

**Bear Stearns & Co. Inc**  
**383 Madison Avenue**  
**New York, NY 10179**  
**File # 8-35008**  
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## **I. BACKGROUND**

The Commission's Release 34-49830 (Alternative Net Capital Requirements for Broker-Dealers That Are Part of Consolidated Supervised Entities) ("CSE Rules") dated June 8, 2004, and effective on August 20, 2004, established a voluntary, alternative method of computing deductions from net capital for certain broker-dealers. This alternative method permits a broker-dealer to use mathematical models to calculate net capital charges for market risk and derivatives-related credit risk provided that, among other things, it maintains tentative net capital of at least \$1 billion and net capital of at least \$500 million. In addition, a broker-dealer using the alternative method of computing net capital is subject to early warning, recordkeeping, reporting, and certain other requirements, and must implement and document an internal risk management system.

Furthermore, as a condition to its use of the alternative method, a broker-dealer's ultimate holding company ("UHC") and affiliates must consent to group-wide Commission supervision as a consolidated supervised entity ("CSE"). This supervision imposes certain recordkeeping, notification, and reporting requirements on the UHC, including a capital adequacy measurement consistent with the standards adopted by the Basel Committee on Banking Supervision ("Basel" or "Basel Committee").<sup>1</sup> Additionally, provided that the UHC does not have a principal regulator, the UHC and its affiliates are subject to examination by the Commission.

This new structure is intended to reduce regulatory costs for broker-dealers by allowing very highly capitalized firms that have developed robust internal risk management practices to use those practices, including mathematical risk measurement models, for regulatory purposes. In addition, the new structure responds to international developments that require firms operating in the European Union ("E.U.") to demonstrate that they have consolidated supervision at the holding company level in the United States that is "equivalent" to E.U. consolidated supervision, or face additional capital charges.

Bear Stearns & Co. Inc. ("BS&Co.") and its UHC, The Bear Stearns Companies Inc. ("TBSCI"), applied to the Commission to be supervised as a CSE and to calculate their net capital pursuant to Appendices E and G, respectively, of Rule 15c3-1 of the Securities Exchange Act of 1934 ("Exchange Act"). BS&Co., its affiliates, and holding company collectively are referred to as "Bear Stearns" or "the firm."<sup>2</sup>

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<sup>1</sup> The most recent standard was published in June 2004 and was titled "International Convergence of Capital Measurement and Capital Standards – A Revised Framework." This document is referred to as Basel II.

<sup>2</sup> TBSCI is not an entity that has a principal regulator, as defined in the CSE Rules.

## II. TABLE OF CONTENTS

|   |   |
|---|---|
| BACKGROUND .....                        | 1 |
| TABLE OF CONTENTS.....                  | 2 |
| DESCRIPTION OF THE FIRM.....            | 2 |
| EXAMINATION SCOPE.....                  | 2 |
| SUMMARY OF SIGNIFICANT FINDINGS .....   | 2 |
| DISCUSSION OF EXAMINATION FINDINGS..... | 2 |
| Operational Controls.....               | 2 |
| Sarbanes-Oxley Act – Section 404 .....  | 2 |
| Internal Audit .....                    | 2 |
| Market Risk Management.....             | 2 |
| Business Continuity Planning.....       | 2 |
| Legal and Compliance .....              | 2 |
| Anti-Money Laundering .....             | 2 |
| Credit Risk Management .....            | 2 |
| Operational Risk Management .....       | 2 |
| Capital Reviews .....                   | 2 |
| Funding and Liquidity .....             | 2 |
| CONCLUSION.....                         | 2 |

### III. DESCRIPTION OF THE FIRM

Bear Stearns is a leading global financial services entity. Its diverse lines of business include traditional investment banking, securities and derivatives trading, clearance, brokerage services, and investment management. The firm provides its services in the Americas, Europe, and Asia. Its large client base includes corporations, governments, financial institutions, and individual investors.

The firm conducts its business from its principal offices in New York City; from domestic regional offices in Atlanta, Boston, Chicago, Dallas, Denver, Los Angeles, San Francisco, and San Juan; from representative offices in Beijing, Hong Kong, Sao Paulo, and Shanghai; and through international offices in Dublin, Hong Kong, London, Lugano, Milan, Singapore, and Tokyo. The firm employs approximately 11,000 people worldwide. During fiscal year 2004, the firm had \$6.81 billion in consolidated revenues, net income of \$1.34 billion, total assets of \$255 billion, and a net worth of \$9 billion. For the fiscal quarter ending August 31, 2005, the firm reported net revenue of \$1.8 billion and net earnings of \$378 million. The firm's revenues and profits have improved over the past three years.

Bear Stearns is organized into three principal segments: Capital Markets, Global Clearing Services, and Wealth Management.

- Capital Markets comprises the institutional equities, fixed income, and investment banking businesses. The Capital Markets segment operates as a single integrated unit that provides the sales, trading, and origination efforts for various fixed income, equity, and advisory products and services. The three businesses work in tandem to deliver these services to institutional and corporate clients. Institutional equities consists of sales, trading, and research, in areas such as domestic and international equities, block trading, convertible bonds, over-the-counter ("OTC") equities, equity derivatives, risk and convertible arbitrage, and, through a consolidated joint venture, the New York Stock Exchange ("NYSE") and International Securities Exchange ("ISE") specialist activities. Fixed income includes sales, trading, and research provided to institutional clients across a variety of products such as mortgage-backed securities ("MBS"), asset-backed securities ("ABS"), corporate and government bonds, municipal bonds, high-yield products, and foreign exchange ("FX"), interest rate, and credit derivatives. Investment banking provides services in capital raising, strategic advice, mergers and acquisitions, and merchant banking. Capital raising encompasses the underwriting of equity, investment-grade, municipal, and high-yield debt products.
- Global Clearing Services ("GCS") provides execution, clearing, margin lending, and securities borrowing services to facilitate short sales for clearing clients worldwide. Prime brokerage clients include hedge funds and clients of money managers, short sellers, arbitrageurs, and other professional investors. Fully disclosed clients engage in either the retail or institutional brokerage business. At November 30, 2004, the firm held approximately \$247.5 billion of equity in GCS client accounts.
- Wealth Management is composed of the Private Client Services ("PCS") and asset management areas. PCS provides high-net-worth individuals with an institutional level of investment service, including access to the firm's resources and professionals. At November 30, 2004, PCS had 473 account executives in its principal office, six regional

offices, and two international offices. Asset management manages equity, fixed income, and alternative assets for corporate pension plans, public systems, endowments, foundations, multi-employer plans, insurance companies, corporations, families, and high-net-worth individuals in the U.S. and abroad. The asset management area had \$34.9 billion in assets under management at November 30, 2004.

Significant unregulated material affiliates (“UMAs”) operating primarily within Capital Markets include: Bear Stearns Credit Products Inc. (“BSCP”), Bear Stearns Capital Markets Inc. (“BSCM”), EMC Mortgage Corporation (“EMC”), and Bear Stearns Commercial Mortgage, Inc. (“BSCMI”).

- BSCP is engaged in credit derivatives transactions and associated hedges.
- BSCM is engaged in fixed income derivative (“FID”) transactions and associated hedges.
- EMC is a U.S. Department of Housing and Urban Development and Freddie Mac approved lender based in Irving, Texas. EMC purchases both conforming and non-conforming, investment grade and non-investment grade conventional fixed rate and adjustable rate residential mortgage loans, with servicing released or retained. EMC also sells such loans to investors. EMC also purchases and sells residual certificates and mortgage servicing rights. In addition, through a subsidiary, EMC may originate commercial construction loans through approved brokers.
- BSCMI is primarily engaged in the acquisition and securitization of commercial mortgage loans for resale in the form of pass-through securities. These securities represent fractional and undivided interests in pools of mortgage loans held in a trust.

The firm’s risk governance structure includes the Board of Directors (“Board”) and various committees, such as the Audit Committee, the Executive Committee, the Risk Committee, the Credit Policy Committee (“CPC”), the Principal Activities Committee, the Mark-to-Market (“MTM”) Committee, and the Corporate Governance Committee. These committees provide overall oversight and guidance, and review risk exposures.

A number of the firm’s businesses are subject to regulation by U.S. federal and state regulatory agencies and securities exchanges. Specifically, BS&Co. and Bear, Stearns Securities Corp. (“BSSC”) are registered with the Commission as broker-dealers and investment advisers and are members of the National Association of Securities Dealers, Inc. (“NASD”), the NYSE and all other principal U.S. securities and futures exchanges, the National Futures Association, and the ISE. Furthermore, securities and futures businesses are regulated internationally by other regulators and European exchanges, including the Financial Services Authority (“FSA”) in the United Kingdom, Eurex Deutschland, the International Petroleum Exchange, Euronext Liffe, Euronext Paris, and Euronext Amsterdam. Additionally, Bear Stearns Bank plc (“BSB”) is periodically examined by the Irish Financial Services Regulatory Authority. Finally, Custodial Trust Company (“CTC”) is a Federal Deposit Insurance Corporation insured, New Jersey state chartered bank, offering a range of trust, lending, and securities clearance services.

Aspects of the firm’s public disclosure, corporate governance principles, internal control environment, and auditor and counsel practices are subject to the Sarbanes-Oxley Act of 2002 (“SOX”) and related regulations and rules of the Commission and NYSE.

## **IV. EXAMINATION SCOPE**

As part of the application process, the staff of the SEC's Northeast Regional Office and Office of Compliance Inspections and Examinations ("staff") conducted a controls based examination of TBSCI, BS&Co., BSSC, and activity in the following UMAs: BSCP, BSCM, EMC, and BSCMI.

The staff conducted various tests and evaluated the firm's implementation of its procedures in the following product areas: credit default swaps ("CDSs"), FIDs (primarily municipal and mortgage derivatives), and residential and commercial mortgage loans.

This report will detail the staff's examination work and findings for the following areas: Operational Controls, Internal Audit, SOX Section 404 process, Market Risk Management ("MRM"), Legal and Compliance ("L&C"), Anti-Money Laundering ("AML"), Credit Risk Management, Operational Risk Management, Capital Reviews, Funding and Liquidity, and the progress with implementing the Interagency Paper on Sound Practices to Strengthen the Resilience of the U.S. Financial System (*i.e.*, Business Continuity Planning).

The staff reviewed Bear Stearns' CSE capital computation as of May 31, 2005. Furthermore, as a condition to its use of the alternative method for computing net capital, paragraph (a)(1)(viii) of Exchange Act Rule 15c3-1e requires a broker-dealer to file a written undertaking by its UHC, in which the UHC agrees, among other things, to comply with the provisions of Exchange Act Rule 15c3-4 with respect to a group-wide internal risk management control system for the affiliate group as if it were an OTC derivatives dealer. Among other things, Rule 15c3-4 requires OTC derivatives dealers to establish, document, and maintain a system of internal risk management controls to assist it in managing the risks associated with its business activities, including market, credit, leverage, liquidity, legal, and operational risks. The staff conducted a review to determine the firm's compliance with all aspects of Rule 15c3-4.

## **V. SUMMARY OF SIGNIFICANT FINDINGS**

The following significant findings were noted in a summary Information Memo prepared for the Division of Market Regulation dated November 4, 2005.

### *Internal Audit*

The staff's assessment of the firm's Internal Audit Department ("IAD") noted the firm's policy of discarding certain audit workpapers 60 days after the issuance of the Audit Report. Although IAD's procedures require that certain workpapers be maintained, the procedures also require that other supporting documents, such as the log of potential audit issues, general testing schedules, narratives describing procedures performed, and other underlying documents that evidence the review, testing, and potential findings of the audit, are to be discarded 60 days after the Audit Report is issued. The staff found that the policy of discarding IAD audit supporting documents leaves no evidentiary support that IAD performed its planned audit work. The lack of workpapers also deprives IAD of a source of information useful in evaluating the need for and scope of future audits.

In addition, the staff noted that low-risk findings are not included in the Audit Report, are not maintained by IAD in its workpapers, and are not included in the firm's system for tracking the follow-up of audit findings. Although a finding may appear to be of low risk at the time of the audit, it could become of increased significance to the firm at a later date. Additionally, when aggregated across audits, low-risk findings may pose a larger risk to the firm than they may appear to pose as individual low-risk findings. Due to a lack of supporting information, there is no way to ascertain the appropriateness of the audit team's determination that a finding was of low risk.

IAD's procedures appear to permit senior management of the audited business to have undue influence on the draft Audit Report and to require that approval of the Audit Report be obtained from auditee senior management before its issuance. The staff is concerned that such procedures appear to permit business personnel rather than the independent audit team to make a determination on findings.

### *Market Risk Management*

The staff's assessment noted that, unlike its CSE peers, Bear Stearns does not have a Board or Committee level approved overall firmwide value-at-risk ("VaR") limit for its aggregate businesses that is sub-allocated downstream to its individual business lines. Rather, Bear Stearns sets and manages its VaR limits at the business desk level. The staff's review also noted that certain business heads can establish new trading limits and approve existing limit breaches without direct prior approval from Risk Management. Risk Management receives a copy of the limit approval memorandum after the limit has been established. The staff believes that establishing an overall firmwide VaR limit and requiring Risk Management approval in establishing trading limits and limit breaches would enhance and strengthen the risk management control function at Bear Stearns.

The staff's review also disclosed the need for Bear Stearns to establish controls and written procedures related to the process of updating the VaR data inputs. The staff reviewed six data files within the Unix database that serve as inputs into the Risk Information Organized ("RIO") system and are utilized in calculating daily VaR. The staff noted the firm's failure to update on a timely basis two of six files that are used for sensitivities of corporate/credit spreads. The staff noted that the data inputs had gaps of up to a month without the updated spread/sensitivity information, although the firm's internal practice requires a weekly update. As a result, the firm's daily VaR amounts could be based on stale data at any point in time. Additionally, the staff noted the need for the firm to establish a periodic model review process as required by Exchange Act Rule 15c3-1(e)(d)(1)(ii).

The staff conducted various risk management reviews and tests of the daily risk management reports and systems. Discrepancies in the data contained in the firm's MRM reports disclosed the following.

- The EMC whole loan feed into RIO did not properly include unsettled positions.
- A sample review of three mortgage derivative trades revealed that one trade with trade date July 6, 2005 was not processed by RIO until approximately July 18, 2005. This timing delay was due to the fact that the desk trader was still programming a pricing

model for the trade in the Unix database, a trade entry system. The staff is concerned that a mortgage derivative trader has the ability to prevent new trades from flowing into RIO, thus causing an inaccurate VaR calculation.

### *Legal and Compliance*

In addition to a number of issues related to policies and procedures discussed below, the staff's review of the L&C area disclosed several weaknesses in the firm's L&C controls.

