviewing cash holdings and engaging its providers to evaluate alternative solutions.
SOLUTION	• The client worked with J.P. Morgan, its custodian, to review all cash positions and understand available alternatives. • The client selected a daily sweep to a Treasury fund managed by J.P. Morgan Asset Management. The Treasury fund provides a solution for investing in US Treasuries and repos, managed within a mutual fund that retains daily liquidity and a high-quality investment infrastructure. • All surplus cash is now automatically transferred from the client's multiple J.P. Morgan cash accounts to the Treasury fund. Conversely, the sweep automatically redeems sufficient cash from the Treasury fund to cover any net outflow of payments from these accounts. • The sweep removes the operational headache in managing cash positions to the minute, ensuring that the client is as fully invested as possible. • The combined benefits provided the client with a secure, automated, and liquid means to invest the cash – a process that was rapidly deployed and implemented to alleviate the management concerns.

A more passive approach might, for example, rely on the guidelines, parameters and ratings given by one of the major ratings agencies. However, even these ratings are not consistent in their risk analysis, and a degree of active understanding is necessary. Some managers are still very comfortable setting a minimum credit quality for cash investments based solely on the ratings provided by these leading agencies. Others now want to take greater control by enhancing their own credit research.

Even when a client is prepared to invest in a more proactive approach to risk assessment, it is hard to cover all of the bases. This presents an opportunity to leverage core providers of services, and access a wider network of information and insight – which can take the form of market or risk expertise, investment product review or some operational advice. Wider partnership and familiarity are other cornerstones of the sustainability of a liquidity management strategy. In times of need, you can help enhance control, speed and response times if a partner already understands the cash model and patterns.

In our experience, clients do not necessarily need to undertake a process to retain absolute control. In many cases, clients with clear policies and investment parameters have passed on the non-core activities, but have retained control through specific, parameter-driven arrangements.

When accompanied by the right reporting, provided by the right partner, this has helped them achieve operating efficiencies. Considering such an arrangement is even more powerful when change occurs. If a provider changes (market exit, merger), policies or processes change (cutoff times, settlement instructions) or regulations change, the impact on control must be assessed.

Delivering Your Liquidity Management Strategy

Summary & Executive Considerations

There is no one-size-fits-all approach to liquidity management, and solutions depend on the reserves and cash management model of the institution. Execution of a liquidity management strategy needs to work across the cash cycle, and must be adaptable to internal and external changes.

- Have you evolved your cash management practice as your reserve management policy has changed in the last few years?
- What different pockets or portfolios of cash does your institution manage (cash reserves, operational cash flows from payment activities, residual cash balances from securities settlements, etc.)?
- Would you describe your control of cash as centralised, under one investment policy, or fragmented across departments?
- What are you doing differently in the current interest rate environment?

Our Experience

Reserve Management and Cash Management

One of the most important steps in delivering the right liquidity management strategy is analyzing how cash is treated within your overall reserve management framework, and the different areas in your institution that manage cash (even on a transitional basis). In the recent past, central

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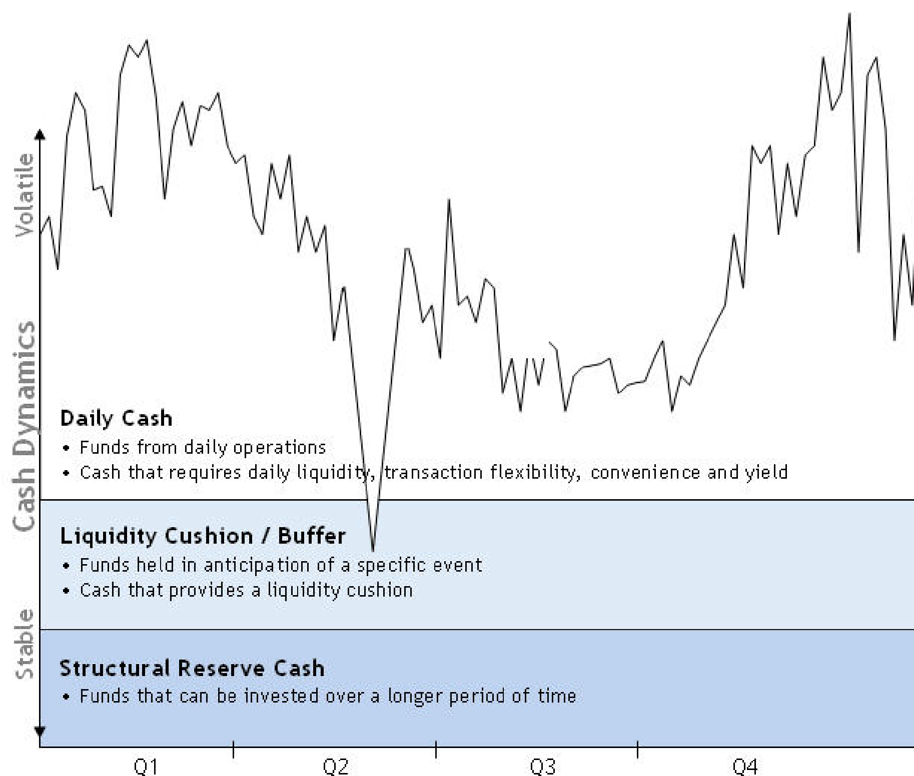

