GFS Training

Cash Capital Module

Last updated: January 2006

LEHMAN BROTHERS

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Liquidity Management Philosophy

The Funding Framework provides the guidelines for funding the Firm and managing the Firm's liquidity risk. The liquidity management philosophy incorporates the following conservative principles:

1. Liquidity providers are credit and market sensitive and quick to react to any perceived market or firm specific risks. Consequently, firms must be in a state of constant liquidity readiness.

2. Firms should not rely on asset sales to generate cash or believe that they can increase unsecured borrowings or funding efficiencies in a liquidity crisis.

3. During a liquidity event, certain secured lenders will require higher quality collateral, resulting in a lower availability of secured funding for "harder to fund" asset classes. Firms must therefore not overestimate the availability of secured financing, and must fully integrate their secured and unsecured funding strategies.

4. A firm's legal entity structure may constrain liquidity. Regulatory requirements can restrict the flow of funds between regulated and unregulated group entities and this should be explicitly accounted for in liquidity planning.

The Firm funds itself on a secured and unsecured basis. The Firm's 3 Funding Units raise cash to fund its balance sheet and obligations: 1) CFU – Secured funding of fixed income products, 2) EFG – Secured funding of equity products, and 3) Treasury Funding Desk – Unsecured funding.

CFU and EFG raise cash on a secured basis by pledging out available collateral. Treasury funds the Firm on an unsecured basis by issuing debt (long term debt, commercial paper, and short term debt) and tapping on available bank lines and facilities.

Overview of Cash Capital Model

The concept of cash capital is at the heart of securities firms' liquidity management, and represents funding with a maturity extending beyond one year.

The primary objective of the Cash Capital Model is to measure the sufficiency of the Firm's capital resources, by ensuring that it has adequate long term sources to meet its long term uses. Secondly, it is used to allocate the cost of capital back to the business users through the LTD allocation process.

The model is a tool used by management to make decisions on the timing and amount of debt to issue and securing other sources of funding. The conservative principles of the funding framework, which are translated in the Cash Capital and MCO models, are critical to the external rating agencies' assessment of our management of liquidity risk.   The Firm aims to manage with a balance of liquidity risk and interest-efficiency, but conservatism is the basis of the cash capital policy.

Treasury secures cash capital sources to fund the Firm's cash capital requirements. Cash Capital sources are those with contractual maturity greater than one year.   See page 5 for type of sources that are considered cash capital sources.

Cash capital requirements are on-going business requirements. See page 6 for a list of cash capital requirements.

The cash capital model subtracts uses from sources to determine the net surplus position.

Cash Capital Sources

Traditional Sources

- Stockholders' equity
- Long Term Debt with remaining life greater than 1 year

Synthetic Sources

- Generally secured financing structures with extendable optionality; these structures remove liquidity risk
  - Example: 18-15-18 month extendable repo

Other Sources

- LBHI 3 year Committed Facility ($2.0Bn)
- Drawn unsecured bank facilities with extendable features
  - These are not counted as good cash capital once they stop rolling.

(Uses of the above sources are allocated the ONE-RATE, currently 32bps, via the LTD allocation process)

Regulated Funding Sources – Lehman Credit Insensitive

- Thrift Customer Deposits (100% > 1 year to maturity, 80% < 1 year to maturity)
- Bankhaus Customer Deposits (50% of outstanding)
- Lehman Brothers Commercial Bank Customer Deposits (100% > 1 year to maturity, 80% < 1 year to maturity)

(Uses of these regulated funding sources are not allocated via the LTD allocation process – the cost of funding in these entities is allocated via independent processes)

Cash Capital Uses

◆ Haircuts (long haircuts and short haircuts)
  - Required margin based on liquidity of asset (e.g. US Treasury 1.5%, Commercial Whole Loan 100%)

◆ Unencumbered assets independent of collateral quality
  - Assumption is that if an asset is funded unsecured in a normal market, it will remain funded unsecured in a crisis market

◆ Illiquid Assets – these are non-trading assets that are 100% cash capitalized
  - Fixed Assets, Goodwill
  - Private Equity

◆ Collateral / Margin
  - Chaining, Exchange Margin and Guaranty Fund requirements
  - Collateral Pledged on derivative contracts
  - Collateral Posted into Trapped Entities (LBI, Bankhaus, LBJ)

◆ Contingent Commitments

◆ Operational Cash

Legal Entity Cash Capital

Legal entity structure may constrain liquidity flows. In capital planning, we assume funds are not fully fungible as regulatory requirements can restrict the flows of funds between regulated and unregulated entities.

Cash Capital is reported separately for the regulated legal entities, such as LBB, LOTC, LBBAG, LBI, and LBJ, and the unregulated chain. Legal entity cash capital reporting will avoid overstatement of the unregulated chain's surplus, which is the amount available to repay maturing debt and other Firm requirements.

Excess capital sources in the regulated entities are considered trapped as they can't be up-streamed to the Holding Chain to fund other entities' requirements. Sources into the regulated chain, such as sub-debt or equity infusion, are treated as available sources to the regulated entities and reflected as unregulated chain uses.

The Firm manages to a floor surplus of $2 billion in the unregulated chain and a positive cash capital surplus, ideally flat, in each of the Lehman credit insensitive entities. A cash capital shortfall in a regulated entity is assumed to be covered by the unregulated chain thereby reducing the unregulated chain's surplus.

Legal Entity Funding Dynamics

◆ While a firm may appear to be adequately cash capitalized, the unregulated chain may be in deficit. To avoid an overstatement of the net cash capital position in the unregulated chain, it is important to report cash capital by legal entity.

Hypothetical Impact of Legal Entity Structure on Cash Capital: ***Illustrative***

	Regulated Entities	Unregulated Chain	Total
Sources	50	50	100
Uses	40	58	98
Net Cash Capital	10	(8)	2

Large surplus in Regulated Entities	Shortfall in Unregulated Chain	Apparent sufficiency of Cash Capital at Firm level, however regulated entity surplus is not available to cover Unregulated Chain's deficit.

Regulated Entities

LBB ("Thrift"), LBBAG ("Bankhaus") and LBCB ("Lehman Brothers Commerical Bank") –

These are regulated entities that have their own source of funding. They need to comply with rules and regulations set by their respective Regulators. It is generally cost-efficient to move less liquid assets to these legal entities as the cost of funding is lower than the cost of issuing long term debt. They provide lower cost, reliable funding but can only fund requirements within the entities. There are restrictions on assets that these entities can hold (e.g. asset type and quality, large loan and loan-to-one borrower limit). The assets funded in the these entities are allocated the funding cost of these entities.

The amount cash capitalized for these entities includes capital infused in the form of equity or sub-debt and inter-company loans posted into these entities to satisfy margin and collateral requirements.

Regulated Broker Dealers - LBI, LBIE, LOTC and LBJ

Cash can be "trapped" in these entities for a number of reasons:

– Regulatory capital haircut is often greater than cash capital haircut.

– Broker dealers tend to have membership at the exchange, and have a customer relationship with affiliates. Individual affiliates are margined "gross," and any "netting benefit" in margin posting occurs in the broker dealer

– Affiliates post "Regulation T" margin to LBI when they buy or sell securities on margin as customers of the broker dealer. "Regulation T" governs the amount of credit a US broker dealer can extend to its customers.

Management Reporting – Cash Capital Model

Frequency:

The Firm's consolidated cash capital model is compiled on a weekly basis, as of every Friday and Month End. The product controllers are responsible for identifying and reporting uses. ALM Treasury consolidates total uses and incorporates sources to calculate the Firm's net position.

Timing:

The Consolidated Cash Capital MIS is included in the Finance Committee package which is distributed on Tuesday and reviewed at the weekly Finance Committee meeting, usually held on Wednesday morning. The MIS needs to be submitted on Tuesday afternoon to FP&A for incorporation into the package. To meet the reporting requirements, the deadline for product controllers to submit the requirements is Tuesday at 11 AM Eastern Time. This allows for time to consolidate the information and investigate variances.

Reporting Tool:

GFS is the global reporting tool for all cash capital requirements. GFS calculates the inventory haircut and box requirements systematically and has built-in functionality for adjustments. Product controllers need to make manual adjustments for requirements and credits currently not feeding GFS and to adjust GFS data. Product controllers have to sign off on the cash capital requirements for their respective businesses in the system.

# GFS Reporting Tool for Cash Capital Uses

GFS Reporting Tool

GFS (Global Funding System), a proprietary Lehman Finance application, is the reporting tool for cash capital requirements globally. GFS is a platform that consolidates data feeds from various source systems (ITS, TMS, MTS, LIQ, GEDs, etc). Within GFS, there are customized databases, report groups or modules, that facilitate various management reporting requirements. Cash Capital is one of the modules in GFS.