L&C has not formally documented the identification or assessment of all applicable rules, laws, regulatory requirements, and risks pertinent to the entire firm. The staff's review also disclosed that the firm failed to sufficiently document the identification, escalation, and resolution of L&C issues as required by Exchange Act Rule 15c3-4. The firm's written procedures generally state that matters should be escalated to the appropriate parties, but there is no specific escalation process. As a result, the firm failed to maintain an audit trail of issues identified and escalated from subordinates to L&C senior management. In addition, the firm's L&C monitoring and surveillance system is based on an informal process and does not have the capability to track issues or trends that develop over time. The staff also noted that the Compliance Department ("Compliance") has undergone significant personnel changes that have left various areas of Compliance understaffed and employees taking on multiple responsibilities.

### *Capital Reviews*

The staff's review of the firm's capital computations revealed that the firm's reconciliation process among the general ledger, market risk and credit risk systems, and capital calculator are currently in various stages of development. The staff noted the need to finalize the reconciliation process to ensure the completeness of the capital calculations going forward.

### *Operational Controls*

The staff's review disclosed that reconciliation differences between the EMC front office and back office trade blotters do not appear to be resolved in a timely manner. As of July 15, 2005 there was a total of 492 differences or "breaks," of which 234 (48%) were aged greater than 100 days.

### *Funding and Liquidity*

Bear Stearns' contingency funding plan ("CFP") does not consider realistic stress scenarios, contain projected weekly cash flow analyses, or require specific actions when liquidity falls below stated goals in a stress environment according to internal analyses. The addition of these components to the funding plan would improve the firm's internal risk management controls for liquidity risk, which are required under Exchange Act Rule 15c3-4.

### *Policies and Procedures*

The reviews conducted by different examination teams consistently identified issues with regard to the firm's written policies and procedures. The staff's review revealed that, in a number of areas, the firm's written procedures were newly created or updated during the staff's

examination. As a result, the staff was unable to test compliance with these procedures. In some instances, the staff noted that the firm had written policies but lacked written procedures, or that the procedures lacked specificity with regard to the various functions performed. In other instances the firm did not maintain any procedures regarding the function under review. The firm's lack of procedures resulted in inconsistent actions taken by the firm. Highlighted below are a few examples noted by the staff:

- The firm's MRM function has a set of general policies but no procedures for its risk management functions. As a result, the firm has established limited policies addressing new trading limits, limit breaches, exceptions, limit reporting, and all other risk management controls, but such policies lack specificity of the risk management procedures utilized.
- A review of the firm's price verification process revealed that existing policies lacked procedural controls to require trader or portfolio level reviews based on predetermined thresholds. Additionally, the policies failed to specify the risk management and Business Unit Controller ("BUC") responsibilities regarding price verification.
- A review of the firm's pricing model validation policy disclosed a lack of specificity as to the procedures to be utilized to address concerns raised during the validation process. The staff reviewed ten model review reports from early 2004 to early 2005. The review disclosed that in one instance an "initial analysis" cited concerns about outdated models, but no recommendations for corrective actions were made. In addition, three reports recommended that advanced pricing models be implemented; however, as of the time of the staff's review, the advanced models had not been implemented because the recommendation was not a high priority.
- A review of the inventory aging reports for the products reviewed by the staff noted a lack of policies and procedures for the aging of FIDs. As a result, the firm did not age FIDs. In addition, the procedures did not specify the timing of the distribution of the reports, as the staff noted that Risk Management received an EMC Aged Report for the period ending May 31, 2005 on August 23, 2005, approximately 11 weeks aged.
- The firm lacks formalized policies and procedures regarding middle office and operational controls in processing transactions.
- A review of the firm's unsigned confirmation backlog revealed that the firm used inconsistent practices to resolve outstanding unsigned confirmations. The Derivatives Documentation Handbook does not include guidelines defining the timeframe within which the first follow-up attempt, and subsequent follow-up attempts, should be made with counterparties that have outstanding unsigned confirmations.
- With the exception of a limited CFP, the firm has not implemented written policies and procedures related to the funding and liquidity area.
- The firm has not yet fully developed comprehensive policies and procedures for its independent operational risk management function, particularly with regard to the delineation of responsibilities and the process for collection and verification of events.
- The Derivative Operations area ("Derivative Operations") does not have written procedures for resolving disputed margin calls or addressing delinquent margin calls.

In addition to the lack of procedures, the staff also noted a number of instances in which the firm failed to follow its own procedures. Examples of such instances include the following:



- The staff’s review of the Credit Risk Management area disclosed that the firm failed to perform an annual review for all counterparty limits and ratings on an annual basis as required by its written policies and procedures. The staff’s review of the September 22, 2005 Clients to be Reviewed report revealed that 745 counterparties (out of a total of approximately 9,500 counterparties) were overdue for a credit review. Of these, nine were overdue by more than 90 days.
- The staff’s review of twelve scorecards (which were utilized in the credit ratings process) found that the credit analyst did not record the rationale as required in five of the eleven instances in which one or more category ratings differed from the scorecard’s suggested rating.
- L&C failed to document its review for Qualified Institutional Buyer (“QIB”) compliance for leveraged finance transactions.
- The firm failed to enforce its written procedures by not documenting all surveillance reviews conducted by Control Group (“CG”) surveillance analysts. In particular, the firm failed to produce records that evidence the review of the Watch List for the period of time that the security remained on the Watch List.
- The firm failed to follow its written procedures regarding the escalation and documentation of surveillance review exceptions of mortgage securities transactions (specifically, adjustable rate mortgage (“ARM”) transactions).

## **VI. DISCUSSION OF EXAMINATION FINDINGS**

### **A. OPERATIONAL CONTROLS**

The staff conducted detailed reviews of transactions in select products residing primarily in UMAs to ensure accurate and timely reflection of such transactions in the firm’s books and records and in the firm’s risk management systems. These reviews included examining the internal controls over the processing and recording of these transactions.

#### **1. Credit and Fixed Income Derivatives**

##### ***a. Credit Derivatives Overview***

The CDS business is conducted within BSCP, a wholly-owned direct subsidiary of TBSCI. Although certain CDS transactions are executed through Bear, Stearns International Limited (“BSIL”), a London based, FSA regulated broker-dealer, all CDS transactions are ultimately recorded within BSCP.

The credit derivatives business includes single-name CDSs, index CDSs, basket CDSs, synthetic collateralized debt obligations, options, and exotics. CDS transactions (*i.e.*, single-name CDSs, index CDSs, and basket CDSs) account for 75% of the credit derivatives business, and approximately 97% of all CDS transactions are single-name or index trades.

The CDS desk currently averages approximately 6,000 trades, or \$100 billion notional, per month. This is a significant increase over 2004, when the desk averaged approximately 1,500 trades, or \$25 billion notional, per month. There is, however, wide variability in volume and notional amounts from month to month. As an indication of how volatile the CDS market can

be, the desk's trade volume spiked in March and April 2005 to approximately 10,000 trades, or \$150 billion notional, per month, as a result of the downgrading of the debt of some of the automakers. Alternatively, volume was as low as approximately 3,000 trades, or \$59 billion notional, in January 2005.

The primary customers for CDS products are other dealers and hedge funds. In a CDS transaction, a buyer of a CDS is generally an owner of corporate debt that would like to protect itself in the event of issuer default. A CDS is a form of insurance, because the buyer makes a periodic fixed payment to the seller over the life of the contract and receives a lump sum payment from the seller in the case of a credit event such as default, bankruptcy, or restructuring.

Currently, the securities industry is addressing problems involving CDS assignments, and BSCP is no exception. The problem occurs when a BSCP counterparty "assigns" or sells an existing CDS to a third party without informing BSCP of the transaction. In this example, BSCP has potential legal and financial commitments to an unknown entity. To resolve this issue, BSCP will be implementing the International Swaps and Derivatives Association, Inc. ("ISDA") Novation Protocol, published on September 12, 2005. The protocol defines the obligations of the transferor, transferee, and remaining party in the event of a novation. More specifically, it requires the assigning party to a swap or derivative transaction to notify all parties involved of the assignment or remain legally and financially obligated to the original party. All parties that adhere to the protocol agree to be bound by such obligations.

BSCP had total assets of \$8.4 billion and total equity of \$5.9 million as of May 2005. As of August 2005, year-to-date profits for the single-name and index CDS desk were \$140 million and, for the global structured business, which is comprised mainly of synthetic collateralized debt obligations, \$88.2 million.

The Credit Derivatives Middle Office supports the business with respect to trade capture, daily profit and loss ("P&L") analysis, and risk reporting. The Credit Derivatives BUCs are responsible for daily and monthly P&L and balance sheet reporting, and the Derivatives Documentation Group ("DDG") handles confirmations. Derivative Operations is responsible for trade settlements, the margin function, payments, sending rate set notices to counterparties, and ensuring that all trades are captured in the back office database and reconciled with the front office and accounting systems.

#### ***b. Fixed Income Derivatives Overview***

The FID business consists of interest rate, municipal, and mortgage derivatives. Approximately 90% of FID trading activity consists of interest rate derivatives. These transactions are generally conducted through BSB due to the bank's execution of master agreements with many of the FID counterparties. BSB is regulated by the Irish Financial Services Regulatory Authority. Therefore, the staff focused its review on municipal and mortgage derivative transactions, which are primarily conducted through BSCM.

The primary customers for municipal derivative transactions are municipalities, banks, hedge funds, money managers, and other investors in tax-free securities. In the basic transaction, an investor will enter into a swap transaction with BSCM. The investor seeks to exchange a fixed

rate for a floating rate to neutralize its exposure to floating rates. The corresponding rate, spread, and volatility risks are then passed on to BSCM. These risks are mitigated by utilizing various hedging strategies, including the use of LIBOR options.

The majority of customers for mortgage derivatives are financial institutions that have potential exposure to mismatches in assets and liabilities due to the uncertain maturity of their assets or liabilities. The primary risk for mortgage derivatives relates to the maturity of the underlying assets and how they may change given different interest rate environments. A customer in a mortgage swap transaction exchanges a fixed yield for floating to neutralize its exposure to floating rates, providing that the balance of the swap mimics the balance of its asset. BSCM incurs the same type of risk for these transactions as municipal derivatives. They also mitigate this risk by utilizing various hedging strategies, usually with Treasury securities.

Total assets and related equity for BSCM as of May 31, 2005 were \$10.7 billion and \$59.1 million, respectively. Revenue for FID for the twelve-month period ended July 31, 2005 was \$153.8 million, and net income for the same period was \$120.5 million.

### *c. Systems*

The following systems are utilized to process and settle CDS and FID transactions:

- Lynx Trade Blotter (“Lynx”), an Excel-based front office application used by CDS traders to input trade details and perform end-of-day reconciliations;
- Tiger 2 Ticketing System (“T2”), a proprietary system used by CDS and FID businesses to capture and review trade details;
- Proteus, a CDS front office risk and P&L system used to price trades, conduct risk analysis, and generate daily P&L reports;
- Summit/Exotica, FID front office risk and P&L systems;
- SWAP/DerivClear, a back office database that captures and stores all derivative trade information. In addition to feeding the accounting and documentation systems, SWAP performs settlement and margin functions. DerivClear is a Java web-based front-end to the SWAP database;
- Scrittura, a system used to generate and process trade confirmations and track workflow;
- Doc Manager, an electronic file cabinet that holds trade confirmations; and
- Management Reporting System (“MRS”), a reporting tool that bridges the front and back office systems with the general ledger. It is used by BUCs to record P&L adjusting entries and daily P&L reports.

### *d. Control Infrastructure*

The control infrastructures for CDS and FID transactions are similar, with the exception of trade entry, as explained below. The middle office is responsible for checking and approving trade details before each transaction is processed through the firm’s downstream systems (*i.e.*, risk, back office, and accounting systems). There are a number of checks and balances throughout the transaction flow process to capture, control, and monitor the firm’s economic activities, including multiple front-to-back reconciliations, counterparty trade comparisons, P&L reviews, and price verifications.

## **i. Front Office/Trade Support**

While FID and CDS trade details are generally input into T2 directly by traders and salespeople, CDS trades initiated by the trading desk (*i.e.*, trades conducted with external brokers) are first input into Lynx, which transmits trade details automatically to T2. Lynx has certain default settings based on transaction types, as well as controls requiring data fields to be populated before being processed.

All of the large dealer counterparties that execute CDS and FID transactions through their respective trading desks must be pre-approved by the Global Credit Department (“GCD”). Transactions conducted with institutional clients are generally initiated by the firm’s sales force. Consequently, the salespeople are responsible for inputting trade details into T2, as well as reviewing the counterparty’s credit status with the firm. This entails making sure that the counterparty’s credit information is in the firm’s Global Risk Management System (“GRMS”). A trade cannot progress past the ticketing system until credit approval for the counterparty is obtained.

Traders are responsible for hedging their own positions, which are executed through the appropriate business unit.

## **ii. Middle Office**

The middle office monitors T2 continuously throughout the trading day, reviewing trade details for accuracy and reasonableness as they are entered. Transactions must be approved by the middle office before the trade details are released from T2 to the downstream systems. When middle office personnel identify transactions that have potentially erroneous information, they contact the trader to resolve the issue. Trade corrections to any of the economic terms (*e.g.*, spread or notional amount) can be made only by the trader or salesperson. Non-economic trade details are generally corrected by middle office personnel.

T2 tracks every iteration of a transaction through an audit trail drill-down function. When required information is missing or cannot be resolved, middle office policy is not to release the trade to the downstream systems. As described above, when middle office personnel approve the transaction, the trade details are released to the downstream systems in a straight-through-processing (“STP”) environment. Transactions that are not STP eligible, such as partial terminations and structured transactions, are manually input into the risk, P&L, and back office systems.

Middle office personnel are required to review trade details in the blotter for transactions entered through Lynx (*i.e.*, CDS external broker trades) before export into T2. The process remains the same, as the middle office is required to approve the transaction in T2 before releasing it to the downstream systems.

The middle office end-of-day process includes comparing trade details received from external brokers (*i.e.*, “trade recaps”) to Lynx, performing a verbal checkout (*i.e.*, comparison) of trade details with external brokers, importing market data for market value calculations, comparing risk system P&L to each trader’s estimated P&L, and reconciling T2 to the risk systems to

ensure that all trading activity is processed on trade date. CDS sales personnel send trade recaps via e-mail to institutional clients as part of their end-of-day process. Clients send their responses to the trade recaps to middle office personnel on T+2. The middle office is responsible for resolving any discrepancies identified during the end-of-day and next-day processes.

### **iii. Settlement/Cash Payments**

The Derivative Operations Group is responsible for ensuring that all trades are captured within the back office database, SWAP, and reconciled to the front office systems. They are also responsible for trade settlements and all payments, as well as the margin function. This group is headed by Matt Redshaw (“Redshaw”), Senior Managing Director of Operations.

