

Market Turbulence Exposes Risks of Liquidity Investing

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As the market dislocations that began in August and September of 2007 have clearly demonstrated, liquidity investing can entail substantial risk despite its conservative reputation. By striving for incremental yield in a low interest rate environment, many investors ventured into investments poorly aligned with their goal of capital preservation—commercial paper issued by collateralized debt obligations, for example, or asset-backed commercial paper secured by sub-prime mortgages. Due to the complex nature of certain money market securities, some investors relied too heavily on the opinions of rating agencies. Others overestimated the ability of cash instruments to provide ongoing liquidity in difficult market conditions. As a result, many investors failed to appreciate fully all of the risks involved with their cash positions and found themselves holding illiquid securities or taking significant losses.

While the events that transpired may have begun in the subprime mortgage arena, the impact could be felt across markets. This all served to underscore how crucial it is to fully understand and control the most critical risks within cash management: interest rate risk, credit risk and liquidity risk.

The Gathering Storm

Low interest rates in the United States beginning in 2001 spurred demand and significant price appreciation in housing markets across the country, and inspired existing homeowners to refinance their mortgages. As the pool of qualified prime borrowers began to dwindle, the mortgage industry, forced to look for new sources of business, turned to less creditworthy borrowers. The growth of no- and low-documentation loans, no-money-down mortgages and other forms of subprime debt was facilitated by the capital markets through the issuance of asset-backed securities. Increased competition among nontraditional loan providers led to the further erosion of underwriting practices. However, with interest rates low and the housing market strong, securities backed by mortgages performed well.

Problems began to surface once interest rates crept upward and the real estate market cooled. The fourth quarter of 2006 saw a sharp increase in the early payment default rate, which measures the percentage of borrowers who fail to make on-time payments within the first few months of taking a loan. Mortgage originators are typically required to buy back loans that experience early default. As the third-party owners of these defective mortgages sought reimbursement, many originators, with little capital and limited access to funding, simply ran out of money. In the first quarter of 2007, New Century Financial was the first noteworthy originator to fail. Meanwhile, the mortgage origination arms of some diversified banks exited the business at a loss.

About BlackRock

BlackRock is a premier provider of global investment management, risk management, and advisory services. As of 31 December 2007, the firm manages US\$1.36 trillion across equity, fixed income, real estate, liquidity, and alternative strategies. Clients include corporate, public, and union pension plans, insurance companies, mutual funds, endowments, foundations, charities, corporations, official institutions, and individuals worldwide.

Through BlackRock Solutions[®], the firm offers risk management and advisory services that combine capital markets expertise with proprietary developed systems and technology. BlackRock Solutions provides risk management and enterprise investment services for US\$5.75 trillion in assets.

BlackRock serves clients in North and South America, Europe, Asia, Australia, Africa, and the Middle East. Headquartered in New York, the firm maintains offices in 19 countries around the world.

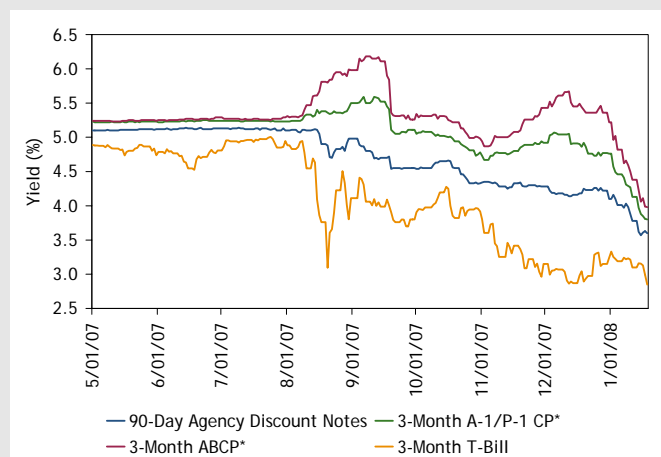
Demand for mortgages and mortgage-related products began to decline and defaults accelerated. As these facts became public, market participants began to reprice subprime mortgage assets and related asset-backed securities. This proved easier said than done; as the bad news piled up, these securities became even harder to value, borrow against or sell. A survey of 251 institutional investors by Greenwich Associates found that more than 80% of investors in bonds connected to the mortgage market had trouble obtaining price quotes from their dealers during the summer of 2007. Among those hardest hit by the repricing were two Bear Stearns Asset Management hedge funds with considerable exposure to subprime collateralized debt obligations (CDOs); these funds were forced to sell off their investments to raise liquidity before ultimately filing for bankruptcy in July.

