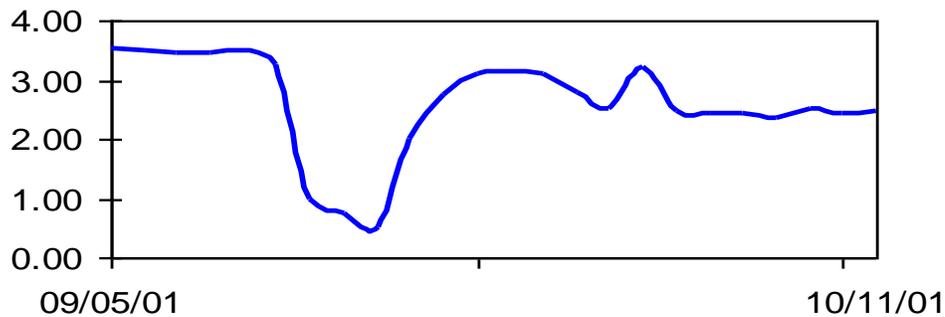


### Treasury Actions Stabilize The ‘Repo’ Market

In an ‘unprecedented’ recent event, the Treasury Department moved on October 4<sup>th</sup> to hold an unscheduled auction of 10-year Treasury notes in an effort to improve conditions in the repo market. They auctioned \$6 billion more of the 5% 10-year note maturing in August 2011. The Treasury will still sell 10-year notes as part of its regularly scheduled quarterly refunding in late October. The Treasury Department acted to ameliorate risk triggered by a cascade of failed trades subsequent to the attacks of September 11<sup>th</sup>. The situation was exacerbated by several factors. These included increased demand for Treasury securities, disrupted telecommunications, and the reluctance of repo market participants to enter into trades, particularly as the end of the third quarter passed, out of concern for the ability of the system to regain its smooth functioning. The ‘fails rate’, a measure of trades that do not settle, which typically ranges from nothing to \$3 billion, had surged as high as \$40 billion.

The graph below shows the repo rate for general collateral that prevailed before September 11<sup>th</sup> and after. This rate is typically close to the Federal Funds rate, which was cut twice by 50 basis points after the incident. The first cut coming on September 17<sup>th</sup>, before the halted stock market first reopened, and the second occurring on October 2<sup>nd</sup>, at the Federal Open Market Committee’s regular meeting. For the period immediately after September 11<sup>th</sup> and until the aforementioned October 4<sup>th</sup> 10-year note reopening, the “special” rate applying to the loan of both current 5 and 10-year notes was close to zero.

#### Overnight General Collateral Repo Rates



We would like to take a moment to describe briefly how the repo market works and explain its significance. Although does not participate directly in the repo market on behalf of its clients, we will show the indirect influence of the repo market on the Treasury market and, more broadly, all fixed-income valuations and new issuance. The Treasury market and by extension the repo market is, as a recent Wall Street Journal article notes, “critical for everything from determining mortgage rates to funding the federal budget”. Finally, we conclude by suggesting that the panorama of recent events, including this particular action, is a good reminder of the role liquidity plays in the portfolio management process. This is true not only within the Treasury market, but also beyond it, in the sister fixed-income markets.

## VANDERBILT AVENUE ASSET MANAGEMENT

The Treasury market relies on the two-way flows of market participants, both the buyers and sellers, the offer and the bid sides. The financing of forward settlements of Treasury securities is typically accomplished in the repo market. On one side of the transaction, an entity with Treasuries on hand may choose to **borrow** money at a specified, often below market rate (repo rate), using the specified Treasuries as collateral. This is known as a Repurchase Agreement, or repo for short. Effectively, this participant is selling the Treasuries and repurchasing them at a later date, with the forward price being calculated using the special financing rate. On the other side of the transaction, an entity seeking to borrow those Treasuries will **lend** money at that same rate, effectively buying the Treasuries and selling them back at a later date (reverse repurchasing them or reverse repoing them). The forward price of the transaction is calculated using the aforementioned special financing rate. Thus for one side the transaction is a **borrowing**, for the other a **loan**, accepting cash in exchange for securities, or securities in exchange for cash respectively.

A true repo transaction involves collateral movement and often requires a 'haircut', or additional collateral, typically 2%, to be posted for the loan. Also, the legal documentation for repurchase transactions is specific and details the rights to control of the collateral. There are also types of repo differentiated by who holds the collateral, and what rights of substitution, if any, apply. The following is a simplistic example of the economics of a repo transaction. Specifically, the analysis is actually that of a sell/buy back transaction, where the securities transactions are entered into with settlements occurring and ownership changing. This differs from a true repo where only journal entries are made as collateral is posted and returned and ownership does not change.