T2 feeds all STP trades directly into SWAP after they are reviewed and signed off by the middle office. Non-STP trades are manually entered by the middle office into the front office systems (*i.e.*, Proteus and Summit/Exotica). They are also manually input into SWAP by Operations personnel through DerivClear, the interface used to manage data within the SWAP database. The cash flows are automatically transmitted into the SWAP database after they have been computed within middle office systems. SWAP then generates payment notices (*i.e.*, invoices) and processes payments for all CDS and FID transactions. It also maintains the payment schedule for the duration of the contract. In addition, the system accesses account master files that detail the counterparty’s payment and wire transfer instructions.

Several automated reconciliations are performed by DerivClear to ensure that the original trade information captured within T2 agrees with the information stored in SWAP. These reconciliations include trade terms, positions, payment/collateral status, and suspense. Operations produces these reports by product type every day. Reconciling items/breaks are the only items that appear on each report, and Operations works with the middle office to resolve each break. Resolutions of breaks are documented in the memorandum field within DerivClear.

Before trade payments are made, they are reconciled to the front office trading system for accuracy by Operations personnel. If a confirmation has not yet been executed for the trade, Credit and Operations Management authorization is required before the payment is made. Settlement instructions are verbally verified by Operations personnel when the payment is set up on the system. Once settlement information is verified with the counterparty, an entry is made informing the Treasury Department of the amount coming in from the counterparty’s bank or the amount that needs to be wired out. In addition, after payments have been wire transferred, they are reconciled to the nostro account by Operations personnel.

The Derivative Operations Group sends valuation notices to clients based on each client’s preference (*e.g.*, daily, weekly, or monthly). The notices are automatically faxed to the clients after completion of the automatic overnight batch process.

### **iv. Finance**

CDS and FID have two separate BUC groups. However, the functions and reports utilized are basically the same across both groups. The BUCs operate separately from the trading and middle office groups. In addition, they report into Corporate Accounting, so they are

independent from the front office. The functions within the BUC are broken down between daily and monthly responsibilities.

On a daily basis, the BUC reviews the front office P&L and reconciles it to the back office P&L produced by SWAP, which then feeds into the general ledger. Adjustments for economic events such as payments, cash, and position differences are recorded and tracked within MRS. MRS is utilized by the BUCs to adjust the back office P&L for items such as missing trades and price corrections, and to set up reserves. The net result of MRS reflects the total adjusted P&L for the day and includes P&L explanatories.

At month end, BUCs are responsible for the accuracy of market values and account balances in the firm's financial statements. To check market value, the BUC verifies that the inputs used at month end for pricing are valid. They also independently re-check prices on a sample basis at month end. This function is performed on a macro level given the large number of outstanding positions on a continual basis.

Each inventory account is reconciled at month end as well. During this process, the gross balance for each counterparty is netted down and reported on a net basis. This reconciliation is a three-way process among the general ledger, SWAP, and the trading desk. To ensure that the trade information is recorded accurately for financial reporting purposes, the BUC performs an analysis of GAAP netdowns by comparing the gross and net balances for each counterparty, as recorded within SWAP, to the accounting general ledger. Month-end adjustments are recorded for reserves, cash differences, and reclassifications. The final balances flow from the firm's trial balance to the balance sheet and income statement and are consolidated and netted down where appropriate.

#### **v. Documentation**

The DDG, which is part of the global middle office, is responsible for drafting and tracking derivative confirmations. Tammye Erb ("Erb") is the Global Manager of the DDG. The DDG has 107 employees and is organized by product as follows: Credit Confirmation Group, Equity and Rates Confirmations Group, Follow-Up Group, Systems, and Document Retention. Each group has a manager who reports to Erb.

For credit and interest rate derivative transactions requiring a paper confirmation (*i.e.*, non-DTCC or Swapswire trades), T2 feeds Scrittura and Doc Manager. Scrittura has a queue for the middle office, which reflects all trades requiring middle office approval. CDS and FID middle office personnel monitor this queue and approve confirmation terms accordingly. For trades that are DTCC eligible, deal terms are fed from Proteus or Summit into SWAP, which feeds DTCC's systems. There is also a population of non-STP transactions for which Scrittura receives a feed from SWAP. This feed is a tag file, which includes relevant fields of trade information from SWAP. Once trade details are in Scrittura, a paper confirmation is drafted by a confirmation specialist utilizing Scrittura templates.

After the confirmation is drafted, it is submitted for applicable approvals and signatures. Approval requirements depend on several factors. A matrix identifies which confirmations

require which approvals, such as trader, middle office, or senior confirmation specialist approval. After receiving the necessary approvals, the confirmation is submitted to the counterparty.

Scrittura's Confirmation Workflow function tracks the status of the confirmation from the time it is drafted until it is executed by the counterparty, including amendments, terminations, and novations. The DDG follows up on outstanding unsigned confirmations in order of priority. Follow-up efforts focus on confirmations that have been outstanding for an extended period of time to address the backlog, rather than on current trades.

Verbal confirmations may occur in the normal course of following up with counterparties; however, the Follow-Up Specialists are not currently required to conduct verbal confirmations for all new trades. The staff was informed, however, that the DDG is in the process of setting up formal procedures for a T+1 checkout for all trades. The middle office will be responsible for conducting verbal confirmations for all trades.

As of July 31, 2005, outstanding confirmations for credit and interest rate derivative trades totaled 6,967, 81% of which were credit derivative confirmations. The DDG explained that they are attempting to decrease the backlog by conducting "meet and greet" meetings with the major dealer counterparties, at which the counterparties will review their outstanding confirmations, executing them as appropriate. The Board of Governors of the Federal Reserve System ("Federal Reserve") created a schedule whereby all the major dealers agreed to bilateral lock-in meetings during which they will reduce the backlog of unsigned confirmations. The staff was informed that these meetings have been successful, typically reducing the backlog with a counterparty by 85%.

With respect to the industry concern of hedge funds assigning their trades and not informing the remaining party, the DDG is working with its counterparties, including hedge funds, to consent to the ISDA 2005 Novation Protocol.

*e. Staff's Review*

The staff selected a sample of 25 CDS transactions and 25 FID transactions, which was comprised of 19 municipal derivatives and six mortgage derivatives transactions. The staff traced these transactions from the firm's front office systems, through the middle office systems, to daily P&L systems, and finally to the firm's general ledger to ensure proper reflection of these trades in the firm's books and records. Additionally, the staff reviewed Scrittura for timeliness and accuracy of trade details, as well as the firm's payment system for the proper recording of cash payments. The staff also reviewed aged reports of outstanding confirmations, in addition to all reconciliations produced between the firm's trade entry and booking systems. In addition, the staff reviewed the firm's policies and procedures to ensure that written guidelines were consistent with the processes evidenced in the staff's review.

**Findings:**

- **The firm should enhance and/or develop formalized policies and procedures regarding the middle office's and operation's controls in processing transactions.**

Formal policy and procedure manuals should be enhanced and/or developed that describe the transaction flow and the reconciliations conducted between systems utilized in the processing of derivative transactions. Middle office policies and procedures should also indicate that the middle office is required to conduct a verbal confirmation for all derivative trades. In addition, the timeframe within which verbal confirmations are required to be obtained should be defined.

- **Amendments to CDS transactions are not reflected on the trade blotter, which is utilized by the front office. Although these transactions are amended in the operational systems and accurately reflected on the firm's books and records, this discrepancy could cause the front office to misunderstand its true risk position.**

When a change or amendment to a trade occurs, the trade ticket is changed, but the trade blotter is not, thereby creating discrepancies between the blotter and the trade processing systems.

- **The front office to middle office reconciliation of non-STP FID transactions should be enhanced. The current process is manually intensive, evidence of reconciliation breaks and resolutions is not maintained, and the identity of the individual conducting the reconciliation is not required.**

In addition to being input into T2, non-STP trades are manually input into the Summit/Exotica Risk and Valuation system. At the end of the day, the middle office manually compares the T2 report to the New Trades report, which is fed from Summit/Exotica. There is no documentation or signoff evidencing this manual review.

- **Several FID sales trades were input directly by the trader instead of the salesperson as required by internal policy. This practice decreases the salesperson's accountability for the accuracy of the trade details being input into the firm's processing systems.**

The FID group requires that internal marketer trades be input by the salesperson and reviewed by the trader and the middle office. However, four out of 11 internal marketer trades were input directly by the trader.<sup>3</sup> The exclusion of the salesperson's input weakens the firm's existing controls.

- **The Derivatives Documentation Handbook should include guidelines defining the timeframe within which the first follow-up attempt, and subsequent follow-up attempts, should be made with counterparties that have outstanding unsigned confirmations.**

## **2. Residential and Commercial Mortgages**

### ***a. Residential Mortgages Overview***

EMC was created in 1990 to acquire and service residential loans. EMC is the Bear Stearns mortgage subsidiary located in Dallas, Texas where residential loans are purchased, serviced,

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<sup>3</sup> The four trades input by the trader were associated with one salesperson.



and securitized.<sup>4</sup> Initially, EMC focused on the acquisition, servicing, and securitization of distressed assets. However, in recent years it has expanded its product line to include higher-quality loans, while still purchasing distressed portfolios. The product mix consists of both fixed and adjustable rate mortgages in the following categories: prime, Alt A, subprime, and Scratch and Dent.<sup>5</sup>

EMC purchases loans from approved sellers primarily on a servicing basis. EMC conducts approximately 150-175 bulk purchases (*i.e.*, pools of loans) and approximately 6,000-7,000 flow loans (*i.e.*, individual loans with values generally under \$100,000) per month. Bulk purchases compose the majority of the loan inventory. Generally, the objective of this business is to obtain enough marketable collateral to structure a securitization and sell it in the market at a premium. EMC conducts approximately ten securitizations per month, which are sold through BS&Co.

In the seven months ended July 31, 2005, EMC generated revenue of \$238.2 million with net income totaling \$161.3 million. As of May 31, 2005, EMC's balance sheet reflected \$11.2 billion in assets, which represents loans owned by EMC.

### ***b. Commercial Mortgages Overview***

The commercial real estate loan business is conducted by BSCMI. BSCMI is the only booking entity for the U.S. commercial mortgage loan business. BSCMI works with mortgage brokers and borrowers to provide secured, non-recourse debt financing for acquisitions or refinancing. Loans are originated on various types of commercial real estate. After funding a loan for sale, BSCMI immediately prepares the loan for securitization. These loans are on BSCMI's books for an average of four months. Several times a year, BSCMI aggregates funded loans into pools of mortgages and prepares them for sale as a commercial MBS bond offering. Transaction sizes generally range from \$400 million to \$2 billion. Once the securitization is settled, the loans are moved off of BSCMI's books and sold through BS&Co. BSCMI has originated over \$20 billion in commercial mortgage loans since inception in 1995, with originations of approximately \$6.7 billion in 2004.

In the seven months ending July 31, 2005, BSCMI generated revenue of \$78.4 million and net income of \$55 million. As of May 31, 2005, BSCMI's balance sheet reflected \$3.3 billion in assets.

### ***c. Systems***

The staff's review included verification and/or testing of the firm's use of the following systems:

- Whole Loan Inventory Tracking System ("WITS"), a front office system that maintains residential loan information at the individual loan level;

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<sup>4</sup> The majority of EMC's business is conducted in Texas; however, certain operational functions (*e.g.*, front office to back office reconciliations and cash disbursement reconciliations) are conducted in New York. In addition, the BUC function for EMC is based primarily in Texas, but is also supported by BUC in New York.

<sup>5</sup> Scratch and Dent loans are not quite perfect for securitization due to credit issues or other conditions.

- Fixed Income Ticketing System (“FITE”), a front office interface to the trading system that serves as the point of entry for commercial mortgage traders;
- MORT, a front office trading system primarily used by mortgage traders to monitor their positions;
- HYDRA, which includes P&L modules for the different types of loans on the mortgage desks. After the loan is priced utilizing a pricing model, the trader inputs the price into HYDRA, which updates P&L on a daily basis;
- GOTS, a back office system that contains position and transaction information that is fed to the general ledger; and
- ADP, the firm’s general ledger system.

*d. Underwriting Process/Purchasing Residential Loans*

From a business unit perspective, a typical residential loan transaction comes from the fixed whole loan desk, which purchases pools as well as individual loans. Pools compose the majority of trading. The loan seller communicates loan data to the trader, who runs the data through models to calculate an execution price based on the collateral. EMC utilizes separate performing and non-performing pricing models to determine the values of the respective loan types. The trader communicates the calculated price to the seller; if the seller accepts, EMC generates and delivers a commitment letter that identifies the primary terms of the purchase, which the seller signs and returns.

After the price for a residential loan purchase is confirmed, the trading desk sends the loan data to EMC operational facilities located in Dallas, where a trading analyst inputs the data into WITS, which tracks all collateral. Due diligence is then conducted on each loan. Due diligence is outsourced to Clayton or PricewaterhouseCoopers (“PWC”) for all residential loans, with the exception of the Scratch and Dent loans, which are handled internally. For all other desks, the amount of due diligence conducted depends on the collateral. Due diligence is generally conducted on a sample of the loans in a pool. The sample size is determined by EMC based on a number of criteria, including the quality of the loans in the pool. A due diligence manager in New York coordinates with Clayton and PWC. Based on the due diligence results, some loans may be removed from the pool and may or may not be substituted with other loans. All parties agree on the final listing of loans, which is evidenced by a signed purchase agreement.

*e. Commercial Mortgage Underwriting Process*

BSCMI originates commercial loans through brokers, borrowers, institutional lenders, or from BSCMI’s sales force. BSCMI does not service any commercial loans; the servicing portion of each loan is sold to an outside party.

All loans greater than \$40 million are reviewed by the Screening Committee, which is an informal forum consisting of individuals within the mortgage business unit that convenes for discussion purposes only. Large Loan Authorization is required prior to releasing a term sheet on fixed rate loans greater than \$40 million and on all securitized floating rate loans. This authorization requires three approval signatures: Underwriting, Capital Markets, and Closing and Structure. In addition, loans greater than \$50 million require approval from Jeff Mayer, Senior Managing Director and Co-Head of Fixed Income. Loans in excess of \$100 million

require Executive Committee approval prior to release of a term sheet. After the underwriting process is completed, which includes an extensive due diligence review, further approval is required from the Loan Commitment Committee.

After a commercial loan is approved, the underwriter and borrower negotiate and execute an application. A Rate Lock Information Sheet is then sent to the borrower. The receipt of a rate lock deposit, typically one percent of the loan value, indicates that the firm has a commitment, and the trader enters the deal information into FITE, the ticketing system, which automatically feeds MORT, the trading system. The trader also enters into hedges in order to protect the loan position from market risk. Traders generally utilize Treasuries or Eurodollar futures to hedge commercial loan positions. The deal usually closes in three days.

