

US Rate Strategy Notes

GCF Repo Futures – Details, Pricing and Market Impact

- Futures on the NYSE-LIFFE GCF Repo are expected to start trading on July 16th, 2012.
- We expect these instruments to find favor with repo desks and other market participants with explicit repo rate exposures.
- We estimate the eventual size of the market, in steady state, to not exceed 500,000 contracts.
- Given term premium, we expect longer maturity Futures to trade structurally “cheap” to where they are eventually expected to settle, but eventually converge to the settlement level.

Neela Gollapudi

+1-212-723-3075

neela.gollapudi@citi.com

Timothy Chung

+1-212-723-3209

timothy.chung@citi.com

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GCF Repo Futures – Details, Pricing, Impact

NYSE Liffe U.S. has announced a new Futures product that is based on the GC Repo IndexTM published by the Depository Trust & Clearing Corporation (DTCC). The introduction of the Futures contract is motivated by the needs of market participants looking for exposure to term repo rates. The contract is expected to start trading July 16th, 2012.

How does the futures contract work?

The Futures contracts come in three flavors, corresponding to the three flavors of the GCF Repo IndexTM – Treasury repo, MBS repo, and Agency repo.

The GCF Repo IndexTM is a daily rate published by the DTCC and is the weighted average of the rate on all general collateral repo transactions¹ that were conducted on a triparty² basis on a particular day. Contract details are given below.

Figure 1. Contract Details reproduced from the product marketing document provided by NYSE Liffe

Futures on:	US Treasury DTCC GCF Repo Index™	Mortgage-Backed Securities DTCC GCF Repo Index™	Agency DTCC GCF Repo Index™
Symbol	RPT	RPM	RPA
Block Trade Thresholds	100 lots	100 lots	50 lots
Time of daily settlement	2.00ppm Central Time		
Trade Unit	One repo contract with a face value at maturity of \$5mm		
Tick Size	0.25bp for nearest expiring contract month, and 0.5bp for other contract months		
Tick Value	\$10.4175 for nearest expiring contract month and \$20.83 per contract for other contract months		
Quoting convention	100 minus appropriate DTCC GCF Repo Index™ rate for the delivery month		
Settlement type	Cash settled against the corresponding average daily DTCC GCF Repo Index™ rate for the delivery month, rounded to the nearest 0.1bp.		
Contract expiration months	24 monthly contracts		
Last Trading Day	The last business day of the expiring contract month at 3.30pm Central Time		
Source: NYSE Liffe			

How will the contract be used?

Customer looking for term funding face challenges due to constraints on dealer balance sheets that are here to stay. Dealers often add on balance sheet charges to customers who need repo over dealer balance-sheet dates. While the new repo contract does not provide actual funding, it mitigates some of the interest-rate risk in secured funding. Consequently, the instrument will also be helpful in allowing customers to construct synthetic forward rates using cash securities more easily than they previously could. While hedging short rates might not be a large concern when the Fed is on hold, repo rates have been surprisingly volatile for the past several years, sometimes more so than Fed Funds or Libor. The somewhat idiosyncratic movement of repo rates relative to other short rates makes Fed Funds futures and Euro Dollar futures poor hedges for repo exposures in the current environment. Consequently market participants with large repo exposures tend to carry large amounts of basis risk that is undesirable. These market participants would normally prefer to hedge repo risk with repo futures.

Who are the likely participants in this market?

Any market needs at least some end users to be successful. In the case of the GCF Repo Futures market, a systematic end user is likely to be the dealer community which carries large portfolios of securities that need funding. A need to fund

¹ A repo transaction is a secured lending operation with terms ranging from one day to several months. A general collateral repo is lending against non-specific collateral of a particular type. The types of collateral that are relevant for this futures contract are Treasuries, MBS and Agencies.

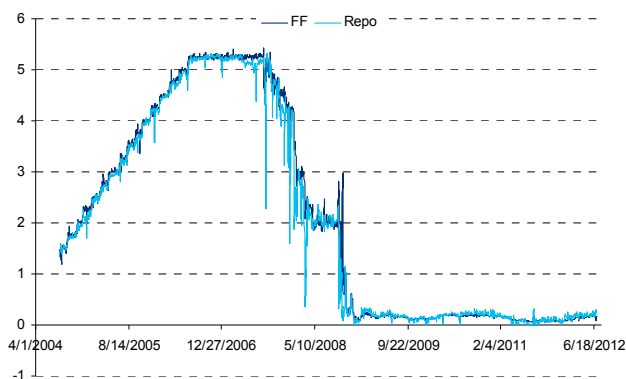
² A triparty repo transaction, as opposed to a bilateral transaction, involves a borrower, a lender, and an intermediary who

portfolios for extended periods of time results in term repo exposure that needs hedging. It is also possible that bank portfolios could use the market for hedging their short-end curve exposure. Finally, hedge funds and money managers could look to receive term-premium in the front-end of the curve by taking the other side of the trade against bank portfolios and dealer desks.