Cash Capital Module

- ◆ The GFS Cash Capital Module sources data from both the Balance Sheet and Sources and Uses Modules.
    - – Balance Sheet Module - Trade Date Long Inventory and Settlement Date Short Inventory
        - - MTS and TMS: Post Cross System Netdown
        - - ITS: Pre Cross System Netdown
        - - LIQ
        - - Balance Sheet Adjustments:
            - Mark adjustments impacting the TD long inventory and SD Short inventory
            - BS Adjustment Types: TD Inventory Long and SD Inventory Short

- ◆ Sources and Uses Module – Unencumbered box on a Settlement Date Basis for Firm Positions (both inventory & reverse repo/borrows)
    - - TMS, MTS, and ITS

- ◆ Static Haircut Tables stored in GFS
    - • Cash Capital Haircut (Normal Market Repo)
    - • Short Inventory Haircut
    - • MCO Haircut (Stress Market Haircut) – not used in cash capital calculation

- ◆ Logic is built into the module to perform the calculations of the haircuts and box requirements. Others are manually uploaded to GFS via the Adjustment Functionality.

Interaction with Other Modules

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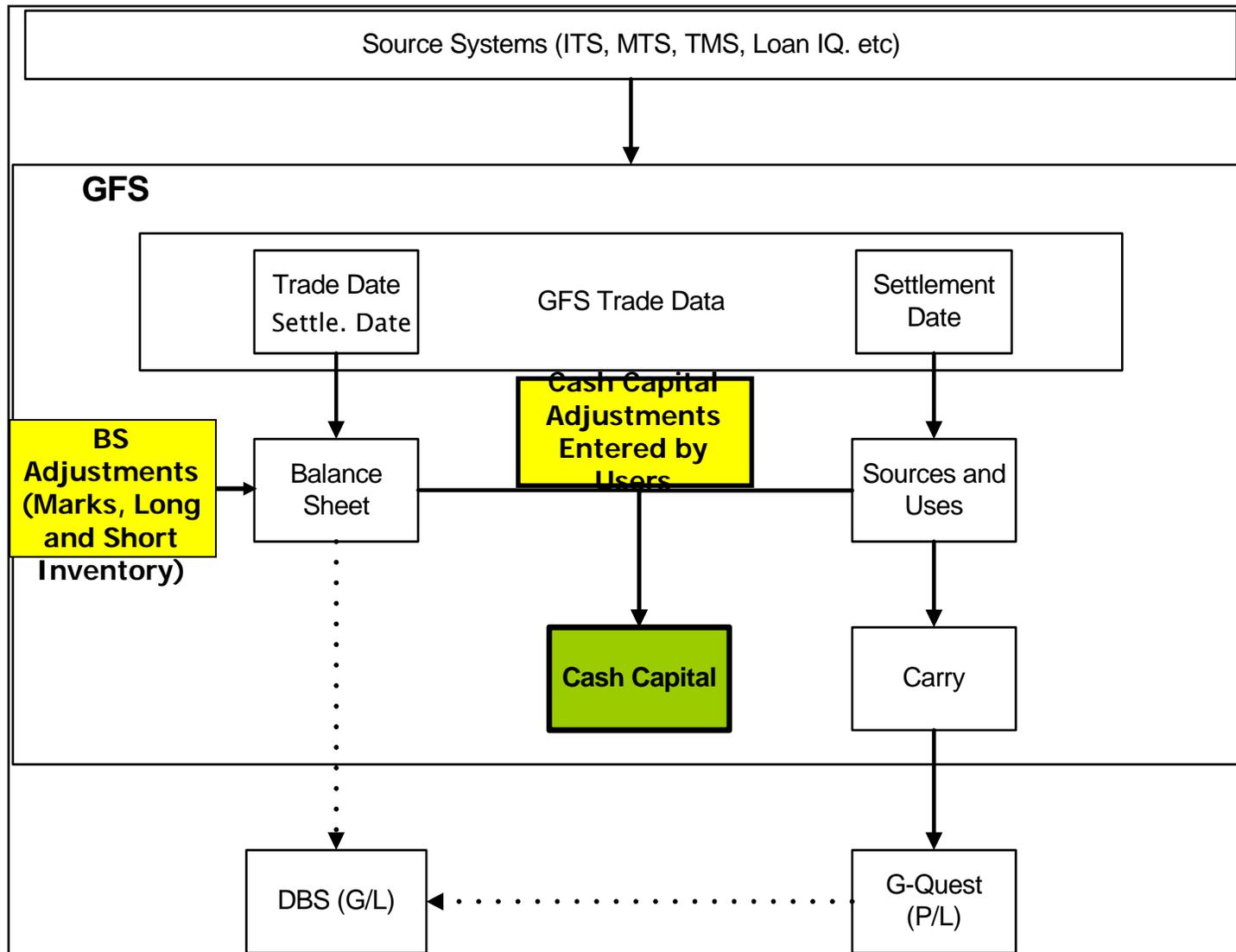
GFS Cash Capital Formulas

	GFS Front End Attributes		System Calculation	Manual Adjustments
	Net Derivatives MTM	A		X
	Net Collateral Pledged Receive	A		X
	Timing and Reserves	A		X
	Net Derivatives Req	B = sum of As	Subtotal	
	Long Inventory Haircut	C	X	X
	FID Short Inv Haircut	C	X	X
	Equities Cash Borrows Haircut	C		X
	Borrw / Reverses Haircuts	C		X
	Total Derivative & Haircut Req	D = B + sum of Cs	Subtotal	
	Box Requirements	E	X	X
	Box Credits	E		X
	Adjusted Box Requirements	F = sum of Es	Subtotal	
	Contingent Commitment	G		X
	Synthetic Credit	G		X
	Other Credits	G		X
	Other Asset Requirements	G		X
	Other Requirements	G		X
	Total Gross Cash Capital	H = D + F + sum of Gs	Subtotal	
	Bankhaus Credit	I	X	X
	LBCB Credit	I	X	
	Thrift Credit	I	X	
	Allocated LBCB Equity	I		X
	Allocated Thrift Equity	I		X
	Total Net Cash Capital	*J = H + sum of Is*	*Total*	

GFS System Calculations

All the Subtotals/Total on the previous page are calculated systematically in GFS.

<u>Total Net Cash Capital</u> –

This represents total cash capital usage of the unregulated chain. This is the sum of all the cash capital requirements. This is compared against the sources to compute the Unregulated Chain's Surplus. This is also used to allocate LTD expenses, based upon the higher of Regulatory Capital or Total Net Cash Capital at BPM Level 2.

<u>Total Gross Cash Capital</u> –

This represents total Firm Cash Capital Usage, including those funded with sources in the Thrift, Bankhaus, and LBCB.

<u>Bankhaus, LBCB, and Thrift Credits</u>

These are credits for assets funded within these advantaged funding entities. Since these requirements are funded by the respective entity's sources, they are backed out from the "Total Net Cash Capital." They are calculated by referencing the legal entity # off a Static Table Stored in GFS.

<u>Bankhaus Credit</u>: Formula = If entity equals to "0908", "00B5",or "0920", then equals to "Total Gross Cash Capital" *-100%, otherwise zero.

- This is for outright positions only; credit for triparty is adjusted manually.

<u>Thrift Credit:</u> Formula = If entity equals to "0212", then equals to "Total Gross Cash Capital" *-100%, otherwise zero.

- Thrift Equity is manually adjusted (Adj Category: Allocated Thrift Equity).

<u>LBCB Credit</u>: Formula = If entity equals to "00T1", then equals to "Total Gross Cash Capital" *-100% , otherwise zero.

- LBCB Equity is manually adjusted (Adj Category: Allocated LBCB Equity)

Long Inventory Haircut

◆ **Description**

  – The average difference between the MV of collateral pledged and secured financing proceeds received, for a specific asset category in a normal market environment, is the cash capital haircut.

  – Haircuts are dependent on the liquidity characteristics of the assets and the market in which the assets are traded.

    • The repo market haircut is 5% for residential mortgages in Americas, but is 100% in Asia and Europe because of the lack of a developed secured financing market for mortgages in those regions.

  – 100% Inventory Assets:

    • These are assets deemed to have no reliable secured funding capacity in a crisis environment (i.e. commercial wholeloans and non-rated securities).

  – The Haircut table by Asset Category 1, 2 and 3 is stored as a Static Data Table in GFS.

◆ **GFS Calculation**

  – **[Long Inventory, TD @ MV]** x **[Repo Long Haircut]** (based upon asset category 1,2, and 3 combination in the Haircut table).

◆ **Example(s)**

  – Lehman pledges $100 MV of IBM Common Stock (Equity; Common Stock; US) to a repo counterparty and receives $95 of cash proceeds – the $5 is the 5% haircut the firm funds with cash capital.