Typically, the loans are categorized into portfolios. As of September 1, 2005, there were nine separate portfolios.<sup>6</sup> Utilizing portfolios is a way to categorize the loans designated for specific securitizations. All commercial loans are recorded on the books and records at the portfolio level. If any loans in any of the portfolios remain unfunded, and are only commitments, as of month end, BUCs remove them and make an adjustment to reflect that the loan is a commitment.

*f. Processing and Recording Mortgage Loans*

The EMC deal manager is responsible for the final list of residential loans, which represents the loans the firm agrees to purchase. The deal manager e-mails a settlement date “purchase blast” to the New York trading desk. The purchase blast includes the final listing of residential loans, as well as the summary total for the pool. The trader writes a trade ticket for the loan pool and enters the information into MORT.<sup>7</sup> Fixed Income Operations ties out the final list of loans to the deal represented in WITS. At this point the deal will be funded. All checks and wire requests require signatures from two governments department personnel with authority to approve such requests. When the funds are disbursed, the deal is final and the firm owns the loans. After disbursement, Operations reconciles the trade ticket to the outgoing funds to ensure that the amount disbursed matches the amount on the trade ticket.

The operational flow for residential mortgages is the same for commercial mortgages with the exception that commercial mortgage traders enter the deal terms into FITE, which feeds MORT. When the loan closes, the Closing Group produces a Closing Statement disclosing all material deal terms. The Closing Statement is sent to Operations to notify them that the loan is closed and will be funded. Once the Closing Statement is prepared, the loan is funded.

All residential and commercial loans are marked to market daily utilizing pricing models. Mortgage traders input their prices into HYDRA. HYDRA also receives a feed containing trade information from MORT. HYDRA contains P&L modules to calculate P&L for the different types of loans. It feeds prices to the Fixed Income Security Database, which is read by GOTS.

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<sup>6</sup> The firm maintained seven standard portfolios and two temporary portfolios, the latter of which were set up by the trading desk to monitor two large loans separately.

<sup>7</sup> The firm informed the staff that the EMC traders are moving towards FITE whereby they will enter the trade details into FITE, which will automatically feed MORT.

GOTS also receives trade information via a direct feed from MORT. GOTS feeds pool/portfolio values to the general ledger (*i.e.*, ADP). Residential loans are booked to the general ledger at the aggregate pool level, as one security. Similarly, commercial loans are booked to the general ledger at the portfolio level.

The ARMs and Scratch and Dent desks do not currently utilize HYDRA for P&L; however, both desks have plans to convert to HYDRA in the near future. The ARMs desk is not currently using HYDRA because specific issues need to be addressed in HYDRA for the ARMs product. The Scratch and Dent desk is not currently using HYDRA because this desk reviews P&L at the individual loan level due to the inclusion of distressed loans. Scratch and Dent plans to move to HYDRA when it is comfortable with a version of HYDRA that is customized for this desk.

***g. Finance***

EMC BUCs and Fixed Income BUCs are responsible for the daily P&L reconciliations, as well as month-end reconciliation and reporting for residential and commercial mortgages.<sup>8</sup> On a daily basis, BUCs reconcile traders' front office P&L to back office P&L utilizing MRS, which takes information from the various back office systems for different products. Mortgage P&L is sourced from GOTS. On a daily basis, traders review P&L in HYDRA and compare it to MRS, which reflects the back office P&L.<sup>9</sup> Traders communicate with BUCs if there are any discrepancies, and inform BUCs of necessary re-marks.

MRS is utilized by BUCs to adjust the back office P&L for items such as missing trades and price corrections, and to set up reserves. The net result of MRS reflects the total adjusted P&L for the day and includes P&L explanatories. This P&L report is distributed to senior management. P&L is booked to the general ledger at month-end from GOTS. This is the unadjusted data that the controllers reconcile daily to the traders' estimates and is the source of information that is downloaded into MRS.

***h. Staff's Review***

In order to ensure the proper reflection of mortgage loan positions on the firm's books and records, the staff selected a sample of ten residential and five commercial loans and traced them through the various stages of the transaction process, including underwriting, initial trade entry, closing, back office processing, P&L reconciliations, and ultimately to the general ledger. In addition, the staff reviewed EMC and BSCMI policies and procedures to determine whether the written guidelines were adequate to describe the transactional processes and related controls evidenced in the staff's sample review.

**Findings:**

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<sup>8</sup> EMC BUCs consists of 130 employees in Dallas and 40 in New York.

<sup>9</sup> The ARMs desk traders review P&L based on their own spreadsheets, and the Scratch and Dent traders review P&L based on a P&L Summary report generated by WITS.

- **The firm should enhance and/or develop formalized policies and procedures regarding middle office and Operation’s controls in processing transactions.**

Formal policy and procedure manuals should be enhanced and/or developed that describe the transaction flow and the reconciliations conducted between systems utilized in the processing of mortgage transactions.

- **The process for calculating P&L for the ARMs desk is inconsistent with the process for other mortgage desks. The staff believes that the ARMs desk should utilize HYDRA, which contains P&L modules, in order to provide a source of P&L independent of the traders’ own input.**

The majority of the traders on the ARMs desk do not utilize HYDRA for P&L; they utilize their own spreadsheets. Controllers often make adjustments in MRS to reconcile the traders’ P&L to the back office P&L.

- **The firm failed to maintain documentation evidencing required approvals prior to releasing term sheets for commercial loans greater than \$40 million.**

Approval signatures are required on a Large Loan Authorization form prior to releasing a term sheet on fixed rate loans greater than \$40 million and on all securitized floating rate loans. The firm failed to maintain this authorization form for any of the five loans included in the staff’s sample, each of which was greater than \$40 million.

- **Reconciliation breaks between the EMC front office (i.e., MORT) and back office (i.e., GOTS) systems do not appear to be corrected in a timely manner.**

As of July 15, 2005, there was a total of 492 breaks, of which 234 (48%) were aged more than 100 days. It appears that once loans have been sold or securitized, there may be a small position remaining that represents the difference between actual cash received or paid and the amount anticipated. These items require research by Operations. Once the loans have been sold, MORT is adjusted to reflect that there is no longer a position, thereby causing a break between MORT and GOTS.

## **B. SARBANES-OXLEY ACT – SECTION 404**

SOX requires public companies to develop practices regarding corporate governance and financial reporting. SOX Section 404 states that each annual report required by Section 13(a) or 15(d) of the Exchange Act should contain an internal control report, which shall state the responsibility of management for establishing and maintaining an adequate internal control structure and procedures for financial reporting.

The firm’s Sarbanes Compliance Office (“SCO”) is responsible for ensuring that all controls related to financial reporting are included in the firm’s SOX control framework. When setting up the framework, the SCO identified 15 key processes contributing to financial reporting. A Control Manager was designated for each of the 15 key processes. The SCO, with the help of the Control Managers and senior management, identified individual controls related to the

various functions of all of the businesses activities included within each process. Currently, the firm has identified 2,600 controls.

On a quarterly basis, every control is assessed and reviewed. The SCO utilizes the Risk Control Tracking System (“RCTS”) to monitor all controls. RCTS serves as a central repository for quarterly self-assessments, monitors all changes to controls, tracks potential issues, and reports the results to management. Each control is assigned to an assessor and a reviewer. The assessor is an individual involved in performing the actual control. Assessors are responsible for assigning a pass or fail rating based on the design and effectiveness of the control. After the assessor assigns the rating, the assessment and the control are reviewed by a reviewer. This entails reviewing documentation evidencing that the control was conducted in accordance with the SCO description of the control. If a control fails an assessment or a review, an Action Item is input into RCTS. This identifies the requirements needed to pass the assessment. If a control fails, often the reason is that the current practice, which describes how the control is achieved, needs to be changed to reflect a change in procedure.

IAD is responsible for management testing of SOX controls. Testing is conducted on a sample basis annually. The staff selected ten SOX controls to test the most recent assessment and review of each control. The staff verified that RCTS reflected the current practice and the necessary ratings to pass each control. The staff’s review yielded no issues or concerns.

## **C. INTERNAL AUDIT**

### **1. Introduction**

Exchange Act Rule 15c3-4 requires a firm to establish a system of internal risk management controls that includes periodic reviews of the firm’s risk management systems and an annual review of those systems by an independent certified public accountant. In adopting policies and procedures for the firm’s internal control system, the firm must consider the scope and frequency of audit activities, as well as the qualifications of internal audit personnel. With this in mind, the staff conducted a review of the firm’s internal audit function, particularly emphasizing the adequacy of IAD’s audit procedures and coverage of unregulated affiliates. The staff sought to determine whether IAD’s structure and procedures were sufficient to meet the requirements of Rule 15c3-4, whether IAD adhered to its procedures, whether the firm’s internal audit personnel were qualified, and whether IAD communicated its findings to the Audit Committee and senior management.

The staff conducted interviews with the following IAD personnel:<sup>10</sup>

|                 |  |
|-----------------|--|
| Robert Friedman | SMD and Audit Director                                 |
| Brent Camery    | MD/Principal, Financial and Operational Audit Director |
| Steven Wexman   | MD/Principal, Information Technology Audit Director    |
| Stephen Angelo  | MD, Team Leader  |
| Jonathan Fisher | MD/Principal, Director of European Audit               |

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<sup>10</sup> In addition to a functional area, each Bear Stearns employee is also identified by a title: Senior Managing Director (“SMD”), Managing Director (“MD”), MD/Principal, Associate Director (“AD”), or Manager.

|                  |                                       |
|------------------|---------------------------------------|
| Joseph Castaneda | AD, Co-Team Leader                    |
| John McWilliams  | AD, Team Leader                       |
| Hal Labret       | AD, Team Leader                       |
| Marc Platizky    | AD, Audit Officer                     |
| Kathleen Kane    | Manager, Information Technology Audit |

## 2. Structure, Allocation of Authority, and Staffing

### *Structure and Allocation of Authority*

The IAD Reference Guide (“IAD Guide”) states that IAD’s primary mission is to provide quality “value added” independent reviews of the internal controls of Bear Stearns, thereby assisting the Board, its Audit Committee, and management in assessing the effectiveness of and compliance with such controls. The IAD Guide also states that IAD has complete independence with respect to the units or functions being reviewed and, consequently, is not subject to restrictions in the scope of its work by an operating unit or firm management.

The Internal Audit Director (“IAD Director”), Robert Friedman is the firm’s chief audit executive. IAD’s organizational chart indicates that Marshall Levinson, IAD’s SMD, reports functionally to the Audit Committee and administratively to the Chairman of the Internal Audit Advisory Committee of TBSCI (“Advisory Committee”), Robert Steinberg (“Steinberg”). The Advisory Committee is an executive committee consisting of ten members, each of whom is an SMD.<sup>11</sup> The Advisory Committee helps IAD negotiate with management of audited units when disagreements arise over findings, assists in the escalation of audit issues, advises IAD on the Audit Plan and special projects, oversees follow-up on the resolution of aged audit findings, and works with IAD to try to determine what larger audit issues IAD may have to address in the future.

IAD is divided into Financial and Operational (“F&O”) Audit, headed by the F&O Audit Director, Brent Camery, and Information Technology (“IT”) Audit, headed by the IT Audit Director, Steven Wexman.

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<sup>11</sup> The members of the Advisory Committee at the time of the staff review were:

- Ed Almeida, Head of Fixed Income Operations, Member of the Operations Committee;
- Jeff Bernstein, Head of Non- Fixed Income Operations, Member of the Operations Committee;
- Peter Cherasia, Chief Information Officer, Member of the Operations Committee;
- Jeffrey M. Farber, Controller of TBSCI, Member of the Operations Committee;
- Paul Friedman, Head of Fixed Income Administration;
- Richard Lindsey, Co-President of BSSC, Head of GCS;
- Samuel L. Molinaro, Executive Vice President and Chief Financial Officer, Member of the Executive Committee, Member of the Management and Compensation Committee, Member of the Operations Committee;
- Michael S. Solender, General Counsel of TBSCI, Member of the Operations Committee;
- Robert Steinberg, Chairman of the IAAC, Senior Risk Officer, Member of the Management and Compensation Committee, Member of the Operations Committee; and
- Tracey Whille, Global Compliance Director.

F&O Audit is divided into six functional teams that specialize in particular areas (Derivatives/Treasurers/Credit, Capital Markets, Operations, Asset Management, Regulatory Exams, and Accounting/SOX) and two regional teams (EMC/OTC/Branches based in Dallas, Texas and European Audit based in London, England). Each team, headed by a Team Leader, has one to fifteen employees (including six at EMC in Dallas and four in London), for a total of fifty employees in the F&O Audit group.

IT Audit is divided into three teams. The Applications Audit team evaluates system controls that provide for accurate and complete transaction processing while maintaining the integrity and security of programs and data. The General Controls team evaluates the control environment for all firm production platforms, infrastructure, operations, and new technologies. Finally, the Audit Software Group (“ASG”) primarily supports F&O Audit reviews. Each of these teams has a Team Leader and three to eleven employees (including one in Dallas and one in London), for a total of twenty employees in the IT Audit group.

Based on its review, the staff believes that this structure provides IAD with sufficient independence and authority to carry out audits sufficiently in each of the firm’s business units.

F&O Audit also has a dedicated Confirmations Group. The Confirmations Group centralizes the receipt, distribution, and administration of non-trade related confirmations for the firm; responds to the confirmation requests of various counterparties (*e.g.*, customers, banks, mortgage companies, public accounting firms, and internal audit departments of Bear Stearns’ customers and correspondents); and confirms balances and positions. More specifically, the IAD Guide states that the Confirmations Group verifies the list of positions sent by requesting broker-dealers against the firm’s internal reports, and responds in writing to requests. The Confirmations Group also requests confirmations from third-party sources to comply with Exchange Act Rule 17a-13, other industry regulations, and internal policies.<sup>12</sup>

On a monthly basis, the Confirmations Group requests randomly selected customers of the firm and its correspondents to note and communicate any discrepancies to IAD upon receipt and review of their month-end statement. The Confirmations Group forwards any exceptions to Client Service for resolution. On an annual basis, the Confirmations Group requests all of the firm’s customers, including correspondents, to note and communicate any discrepancies to IAD upon receipt and review of their customer statement and confirmation request. The Confirmations Group forwards any exceptions to the customer. In conjunction with the annual Bear Stearns audit, the Confirmations Group assists the external auditors by generating positive confirmations that are distributed by the external auditors. The Confirmations Group also researches confirmation requests. The Confirmations Group confirmation requests are made on an as-needed basis for special situations, such as a confirmation mailing to the customers of a specific branch, broker, or correspondent.