*The loan is initiated by the sale or pledge of the security in exchange for cash. The current 10 year Treasury, the 5% of 8/15/11, is SOLD for settlement 10/10/01 at the current market price of 103.00. This results in the receipt of \$1,037,608.70 on a \$1mm position. The repo rate is 0.85%, as the current ten year is on "special", meaning there is strong demand to borrow the security. This is a very low-rate loan! We will assume a one-month loan period. The interest that is charged for the loan of \$1,037,608.70 at an annual rate of 0.85% is \$832.97. The loan is closed-out by the purchase or return of the pledged security in exchange for the loan amount plus interest adjustments. For settlement 11/13/01, the current 10 year Treasury is BOUGHT at the forward price of 102.62134, which is the invoice price at which the proceeds to be repaid are equal to the sum of the original loan plus the interest due (\$1,038,441.67). Of course, this transaction can be viewed from the other perspective, the reverse repo, as a buy on 10/10/01 for \$1,037,608.70, an investment holding period return of \$832.97 or 0.85% on an annualized basis, and the closing of the position by sale on 11/13/01 at 102.62134. By offering a "special" rate, the desired Treasury security was secured, but it was a more expensive use of cash than other one-month investments.*

## VANDERBILT AVENUE ASSET MANAGEMENT

The significance of the repo market has much to do with how a broader arena of securities is traded. In the Treasury market, the most liquid securities that trade among dealers are typically the most recently issued benchmark Treasuries, the 2, 5, 10 and to a lesser extent the 30 year notes and bonds. Dealers trade these against other Treasury securities that are mostly held in portfolios, whether for flow or positioning reasons. Dealers use their expertise in the markets to evaluate the differences among Treasuries as to coupon and maturity (quantitative characteristics) as well as perceived availability, demand and other factors (more qualitative characteristics) so they may ultimately price them relative to the benchmarks. By extension, in sister fixed-income markets to the Treasury market, such as the Agency, Corporate, and Mortgage-Backed securities markets, Treasury securities may also be used for the same risk and inventory management purposes. It is easy then to imagine that, given the size of these markets (the Treasury market alone is over \$3 trillion), that the amount of activity in these benchmarks is great. Other securities in addition to Treasury benchmarks are used in a similar manner, including benchmark Agency and certain large Corporate issues and current coupon Mortgage-backed securities. Derivative instruments, such as futures on Treasury securities are also actively employed. These in unison create enormous liquidity but must ultimately to some extent refer back to the cash and repo market fundamentals in **deriving** their valuations. What we get then is a multiplier activity stemming from the use of benchmark securities. During periods of crisis in the financial markets, particularly a crisis in the infrastructure of the Treasury market itself, there is an extreme focus of both demand for and concern about the primary, underlying securities that represent the source of the accumulated, multiplied liquidity in the system. We will discuss the implications of this further in a moment.

Whether or not a fixed-income portfolio manager engages in repo or reverse-repo transactions directly, there is a critical indirect relationship to the repo market that must be evaluated in a number of term structure, sector and security selection issues. Over the last several years, the Treasury benchmarks have been reduced from 2,3,4,5, 7,10 and 30 year securities to 2, 5, 10 and 30-year securities. Some of this reflects securities that have simply stopped being issued, or issuance has dwindled significantly, as is the case with the 30-year. The liquidity of these issues has become more concentrated, as the size of the Treasury market overall has been reduced and there is consolidation amongst market participants. Spreads of other securities to these benchmarks have generally widened over this period, to reflect the difference in liquidity and to reflect the economics of more favorable repo rates in benchmark Treasuries than elsewhere. The benchmark Treasuries typically have lower yields than surrounding issues on the maturity spectrum to reflect this premium. Since Treasury issuance is itself managed to promote liquidity, it is no surprise that the benchmark model would be incorporated in the sister fixed-income markets. The benchmark effect drives key rates on the term structure. These key rates in turn, act as fundamental valuation pillars for the different fixed-income sectors, some of which have greater clarity to the term structure than others (bullet Agency or Corporate as opposed to variable cashflow Mortgage-Backed securities). Finally, the actions of key rates have a great deal of impact on security selection decisions, as maturity or duration decisions are the most critical determinants of fixed-income total return.

## VANDERBILT AVENUE ASSET MANAGEMENT

So we conclude with the following observations. *The repo market is very large and pervasive, extending both directly and indirectly to the sister fixed-income markets. The key nexus for transmission from the repo markets is in the pricing of liquidity of the benchmark issues. We are reminded of the multiplier effects of liquidity in the system and the displacements that occur when either systemic de-leveraging or re-leveraging activities are conducted. We will be especially respectful in the weeks ahead of liquidity concerns, and we will watch the repo market as an indicator of how smoothly the system is functioning.*

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