    • $100 MV of IBM Common Stock (Equity; Common Stock; US) x 5% = $5 Inventory Haircut Requirement

Haircuts incurred on Covering/Facilitating Shorts

◆ Currently borrows and reverses are assessed a 2% and 0.5% haircut, respectively (a 5% is applied for ITS Equities Cash Borrows) to approximate the haircut incurred to cover/facilitate shorts. Matchbook borrows and reverses are cash capital exempt.

◆ To calculate the haircut requirements to cover/facilitate shorts on fixed income products, GFS multiplies Short Inventory, SD @ MV by the short haircut. The haircut is based upon the asset category and system on which the inventory position resides. The haircuts are stored in the SDM haircut table.

◆ This calculation assumes shorts are generally covered with cash borrows; however, this assumption does not apply to Equity's short inventory since shorts are covered with non cash borrows and cash borrows. A different calculation will be used to avoid the double counting of haircuts. Since the financing balance sheet is not currently available in GFS, the haircut on Equity's Cash Borrows is calculated manually and uploaded to GFS.

◆ Borrows and reverses that are not for short covering or Matchbook related should be treated the same as long inventory. Collateral lifted for financing incur the repo haircut and collateral boxed is 100% cash capitalized. For Example, CWL reverse repos are cash capitalized at 100% and residential reverse repos are cash capitalized at 5%.

Box Requirements

◆ **Box Positions (GFS Attribute ="Unsecured Position MV USD")**: Any collateral funded unsecured is considered a box position. Assets may be left in the box for various reasons:

- low liquidity (assets ineligible for secured financing),

- operational inefficiencies/fails to deliver,

- pricing/rating differences with our tri-party agents,

- corporate actions

– Any collateral left in the box that is not on designated Treasury Investment trade is cash capitalized at 100% since it is entirely funded unsecured with Lehman LTD debt.

– All 100% assets should either be boxed or funded in cash capital trades. Financing these assets on non-cash capital repo trades will result in:

1. Interest inefficiencies – in addition to the interest expense incurred on debt raised to fund these assets, the firm also absorbs the cost of secured financing.

2. "Hot money" generation - the cash generated has no duration and is not reliable source of funding for the Firm's ongoing liquidity requirements.

Box Requirements

◆ As previously noted, box positions are 100% cash capitalized.   Since the inventory haircut is assessed based on the balance sheet, the box requirement captures additional capital usage. The box requirement calculated in GFS depends upon the scenario:

No.	Scenario	Formula to Calculate Incremental Box Req
1	TD Long Inventory @ MV is greater than or equal to Box MV	[1 - Repo Market Haircut%] x Box MV
2	TD Long Inventory @ MV is less than the Box MV (Trade Date versus Settlement Date difference)	Box MV - Long Inventory Haircut Requirement
3	TD Long Inventory @ MV = $0	Box MV
4	Box MV is less than or equal to $0 (Box MV can be negative due to stock record breaks or seg deficit)	$0

Sample Calculation

No	Asset Category	Repo Market Haircut	TD Long Inventory @ MV	Long Inventory Haircut Req	Box Market Value	Formula	Incremental Box Req
1	Investment Grade Corporate Bonds	5%	$ 100	$ 5	$ 100	[1 - 5%] x $100 =	$ 95
2	Non Investment Grade Corporate Bonds	10%	$ 100	$ 10	$ 200	$200 - $10 =	$ 190
3	Common Stock	5%	$ -	$ -	$ 200	$200	$ 200
4	Common Stock	5%	$ 100	$ 5	$ (50)	$0	$ -

GFS Cash Capital Adjustment Functionality

◆ While haircuts and box requirements are the majority of the cash capital requirements, there are other requirements and credits that are not currently available in GFS. These requirements should be uploaded to GFS via the Bulk-Uploader or the Quick Adjustment Screen.

◆ Adjustments include:
- Derivatives Requirements (see page 21 for details)
- Credits: Synthetic, Box, and Other (see page 22 for details)
- Non-inventory assets requirements
- Contingent commitments
- Other requirements: exchange margin, chaining, margin/collateral postings to regulated entities, and operational cash at banks
- Bankhaus Credits – for inventory haircut on assets owned by other legal entities and repoed to Bankhaus for financing (Triparty credits)

◆ In addition to adding the above requirements to GFS, the functionality also allows adjustments to the haircuts and box requirements that are calculated systematically.

◆ Adjustments can be made to the Daily and prior Friday databases. Adjustments can be posted that roll until the specified reversal date. See page 23 for description of the difference between the Daily and Prior Friday Database and the Reversal Functionality.

◆ GFS has sign-off functionality.

GFS Cash Capital Adj Category and Subtypes

◆ All cash capital adjustments are **legal entity specific**, based on the Account and **Adj Category specific** , which determines the fields to populate.

◆ It is important to make adjustments to the correct legal entity and adjustment category. Descriptive comments are required for all adjustments. This enables accurate legal entity reporting, accurate analysis of business requirements and variances, and a better audit trail.

◆ NOTE: Before applying any adjustments, make sure the correct Business Date is selected in GFS. See the Appendix for instructions on how to change the Business Date in GFS.

◆ Below are the available Adjustment Category and Subtypes (See Appendix for Instructions on the Quick and Bulk Adjustment processing, and the required fields to be populated for each adjustment category).

Reason for Adjustments	Adj Category	Adj Sub Type
To add requirements not currently in GFS	Derivatives	
	Reverses	
	Equity Cash Borrow	
	Contingent Commits	
	Synthetic Credits	
	Other Credits	
	Bankhaus I/C Reverse Credits	
	Allocated Thrift Equity	
	Other Asset Req	*See list*
	Other Reqs	*See list*
To adjust GFS or add to GFS	Long Inventory Haircut	
	FID Short Inv Haircut	
	Box Adj	
	MCO Adj	*Not used for Cash Capital*
Not currently being used	Reg Cap and CC_RC Targets	

Sub Type for Other Asset Req
Deferred Tax Assets
Employee Loans
Fixed Assets
Goodwill
Strategic Invest in Partnerships
Yield Enhance Tax Receive
Other

Sub Type for Other Reqs
15c3-3 lockup Reqs
Bankhaus Collateral Reqs
Chaining
Margin Reqs
Operational Cash at Banks
Other Reqs
Reg T Margin Reqs

Column Header on Bulk Upoader = "Adj Form Name"

Derivatives Requirements

Cash Capital is assessed 100% for:

- Net long derivative MTM (longs less shorts) across businesses within a legal entity and product type

- Collateral pledged on derivative contracts; postings to regulated entities are also cash capitalized as they are assumed to be trapped (i.e. posting to LBBAG, LBDP/FP).

Re-hypothecatable collateral received on derivative contracts, less haircuts, are allowed to offset the net long MTM and collateral pledged.

The net derivative requirements should have a floor of zero; net short MTM and excess collateral received will not be given a credit as they are not deemed to be reliable sources to the Firm to fund other businesses requirements.

GFS Treatment:

Currently Product Control calculates derivatives requirement offline and uploads as a manual adjustment. The requirement is not calculated systematically due to unavailability of the derivatives balance sheet and collateral information in GFS.

- Required fields:
  - Net Derivatives MTM
  - Net Collateral Pledged Received
  - Timing Reserves

Cash Capital Credits

◆ **Synthetic Credits** – Non-One Rate Synthetic Sources (cost of facility is borne by business)

– Remove liquidity risk for the holding company

– Contractual maturity greater than 1 year or term matched with that of the funded assets –

• Lehman-controlled exit strategy and no negative signaling if withdrawn

– Tied to specific asset (normally 100% cash capital asset)

– Cost should be lower than unsecured funding rate unless Firm cannot issue to fund specific requirement (i.e. hard-to-fund currencies in Asia)

– Examples:

• Taiwan dollar structures

• LUBS in Real Estate

• OSFC in Equity division

◆ **Box Credits** – reduce/reverse box requirements calculated in GFS

– Box positions exempted from cash capital

• Treasuries in the box

• Yield Enhancement

• Treasury investments

• Prime Broker box

◆ **Other Credits** – any other approved credit

– LBIE Prime Broker business due to cash generative nature

– Matchbook balance sheet – reverses and repos

Note: All exemptions listed above are subject to Treasury approval.

Daily and prior Friday databases and the Reversal functionality.

GFS Cash Capital Locks – Signoff Functionality

◆ In the Cash Capital Module, there are 3 different locks. The locks should be applied in sequence (BPM, Region, and then Module). The Module Lock at the top of the hierarchy; it can be applied before the BPM and Region Locks. Likewise, Region Lock can be applied before the BPM Lock.

◆ To make adjustments to the Module after all the locks are applied, the locks need to be unlocked in the reverse order (Module, Region). Any unapplied adjustments sitting in the Processing Queue will flow through to the Module if these locks are lifted. Unapplied adjustments will be disposed from the system at EOD.

◆ The lock functionality is only available for Prior Friday and Prior M/E databases

◆ Before signing off on the numbers in GFS, it is important that users perform variance analyses to ensure that the balance is accurate and the changes are reasonable and explainable.