IAD affirmed that this function plays primarily a supporting role to respond to requests from external sources, but that it acts as the operational front-line for requests. According to IAD’s

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<sup>12</sup> The IAD Guide states that this includes quarterly confirmation requests by broker-dealers of all aged positions outstanding thirty days or longer, as required by Exchange Act Rule 17a-13.



five-year Audit Plan, the Confirmations Group would require 9,000 man hours, or 8.5% of IAD's total annual budget, to complete its scheduled work.

**Finding:**

- **The Confirmations Group, a group within IAD, performs an operations or compliance function and has not been subject to review by IAD personnel.**

The Confirmations Group provides the integral services of centralizing the receipt, distribution, and administration of non-trade related confirmations; responding to the confirmation requests of various counterparties; and confirming balances and positions. Therefore, the Confirmations Group should be subject to review by IAD personnel. IAD confirmed that the Confirmations Group has never been audited and is not scheduled to be audited in the most recent five-year cycle. Moreover, IAD could not determine if an audit of the Confirmations Group would be performed by IAD or a third party. The staff is concerned that it might be a conflict of interest for the Confirmations Group, a group within IAD, to perform functions that should be subject to review by IAD personnel.

*Staffing*

In both size and responsibilities, IAD has grown over the last few years, and its management expects it to continue to grow. The total number of employees at the end of 2004 was 68. At the time of the staff review in September 2005, it was 75, and management expects it to increase to over 80 by the end of 2005. IAD has a turnover rate of about 10-15% per year, and no employees have been removed for cause during the last three years. IAD's 2003 Audit Plan listed 160 audits to be conducted, its 2004 Audit Plan listed 171, and its 2005 Audit Plan lists 201.

Although IAD is attempting to hire additional auditors to manage its increasing responsibilities, progress has been slow for two primary reasons. First, IAD prefers to hire experienced auditors, of whom supply is limited and demand strong. Second, IAD informed the staff that, although compensation for the firm's auditors tends to match the market at the time of hiring, it tends to lag the market thereafter. Thus, overall, Bear Stearns compensates its auditors at slightly below-market rates, which, especially in a supply-constrained market, might be making it difficult to hire and retain auditors in the quantity and quality required to complete IAD's Audit Plan in a timely manner. IAD has attempted to address this shortfall by hiring temporary auditors, hiring more junior auditors, and using third-party auditors.

IAD began to use temporary and third-party auditors in 2004 in response to the greater audit responsibilities brought on by SOX. It did so again in 2005. Starting in 2006, IAD would like to use its own personnel to conduct SOX audits. However, because IAD previously hired temporary and third-party auditors for this purpose, it is uncertain of the amount of resources it will require to complete the 2006 Audit Plan and SOX-related audits required thereunder.

IAD also stated that it will be unable to conduct eleven of its scheduled 2005 audits without hiring additional temporary auditors, which it is attempting to do. IAD hires temporary auditors from sources such as Resources Connection, Jefferson Wells, and K-Force, and does so on an

individual basis, conducting interviews with each candidate. IAD management supervises the temporary auditors directly and reviews their work. IAD tries to retain the best of these and on occasion hires them as full-time employees.

As a result of difficulties in hiring experienced permanent and temporary auditors, IAD has hired some junior personnel to conduct testing. IAD provides more training and supervision to these junior personnel than to its more experienced auditors.

IAD estimates that 25,000 budget hours will be dedicated to SOX-related work in 2005. IAD auditors also provide from 2,500 to 3,000 hours of assistance annually to the firm's outside auditors, Deloitte & Touche, LLP. In addition, IAD sometimes conducts reviews of procedures and internal investigations under the direction of the firm's legal department ("Legal"). IAD management stated that this is done for potentially sensitive issues, because Legal believes that it can preserve the attorney-client privilege by having IAD conduct reviews under its direction instead of directly for the unit being reviewed. IAD estimated that this represents approximately 9,000 budget hours per year. The staff estimated that the time required to perform SOX-related audits, conduct reviews and investigations for Legal, and assist outside auditors, accounts for a total of approximately 23% (15%, 6%, and 2%, respectively) of the total hours budgeted in the 2005 Audit Plan.

The staff reviewed the education and experience of IAD personnel. Nearly two thirds possess advanced degrees or certifications, and most are employed at the vice-president level or higher. Although the median time of employment with Bear Stearns is only three years, the median time in relevant employment<sup>13</sup> is 11 years. The IAD Director has 37 years of relevant experience, and the directors of F&O Audit and IT Audit have 26 and 25 years, respectively. Some of IAD's recent hires do not have significant relevant experience.

IAD provides some training for its employees, but the IAD Guide does not contain a formal continuing education requirement. IAD asserted that, because it typically hires more experienced auditors, it considers extensive training unnecessary. F&O Audit employees receive basic training on office software products and attend in-house training conducted by other Bear Stearns departments on various product areas. IT Audit sends its personnel to vendors for training on various IT products. Although IAD maintains records of auditor training, it does not require it. In 2004, IAD employees located in New York each received an average of about 20 hours of training. The staff found that IAD personnel had each received an average of about 10 hours of training for January 2005 through September 2005. This includes nine employees (about 12% of the total) who started working for IAD during the course of the year.

#### **Finding:**

- **IAD's procedures do not contain a formal continuing education requirement.**

The staff is concerned that the lack of a written formal continuing education requirement may prevent audit personnel from receiving the continuing education needed to continue to perform

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<sup>13</sup> The staff considered employment in finance, audit, accounting, and for those in IT Audit, information technology, to be relevant employment.

their audit-related duties effectively. This will become increasingly important as IAD takes on additional responsibilities under SOX, especially if it continues to hire more junior employees.

### **3. Audit Universe and Risk Assessment**

#### *Audit Universe*

IAD maintains a spreadsheet of the firm's audit universe for all domestic and international business units, support functions, and information technology. F&O Audit's audit universe contains 396 items. It is populated from IAD's database of businesses and is continuously updated through ongoing dialogue with senior management of business units and support personnel, review of the firm's whitebooks (which detail all P&L items for the firm), census reports, Compliance's corporate profiles, and corporate communications.

The audit universe developed by IT Audit is divided into two main sections: IT Applications and IT Infrastructure. The IT Applications audit universe contains 1,151 items and is populated from IAD's database of existing applications, which is continuously updated from IT's Program Management Office and ongoing dialogue with IT's Chief Development officers and senior management with the Financial Analytics and Structured Transactions ("FAST") department. The IT Infrastructure audit universe contains 67 items and is populated from IT's hardware and system software inventory and ongoing dialogue with the firm's Chief Technology Officer, Chief Information Security Officer, data center management, Office Services, and communication personnel.

The staff reviewed the current audit universes developed by F&O and IT Audit, and they appear to be comprehensive. Moreover, it appears that, as senior F&O and IT Audit personnel have an ongoing dialogue with business units, IAD has an adequate system in place to identify new items to include in the audit universe and to remove items that no longer apply to the firm.

#### *Risk Assessment*

Risk Assessments ("RAs") are updated annually and during each audit engagement for both F&O and IT Audit. Each F&O audit entity is given an overall risk ranking of high, medium, or low. F&O Audit reviews areas with a high risk ranking annually, areas with a medium risk ranking every two years, and areas with a low risk ranking every three to five years.

F&O Audit stated that although the RA process is based on IAD's and management's knowledge of the firm's business, and is therefore primarily subjective, IAD has formalized the process by developing templates to provide consistency. F&O Audit uses a standard template that includes the following risk categories to determine the overall risk ranking: (i) management risk, (ii) operational risk, (iii) market risk, (iv) credit risk, (v) regulatory and compliance risk, (vi) technology risk, and (vii) other business risks. Each risk category is then divided into its specific inherent risks. The inherent risks are assigned a risk ranking of low, medium, or high, and a weighted value from one to ten, with one representing the lowest value. The risk rankings and numeric values are input into a spreadsheet model that computes an overall risk ranking.

IT Audit reviews the IT Infrastructure audit universe with senior IT management on an annual basis. IT Audit also receives newly approved project documentation on a weekly basis that is

circulated by the IT Program Management Office. A model scores each entity in the audit universe based on 13 characteristics.<sup>14</sup> The model also considers mitigating factors, such as the presence of a security package, that could reduce the risk score accordingly. All audits with a risk score of 500 or higher are considered high and subject to review within the next audit year.<sup>15</sup> Additionally, routine technical reviews such as data security, program change control, and database control are performed on a rotating basis for all production computing platforms (*e.g.*, mainframe, Unix, and Windows).

For IT Application audit areas, such as front, middle, and back office systems, the model assigns a risk score to each application in IAD's database. The risk score is based on factors such as whether the application supports a new product or business, the potential P&L impact to the firm, regulatory risk, and the complexity of the product or trading system. The model also considers special circumstances, which increase the risk score for applications that are on the IT Project Management's new project list, have regulatory risk (*e.g.*, SOX), or have been requested by management. IT Application audit areas receive a risk score between 10 and 100, with 100 being the highest. All IT Application audit items that received a risk score of 55 or above in 2004 were scheduled for review in the 2005 Audit Plan.

ASG supports F&O Audit reviews. ASG meets with the F&O Audit team during the planning stage of each audit to identify and discuss key systems and planned testing, and to determine the extent of ASG involvement in that particular audit. IT Audit asserted that this adds to the coverage of existing IT applications and infrastructure systems.

The firm provided supporting documentation that illustrated the underlying formulas for its models and guidance on how it ranks the specific inherent risks. The firm also provided the current risk ranking for each audit universe item. The staff reviewed the RAs for 13 selected audits. The staff found that 11 of the 13 RAs appeared to classify the audit's overall risk ranking adequately.<sup>16</sup> Moreover, the staff found IAD's RA process and methodology to be comprehensive and adequately structured to assess the risks identified by IAD and senior management.

#### **4. Audit Cycle, Audit Plan, and Planning of Individual Audits**

##### *Audit Cycle*

The overall risk ranking developed in the RA process determines the audit frequency for each audit universe item. IAD maintains a multi-year audit universe spreadsheet that identifies the

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<sup>14</sup> The risk categories include: (1) time since last review, (2) results of last audit, (3) effect of downtime on business or amount of time business would be disrupted, (4) user population, (5) impact on books and records, (6) effect of public disclosure and regulatory scrutiny, (7) risk of breadth of users and availability to system, (8) age of technology or major upgrade, (9) impact of organizational and business/economic changes, (10) risk related to system complexity, (11) connectivity, (12) areas of risk reduction of systems or countermeasures, and (13) requested by IT senior management.

<sup>15</sup> The maximum risk score any IT Infrastructure audit universe item can receive is 3312.

<sup>16</sup> The workpapers for two of the 13 audits selected did not contain a RA.

firm's entire audit universe for all domestic and international business units, support functions, and IT. IAD asserted that the multi-year spreadsheet is amended at least annually based on the RA process and therefore may not represent the actual audits that will take place within the next five years.

IAD submitted a draft copy of its most recent multi-year audit universe spreadsheets for F&O and IT Audit. The F&O Audit spreadsheet currently covers the years 2005 through 2009 and provides an overall risk ranking based on the RA for each audit universe item, which translates into an audit frequency of once every year, once every two years, or once every three to five years. The total required hours versus total available hours are displayed for each audit team by year in the multi-year spreadsheet. IAD uses an excess/deficit calculation to determine its personnel requirements.

The staff analyzed the F&O audit universe items that were planned for and either performed or in progress in 2003, 2004, and 2005 to determine what percentage of the audit universe items had been covered. The staff found that approximately 67% of F&O audit universe items were audited, in progress, or planned for audit in 2005. Of the remaining items to be covered by F&O Audit (approximately 33% of all F&O audit universe items), 80% were scheduled for audit in 2006. All F&O audit universe items were scheduled to be audited by 2009.

IT Audit indicated to the staff that it might not be possible to cover all applications and infrastructure within a five-year period because existing systems are continuously changing, new applications and infrastructure are being implemented to support new business lines, and obsolete applications and infrastructure are taken out of service. IT Audit stated that it relies heavily on the annual RA to identify the applications and/or infrastructure that pose the most serious risks to the firm for inclusion in the Audit Plan for the following year.

### *Audit Plan*

In constructing the annual F&O and IT Audit Plans, IAD schedules audit items based on the business areas' overall risk rankings and corresponding audit frequencies. The Audit Plans incorporate knowledge of the firm's business, year-to-date whitebook revenues, headcount, prior issues, frequency of areas previously covered, and a review of legal entities. In addition, the list of legal entities and the whitebooks are reviewed by the F&O and IT Audit Directors to ensure that all areas, particularly those generating material revenues or owning significant assets, have been considered for inclusion in the Audit Plan.

The F&O Audit Plan is divided into the following areas: Trading Desks, Derivatives, Risk Management and Treasury, Bear Stearns Asset Management, EMC, CTC, domestic branches and foreign offices, Europe (including BSIL in London and BSB in Dublin), GCS, administrative and other, regulatory, confirmations, SOX, and departmental administration. The IT Audit Plan's categories include application reviews, general control reviews, audit software support, SOX, and departmental administration.

### *Planning of Individual Audits*

The IAD Guide states that IAD begins its audit planning process by interviewing and reviewing suggestions regarding potential audit areas from BUCs, Risk Management, Credit, the IT Group, FAST, Operations, Advisory Committee members, and other senior management. IAD also reviews the current year's Audit Plan to ensure that any audit that was not performed or will not commence prior to the firm's fiscal year end is considered for inclusion. A proposed risk-based Audit Plan is then prepared based on each Team Leader's area of expertise. Most audits are scheduled on a business line basis as they relate to product areas.

IAD uses two reports generated by its Time Reporting System to track the progress of its Audit Plan. The Work-In Progress Report is a weekly report that lists, by Audit Officer ("AO"), all year-to-date audits and year-to-date hours within the current period. The Top Sheet Report is a weekly report that lists the status of each audit by AO. Additionally, F&O Audit maintains a Project Update spreadsheet that shows the start date of each audit, initial and revised target dates for issuance of the Audit Report, budgeted hours, actual hours, and status of the audit. The staff reviewed samples of each report.

The staff found that the number of audits planned for 2005 (201) increased by 17.5% over the number of audits planned in 2004 (171). Upon further review, the staff noted that of the 171 planned 2004 audits, 17 (9.9%) were deferred or cancelled, and of the 160 planned 2003 audits, 12 (7.5%) were deferred or cancelled.<sup>17</sup>

The staff notes that, according to the minutes of the December 16, 2004 Audit Committee meeting, IAD management reported that 54 audits were currently in process (*i.e.*, the audits had been started but no Audit Report had yet been issued) out of a total of 171 listed in the 2004 Audit Plan. This represents approximately one third of the total audits scheduled for 2004. IAD stated that approximately 10% of the audits scheduled for its 2004 Audit Plan were not completed by the 2004 calendar year end. The staff found that 19 of the 171 planned 2004 audits (11%) remained in progress as of August 31, 2005. Finally, one third of the audits scheduled for 2005 had not been started as of August 2005.

