Cash Alternatives

Liquidity Solutions

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- Liquidity solutions are designed to offer a higher yield than cash deposits by looking at three primary risk dimensions: credit counterparty risk, liquidity risk and market risk.
- We introduce a tangible framework that help construct a portfolio of diversified liquidity solutions mindful of the trade offs between the risk dimensions.
- We illustrate the trade-offs along the 3 risk dimensions and show how to use a liquidity solutions in the context of asset allocation.

1. Introduction

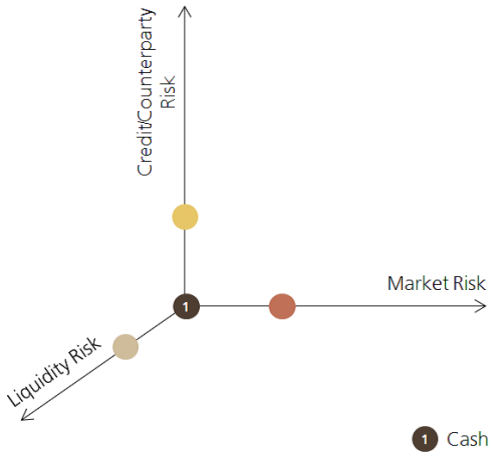
Cash is appealing for many investors, be it in banknotes or bank deposit format. It has no volatility (no market risk), is liquid (can be used for immediate payments), and carries only limited credit risk for cash amount exceeding what insurance covers (depository bank). But the opportunity cost of holding cash is high as real returns on cash currently are low or negative in major currencies.

Investors willing and able to tolerate one or more of i) market risk, ii) liquidity risk, and/ or, iii) credit risk, could benefit from liquidity solutions and yield enhancement strategies which may provide a higher return alternative to cash.

We consider 3 primary risks that many high-cash-holders investors are attempting to minimize:

- Market risk: Cash held as banknotes or on bank deposit, is impervious to volatility in stock, and bond markets. Maintaining zero market risk may be particularly important for investors who face significant short-term liabilities and who do not want to bear any risk of a mismatch between their assets and liabilities. However, for those investors holding cash as a 'safety cushion', which is unlikely to be used in the short term (if at all), a degree of short-term market risk may be deemed acceptable, provided it comes in exchange for higher total returns.

Fig. 1: Three primary risks



Source: UBS

- Liquidity risk: Cash is highly liquid. Investors with short-term liabilities, those using cash as a form of 'dry powder' for future investments, or those holding cash as a form of 'emergency funding' may not be willing or able to sacrifice liquidity – the ability to access their money in an instant. But for those investors who have planned for their future-ongoing spending, sacrificing some degree of liquidity can potentially increase overall portfolio returns. For clients willing to sacrifice liquidity in between scheduled liability payments, fixed deposits, municipal bonds or corporate bonds with maturities that match short-term spending horizon could each offer higher yields, while retaining some cash-like qualities.
- Credit or counterparty risk: Cash deposits are exposed to the risk that an issuer or holder declares bankruptcy. Investors willing to take on more credit or counterparty risk, however, have the potential to earn higher returns, for example by investing in short-term corporate or municipal bonds.

2. Cash alternatives

In this paper, we explore the options available to investors in maintaining some of the benefits of cash, without bearing the full opportunity cost of being uninvested over the long term. Investors who require all of the benefits of cash – for instance those investors facing a significant short-term liability, such as the downpayment for a house or a pending debt repayment – are unlikely to find an equivalent substitute that offers higher returns with the same total risk. Holding cash on account is likely to be the best option. Sweeping cash positions into an FDIC insured bank with checking and payment facilities is the equivalent to a checking/savings account. This would fall under the lower yields with high liquidity. But those willing and able to sacrifice one or more of those benefits may be able to earn higher returns, while maintaining those features they value the most.

In the table below, we list some of the alternatives to cash and provide indications of the level of returns. We also show the relative market, liquidity, and credit risk inherent in each solution (although it should be noted that in practice, specific levels of yield and risk can vary significantly, even within an individual strategy).

Fig. 2 Taxonomy of cash alternatives

Sub-AC	Product	Indicative Return	Market Risk	Liquidity Risk	Credit Risk
CASH	Banknotes	+	•	•	••
LIQUIDITY SOLUTIONS	Certificate of Deposits	++	•	••	••
	Others (IG Corp Bonds < 1 year, Banker Acceptance, T-Bills, Commercial Paper)	+++	•••	•	••
	Money Market Funds	+++	••	•	•
YIELD-ENHANCEMENT	Municipal Bonds	++++	•••	•	•••
	Guaranteed Investment Contract traditional	++++	••	•	•
	Ultrashort Income Fund	++++	••	•	••
	Investment Grade Corporates and Municipal Bonds (Maturity > 1 year)	+++++	••••	••	•••

Source: UBS

3. Liquidity solutions

The money market is one of the largest and most actively-traded markets worldwide. It is characterized by high trading volumes (liquidity) as well as a high degree of standardization and transparency, with products spanning from overnight to 1-year. The main participants on the money market are central banks, commercial banks and merchant banks; federal, state and local governments, corporates of all types, institutional money market funds and some wealthy private investors.