By this time, the contagion had begun, with the impact spreading beyond subprime-related products to the asset-backed market as a whole. As demand for these products waned, severe liquidity problems were felt by a number of large institutional investors, particularly hedge funds. To raise cash, these investors were forced to sell other securities with less mortgage exposure, including equities. They were also forced to cover their short positions, which is thought to have increased the pressure on asset-backed commercial paper (ABCP), a popular vehicle among liquidity investors.

As investors began to grow increasingly concerned about the particular assets backing the commercial paper in their portfolios, many chose to redirect their short-term investments into Treasuries. With demand all but dried up, some conduits sponsoring ABCP programs had a difficult time rolling over their paper, putting additional downward pressure on the securities and causing a significant contraction in the ABCP market (see Figure 1). The money markets were now in the eye of the storm.

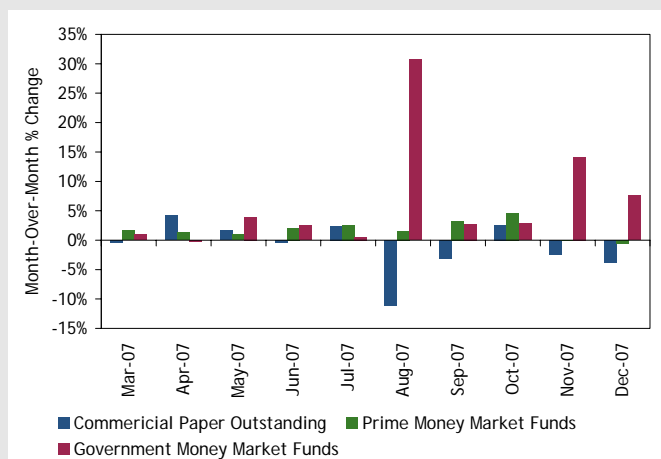
As you can see in Figure 2, the yield on asset-backed commercial paper with a three-month maturity spiked in August and September of 2007 as investors took shelter in the relative safety of T-bills. A generalized flight to quality ensued; investors with direct holdings in commercial paper took refuge in prime money market funds while many existing prime money fund holders shifted into lower-risk government and Treasury products (see Figure 3). Moreover, all ABCP was tarred with the same brush; even the best-quality paper without subprime exposure traded at a significant discount.

Figure 2. Money Market Rates



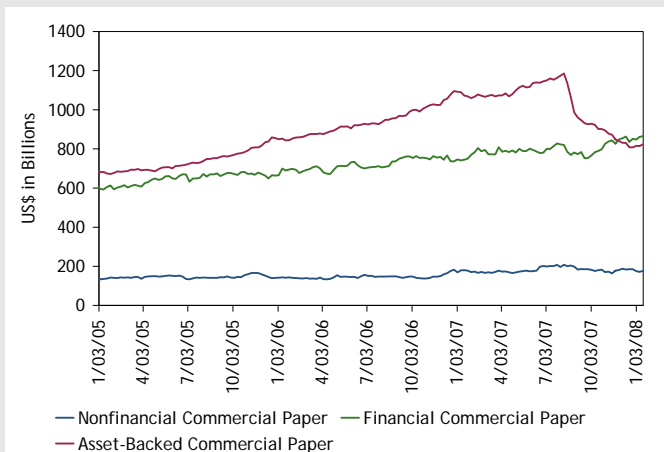
Source: Bloomberg
 * 3-Month A-1/P-1 CP represents prime commercial paper yields for non-asset backed paper; 3-Month ABCP represents A-1/P-1 asset-backed commercial paper yields

Figure 3. Commercial Paper Outstanding and Money Market Fund Flows



Source: iMoneyNet, Federal Reserve

Figure 1. U.S. Commercial Paper Outstanding



Source: Bloomberg

A Historical Perspective

The depth and breadth of the current market tumult is without historical precedent. As shown in the examples below, disruptions in credit markets have occurred in the past, but none have spread across markets and around the globe with the same intensity and duration as recent events.