IAD disclosed to the staff that 69.6% of the audits planned and conducted in 2003 exceeded their budget hours, 59.5% exceeded their budget hours in 2004, and 56.3% exceeded their budgeted hours in 2005. The staff's review of the Budget Variance Memos showed that certain audits were delayed or not completed in a timely manner due to the diversion of personnel to audit projects related to SOX and the assistance of the firm's outside auditors and Legal.

#### **Finding:**

- **IAD did not complete all audits scheduled for its 2004 Audit Plan in a timely manner, and it appears that IAD may not complete its 2005 Audit Plan in a timely manner. As a result, it appears that IAD may not cover all audit universe items within its five-year audit cycle.**

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<sup>17</sup> Of the 17 audits that were deferred or cancelled in 2004, five were classified as high risk and eight were classified as medium risk. Of the 12 that were deferred or cancelled in 2003, four were classified as high risk and five were classified as medium risk.

IAD might not be completing its Audit Plans in a timely manner due to a lack of personnel resources. Although meeting audit schedules should not be achieved at the expense of thoroughness, the staff has a concern that an apparent lack of personnel resources might affect IAD's timely performance of periodic reviews of the firm's risk management systems, as required pursuant to Exchange Act Rule 15c3-4.

## **5. Reporting of Audit Findings**

As potential issues arise during the course of an audit, audit personnel discuss the potential issue with the appropriate individual (*e.g.*, clerk or trader). The issue, along with its associated risk, is documented in the Potential Issues Log ("Log"). The Log is maintained throughout the course of the audit but is discarded 60 days after the Audit Report is issued. The audit Team Leader periodically reviews the Log and discusses potential issues with auditee management to expedite corrective action as necessary. The Team Leader documents with whom the issue was discussed and its resolution, and judgmentally assigns an internal risk rating based on materiality and significance. All findings are categorized during the course of the audit into one of four types as follows: (i) critical risks, (ii) high risks, (iii) medium risks, and (iv) low risks. The IAD Guide states that the Team Leader or AO, F&O or IT Audit Director, and the IAD Director should judgmentally determine the risk level based on the guidelines outlined below.

The IAD Guide defines critical risks as those whose occurrence has a high probability of resulting in material monetary loss to the firm, severe negative publicity, or significant regulatory action. IAD stated that the firm does not currently define "material" or associate a specific dollar figure to the term "material monetary loss." Critical risk findings are reported directly to the Audit Committee, Chief Executive Officer, Chief Financial Officer, and General Counsel as they arise in the course of an audit. High risks are those whose occurrence has a less likely probability of resulting in material monetary loss to the firm, severe negative publicity, or significant regulatory action. High risk findings are reported directly to the auditee's senior management. Medium risks are those whose occurrence is less than probable but more than remote, and could result in significant monetary loss or reputational harm to the relevant business unit but not necessarily to the firm overall. Low risks are defined as those for which the potential for significant monetary loss or reputational harm to the relevant business unit and the firm is remote.

IAD does not identify the risk categories of findings in the Audit Report. Rather, IAD stated that critical and high risk findings are located in the executive summary of the Audit Report; medium risk findings are located in the Issues and Management Action Plan section of the Audit Report; and low risk findings are not included in the Audit Report. IAD described a typical low risk finding as a potential issue that the IAD audit team identified, but whose mitigating controls the audit team subsequently understood more fully to reduce the potential risk to remote.

The Audit Report is prepared by the audit personnel and reviewed by the audit Team Leader, F&O or IT Audit Director, and the IAD Director. The Audit Report is also circulated to Legal and auditee personnel prior to final approval. IAD affirmed that the auditee may suggest revisions to the findings during the course of the review of the draft Audit Report. However, IAD affirmed that any disagreements related to audit findings are resolved by escalating the issue(s) to Legal and/or Compliance, senior management, and/or the Advisory Committee and

the Audit Committee. IAD could not recall any findings that were escalated beyond the IAD Director or Advisory Committee in the past two years. The staff could not identify what, if any, findings were adjusted or removed entirely from the Audit Report, as all draft copies of Audit Reports are discarded within 60 days of the issuance of the Audit Report.

All critical, high, and medium risk findings, which are included in the Audit Report, are assigned a tracking number and recorded in IAD's Follow-Up Tracking System ("FUTS") for monitoring purposes. Audit team personnel review the Audit Report and the Issue Audit Report Log, which is generated by FUTS and tracks issues from all Audit Reports, to verify that all issues identified in the Audit Report are included in FUTS for follow-up. IAD does not track any low risk findings identified during the course of the audit in FUTS. The Management Action Plans ("MAPs") and target dates for completion of the MAPs are also recorded in FUTS.

The status categories for issues tracked by FUTS are: (i) open (management has not made any progress in implementing corrective action), (ii) partially implemented (management has made some progress in implementing corrective action), (iii) pending approval (management has implemented corrective action and closure is pending F&O or IT Audit Director approval), and (iv) closed (information and supporting documentation and test work adequately meet and support the MAP, as approved by the F&O or IT Audit Director).

The Team Leader independently evaluates the status of each finding and decides the extent of testing to be performed to confirm that the finding was adequately addressed by the MAP. MAPs are followed up by the F&O and IT Audit Directors during the month following the target date and during the month following every revised target date to confirm that the target dates have been met. The F&O and IT Audit Directors also review the aging of outstanding findings and judgmentally present them to the appropriate Management and/or Operations and Advisory Committee members.

If a MAP is not implemented by its initial target date, a revised target date is obtained from the auditee. The issue is also elevated to senior management of the firm through an escalation memorandum. If a MAP is not implemented by the revised target date, a second revised target date is obtained from the auditee and the issue is escalated to the auditee's senior management and the Advisory Committee. If the target date is missed a third time, the issue is escalated to the Audit Committee, in addition to the auditee's senior management and Advisory Committee. IAD estimated that 80% of MAPs are implemented by their initial target date. IAD management could not recall reporting any items to the Audit Committee with target dates that were revised twice or significantly past their initial due date in the past two years. The IAD Guide states that the IAD Director, in conjunction with the F&O and IT Audit Directors, reports open and past due audit issues to the Audit Committee on a quarterly basis, and that the format of this report might change during the calendar year.

The F&O or IT Audit Director reviews all issues in FUTS pending approval, along with supporting documentation, and may approve them for closure. IAD affirmed that only the F&O or IT Audit Director has the authority to change an issue's FUTS status from "pending approval" to "closed." Findings identified in the Audit Report may indicate that corrective action has been performed during the audit. Such findings are treated in FUTS as issues pending approval until the F&O or IT Audit Director confirms that they have been sufficiently resolved.



The staff reviewed 12 findings that were entered into FUTS from the 13 audits selected for review. The staff found that seven of the 12 findings were closed and that one of the seven target dates had been revised. The MAP for this finding was completed by the revised target date. The staff found that four of the 12 items were open and one of the 12 items was pending approval. The item pending approval was confirmed by the audit team and was awaiting final approval by the IT Audit Director. Three of the four open items' target dates were revised beyond the date of the staff's test, so the staff could not determine whether the dates had been revised a second time. The fourth item had been closed but was attached to another MAP that was targeted for completion in December 2005.

The staff found that FUTS issues with revised target dates were escalated to senior management of the audited business unit. The staff also found that the revised target dates were within three to six months of the original target dates.

### **Findings:**

- **Low-risk findings are not included in the Audit Report, maintained by IAD in its workpapers, or tracked in FUTS.**

Although a finding may appear to be of low risk at the time of the audit, it could potentially become of increased significance to the firm at a later date. Additionally, when aggregated across audits, low risk findings may pose a larger risk to the firm than they may appear to pose as individual low risk findings. Due to a lack of supporting information, there is no way to ascertain the appropriateness of the audit team's determination that a finding was of low risk.

- **The IAD Guide states that, "after all final report approvals are received from auditee senior management and [IAD], any report revisions are made." IAD's procedures appear to permit senior management of the business audited to have undue influence in the drafting of the Audit Report and to require that approval of the Audit Report be obtained from auditee senior management before its issuance. The staff is concerned that such procedures appear to permit business personnel rather than the independent audit team to make a determination on findings.**

The staff has a concern that findings may be revised unduly based upon the auditee's suggestions. The staff also has a concern that, based upon the auditee's suggestions, some findings initially identified by IAD might not appear in the Audit Report, and might not therefore be tracked through FUTS and appropriately remediated. Because of IAD's policy on the discarding of audit workpapers, the staff could not review the Log or any other documentation to assess whether any findings had been diminished, had their risk rankings reduced, or had been removed entirely from the Audit Report based upon the auditee's suggested revisions.

## **6. Planning of Individual Audits and Staff's Review of Selected Audits**

The staff initially selected 14 audits to review and test from IAD's 2003, 2004, and 2005 Audit Plans.<sup>18</sup> The audits were selected based in part on other areas of focus in the CSE examination.

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<sup>18</sup> The staff selected the following audits: (1) Commercial Mortgages Conduit Group and Commercial Mortgage Secondary Trading Group (2003), (2) USA PATRIOT Act Section 356 Suspicious Activity Reporting and

The staff reviewed and tested 13 of the audits to determine the degree to which IAD followed its written procedures with respect to audit planning and conduct, the production of workpapers, and the tracking and resolution of audit findings.<sup>19</sup>

The staff's review and testing of audits were greatly hindered by the lack of audit workpapers. The IAD Guide requires a small number of audit workpapers to be retained, and the rest to be discarded 60 days after the issuance of the Audit Report. The IAD Guide requires IAD to retain the following audit workpapers:

- the Audit Report;
- the Report Issuance Checklist, which contains sign-offs from those who review the draft Audit Report;
- the Planning Memo, which sets forth the scope, budget, and other particulars of the audit;
- the updated RA;
- the Audit Program, which sets forth the detailed steps to be taken in conducting the audit;
- the Announcement Memo, which formally informs the audited unit of the upcoming audit;
- the Review Timing Guidelines ("RTG"), which sets forth the schedule of the audit; and
- a Budget Variance Memo, which informs senior IAD management when, during the course of an audit, it appears that the audit might either be completed two months later or require 20% more hours than planned.

The IAD Guide requires audit personnel to discard other supporting documents 60 days after the Audit Report is issued. These include the Log, general testing schedules, narratives describing procedures performed, and other underlying documents that evidence the review, testing, and potential findings of the audit. The firm noted that it does retain the underlying workpapers for SOX-related work and for audits that the firm's external auditor reviews.

IAD stated that the IAD Director, F&O or IT Audit Director, Team Leader, and audit personnel conduct a brainstorming meeting prior to the beginning of each individual audit to discuss the review, business risks, review approach, preliminary scope, and a list of documents to be requested at the onset of the audit. Approximately two weeks after the brainstorming meeting, a planning meeting is held among the audit team, the F&O or IT Audit Director, and the IAD Director to finalize the Audit Plan, Planning Memo, Audit Program, and RTG.

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AMLMS (2003-2004), (3) New York Private Client Services Branch (July 2003-October 2004), (4) Credit Derivatives (2003), (5) EMC Flow Manager Systems Review (2005), (6) Global Risk Management (2004), (7) Municipal Derivatives Desk (September 2004-February 2005), (8) Gallatin Funding I & Credit Linked Asset Securities II Ltd. (2004), (9) London Compliance (2003), (10) Emerging Markets Sales and Trading (2003), (11) GCS Clearance (2005), (12) EMC: Loans Serviced by Others (2005), (13) London: Commercial Mortgages & Wholesale Business Securitization (2005), and (14) Sarbanes-Oxley Act-Disclosure Controls (2003).

<sup>19</sup> The Sarbanes-Oxley Act – Disclosure Controls (2003) audit item was not a full-scope audit. Rather, it was a limited review by an F&O Audit team of the firm's newly implemented Section 302 Certification process required by SOX. IAD did not issue an Audit Report or maintain workpapers because it was not considered a full-scope audit and as such there were no workpapers for the staff to review.

The IAD Guide states that the Audit Program should identify each risk associated with testing, detail the review steps to be performed, and include a sign-off by the audit team and their supervisors to evidence that the work was performed. The staff found that the auditors' use of the Audit Program appeared to be inconsistent. Some auditors appeared to use it as a checklist during the conduct of the audit to confirm the completion of each task with initials and the date. IAD management represented that others initial and date the Audit Program after the completion of fieldwork, sometimes having made changes to the Audit Program during the course of fieldwork to reflect any differences between the original Audit Program and the actual conduct of the audit. Thus, some Audit Programs appeared to have dates spanning the entire period of fieldwork, while others appeared to show that all of the tasks were completed in one day. Combined with a dearth of supporting workpapers, this makes verification of audits even more difficult.

The RTG is an aspirational document that sets milestones for the completion of certain parts of the audit. The IAD Guide states that any known timing delays (*e.g.*, vacations, holidays or auditee unavailability) should be factored into preparing the RTG for each audit. The staff found that none of the audits reviewed adhered to the dates set forth in its RTG. IAD management represented that the RTG is not meant to provide a realistic timeline for the completion of audits; rather, it is meant to provide a rough schedule and to encourage auditors to complete audits as quickly as possible without sacrificing thoroughness.

Generally, IAD's goal is to issue the Audit Report after the issuance of the Announcement Memorandum and the completion of fieldwork. The IAD Guide also states that Budget Variance Memos are required for any audit in which it appears to the audit team during the course of the audit that the actual hours will exceed the budgeted hours by more than 20%, or the actual report issuance date will be more than two months past the planned issuance date. Each Audit Report that the staff reviewed was issued after the target date set forth in its Planning Memo, one by almost eight months. Moreover, the staff found that 11 of the 13 audits selected for review contained a Budget Variance Memo. In some instances, employee separation was given as a reason for at least part of the delay.

IAD may retain certain additional documents, such as blank sample documents and organizational charts, but all others must be discarded 60 days after issuance of the Audit Report. The documents discarded include, among others, actual testing and procedural workpapers that could confirm that the Audit Program was indeed performed and the Log, in which auditors record all potential findings (including low risk findings, which are not included in the Audit Report).

The resulting impossibility of reviewing the bulk of the audit workpapers prevented the staff from being able to verify that IAD personnel actually performed the work detailed in the Audit Program. Additionally, the staff could not verify that all findings were communicated to senior management and remediated accordingly, as the discarded Log could not be reviewed.