banks have often thought about cash as a basic commodity to be managed. There has been a change of mind-set in the market about the importance of cash as a distinct asset class. If used and invested wisely in all its forms, it can both improve portfolio returns and ensure that liquidity is available to carry out monetary policy, financial stability or currency management objectives.

Recognising the different liquidity, risk and return characteristics of these types of cash is important in creating the right liquidity management strategy. It is also important to take a more holistic view of the cash portfolio and the potential benefits of aggregating pools of cash. By combining different cash types, investment managers can counterbalance volatility with stability and optimise investments.

In working with our clients, we have found that there is real value in deploying the disciplines of corporate treasury, such as projecting cash flows. By managing cash as "working capital," clients can make cash work harder and create value, helping them to achieve their wider strategic objectives.

Efficient and Effective Execution

An essential part of evaluating a liquidity management strategy is the way in which it is practically delivered. If the strategy is overengineered or too lightweight, it will not be sustainable in the long term and yield the benefits when they are needed most. The execution approach needs to address the day-to-day, business-as-usual environment and, perhaps more critically, times of change.

The business-as-usual environment requires commercial common sense, such as consideration for cost, reliance on key people, focus on the right issues and risks, and looking to leverage partners wherever possible. This last point is particularly relevant, especially when cash management is not a core part of the operating model.

The rapidly changing investment environment means that managers need to be increasingly adaptable. In many cases, managers can handle a degree of change within their existing operation, but handling larger-scale changes is less straightforward. In the current market, even some of the more routine changes can be further streamlined. Using parameter-driven controls, for example, provides managers with flexibility and improved responsiveness without them having to cede overall control. Advanced cash investment providers can offer services that automatically control a client's counterparty limits. If the client decides to diversify or change counterparties, it is much faster for the service provider to make the change than for the client to negotiate new arrangements directly themselves.

Ensuring Cash Performs

Summary & Executive Considerations

There are many ways to consider the total performance of cash, so having a clear benchmark is essential. Achieving consistent, risk-adjusted and cost-adjusted returns over time requires a balanced approach to investment selection. Investment scale, product choice and operating flexibility are empowering factors for a sustainable approach to liquidity management.

- How many cash investment products do you currently use across your institution?
- Which products do you prefer, and how are they matched to your types of cash?
- What is the investment policy review process for cash, and how often are changes made?
- Are the costs of running cash investments explicitly monitored against the returns?
- How much time are you prepared to spend on fine-tuning your cash investment strategy?

Our Experience

Benchmarking and Performance

Client reactions to cash performance vary widely. In part, this is because different managers have different priorities around capital preservation, liquidity, convenience and yield. Where managers are focused on returns, gross yield maximization — within a prudent framework — is the priority. The evaluation of performance of cash often tends to be against market benchmarks.

Another valuable purpose of having a clear benchmark for cash performance is to

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understand the performance contribution that cash returns make to overall portfolio performance. There are many factors that can drive this contribution, such as asset allocation to cash, levels of gross return, costs, errors, etc., but very often the performance contribution (or drag) is much smaller than clients initially think. Once this is properly understood, it provides an important perspective on the value of adding risk, operating expense and additional processes to the business model to seek incremental basis points in return. This is central to creating a risk-adjusted return analysis and forms part of the view on total economic return.

Of course, yield maximisation is rarely the sole objective. Investment performance, with consideration for risk taken to achieve that return, almost always is. It is on this basis that many clients seek competitive outright performance, but understand that every last basis point may not be worth the costs or the risks associated with obtaining it.

CASE STUDY 2: CENTRAL BANK

A central bank with a high volume of large-value payment activity passing through its correspondent bank accounts.