- In 1998, hedge fund Long Term Capital Management (LTCM) was rescued through the intervention of the Federal Reserve and a number of large financial institutions as it teetered on the brink of bankruptcy. Composed of an all-star team of traders and academics, LTCM had in excess of US\$100 billion under management before it was blindsided in the summer of 1998 by a combination of the Russian debt crisis and the flight to liquidity that ensued across global markets. Credit markets were thrown into turmoil and interest rates spiked before the Fed stepped in with an emergency rate cut.
- In 1994, the Community Bankers U.S. Government Money Market Fund became the only money market fund to ever “break the buck”. The small institutional fund (assets under management peaked at \$150 million) managed by the now-defunct Prospect Hill Advisers paid investors 96 cents on the dollar when it was liquidated, the victim of aggressive investments in derivatives tied to interest

rates. In the same year, derivative investments by Orange County, California, propelled the municipality into bankruptcy, roiling the municipal bond market.

- The savings and loan (S&L) crisis that emerged in 1985 was another event that reverberated throughout the financial system. The deregulation of S&Ls in the early 1980s led many to pursue more risky investments in an effort to close the widening gap between their funding liabilities (short-term interest rates) and the income generated by their assets (long-term, fixed rate mortgage payments). When the fundamental market environment turned against the S&Ls—in the form of high interest rates and foundering regional economies and real estate markets—many failed, leaving taxpayers to foot the bill.
- Penn Central Transportation, the country’s largest railroad at the time, defaulted on its commercial paper in 1970, catching the market by surprise. Investors, concerned that similar large defaults could follow, became nervous about holding any commercial paper. The Federal Reserve Bank of St. Louis reported that, as a result, outstanding nonbank commercial paper dropped almost 10 percent between 24 June and 15 July of that year before the Fed stepped in to restore order in the market.

Lessons Learned

Despite cash management’s reputation as a low-risk activity, the turmoil that began with subprime and spread across the markets has made it clear that cash management requires a disciplined, thorough and informed approach. Even some investments regarded as the most conservative were effected, with more than one investment manager stepping in to buy troubled securities out of their money market funds rather than allowing the impact to harm the fund. We believe there are a number of important takeaways from the events of the past several months that investors should consider.

Incremental yield is accompanied by incremental risk.

As with the issues in the mortgage and housing markets, the current challenges in the market can be traced back to the extended period of low interest rates in the United States for much of this decade. With the federal funds target rate at 1%, investors began to look for ways to generate additional yield on their short-term investments. This often led them to investments whose risks they did not fully appreciate.

Ratings aren’t everything.

In some cases, investors failed to fully appreciate the risks inherent in their investments because they relied too heavily on the opinions of ratings agencies such as S&P, Moody’s and Fitch. Buying three- to six-month first-tier commercial paper was never anticipated to be a problem from a credit risk perspective. As such, many investors were stunned when there was no market for the paper in their portfolios, despite the investment grade ratings it continued to carry.

Simply put, not all A-1/P-1 commercial paper is created equal. The commercial paper market has grown significantly more complex over the past 15 years; what was once the bastion of

the crème de la crème of American industry is now home to a wide variety of entities seeking short-term funding. Take, for example, commercial paper issued by collateralized debt obligations. CDO commercial paper typically pays a higher interest rate than traditional commercial paper and carries a first-tier rating regardless of the concentration of underlying assets within. CDOs are composed of hundreds of asset-backed securities, which themselves are composed of hundreds of loans of varying credit qualities. Lacking the resources to pull apart these investments, investors often rely on the opinions issued by ratings agencies, which was proven to be problematic.

Structured investment vehicles (SIVs) are another example of an investment that turned out to not always be appropriate for capital preservation purposes. SIVs issue short-term commercial paper to finance the purchase of longer-term, less liquid assets. By providing a major buyer for assets backed by subprime mortgages, SIVs were a major contributor to the expansion of credit in recent years. Though usually affiliated with banks (some are sponsored by hedge funds or private equity groups), SIVs are formally independent of the entity that creates them. SIVs are intentionally kept off the balance sheets of the banks with which they are affiliated, as banks typically seek to limit the amount of assets on their balance sheets to reduce the amount of capital that they are required to keep under banking regulations. Because of their off-balance-sheet nature, SIVs can be difficult even for sophisticated investors to analyze.

Liquidity matters.

There was little anticipation among investors that a liquidity event could occur without a credit event to instigate it. While the subprime crisis was certainly a credit event, the liquidity issues impacted substantially all short-term financing markets, even those that did not involve subprime collateral.

Investors sometimes mistake a first-tier rating for a guarantee of liquidity. The rating agencies' A1/P1 ratings indicate their belief that these issues are "money good", meaning that investors can expect to receive the face value of the security at maturity (unless extended). However, that doesn't ensure that the instruments trade at par value day in day out, which can make for a bumpy ride in difficult markets. And for paper experiencing significant structural issues, downgrades from the ratings agencies often come too late.