Banks offer their clients participation in the money market through liquidity solutions. These solutions offer a higher yield than standard cash accounts by taking some credit counterparty risk, liquidity risk and market risk. The specific terms and conditions of liquidity solutions offered by a given bank are determined by two main factors:

1. Commercial conditions: e.g. a bank could decide to be the liquidity provider of choice to its clients, as part of the broader relationship management, and therefore offer highly competitive or flexible terms.
2. Bank liquidity management and regulation: e.g. a bank may decide to offer very competitive client rates on term liquidity solutions to manage its own liquidity risks.

In the remainder of the section we will describe the liquidity solutions in more detail.

3.1. Certificates of Deposit (CDs)

Definition: Certificates of Deposit are fixed income investments that generally pay a set rate of interest over a fixed period of time. The interest rate is determined by money market conditions and the period of investment. A minimum amount required may also apply. There are both brokered (negotiable) and bank CDs. Brokered CDs are issued by banks for the customers of their brokerage arm. Brokered CDs have similar characteristics to bank CDs with the exception that brokered CDs can be traded in the secondary market.

Liquidity risk: The classic certificate of deposit is a fixed term solution where the assets are locked according to the chosen tenor. Early withdrawals are sometimes possible, but not without penalty.

Counterparty risk: The degree of security depends on the solvency of the debtor bank, which is usually reflected in its credit rating.

Market risk: No market risk in the sense that the promised interest rate is fixed and the principal fully repaid, in case of no credit/default event. However, the investment is exposed to duration, i.e. interest rate change, risk. For example, if interest rates increase/decrease, the deposit holder has an opportunity cost/benefit by foregoing higher/lower prevailing market rates.

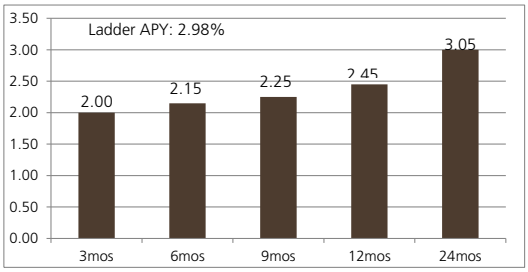
One way of mitigating short term market risk is to invest in a CD ladder.
Laddering CDs to meet liquidity needs can mitigate short term risk from panic selling while earning a higher yield compared to cash.

Example: A client with a cash outflow of USD 250,000 in 3-4 months' time transfers part of the balance into a three-month CDs to profit from a higher return than the one offered on the current account. While no additional credit risk is assumed through the transaction, the higher yield is achieved by way of locking up the money for three months, hence clients will want to manage their liquidity prudently.

Or, A client may prefer to invest in a CD ladder. Depending on how frequently a client may need access to capital, various maturity ladders may be created. As shown in Figure 2, the APY, (annual percentage yield) varies by the maturity date.

In the example above, if clients chose to distribute their cash flow in USD 50,000 increments with various maturities, they could simultaneously increase their yield while maintaining access to their capital. Creating CD ladders as a means of matching asset/liability cash flows can enhance overall yield with a minimal give-up in liquidity.

Fig. 2: Creating a CD ladder can enhance yield while maintaining liquidity (for illustrative purposes only, not necessarily current rates)
lhs: APY (annual percentage yield), bottom CD maturity



Source: UBS

3.2. Money market funds

Definition: Money market funds are designed to provide investors with an attractive alternative to bank deposits for their cash holdings. As with any other fund, the fund manager pools the money and invests in a variety of money market instruments (and other securities, e.g. derivatives). Through a single fund investment, they provide investors access to a high quality, diversified portfolio of money market instruments (including such that may be otherwise inaccessible to the particular type of investor) with flexibility to subscribe and redeem daily with settlement two or three days later (T+2 or T +3). Examples of money market instruments eligible for inclusion in taxable money market funds are: Treasury Bills and Commercial Paper. For private investors in the US, ultra short municipal funds offer good liquidity and can shelter investors from federal income taxes.

Liquidity: T+2/3 settlement for subscriptions/redemptions in the fund and/or secondary market trading.
Counterparty risk: Low counterparty risk achieved through a diversified portfolio of investments and counterparty risk.