Type of Lock	When to Apply Lock	Who has Access to Lock/Unlock	What does it do when the lock is applied
1) BPM Lock	When a BPM Product Controller is done making adjustments and ready to sign off on the numbers in GFS. Time: Before 11 AM EST	No access restriction - All GFS users	Nothing – This is merely a flag to indicate completion. This is not actually a lock; all BS and CC adjustments impacting the BPM continue to impact the result set. This is not necessary if the Region-Division CC is done by one person.
2) Regional Division Lock	When all the BPMs are complete. Time: Before 11 AM EST	Restricted to users with access – Regional/Divisional CC Product Controller(s)	Block all BS, SU and CC adjustments that impact the Region/Division.
3) Cash Capital Module Lock	When all the Divisions are complete (the BPM lock is ignored if the Region Lock is applied) Time: At 11 AM EST	Treasury ALM	Block all BS, SU and CC adjustments from flowing through to the Module.

Maximum Cumulative Outflow (MCO) Model

The Maximum Cumulative Outflow (MCO) model determines the amount of unsecured funding required for cash outflows in a stress event, in both regulated and unregulated entities. In the normal course of business, the liabilities generated to fund the Firm's required MCO result is the funded liquidity cushion.

The MCO model is used to ensure that appropriate liquidity levels are maintained. The model is used to determine short-term debt issuance. The MCO is produced weekly and reviewed at the Weekly Finance Committee Meeting.

The MCO incorporates the following assumptions about a potential liquidity event:

– The Firm will not be able to issue any commercial paper nor is it able to issue long-term debt.

– Contingent commitments (e.g. backstop facilities) are drawn by other liquidity impacted institutions.

– The Firm repurchases, opportunistically, some of its capital.

– Potential trigger of downgrade provisions.

– Increase collaterization on derivatives contracts.

– Loss of "Hot money" generation

– There is no secured funding availability above the RSF for each asset class (see next page for details).

– Haircut widening – weighted average secured financing haircut will increase, requiring more unsecured sources

  • This haircut widening requirement is calculated systematically in the GFS Cash Capital Module and can be adjusted using the GFS Cash Capital functionality by selecting the "MCO Adj" Adj Category.

Reliable Secured Funding Model

◆ The Cash Capital Model inherently assumes that all liquid assets can be funded secured.

◆ In a liquidity event, Lehman anticipates a contraction in the availability of secured financing, particularly for less liquid asset categories.

◆ The Reliable Secured Funding Model (RSFM) incorporates our conservative assessment of the completely reliable secured capacity in a liquidity event for each asset class.

◆ The RSFM amount for each product is set conservatively; on average RSFM levels are set at less than half of the capacity in a normal environment.

◆ Inventory in excess of RSFM must be funded to a term greater than 90 days.

MCO Requirement – Haircut Widening

◆ In a crisis environment, we assume that the Firm will not reduce the balance sheet level and change the asset mix for liquidity purposes. It is expected that some existing financing counterparties will walk away, and other counterparties may require higher haircuts to protect their exposure to Lehman risk and greater pricing volatility. Lehman raises > 90 day sources to fund haircut widening requirements.

   – For Example: Non Investment Grade Corporate Bonds

      - Repo Market H/C =   10%

      - Stress Market H/C =   27%

      - Haircut Widening (Stress – Repo) =   17% (27% - 10%)

    (In a normal environment, the repo counterpart will advance Lehman $90 for $100 MV, but in a stress environment, the repo counterpart will advance Lehman only $73 for the same market value of the collateral.)

◆ Since Cash Capital is raised to fund only the normal market haircut ("repo market haircut"), Lehman funds contingent haircut widening requirement with short term funds (current portion of LTD or STD). The haircut widening requirement is allocated the cost of the MCO pool (20 bps) through the Direct MCO Allocation.

◆ Box Positions are not subject to haircut widening as they are already 100% cash capitalized.

◆ Assets funded in cash capital and MCO trades are not subject to widening since the terms are locked in for the duration of the trades, unless otherwise noted in the term sheets. Assets in the structures receive a synthetic MCO credit.

MCO Requirement – GFS Haircut Widening Calculation

◆ The requirement is calculated as follows:

Example: Non Investment Grade Corporate Bonds

Repo Market Haircut	A		10%
Stress Market Haircut	B		27%
HC Widening	C = B - A		17%
TD Long Inventory @ MV	D	$	200
Box Market Value	E	$	100
Widening on TD Long Inventory	F = C x D	$	34
Widening Credit for Box	G = (C - E) *-1	$	(17)
MCO Synthetic Credits *	H	$	-
Haircut Widening Req	= F + G + H	**$**	**17**

* this is currently not populated in GFS. This will be a manual adjustment.

GFS Cash Capital – Future Development

- ◆ ITS Box Development (see next page for detail)
  - – Identify issues with ITS Sources and Uses box
  - – Implement fixes in S&U to correct the box, and
  - – Feed the correct box to Cash Capital

- ◆ Build Standard Variance Analysis Reports

- ◆ Automation of:
  - – Equity Cash Borrows Haircuts Calculation
  - – Calculation of Credits for Businesses exempted from Cash Capital
  - – Repo105 Uplift Haircut Calculation
  - – Reporting of Cash Capital Requirements by Funding Legal Entity
  - – Calculation of Contingent commitments

- ◆ Incorporate Other Assets Balance Sheet Adjustments to the Cash Capital Module

- ◆ Currency Cash Capital Reporting

- ◆ Incorporate Inventory Systems in Asia (i.e. ISTAR) and the RISC system to Cash Capital

- ◆ Incorporate the Derivatives Balance Sheet and Collateral Systems into Cash Capital and automate the calculation of Derivatives Requirements

- ◆ Incorporate the Cash Capital Sources to Cash Capital (i.e. TWS)

ITS Box Issues and Development

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GFS Cash Capital

APPENDICES

Appendix –Change the Business Date in GFS
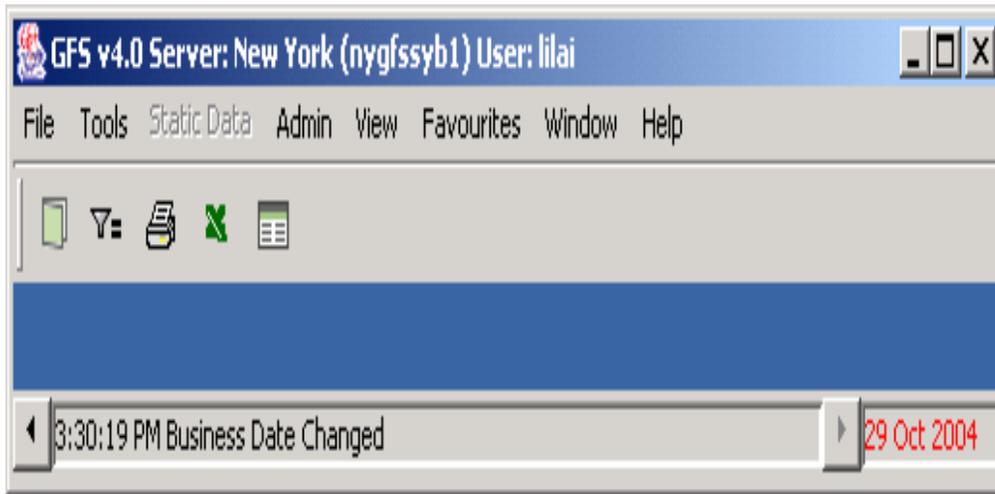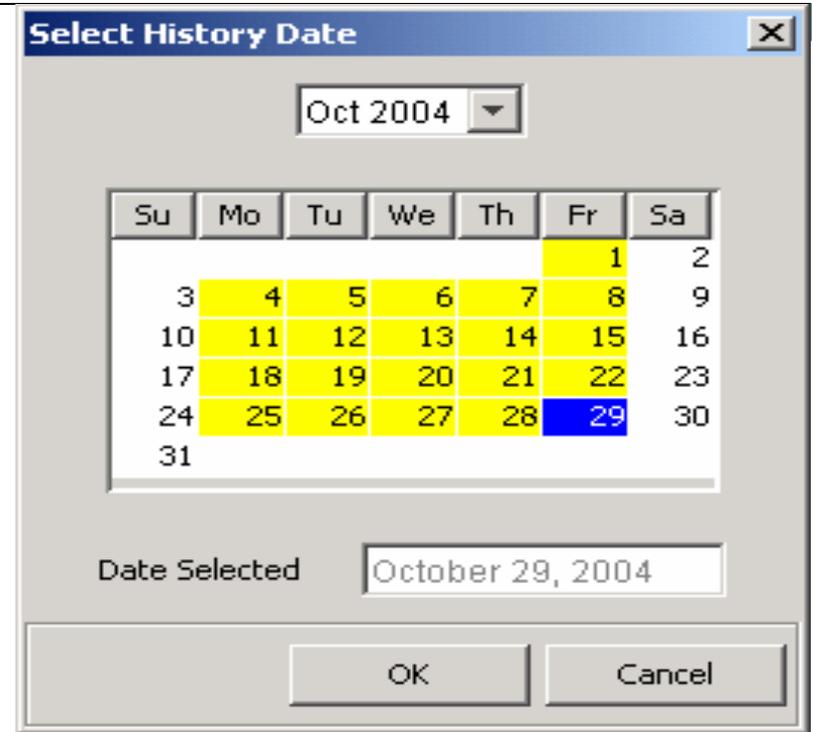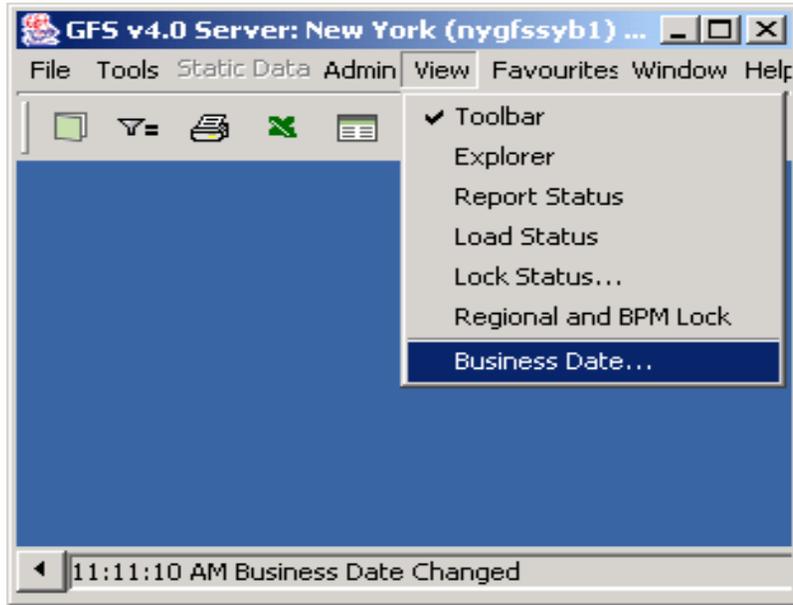
THE "SELECT HISTORY DATE" BOX WILL APPEAR BY DOUBLE CLICKING ON THE DATE LOCATED AT THE LOWER RIGHT HAND CORNER OF GFS.