What is the potential size of the market?

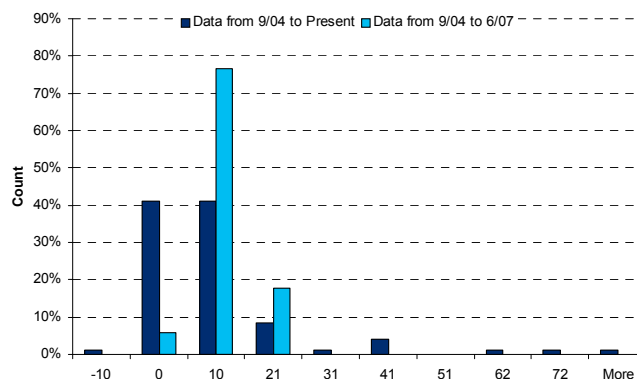
We would posit that historically the Fed Funds futures market provided a close proxy to the Repo market, even if the relationship has been less precise recently. Both markets provide averages of daily rates. Moreover, the two rates have averaged very close to each other. The Euro dollar futures, on the other hand, are settled against a Libor fixing, and have little to do with a daily average, except to the extent that the three-month Libor fixing is the best guess of the daily average of some Libor-type short rate on a forward-looking basis.

Figure 2. FF and Repo moved closely pre-crisis



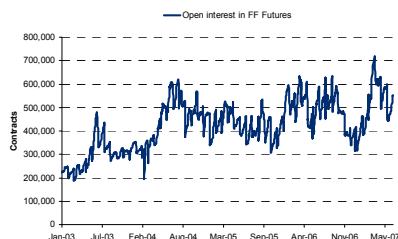
Source: Citi Research, Bloomberg;

Figure 3. Pre-crisis, FF Futures were a reasonable hedge for Repo



Source: Citi Research, Bloomberg; Monthly averages of daily levels of Repo and Fed Effective are taken for each calendar month. We then estimate histograms of these monthly estimates for both the sample of data from 9/04 to the present, as well as the pre-crisis period from 9/04 to 6/07. Certainly, during the pre-crisis period,

Figure 4. FF Futures open interest averaged about 500,000 contracts in the year 7/6 to 6/7.



Source: Citi Research, Bloomberg

It is a reasonable assumption that much of the hedging needs in the Repo market may have come into the Fed Funds market pre-crisis. It is also possible that the Fed Funds Futures market included some non-Repo market demand as well. Therefore the pre-crisis Fed Funds futures market open interest is likely an upper-bound of the size of the GCF Repo market as the new market siphons off some hedging interest, scaled for the change in dealer balance sheets and hedging needs.

Over this period, primary dealer balance sheets of US Govt Securities (used as a proxy for funding needs) went from being short 150bn to being long 100bn. Therefore, the net change in absolute dealer repo risk that needs hedging has not changed materially, even if the direction of the position may have.

Therefore, we think the eventual size of the GCF Repo Futures market is unlikely to exceed 500,000 contracts. We would not be surprised if it takes several quarters to several years to reach the 500,000 level.

If there develops an active swaps market with GC Repo as the short rate, the open interest in this market is likely to be somewhat larger. A case can be made for the development of a swap market using GC Repo in its own right, somewhat similar to the OIS market. It is unlikely though, for GCF Repo based swaps to replace either the OIS market or the Libor-based Swaps market, contrary to the expectations of some market participants. The rationale for end-users of Libor-based Swaps to continue preferring Libor-based Swaps, despite recent well publicized issues in the

Libor setting process, is that the risk they hedge using such swaps is often better correlated with Libor type risk rather than with GC Repo type risk. Swapped corporate issuance is a case in point.

Where would the futures trade vs expected level of settlement?

We expect GCF Repo futures to trade structurally “cheap” to the underlying fundamentals. This is simply term premium. Economically, if both bank portfolios and dealer repo desks look to pay term rates, and hedge funds and money managers on the other accommodate this demand to *pay*, they would look to earn what we would call a “term premium”.

To illustrate this point, we consider the 1y1y part of the curve vs the 1y part of the curve. Although not exactly in the same part of the curve as our current interest (which is more along the lines of 1mfwd1m to 1yfwd1m), the average difference between 1yfwd1y rates and spot 1y rates one-year later is about 109bp over the past 22 years. Admittedly this is a period of falling rates, and not all of this 109bp may be term premium, but much of it likely is.

Similarly, GCF Repo futures that are farther from maturity, will likely start “cheap” to where the actual monthly average repo may settle, and slowly converge to the settlement level with the passage of time.

Appendix A-1

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