Market risk: This type of investment is subject to price fluctuations driven by interest rates, demand/supply and other market factors. It has historically exhibited low volatility. The price of a fund share may go down below the initial investment.

Example: A client would like to keep a liquidity buffer as a safety net, and is particularly focused on diversification of counterparty risk. A money market fund offers a straightforward way to gain access to a variety of money market instruments and potentially profit from the investment skill of the fund manager.

3.3. Public debt (e.g. Treasury bills), short-term corporate and municipal bonds

Definition: Debt obligations issued with maturity of less than one year by public authorities or private corporations against deposited funds. They have defined maturities (e.g. 90, 180, and 360 days) and a fixed interest rate. The return they earn depends on the credit quality of the issuer and the prevailing conditions in the money market.

Liquidity: Usually tradable in a highly liquid secondary market (up to T+3 days of settlement)

Counterparty risk: The degree of security depends on the solvency of the issuer, which is usually reflected in its credit rating.

Market risk: Prior to maturity, this type of investment is subject to price fluctuations driven by interest rates, demand/supply and other market factors. The price of a bond may go down below the initial investment (purchase price). At maturity, and in case of no credit/default event, the principal and the interest (usually in the form of an initial discount on the principal paid) are paid back to the investor.

Example: A client expecting a cash outflow of USD 250,000 in 3-4 months' time invests the entire sum today into a three-month Treasury bill (issued by the Treasury of the United States). The investment is considered very safe, as the likelihood of US government default within three months is negligible. After three-months the principal and interest are repaid to the client. Alternatively, the client can liquidate the position at any time in the highly liquid secondary market.

3.4. Other money market products

Included for completeness, we also mention commercial paper, which share some, or all, of the instrument characteristics presented above. Commercial paper is the term used for unsecured promissory notes issued at a discount by well-known banks and corporations.

4. Liquidity Allocation Considerations

When trying to identify optimal liquidity solutions, it is important to first understand potential client short-term liquidity requirements, and whether there is a certain amount the client wishes to have available in case of an emergency. Additionally, it is also important to understand the client's risk appetite across the three risk dimensions: market risk, liquidity risk and counterparty risk.

Cautious liquidity management typically means spreading cash across multiple liquidity solutions spanning various tenors and/or issuers, above and beyond in-demand cash on transaction accounts. Finally relative pricing across available products are also considered.

For example, CDs are usually well-suited to clients who require liquidity only at a fixed time in the future, and are uncomfortable with assuming market risk in the meantime. On the other hand, if the client is willing to assume market risk, then short-term corporate/ municipal bonds or commercial paper would be valid alternatives. The interest rate available on the various liquidity solutions will be a function of prevailing market conditions and the issuer's specific liquidity needs. These will change over time, as illustrated by the examples below:

Fig. 3 illustrates how bank certificates of deposit for example have consistently paid a risk premium over T-bills. Moreover, the risk premium was higher during periods of economic stress. Central bank policy affects the supply of money in the banking system and the returns of liquidity solutions.

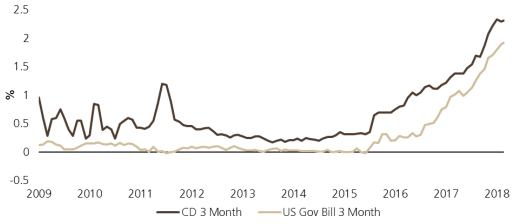
Current market conditions, and slope of the yield curve, are key in determining the level of interest offered on clients' cash deposits. Market events influence which are the best opportunities at a given time and affect the attractiveness of different solutions.

Fig. 4 illustrates the historical rates for LIBOR, 3m T-bill, 3m commercial paper and demonstrates how their yields vary over time.

Finally, liquidity solutions with different maturities will offer different rates, with the longer maturity solutions usually offering higher rates, due to greater uncertainty over market conditions further in the future.

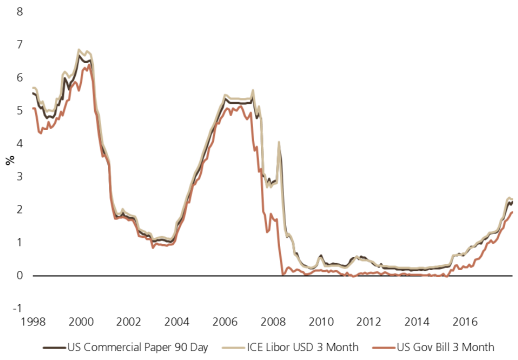
Fig. 5 illustrates LIBOR rates for different tenors, at different periods in history. The impact of the Fed hiking cycle on LIBOR, which started in 2015, is evident since 2009.

Fig. 3: Yield of 3m Certificate of Deposit vs. 3m Treasury Bills.