Appendix - Quick and Bulk Adjustment
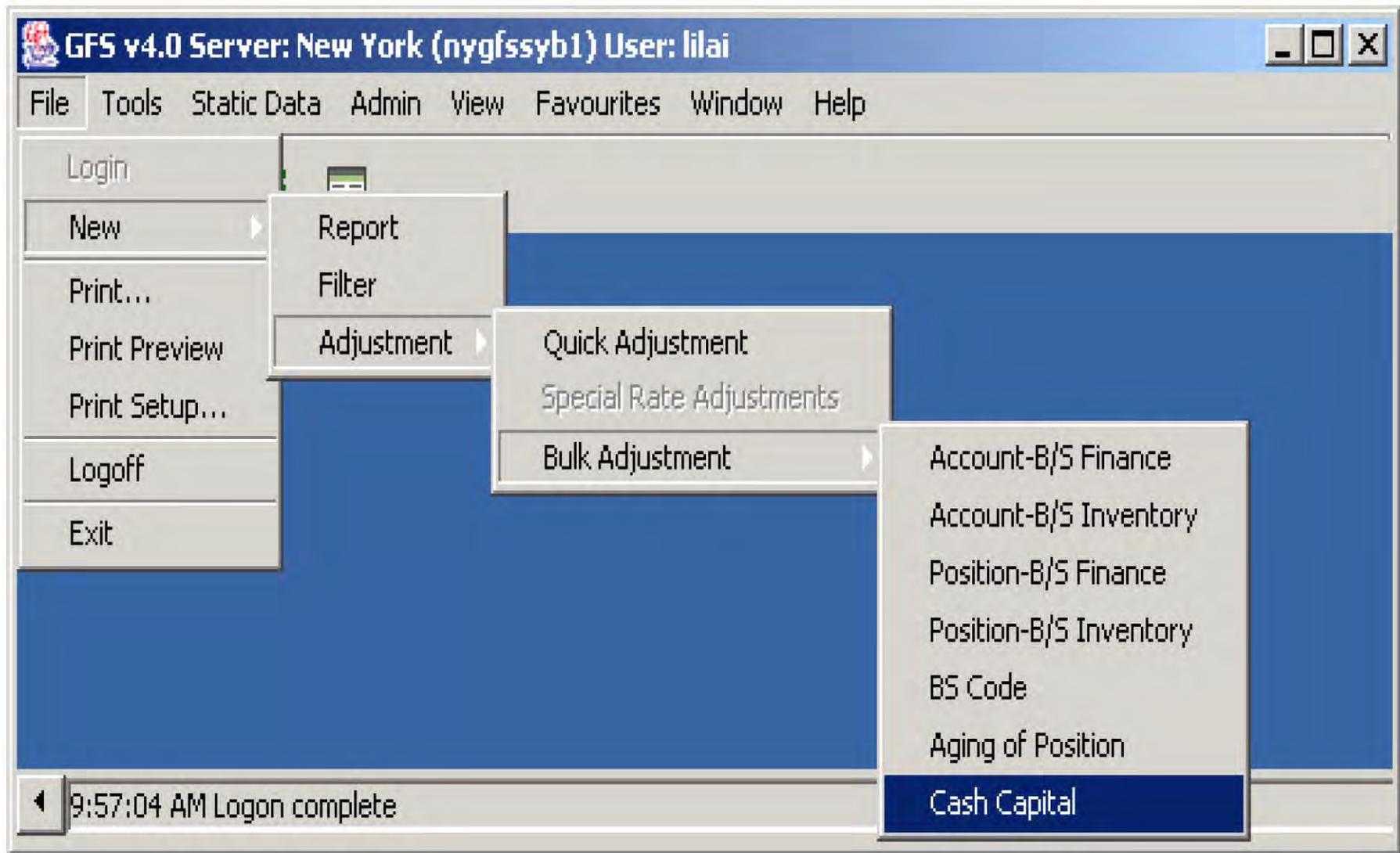
Appendix – Quick Adjustment
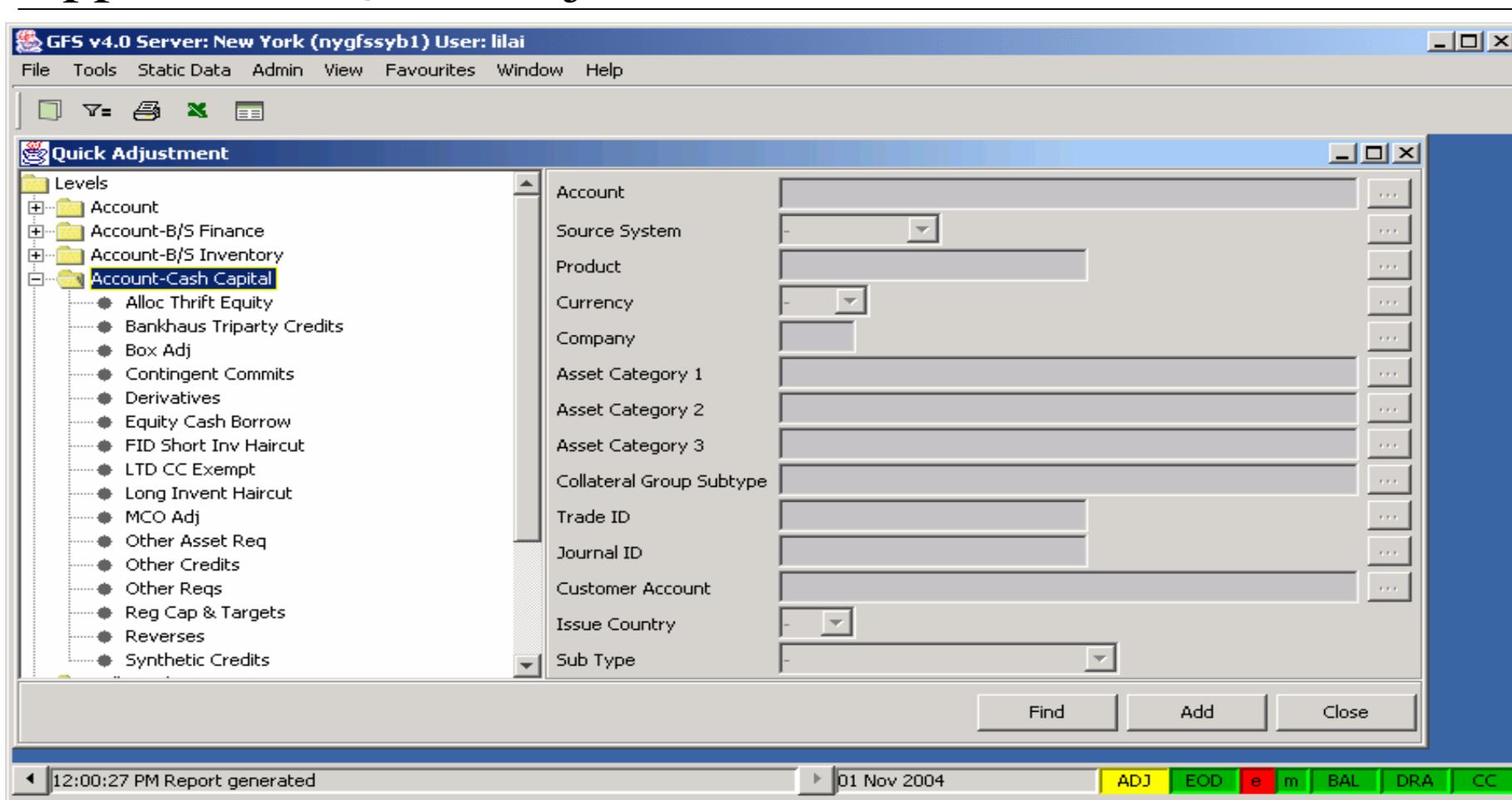
Steps to Make Quick Adjustment:

1) Select the Adjustment Category

2) Populate all the required fields (see Appendix for all required fields for each Adjustment Type).

3) Press the Add Button to add Quick Adjustment to Batch Processing. To process the Quick Adjustment manually, see the Appendix for ACR functions.

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Appendix – Cash Capital Bulk Uploader
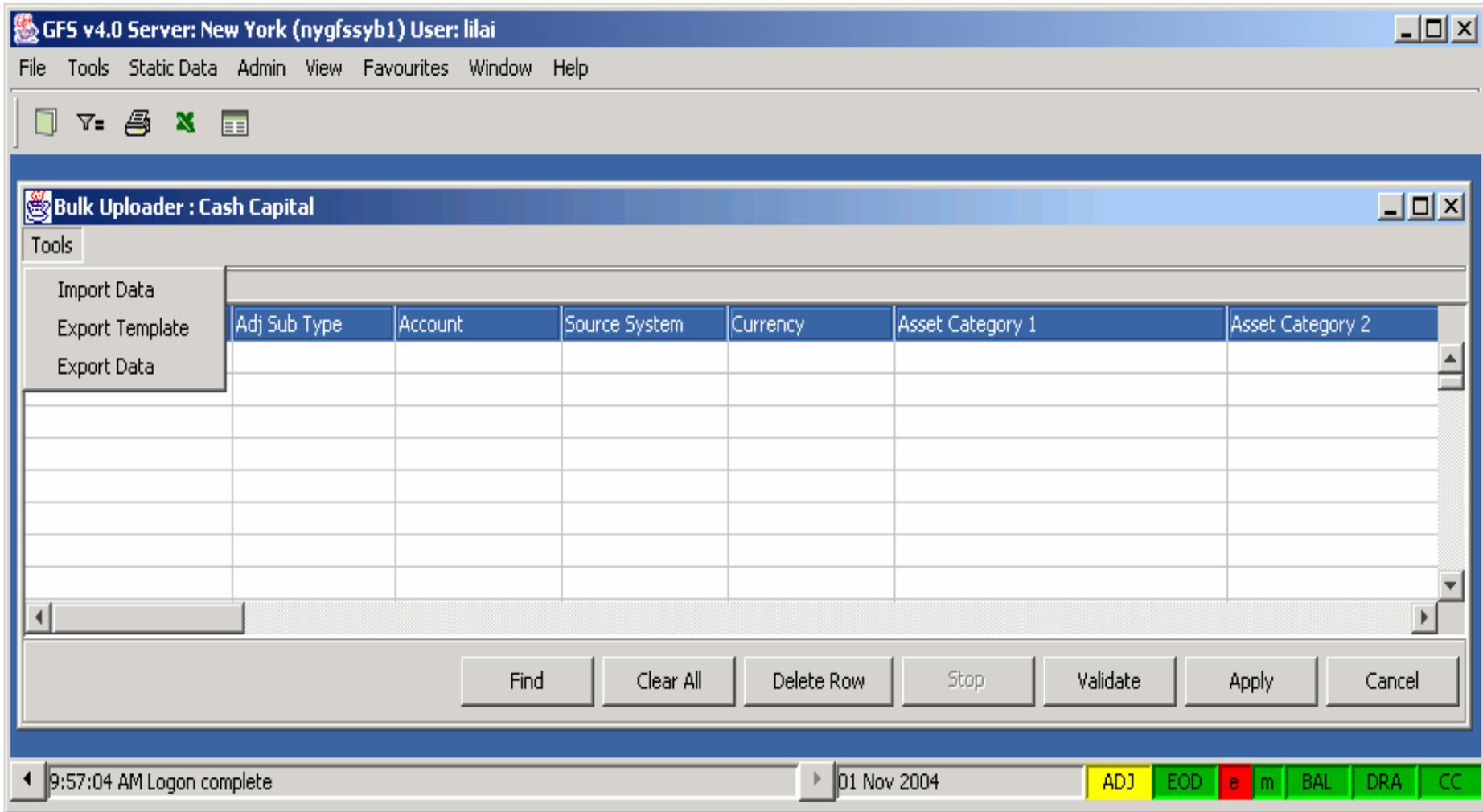
◆ **Click on the Excel Spreadsheet icon to launch the file to view the required fields for each Adjustment Category.**

bulk uploader
template.xls (22...

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Appendix – Steps for Using the CC Bulk Uploader in GFS

Step # 1) Populate the bulk uploader template.

   a) Populate the template directly in GFS, or

   b) Export the Bulk Uploader Template from GFS to Excel, populate the required fields in Excel, and then import the data back to GFS. It is more user-friendly to navigate in Excel. To import the data back to GFS, you can either:

      1) Use the "Import Data" under the Tools Menu in the Cash Capital Bulk Uploader – The template has to be saved as a CSV file, which does not support formulas. GFS will prompt you to select the CSV file to import.

<div align="center">or</div>

      2) Use the Copy and Paste method – Copy data from EXCEL and paste to the GFS template directly. The template can be saved as an EXCEL workbook or a worksheet within existing workbooks, that can contains formulas (i.e. links to external workbooks). The template TEXT could be in any format, but the NUMBER and DATE have to be in their original formats. GFS is format sensitive to these 2 formats; GFS blanks out the contents if there are not in the specified formats, which are:

Cell Format	Category	Type	Display	Columns on Template
Number	Custom	#,##0.00_ ;[Red]-#,##0.00	-1,000.00	All Value Fields
Date	Custom	d-mmm-yy	29-Oct-04	Reversal Date

Step # 2) Validate the Adjustment Entries by Clicking the "Validate" button and Correct any Errors - Validation Errors are detailed in the "Error Description" Column.

Step # 3) Apply the Entries by Clicking the "Apply" button – The entries will be sent to the Adjustment Queue for processing. You can check the status of your entries by running the Adjustment Control Report (ACR) and/or checking the Adjustment Queue. See the Appendix for detailed instructions on how to run the ACR to check the status of adjustments.

Step # 4) Check the Applied Entries in the Cash Capital Module

Appendix – Adjustment Control Report (ACR)

The "Adjustment Control Report" can be ran in GFS fromView/Explorer menu and details are as follows:

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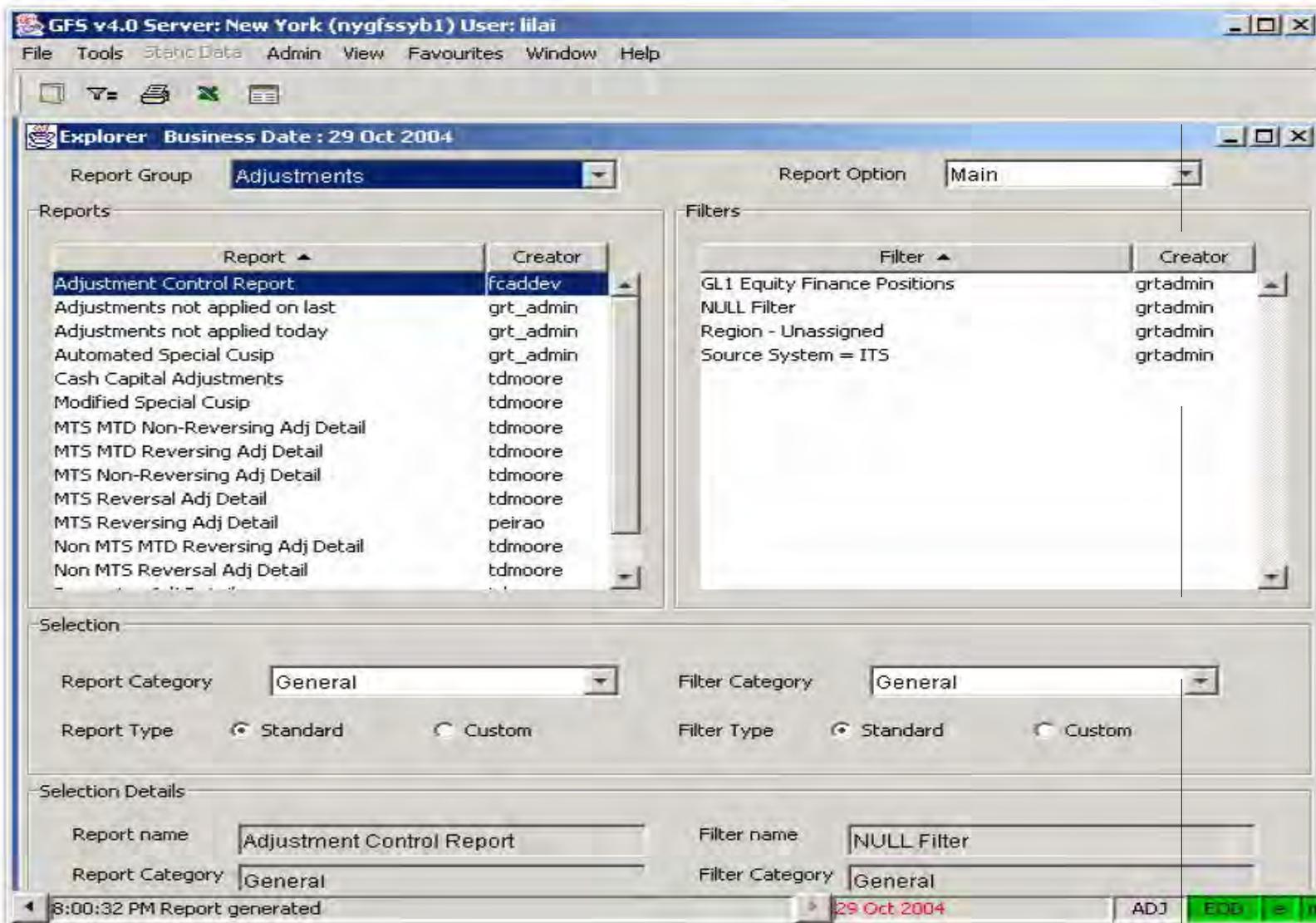
Appendix – Functions within the ACR

Functions:

Add – To open the Quick Adjustment Dialog Box.

View – To view the details of the selected adjustment.

Load/Send –For Quest Adjustments; *Not Applicable for Cash Capital Adjustments*

Process – To manually process Quick Adjustment. If a Quick Adjustment is not processed manually, it will be processed in the next batch. Not Applicable for Bulk Adjustment since the Apply function in the Bulk Uploader will send the adjustments for immediate processing.

Queue – To view the Adjustment Queue (see next page for the Adjustment Queue)

Close – To close the ACR Report

Appendix – Adjustment Queue

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GFS Cash Capital Locks – Regional and BPM Lock

LBEX-DOCID 1682556

GFS Cash Capital Locks – CC Module Lock

Users can check the MODULE LOCK STATUS from the VIEW menu:

1) Select the Business Date, then

2) Select Lock Status
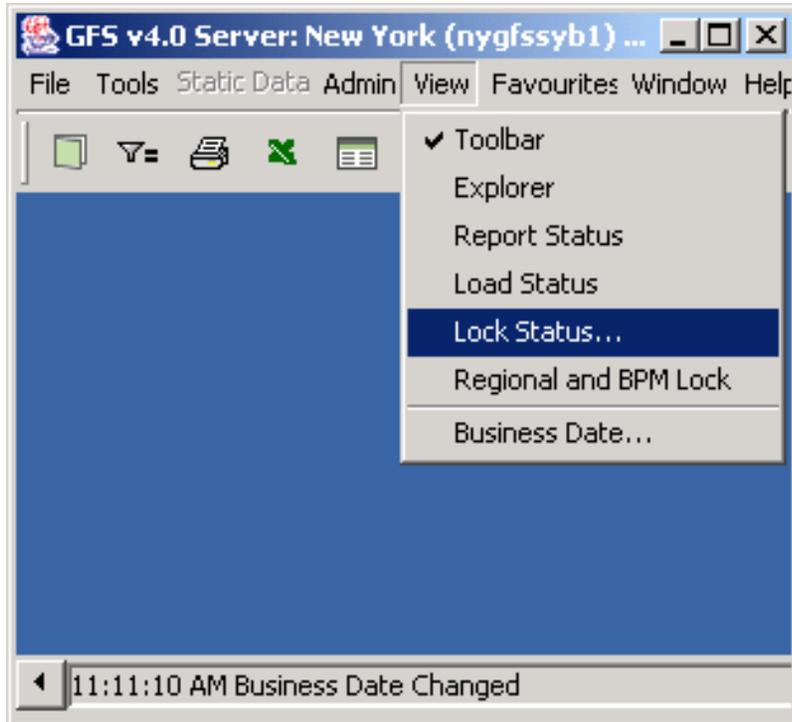
RED (Lock Button is grayed out) – The Module is Locked.
GREEN – The Module is Unlocked.

**The MODULE LOCK STATUS is also displayed at the lower
right hand corner of GFS.**

Appendix – Cash Capital Adjustment Audit Reports

There are 2 Standard Audit Reports created in GFS (details on the right).

1. Adj Audit Report (summary report) – This is summarized at BPM0/Region/Division.
2. Adj Audit Report Drilldown

Both reports include:

- All the impacted FrontEnd Fields,

- Total Net Cash Capital (net adjustment, balance before adj, balance after adj)

<u>Column Header on report</u>

Total Net Cash Capital	Net Adjustments
Net Cash Capital Original	Before Adj
Net Cash Capital Adjusted	After Adj

- The Drill down report includes the additional information:

  - BPM Level 1 and 2

  - Asset Category 1, 2, and 3

  - Adj Type; Adj Sub Type;

  - Adjustment made by;

  - Time and Date of Adj; Adj Comment

  - DBS Entity; Source System; Currency

  - Reversal Indicator; Reversal Date
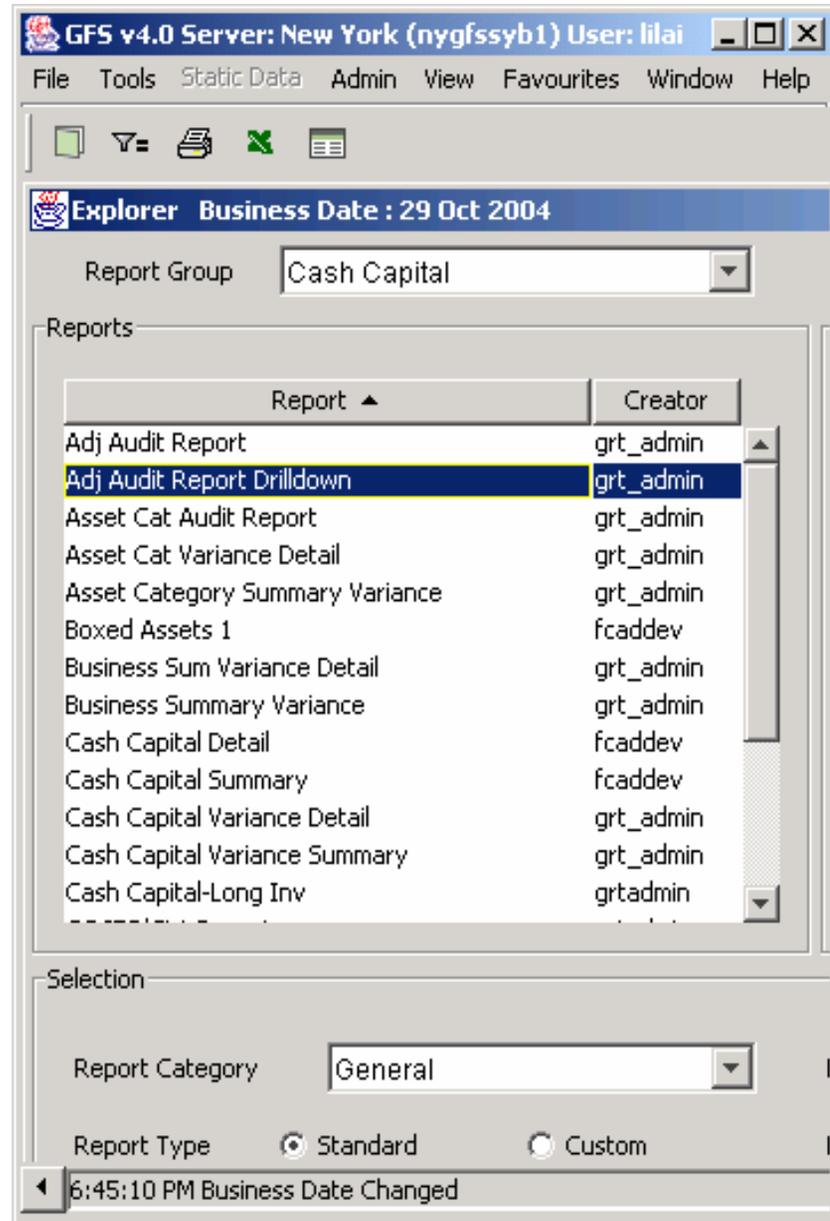
Appendix – SDM Cash Capital Tables

Availability

The Static Data is only available for current day. Changes to the SDM will apply prospectively.