Turning to a trusted partner	
CHALLENGE	• Transactions are mainly USD and EUR, and individual payments can be very high-value, and by their nature, urgent. • The client was concerned with ensuring that sufficient liquidity was available to settle high-value payments without delay, while the market crisis in 2008 heightened its concerns over using the optimal banking partners.
SOLUTION	• The central bank had previously moved much of its USD payments from the Federal Reserve to J.P. Morgan, valuing the cash management expertise and client service of a commercial bank that focuses on these core competencies. • With the developing financial crisis, the client accelerated the migration of much of its correspondent banking from other commercial banks to concentrate more business with J.P. Morgan, recognising the importance of having such a critical service housed within a financially strong provider. • Keeping the operating liquidity balances together with the underlying transaction services has enabled these payments to be processed with expedience and efficiency. • End-of-day cash balances remain either in the operating accounts to earn overnight interest, or are swept into an interest-bearing deposit and returned next day prior to the opening of the cash clearing systems. This ensures that liquidity is optimised, in terms of supporting transaction services while earning a commensurate rate of overnight yield. • Some of the cash balance is also left in a non-interest-bearing operating account in the US, where the client additionally benefits from the temporarily unlimited insurance coverage from the US Federal Deposit Insurance Corporation.

Investment Scale and Long-Term Approach

To build a sustainable cash investment strategy, it is crucial for managers to find financially strong and trusted partners. Criteria that define strong partners generally include capital strength, breadth of business model, depth of liquidity management expertise, integration of cash management product capabilities, global coverage and market-leading, high-quality services that match management's requirements.

While this is common sense, it is important to note that these criteria are not just about credit risk and reduced probability of default. The point is to select providers with demonstrated long-term commitment to the market. For example, we have seen money market fund providers exit the industry when the business and exposures no longer suit them. Choosing the right provider and establishing a partnership form part of the sustainability in a chosen approach. While partner choice alone does not guarantee a pickup in gross yield, it is the long-term consistency and reliability of a partner that help ensure that performance can be sustained over time.

More than this, to operate successfully in the money markets requires relationships. Participants that have established familiarity and a track record in their own right can deliver these benefits to their clients. The most relevant example is the size and frequency of a participant's trades in the international money markets. In these times of limited liquidity and extreme volatility, it has been valuable to leverage trading relationships to accommodate changes to transactions, handle early terminations or modify collateral amounts. These can be vital benefits in times of need and come from well-established relationships.

Investment Product and Investment Expertise

The choice of investment product is another important decision, predicated on all of the prior considerations. Generally, the choice of product will confer a level of risk and a level of yield. There is a logical set of trade-offs in evaluating product choice — what we refer to as a 'pyramid of preference.' Understanding these trade-offs forms part of the risk-adjusted return analysis.

There are also more subtle components of product choice that are worth considering. For example, a time deposit as a product is completely homogenous in operation, but performs very differently in terms of return, even within apparently equivalent risk

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profile banks. Part of the return may be generated by desk-to-desk relationships built over time, but, more likely, a bank's own business model will drive its desire to set rates by amount, tenor and currency. Most managers would solve this by shopping the market and forming relationships with more consistent organisations by currency. This works, but can be time-consuming, particularly when changes in the market environment require trading counterparties to change.

Similarly, for reverse repos, it is appropriate to look at the quality of collateral, as well as the repo counterparty. For money market funds, it is important to consider the sponsor, expense structure, track record and performance in times of stress. All of these factors should drive the right product choice for the type of cash to be invested.

Much of this insight is not published or deemed worthy of wider guidance. Our clients often approach us about spending time with our treasury desk, collateral reinvestment professionals or money market fund portfolio experts. Access to this expertise can quickly augment and validate internal analysis. This expertise is founded on long-term market participation, which gives experience, as well as wide-reaching day-to-day interaction across the short-term investment markets. These are partnership resources that should be leveraged regularly as part of maintaining and refining a liquidity management strategy.

Sustainable Liquidity Management: Essential 'Futureproofing'

There is no doubt that recent market conditions have shone a spotlight not only on the providers of banking services, but also on the liquidity practices and policies that are employed by the clients themselves. Managing risk is not just about choosing the right counterparty, although this is clearly important. It is about ensuring that the end-to-end process is managed and optimised, and that liquidity is properly defined and aligned to the needs of the institution. This is true in all industries, but especially relevant for a central bank or sovereign investor, who is responsible for managing and safeguarding the nation's wealth and well-being.

Our proposition is that, with the right partner, it is possible to create a balanced investment strategy designed for all market conditions, while providing sustainable and acceptable levels of liquidity, capital preservation, return performance and operating efficiency.

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