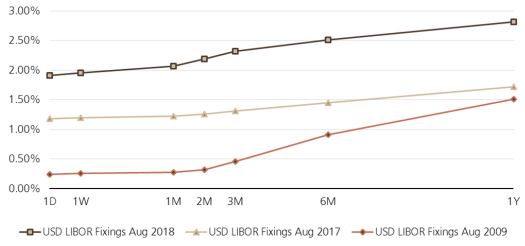
Source: Bloomberg Finance LP, UBS

Fig. 4: Historical rates for 3 month LIBOR, 3 month Treasury Bill, 3 month Commercial Paper



Source: Bloomberg Finance LP, UBS

Fig. 5: Historical LIBOR rates for different tenors



Source: Bloomberg Finance LP, UBS

In summary, the appropriate mix of liquidity solutions is defined by: i) the client's investment objectives and constraints, and, ii) available rates at the time.

Currently there's potential for a transition from the widely used LIBOR to SOFR, (secured overnight financing rate). Although it is unclear that this transition will meet the 2021 deadline, either way the correlation between SOFR and a 3 month Treasury bill are expected to be similar to the above.

Illustrative client example

We now consider an illustrative client example which will allows us to translate theory into practice.

We assume the following client circumstances:

- USD 10m in cash.
- Uncomfortable with market or counterparty risk.
- Liquidity requirements: outflow of USD 2m in one month and no further commitments outstanding for the remaining cash. Does not wish to lock the remaining USD 8m fully for 12 months.
- Minimum amount of cash available immediately: USD 200k.

Fig. 6 illustrates an indicative yield offer for the different solutions available at a certain point in time. As outlined above, these yields may vary depending on market conditions, hence rendering selected solutions more attractive compared to others. How would the client identify which solution, or solutions would best meet his needs?

Beginning with the client's liquidity constraints, there is a clear expected liquidity requirement in one month. Figure 7 illustrates the available options for the amount of cash that would need to be available in one month. Commercial paper offers a slightly higher yield than a money market fund (2.02% vs. 2.01%) , however, it also has a slightly higher credit risk.

For the remaining USD 7.8m to be invested, the client could be able to select from the entire range of solutions illustrated in Figure 6. One consideration would be to reduce exposure to a particular market / credit risk which can be done through creating a diversified portfolio of different solutions with varying market and credit risk. This would suggest a mix of counterparty risk, but also different maturities (i.e. not all should have a 12 months tenor).

Based on the yields offered, the US Gov and commercial paper investments offer attractive rates. Commercial paper securities have a slightly higher counterparty risk than US Gov bills. By comparing the yields of the US Gov and commercial paper for equal maturities, we observe that the pickup in yield for the 3 and 6 month maturities is roughly equal at 0.2%. As there is no yield pickup compensation for the longer maturity and thus higher counterparty risk, commercial paper is more attractive for the shorter maturity and US Gov bonds for the longer. At maturity, the client would need to revisit the latest market rates and reevaluate among the available options.

Fig. 6: Illustrative yields of (USD) liquidity solutions

Liquidity Solution	Yield (p.a.)
Current Account	0.00%
Certificate of deposit 1m	1.51%
Certificate of deposit 2m	1.63%
Certificate of deposit 3m	1.76%
Money Market Fund	2.01%
US Gov 1m	1.93%
US Gov 3m	2.04%
US Gov 6m	2.22%
US Gov 12m	2.42%
Commercial Paper 30 days	2.02%
Commercial Paper 60 days	2.14%
Commercial Paper 90 days	2.23%
Commercial Paper 120 days	2.30%
Commercial Paper 180 days	2.41%
Ultrashort Municipal Fund	2.38%
Ultrashort Income Fund	2.42%
Guaranteed Investment Contract Traditional	2.05%

Source: UBS

Fig. 7: Illustrative yields of available one month (USD) liquidity solutions

Liquidity Solution	Yield (p.a.)
Certificate of Deposits 1m	1.51%
US Gov 1m	1.93%
Ultrashort Municipal Fund	2.38% *
Investment Grade Corporate 1y	2.70%
Commercial Paper 30 days	2.02%

* indicates tax equivalent yield assuming top marginal tax bracket of 40.8%

Source: UBS

In summary, based on the illustration the recommended allocation would be for tax-exempt account would be:

- USD 200k in cash account
- USD 2m in CDs 60 days
- USD 3m in Commercial Paper 90 days
- USD 3m in US Gov 6m
- USD 1.8m in US Gov 12m

while for taxable account:

- USD 200k in cash account
- USD 2m in CDs 60 days
- USD 3m in Commercial Paper 90 days
- USD 3m in US Gov 6m
- USD 1.8m in US Municipal Bond Funds with average maturities of approximately 12 months

Appendix

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