The staff also found procedural weaknesses in most of the audits reviewed. These include, notably, missing workpapers and problems with signatures. Procedural weaknesses do not necessarily reflect on the content of the audit in which they are found, but they do raise concerns

about the care with which IAD personnel adhere to the IAD Guide in other respects, especially given that the bulk of audit workpapers are discarded.

### **Findings:**

- **IAD has a policy of discarding certain audit workpapers 60 days after the issuance of the Audit Report.**

The IAD Guide requires IAD to discard certain supporting documents such as the Log, general testing schedules, narratives describing procedures performed, and other underlying documents that evidence the review, testing, and potential findings of the audit 60 days after the Audit Report is issued. The staff found that the policy of discarding audit supporting documents leaves no evidentiary support that IAD performed its planned audit work. The lack of workpapers also deprives IAD of a source of information useful in evaluating the need for and scope of future audits.

- **The staff's review of thirteen audit files revealed a number of procedural inconsistencies.**

In some audit files, certain documents were missing, such as Budget Variance Memos, RAs, and RTGs. One audit file was missing both the RA and the RTG. In others, signatures were missing, undated, or dated later than they should have been. For example, in one audit file, the signature of the preparer of the Audit Program was dated three months after the date of issuance of the Audit Report, and the signature representing approval of the Audit Program was undated.

## **7. Audit Committee Function and Interaction with Senior Management**

IAD assists the Board and Audit Committee to assess the effectiveness of and compliance with the firm's internal controls. The Audit Committee has six members, all of whom Bear Stearns represented to be independent. The Audit Committee meets at least quarterly, and often monthly. IAD reports to the Audit Committee at least quarterly, and often more frequently.

IAD provides the Audit Committee with a quarterly update on its progress in completing the Audit Plan, as well as copies of all Audit Reports issued during the preceding quarter. IAD was previously required by an SEC order<sup>20</sup> to provide to the Audit Committee the Audit Plan progress update separately for BSSC and continues to provide this breakdown even though the order does not still require it. The Chair of the Audit Committee receives a copy of each Audit Report as it is issued. IAD also reports the number of audit findings that are currently in open status in FUTS. IAD management represented that they verbally inform the Audit Committee of the number of open issues that have missed their initial target dates for MAP implementation. On an annual basis, the Audit Committee approves the Audit Plan for the upcoming year. Although none has arisen in the last few years, IAD reports any critical issues that arise during the course of an audit directly to the Audit Committee.

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<sup>20</sup> Exchange Act Release No. 41707, In the Matter of Bear, Stearns Securities Corp., Respondent, August 5, 1999.

Unresolved disagreements concerning the content of an Audit Report may be escalated to the Audit Committee, but this has not occurred in the last several years. Finally, if an issue that has arisen during an audit remains unresolved after two revised target dates, the F&O or IT Audit Director may escalate the issue to the Audit Committee.

**Finding:**

- **The staff did not find evidence that IAD provides to the Audit Committee analysis of aggregated audit findings to supplement the Audit Reports that it provides; nor did the staff find evidence that IAD provides to the Audit Committee detailed written information on the status of IAD’s progress on the Audit Plan.**

Although IAD provides the Audit Committee with every Audit Report that it issues, the staff is concerned that IAD does not provide supplemental analytical information on audit findings to the Audit Committee that could highlight potential themes or areas of risk. Based on the staff’s review of the Audit Committee minutes, the staff did not find evidence that IAD provides written information on the number of audits completed behind schedule or how many open FUTS issues remain unresolved beyond their original target dates.

**D. MARKET RISK MANAGEMENT**

**1. Overview**

The alternative net capital approach will allow the firm to use its own internal quantitative models to compute market risk capital charges. However, the firm must demonstrate compliance with Exchange Act Rule 15c3-4, which requires the applicant to establish, document, and maintain a system of internal risk management controls to assist it in managing the risks associated with its business activities, including market risk.

The staff conducted tests of the firm’s MRM system, including risks captured in the UMAs. The staff selected four products to test Bear Stearns’ MRM system: FIDs (primarily municipal and mortgage derivatives), CDSs, residential mortgages, and commercial mortgages. Each product selected is transacted through a UMA.

During the course of the review, the staff met with the following individuals:

|                   |                       |
|-------------------|-----------------------|
| Robert G. Neff    | SMD, Global Head, MRM |
| Philip Lombardo   | SMD, MRM              |
| Michael Bellacosa | SMD, MRM              |
| Matthew Garter    | MD, MRM               |
| Oliver Jakob      | MD, MRM               |
| Elaine Hutchinson | Vice-President, MRM   |
| Manoj Singh       | MD, AST               |
| Susan Flynn       | AD, BUC               |

**2. Governance**

Bear Stearns' Market Risk Policies and Principles Manual ("Market Risk Manual") discusses the standards that guarantee a forum for the MRM department to give the Executive Committee a periodic firmwide risk picture comprising diverse risk measures. Included with these updates is the opportunity to present to the Executive Committee a more detailed explanation of risk issues, research, or analysis initiatives. The Global Head of MRM makes annual presentations to the Audit Committee on varying topics. Notwithstanding, at the request of the Board, internal or external auditors, or other committees, the Global Head of MRM may provide additional presentations to the Audit Committee during any given year. In addition, the New Products Committee, which consists of seven senior management members, including the Global Head of MRM, meets weekly. Depending on the area of the firm in which the new product is being considered, the appropriate individual or group will present to the New Products Committee information on which the committee will determine follow-up, approval, or further testing.

The Global Head of MRM collaborates with two co-heads of Fixed Income to determine risk limits and changes on a desk-level basis. The staff noted that neither the Audit Committee nor the Executive Committee is involved in the establishment and approval of risk limits and policies. Additionally, the firm's Market Risk Manual does not detail the authority structure for establishing risk tolerances and approval of changes to risk limits and policies.

On a weekly basis, the Risk Committee meets to discuss all relevant risk management issues. The Risk Committee consists of approximately 30 participants from trading and senior management, including Alan Greenberg, Chairman of the Executive Committee; Warren Spector, President and Co-Chief Operating Officer; Craig Overlander, SMD and Co-Head of Fixed Income; Neff, Lombardo; and Mayer. The staff reviewed the Risk Committee minutes for the period of May 2, 2005 through August 8, 2005. With respect to market risk issues, the Risk Committee minutes outline long and short positions for each trading desk, VaR amounts, and weekly P&L.

### **3. Organizational Structure**

Neff is the Global Head of MRM and reports directly to the Executive Committee. MRM is further subdivided along regional and functional lines (*i.e.*, product categories). Kanwardeep Ahluwalia, SMD and Head of Europe and Asia Risk Management, reports to Neff. Risk Managers are divided into the following areas:

- Structured and Cash Equity;
- Credit Trading and Commodities;
- Municipal Derivatives, FX, Repurchase Agreements, and U.S. Governments;
- FIDs;
- Mortgages; and
- Credit Risk.

MRM has designated Risk Managers to each of the product lines above. Each has significant responsibilities with respect to monitoring and managing risk associated with that particular product and associated trading desk. According to the firm's organizational chart, James Bell serves as Risk Manager for Structured and Cash Equity; Jakob for Credit Trading and Commodities; Bellacosa for Municipal Derivatives, FX, Repurchase Agreements, and U.S. Governments; Garter for FIDs; Lombardo for Mortgages; and Marc Galligan for Credit Risk.

The MRM department is currently composed of over 40 individuals responsible for all aspects of MRM's approval, managing, and monitoring across all of Bear Stearns' affiliated entities.

#### 4. Policies and Procedures

The staff reviewed Bear Stearns' Market Risk Manual and found the content to be consistently written at a general level. Neff commented that the goal of the manual was to provide a basic framework for the major areas of MRM. As a result, the staff was required to interview MRM employees to determine the group's daily functions and responsibilities. The staff believes that a sound internal control environment includes auditable policies and procedures that detail the various functions of the MRM department. This creates an atmosphere of accountability that can be tested both internally (*e.g.*, by internal audit) and externally (*e.g.*, by external auditors and regulators). Furthermore, specific only to the staff's review area, the Market Risk Manual did not provide enough specificity in the following areas:

- General risk management functions and controls;
- Setting and managing trading limits, limit approval, and limit excesses;
- Trading of new products;
- Aging of inventory;
- Backtesting;
- Stress testing and scenario analysis;
- Model validation; and
- Price verification.

#### 5. Market Risk Measurements and Systems

Bear Stearns utilizes various market risk measurements to monitor market risk for its business activities. The firm's primary market risk measuring tool is VaR. Bear Stearns utilizes a 95% confidence interval for a one-week holding period for internal risk management reporting purposes, while using a 99% confidence interval for CSE capital purposes.

With respect to VaR, Bear Stearns uses a historical simulation for any position or portfolio over a given time interval. Bear Stearns' VaR methodology is employed utilizing one of three analyses:

- The *full revaluation* method consists of revaluing the price of each position in a portfolio by superimposing changes in the risk factors from a given time series of historical changes and employing the valuation models. The differences in the simulated prices from the current prices provide a simulated P&L distribution. VaR is then computed from the simulated losses in the tail of the distribution for any given confidence level.
- An alternative approach to full revaluation is to compute the *sensitivity of each position to the underlying risk factors*. The sensitivities can be in the form of duration, convexity, delta, gamma, or vega (the "Greeks").<sup>21</sup> The sensitivities can be combined with the

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<sup>21</sup> The definitions of the Greeks are as follows:

- "duration" is the measure of price sensitivity of a fixed income security to an interest rate change of 100 basis points;
- "convexity" is the measure of the curvature in the relationship between bond prices and bond yields;

movement of the risk factors to estimate the change in price of the securities with respect to the changes in the factors.

- For products that have non-linear components, and for which a full revaluation method is not feasible (*e.g.*, derivatives), Bear Stearns employs *scenario calculations*. In such cases, the firm computes several scenario sensitivities over a range of movements of the risk factors and then interpolates between sensitivities for any given combination of moves for the risk factors in order to estimate price changes.

For all three approaches to computing VaR, the goal is to simulate a probability distribution of P&Ls of a portfolio based on historical movement of those factors. The simulated P&Ls then allow the determination of a loss over a given confidence level, expressed as the portfolio's VaR.

For some products (*e.g.*, CDSs, municipal derivatives, and corporate bonds), in addition to VaR, MRM incorporates secondary risk factors by using parametric add-ons or specific risk. The parametric add-on risk factor methodology processes a single value per position or portfolio. Two of the most important risk factors incorporated via parametric add-ons include credit risk of individual issuers not explained by industry or rating or by country spread, and restructuring risk for an issuer. As a result, the VaRs calculated for many credit-sensitive products, including CDSs, municipal derivatives, and corporate bonds, include specific risk as secondary risk factors.

In addition to VaR, other market risk monitoring tools are utilized by the firm for certain trading desks. These other risk monitoring tools include interest rate sensitivities, commonly referred to by the firm as "POP;" spread sensitivities; and the Greeks.

RIO is utilized for firmwide risk management and reporting purposes. It incorporates trading positions from all areas of the firm and is capable of reporting risk measures at various aggregation levels for all legal entities.

During the course of the staff's product testing and reviews, the staff noted that certain inputs to VaR and certain VaR measurements may require enhancements by the firm as follows:

- A review of CDSs and municipal derivatives inputs into VaR revealed that for both products, RIO obtains corporate credit spread data from a Unix database. However, the corporate credit data is updated weekly instead of daily. Thus, daily VaR for CDSs and municipal derivatives may not be accurately reflected in the firm's daily VaR computation as required by Exchange Act Rule 15c3-1(e)(d)(1)(i).
- Most EMC non-performing loans, which are part of the EMC Core Loan Group, do not currently flow individual or portfolio loan data into RIO. Instead, the aggregate market value of the collateral for EMC's non-performing loans is processed by RIO for inclusion into VaR. However, the market value of the collateral alone may not be sufficient to measure VaR for these EMC portfolios.

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- "delta" is the ratio comparing the change in price of the underlying asset to the corresponding change in the price of a derivative; and
  - "gamma" is the change for delta with respect to the underlying asset's price.
  - A variation of these concepts may also be employed, such as partial duration and partial delta.



- Existing EMC whole loan positions are fed into RIO on a weekly basis for purposes of computing VaR. Although new loans are fed daily, the omission of these existing whole loans from RIO makes the daily VaR for EMC loans incomplete, and therefore not accurately reflected in the firm's daily VaR computation as required by Exchange Act Rule 15c3-1(e)(d)(1)(i).

## **6. Market Risk Limits**

### ***a. Background***

Bear Stearns' market risk limits (specifically, its VaR limits) are set using a bottom-up approach. As a result, the firm sets limits at the business unit or product level. An aggregate VaR figure is computed for all businesses; nevertheless, VaR is not monitored at a firmwide level. Bear Stearns' market risk limits are set and approved by a quorum of two of the five senior management members as follows: Spector, Mayer, Overlander, Neff, and Steinberg.<sup>22</sup> However, no collective group of senior members as part of a committee or the Board is responsible for the assessment and approval of market risk limits.

On a daily basis, the aforementioned individuals receive a copy of the Daily Limit Excess Report ("DLER"), which is produced two days after trade date. The DLER includes all approved and unapproved market limit excesses. The DLER is also forwarded to the business heads, Risk Managers, and BUCs.

The DLER is generated and managed by the Limit Notification Group, headed by Flynn.<sup>23</sup> The Limit Notification Group receives limit excess reports on T+1 from Risk Managers and BUCs for their respective trading area.<sup>24</sup> After consolidating the limit excess reports into a summary level document, an additional review of the limit status on the morning of T+2 is performed to determine if the limit is still an overage. When a trading desk reduces its risk below its limit, the exception is removed from the report. Those limit excesses that still exist are distributed in the DLER on T+2 via e-mail to various management personnel.

The staff's review of limit breaches and new limits for their selected review areas revealed that the Fixed Income Co-Heads (*i.e.*, Overlander and Mayer) may approve VaR limit breaches and establish new market risk limits without the direct prior approval of MRM. MRM receives a copy of the new limit approval memorandum subsequent to approval and it is copied on all correspondence regarding limit breaches.

The Market Risk Manual does not address procedures related to the limit reporting process, approval of temporary limit extensions, limit excesses, or the setting of new limits.

### ***b. Staff's Review***

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<sup>22</sup> Both Mayer and Overlander act as Co-Heads of the Fixed Income Division.

<sup>23</sup> Flynn works within the BUC function, not MRM.

<sup>24</sup> Risk Managers and BUCs share the responsibilities of conducting analyses and reporting limit excesses for each trading desk.