Example: Today is Nov 2nd. Current Day in GFS means Nov 1st since GFS is one-day lag. Changes made to SDM for Business Date, Nov 1st will take effect for Nov 2nd data onward.

Cash Capital SDMs

1) Cash Capital DBS Entities – This is used to calculate the Bankhaus, Thrift, and LBCB Credit.

2) Cash Capital Haircuts – This is used to calculate long inventory haircut req, box requirements, FID short inventory haircuts, and haircut widening. See next page for table.

Access:

• All GFS users have read-only access.

• Access to modify the tables should be restricted to Treasury ALM users.

To View/Change the Table:

• Select current business day and run the report (report details on the right).

• To make changes (add, delete, or update) –

  • Run the report, highlight the record to change, and Right Mouse Click, or

  • Use the Static Data menu
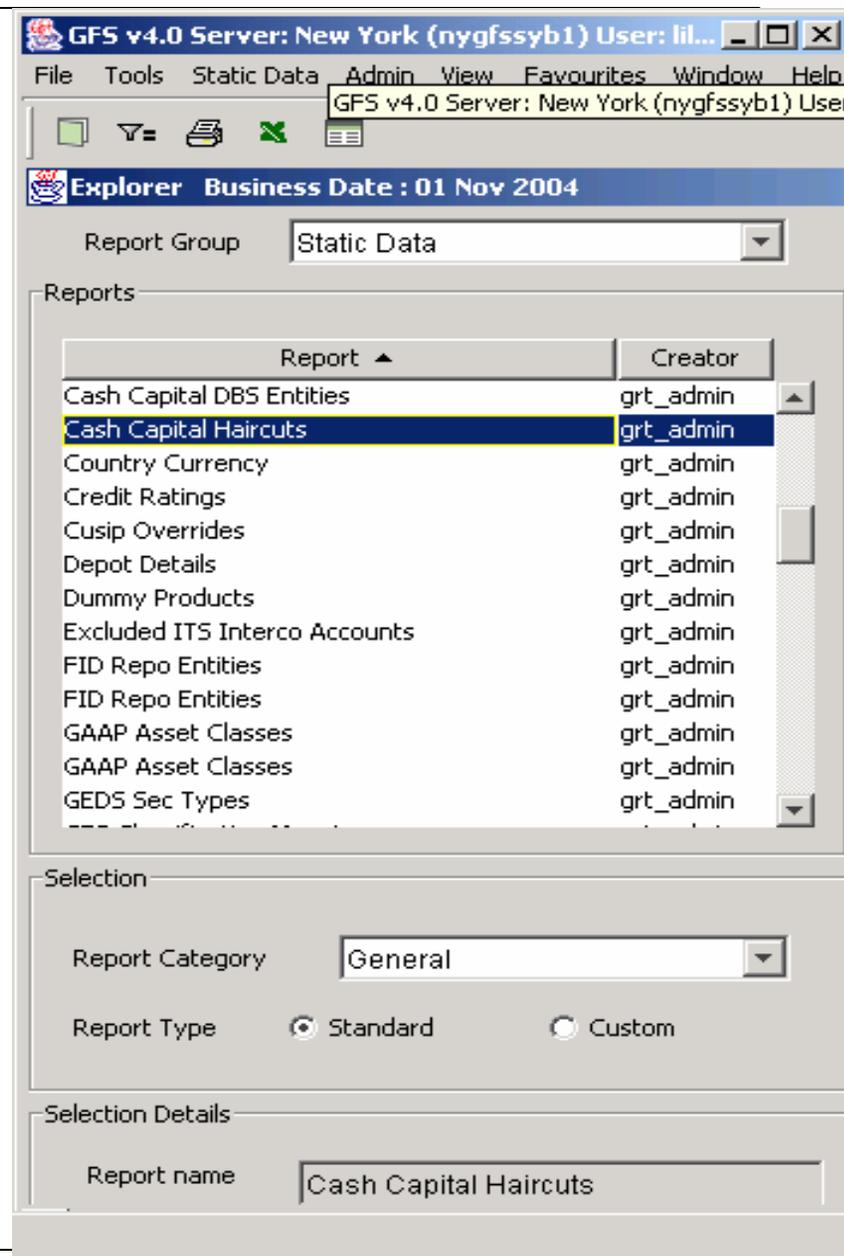
Appendix – Cash Capital Haircut Table (sample)

Stress Market and Normal Market Repo Haircuts

Asset Category 1	Asset Category 2	Asset Category 3/Issue Country	Normal Market Haircut	Stress Market Haircut	Haircut Widening
AGENCY	Coupon		1.50%	1.50%	0.00%
	Discounts		1.50%	1.50%	0.00%
	Original Face		1.50%	1.50%	0.00%
	Others		1.50%	1.50%	0.00%
	Strips		1.50%	1.50%	0.00%
	Zero Coupon		1.50%	1.50%	0.00%
			1.50%	1.50%	0.00%
ASSET BACKS	A		5.00%	9.00%	4.00%
	AA		5.00%	9.00%	4.00%
	AAA		5.00%	9.00%	4.00%
	BBB		5.00%	9.00%	4.00%
	B		7.00%	27.00%	20.00%
	B-		7.00%	27.00%	20.00%
	BB		7.00%	27.00%	20.00%
	NO RATING		100.00%	100.00%	0.00%
			100.00%	100.00%	0.00%
BRADY BONDS			5.00%	15.00%	10.00%
CANADIAN	BONDS/NOTES		5.00%	5.00%	0.00%
	Province		5.00%	5.00%	0.00%
			5.00%	5.00%	0.00%
CMO AGENCIES			3.00%	5.00%	2.00%
CMO AGY STRIPS			10.00%	10.00%	0.00%
COMMODITIES			100.00%	100.00%	0.00%
CONVERTIBLES	Investment Grade	US	6.00%	12.00%	6.00%
	Investment Grade	JP, Europe, Canada	6.00%	15.00%	9.00%
	Investment Grade		20.00%	25.00%	5.00%
	Non Investment Grade	US	6.00%	12.00%	6.00%
	Non Investment Grade	JP	8.00%	15.00%	7.00%
	Non Investment Grade	Europe, Canada	6.00%	15.00%	9.00%
	Non Investment Grade		20.00%	25.00%	5.00%
	Non Rated	US	6.00%	12.00%	6.00%
	Non Rated	JP	8.00%	15.00%	7.00%
	Non Rated	Europe, Canada	6.00%	15.00%	9.00%
	Non Rated		20.00%	25.00%	5.00%
CORPORATE	Investment Grade		5.00%	10.00%	5.00%
	Non Investment Grade	US	7.00%	27.00%	20.00%
	Non Investment Grade		5.00%	27.00%	22.00%
			100.00%	100.00%	0.00%
CORPORATE - NON G7	Investment Grade		5.00%	10.00%	5.00%
	Non Investment Grade		5.00%	27.00%	22.00%
			100.00%	100.00%	0.00%
CORPORATE LOANS			100.00%	100.00%	0.00%
EQUITY	Common Stock	US, Europe	5.00%	12.00%	7.00%
	Common Stock	Japan Nikkei 225	5.00%	12.00%	7.00%
	Common Stock	JP	10.00%	20.00%	10.00%
	Common Stock	C1/JP	10.00%	20.00%	10.00%
	Common Stock	C2/JP	10.00%	20.00%	10.00%
	Common Stock	E1/JP	5.00%	12.00%	7.00%
	Common Stock	E2/JP	6.00%	20.00%	14.00%
	Common Stock	E3/JP	6.00%	20.00%	14.00%
	Common Stock	HK/HK	6.00%	35.00%	29.00%
	Common Stock	Asia Non Japan	10.00%	35.00%	25.00%
	Restricted Stock		100.00%	100.00%	0.00%
	ADR		6.00%	12.00%	6.00%
	Rights		15.00%	15.00%	0.00%
	Warrants		15.00%	15.00%	0.00%
	Listed Options		100.00%	100.00%	0.00%
	OTC options		100.00%	100.00%	0.00%