Additionally, auction-rate securities (ARS)—also thought to be relatively risk-free—experienced significant valuation and liquidity problems. ARS are long-term municipal and corporate bonds that are structured with short-term holding periods that typically last 7, 28 or 35 days. A Dutch auction (see sidebar on this page) is used to determine the coupon/dividend to be paid to investors purchasing the securities. Investors can sell, buy or continue to hold their auction-rate security at each auction. Often rated AAA, auction-rate securities offer a slightly higher-yielding alternative to commercial paper and other cash management investments.

At each auction there exists the potential for failure, meaning that there are fewer buy orders than sell orders. In this event, ARS holders may not be able to sell all, or any, of the securities they had intended to and must continue to hold the securities for at least one additional holding period. *Financial Week* reported on 17 September 2007 that at least 60 auctions involving as much as \$6 billion in securities had failed in recent weeks. These failures continued over time, and by mid-February the market had all but collapsed; more than three-fourths of the auctions held the week of 18 February 2008 failed. With historically tight spreads to commercial paper in recent years, ARS yields may not have adequately compensated investors for the additional liquidity risk.

Non-Rule 2a-7 funds are not the same as Rule 2a-7 funds.

Securities and Exchange Commission Rule 2a-7 governs the eligible securities that money market funds may purchase and prohibits these funds from purchasing securities with a remaining maturity in excess of 13 months. The rule is designed specifically to help ensure price stability—the primary objective for most cash management products. While investing in non-2a-7 products—which typically have extended durations or increased credit exposure relative to 2a-7 funds—can be an effective way for institutions to enhance returns, investors must be fully cognizant of the additional risk such products bear and the impact this can have on their liquidity.

Access to information is important; knowing what to do with this information is essential.

Many direct holders of asset-backed commercial paper were not aware of the underlying collateral of their holdings—in some cases, smaller investors seeking this type of information are denied their requests. Even when full documentation for ABCP is accessible, it can be extremely difficult to adequately analyze the sheer bulk of holdings data.

Treasury staffs in general have shrunk in recent years, as cost-conscious managements sought to outsource non-core business activities. Given the increasing complexity of the fixed income investment universe and reduced in-house resources,

Dutch Auctions

At a Dutch auction (named, incidentally, for a system used to sell tulips in the Netherlands) the interest rate of a security is set at the lowest interest rate at which buyers would be willing to purchase all of the securities for sale in the auction—this is referred to as the "clearing rate". Auction-rate securities and Treasuries are two of the more popular users of this system.

In the Dutch auction process, investors bid for a number of shares at a desired interest rate. Each accepted bid is awarded securities at the clearing rate set during the auction. Bids are filled at the clearing rate in order from lowest rate bid to the highest. If the investor's desired interest rate is higher than the clearing rate, the order will not be filled.

For a simple example, let's assume an auction of 100 securities; Figure 4 displays the bids submitted by four potential buyers. In this example, 4.2% is the clearing rate at which all 100 securities will be sold. As such, Investors A and B have their orders filled in their entirety, while Investor C gets a partially filled order. Since Investor D's bid is over the clearing rate, this order goes unfilled.

Figure 4. Dutch Auction Example

Investor	Bid		Outcome
	# of Securities	Interest Rate	
A	30	4.0%	Order filled at 4.2%
B	50	4.1%	Order filled at 4.2%
C	40	4.2%	Order partially filled (20 securities) at 4.2%
D	30	4.3%	Order not filled

A failed auction occurs when there are more sellers than buyers. In this event, all securities must be held until the next successful auction.

outsourcing has become a common strategic move. For all but the most sophisticated institutions, the capabilities of an experienced external manager cannot be matched in-house. By the nature of their specialization, qualified external managers tend to have a staff dedicated solely to the investment function, comprehensive credit research and analytics capabilities, robust risk management systems and processes, superior broker/dealer and direct market access, and experience managing a wide range of different cash and fixed income assets.

Cash investing is not a low-risk activity.

The riskiness of an investment is typically represented by the standard deviation of its returns over time. Using this traditional metric, cash is a very low risk asset class. In the five years ended 31 December 2007, liquidity investments (as measured by U.S. T-bill 30-Day Average) have had a standard deviation of 0.48%, while fixed income (Lehman U.S. Aggregate Bond Index)

and equities (S&P 500 Total Return) have posted standard deviations of 3.59% and 8.61%, respectively. However, cash investors have other objectives in addition to return—namely, capital preservation and liquidity—for which they have extremely strict guidelines. Whether the need is principal protection or same-day cash access, a failure to meet these goals is the equivalent of many standard deviations of underperformance by an equity or traditional fixed income investment.

In this context, a number of things become clear. Relative to these strict standards for performance, cash investing is a high-risk activity. Furthermore, managing to these standards is a unique discipline that requires deep experience and technical knowledge. Finally, investing in cash securities or a money fund is fundamentally different from investing in other asset classes. At all times, capital preservation and liquidity must remain at the core of the investment decision.

Those who cannot remember the past are condemned to repeat it.

Financial markets tend to have short memories; see the box entitled “A Historical Perspective” on page 3 for examples of past credit market disruptions. However, by pursuing a consistent, conservative approach to cash management with a focus on understanding and managing risk, investors can better position themselves to withstand whatever market tumult the future may hold.

Conclusion

Fears that the mortgage crisis may be far from over have taken on renewed strength of late. In an unusual move, the Fed announced a 75 basis point cut in the federal funds target rate following an emergency policy meeting on 22 January, citing tight credit conditions, a depressed housing market and a slowdown in job creation. This represented the largest one-day rate cut since 1982 and marked only the fifth time the Fed has reduced the target rate outside of a regularly scheduled meeting. The Fed followed up that cut with an additional 50 basis point easing at its regularly scheduled January 30 meeting, bringing the target rate to 3.00% from 4.25% in just eight days.

Housing fundamentals have continued to deteriorate, as evidenced by rising mortgage delinquencies and defaults. This has prompted rating agencies to review mortgage-related structured transactions and securitizations, as well as the funds and institutions holding them. The ensuing stream of downgrades helped to further pressure valuations of structured securities in general. This created additional problems for already-troubled SIVs and short-term liquidity pools, resulting in a capital crisis among monoline insurers and spreading the crisis of confidence into the municipal market.

The turmoil that began in the summer of 2007 and continues today serves as a reminder of the significant risks inherent even in this most conservative asset class. We believe it also demonstrates the importance of professional cash management.

Cash Management at BlackRock

Over the past 34 years, BlackRock has built one of the largest cash management businesses in the world. During that time, we have maintained our conservative approach to risk management, which we believe is the cornerstone to safeguarding principal. We combine security and credit analysis with our significant experience, supported by our proprietary fixed income trading and analytical systems.

BlackRock’s approach to cash management focuses on three broad categories of risk:

- **Interest rate risk.** BlackRock’s Liquidity Investment Strategy Committee leverages all of our cash management expertise to control interest rate and duration exposure in portfolios while still providing clients with competitive return potential. The committee employs a broad process that evaluates macroeconomic trends, technical market factors, yield curves and market volatility to establish investment themes around interest rate and duration management.
- **Credit risk.** BlackRock employs a team of 50 credit analysts who focus on assessing underlying credit fundamentals and identifying the strongest investment candidates based on relative value while continuously monitoring all investments to anticipate downgrades. Our extensive credit process and commitment to compliance allows us to maintain our competitive yields without sacrificing quality.
- **Liquidity risk.** Our cash management solutions are designed to ensure that our investors are able to meet their liquidity needs. By investing in a large, diverse pool of securities, our portfolios can offer greater flexibility in their investing deadlines compared to individual securities and interbank

deposits. In addition, our highly diversified clients represent an equally varied range of cash flow requirements, resulting in strong levels of liquidity and easy access.

It is this disciplined approach to cash management that enabled us to avoid exposure to the most troubled products during the difficult summer of 2007. For example, BlackRock-managed money market funds had no exposure to:

- SIV-lites (highly levered vehicles that are a hybrid of SIVs and CDOs)
- SIVs or ABCP programs sponsored by private equity firms or hedge funds
- CDO commercial paper
- single-seller mortgage conduits (ABCP sponsored by small, independent mortgage companies).

In fact, as many investors were holding paper with no liquidity, we were selectively buying high-quality ABCP programs at a discount. Furthermore, our sizable presence in the market provides a distinct advantage when it comes to information access; we will not purchase paper without complete transparency of holdings.

At BlackRock, our mandate is to help investors understand and manage risk by building a relationship based on trust, communication and understanding. These relationships, combined with thoughtful management of the three categories of risk, enable us to work with clients to address their needs for safety, liquidity and yield in cash investing.