### **i. Municipal and Mortgage Derivatives**

The staff conducted a review of municipal derivatives and mortgage derivatives VaR limits for the period July 1, 2005 through August 31, 2005. Within the Firmwide VaR Report,<sup>25</sup> the limits are set for the general category of interest rate derivatives. The staff compared the mortgage derivative limits and the municipal derivative limits to its usage, which appeared to be adequate. During the staff's review period no excesses were noted for any interest rate derivative products; however, the limits appeared adequate when compared to the limit utilization due to the fact that these derivative instruments are traded lightly within the firm.

### **ii. Commercial and Residential Mortgages**

The staff selected 17 limits that were breached between May 16, 2005 and July 29, 2005 to understand the limit management and reporting process. The selection included market value and VaR limit excesses from the Commercial Conduit Desk, ARMs Desk, and Residential Non-Agency Desk.<sup>26</sup> The limit excesses for all types of limits reviewed ranged from 121% to 232%. The staff noted that the 17 excesses were properly identified and reported. The excesses were forwarded to the Limit Notification Group and distributed to senior management on T+2. The staff also noted that the limit excesses reviewed received proper management approvals.

In addition, for the 17 VaR limit excesses noted above, the staff also compared the VaR figures reported in the DLER to the Firmwide VaR Report. This review concluded that there were reporting discrepancies between these two reports in eight of the 17 VaR limit excesses.<sup>27</sup> The staff inquired regarding these differences and was informed that from time to time there are several Firmwide VaR Report versions distributed each day. Sporadically, RIO is updated on an intraday basis to rectify processing or other VaR calculation errors. The staff was informed that the Mortgage Risk Management analyst had utilized the earliest versions of the VaR report in the preparation of the Limit Notification reports reviewed by the staff. Upon receiving the final versions of the Firmwide VaR Report for each day, the staff concluded that the VaR numbers were consistent between both reports.

### **iii. Credit Default Swaps**

The staff conducted a review of CDS risk management reports and limit excesses for the period July 1, 2004 through August 31, 2005. The primary CDS risk management monitoring report, which is part of the Limit Notification Report package, consists of reporting limits and utilization for a variety of risk measurements such as issuer VaR, issuer market values, spread risk (also

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<sup>25</sup> The Firmwide VaR Report is produced daily and outlines VaR at a 95% confidence level by business group; weekly, monthly, and annual comparisons; and long and short market values.

<sup>26</sup> For the Residential Non-Agency Desk, the staff also reviewed POPs exposure. POPs is defined as the dollar value increase or decrease when there is an interest rate increase of one basis point.

<sup>27</sup> The differences noted were for various desks and were incurred on eight different dates between May 16, 2005 and July 29, 2005.

referred to as POPs) and default to zero risk.<sup>28</sup> The risk management reports are derived from an Access database populated by Janus, a CDS risk control system. The staff reviewed the report for accuracy of risk measurements, reporting, and approval of the limit excesses for CDSs. A review of the CDS risk management reports for the aforementioned period revealed that CDS risk management did not obtain senior management approval of the limit excesses for three of the six breached VaR issuer limits tested by the staff.<sup>29</sup> The issuer VaR limit excesses were breached for periods ranging from four to 52 days. Additionally, the VaR limit breaches noted by the staff ranged from 104% to 301% of the established limit.

The staff independently reviewed the Access database information and requested all market value, spread risk, and default to zero usage for five CDS issuers. The selection was based on issuers for which the staff had observed gaps in the data reported during the aforementioned July and August review of CDS reports.<sup>30</sup> The review dates and period selected ranged for each issuer based on the July and August review dates.<sup>31</sup> The review revealed that in 15 instances, the firm failed to report limit breaches in market value, spread risk, and default to zero risk. The combined limit breaches for all risk measurements ranged from (259%) to 256% over the limit.<sup>32</sup>

Additionally, the staff selected five VaR calculations for four issuers from the RIO reports. The VaR calculation dates ranged from July 5, 2005 through August 4, 2005. The staff obtained supporting documentation for the VaR calculation from the Access database, which is fed by Janus. The staff did not identify any discrepancies in long and short market values captured between the Access database and RIO.

## **7. Data Integrity Review**

### ***a. Background***

The staff performed data integrity reviews for the four business areas reviewed by the staff: CDSs, FIDs (municipal and mortgage derivatives), residential mortgages, and commercial mortgages. Whenever possible, for all products reviewed, the staff attempted to utilize the same sample of transactions selected to test the firm's operational controls. The staff's product-based

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<sup>28</sup> "Default to zero" risk is the risk that the value of an entire swap will decline to zero without anticipating a recovery value.

<sup>29</sup> Due to the merger of the CDS desk with the corporate desk, the firm did not report VaR in the CDS reports until July 19, 2005.

<sup>30</sup> The staff's review revealed that various issuers reported in the CDS risk management reports contained inconsistent reporting for limit excesses. For example, the staff noted that issuers were reported in the CDS risk management reports for market value limit, spread risk, and default to zero violations on and off, despite the reports indicating that these violations were outstanding for consecutive dates.

<sup>31</sup> For each issuer the staff reviewed from a few days to a month of risk management limits.

<sup>32</sup> The negative limit breach percentage may signify that a particular CDS issuer has been shorted by CDS traders, and thus the firm might be overexposed. According to Jakob, the firm does not want to be overly aggressive or conservative in its CDS strategies.

data integrity reviews consisted of reviewing screen prints from trade capture systems, risk control systems, and RIO.

**b. Staff's Review**

**i. Credit Default Swaps**

CDS trades flow into Proteus.<sup>33</sup> Subsequently, CDS trades flow into Janus, a risk processing engine that conducts multiple risk control functions and processes risk sensitivity calculations, including corporate and credit spread risk. Next, Janus forwards trade information, risk sensitivity, and trade characteristics into an Access database for compilation of trade data. In turn, Janus transfers trade data into RIO for the VaR computation.

The staff's review of CDSs consisted of a sample of 12 single-name CDSs and one index CDS traded by BSCP for the period July 25, 2005 through July 29, 2005.<sup>34</sup> They included new trades and partially terminated trades.<sup>35</sup> The review consisted of obtaining screen prints from Janus, which includes all trades for a specific risk book category (e.g., U.S. High Grade and U.S. High Yield). The staff noted that all issuer trades within its sample, regardless of security type or CUSIP number, were aggregated into an Access database for total long and short market values and other metrics. No differences in data or market values were noted in the staff's review.

**ii. Residential and Commercial Mortgages**

Commercial and residential mortgage trades flow into MORT.<sup>36</sup> MORT forwards trade information into PRISM, the firm's primary risk control system for various risk calculations. In turn, PRISM transmits loan details into RIO for the inclusion of commercial and residential loans into VaR. The staff's sample consisted of six commercial loans and ten residential loans. The staff reviewed the loan detail information through those systems considered integral to the processing of risk data and the output of risk information.

*Commercial Mortgages*

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<sup>33</sup> CDS trades flow into Proteus from T2, a trade capture and ticketing system.

<sup>34</sup> The staff limited its CDS index review to one emerging market index. Additionally, the staff's review of the emerging market index CDS trade was limited in that the basket of trades was voluminous, comprising securities from 14 countries. The staff verified trade flow for two of the countries included in VaR: Malaysia and Russia.

<sup>35</sup> As previously mentioned, the staff attempted to utilize the same sample of transactions selected to test the firm's operational controls. The original sample size included 25 trades, of which two were trade terminations and one was a trade cancellation, which were not part of the staff's data integrity review due to the fact that these trades are not processed by RIO. Additionally, the staff reviewed one CDS index trade and elected to exclude nine CDS index trades due to the fact that each index generally contains hundreds of securities, which are individually captured by VaR, and as such extremely cumbersome to individually trace into VaR.

<sup>36</sup> Residential mortgages are entered primarily into WITS and flow into FITE before being captured by MORT. Commercial mortgages are entered into FITE directly and also flow into MORT.

The staff reviewed and traced six commercial loans through the firm's trade capture and risk systems. The staff's sample was selected from the commercial mortgage trade blotter for all deals with settlement date in July 2005. The staff verified and confirmed trade details from MORT, PRISM, and RIO. No exceptions or differences were noted.

### *Residential Mortgages*

The staff selected a sample of ten residential loans to test the accuracy of the trade data throughout the firm's trade capture and risk systems. The staff selected its sample of residential loans from a residential mortgage trade blotter for all loans with settlement date in July 2005. For residential mortgage loans, the staff attempted to confirm trade details within MORT, PRISM, and RIO.

For five of the ten residential loans, the staff noted differences between the principal amounts of the loans in the trade blotter and the loan amounts captured within PRISM and RIO. The staff was informed that these discrepancies were due to changes in the original loan purchase amount as due diligence on the loans was performed and some of the loans were returned to the originator or new loans were acquired as part of the deal. This is considered normal activity for a portfolio of residential loans because the composition of the proposed loan portfolio is frequently revised until final settlement takes place. The staff was able to follow the cancel and rebook activity for the five loans using the Margin System screens and reconciled those end-of-day positions with PRISM and RIO. No problems were noted with these loans.

For three of the ten residential loans, the staff was not able to tie the positions to PRISM or RIO due to the nature of these loans.<sup>37</sup> Nonetheless, the staff was able to agree the final funded loan amount from RIO to the final funded wire sent to the loan originator. No differences were noted for these loans.

One of the ten residential loan pools selected by the staff was a loan valued at \$44,281,706. The loan pool had a settlement date of July 14, 2005 and was booked within the Scratch and Dent desk, a trading desk within the EMC Core Loan Group that handles Scratch and Dent loans. Lombardo informed the staff that, due to a system capability issue with these types of loans, MRM does not rely on PRISM data for market risk calculations. Instead, a file is manually loaded into RIO on a daily basis.<sup>38</sup> The staff requested a confirmation of the RIO feeds for the aforementioned loan and was informed that the EMC Core Loan Group's loans are not included in the EMC feeds and are thus not part of the VaR calculation. The staff was informed that the EMC's Core Loan Group's whole loan feed does not properly include unsettled positions. According to the firm, FAST has since worked out a system feed for unsettled loans, which is projected to be implemented into RIO shortly.

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<sup>37</sup> Two of the three loans were bought and sold within the same day. MRM's PRISM and RIO loan research capability is limited to settled transactions. The staff documented a zero balance for these two loans within PRISM. The third loan was part of a larger purchase that consisted of 36 underlying loans. MRM provided the staff with PRISM and RIO data that identified the value of the complete loan portfolio.

<sup>38</sup> The file, known as the daily long sheet, contains loan information on an aggregate basis.

Finally, one of the ten loans was part of a recent loan securitization. Once securitized, the loan is generally not part of EMC's balance sheet and VaR. Therefore, for this loan, the staff elected to review the residual loans in the pool that had been excluded from the securitization. The staff was able to trace the residual positions into PRISM and VaR. No exceptions were noted for this loan.

Furthermore, the staff sought to test the data integrity of RIO and the Firmwide VaR Report. The staff selected two VaR calculations and their corresponding long and short market values from the daily Firmwide VaR Report. The staff selected its sample from the Commercial Conduit Desk and Residential Non-Agency CMO Desk as of July 29, 2005 and June 22, 2005, respectively. The staff was provided with the data feed into RIO for the aforementioned dates. For the two desks sampled, the staff received the RIO data feed and reconciled the long and short loan market values to the corresponding desk category on the respective Firmwide VaR Report. With respect to the VaR calculations reflected on the Firmwide VaR Report, the staff's review was limited to confirming that all long and short loan positions fed into RIO properly and not the actual statistical computation for the determination of VaR.

### **iii. Municipal Derivatives**

Municipal derivative trades are captured mainly by Summit and Exotica. Summit and Exotica flow trade information into RiskLab, a risk control system, which, in turn, processes risk calculations for a variety of products traded in FIDs. For example, for municipal derivatives, RiskLab processes various relevant curves and corporate credit spreads. Subsequently, RiskLab forwards trade information into RIO for the computation of VaR.

The staff conducted a review of 18 municipal derivative transactions entered by the firm during the period July 1, 2005 through July 31, 2005. The transactions were traced from RiskLab into RIO.<sup>39</sup> The staff noted that RiskLab has limited individual trade information; however, the staff was provided with RiskLab screens outlining new trades entered into the system on trade date. Furthermore, for the staff's sampled trades, RiskLab conducted sensitivity calculations that were traced to RIO. No deficiencies were noted.

Additionally, the staff sought to conduct a review of the municipal derivatives risk data captured by RiskLab and RIO. As a result, for July 6, 2005 and for the municipal derivative trades within the ten-year risk bucket, the staff selected to review the DV01 figures captured by RiskLab. The staff traced the DV01 amounts from RiskLab to RIO. No deficiencies were noted.

### **iv. Mortgage Derivatives**

Mortgage derivative transactions are processed in the same manner as municipal derivatives (*i.e.*, trade capture in Summit and Exotica, through RiskLab, to RIO). At the time of the staff's review, BSCM had only one mortgage derivative trader, Lynn A. Paquette ("Paquette"). Paquette has over ten years of mortgage derivative trading experience at Bear Stearns.

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<sup>39</sup> BUCs are responsible for reconciling between front office and back office systems; however, RiskLab is a front office risk analytics tool reconciled by the firm at this time.

The staff attempted to test a sample of six mortgage derivative trades entered by the firm during the period July 1, 2005 through July 31, 2005. However, of the six trades selected, three were pair-off trades, and thus excluded from RIO. The staff sought to verify the trade process into the risk control systems and into RIO for the remaining three trades. The staff's review revealed that all three trades had been entered into a Unix database, a trade entry system.<sup>40</sup> The staff traced two of the trades, both with trade date July 26, 2005, from the Unix database into RiskLab.<sup>41</sup> However, the staff noted that the third trade, an interest rate swap with a notional value of \$85 million and trade date July 6, 2005, was not captured by RIO until approximately July 18, 2005.<sup>42</sup> According to Garter, the trade's pricing model was still being programmed by Paquette, and thus, she intentionally prevented the trade from flowing into RIO until such modeling and risk measurements were refined in the system. The staff is concerned that the mortgage derivative trader has the ability to prevent the trade flow downstream into RIO.

Additionally, the staff conducted a review of the mortgage derivative risk management reports for accuracy and comprehensiveness. Because RIO does not have individual trade information, the staff sought to trace risk sensitivity, namely DV01 data, from RiskLab into RIO to ascertain whether trade data was adequately captured by the systems. As of July 26, 2005, the staff noted that the firm provided the staff with detailed trade-by-trade DV01; however, the staff noted a difference in the DV01 between the Unix database and RiskLab, which amounted to 300 DV01. Also, the staff noted that the VaR computation differed by approximately \$2,000 between RiskLab and RIO due to a "residual VaR" which was erroneously included in RiskLab. The staff was informed by the firm that the residual VaR was corrected in September 2005.

## **8. Stress Testing**

The staff interviewed Bellacosa, who serves as the head of MRM's stress testing project. MRM conducts daily stress testing and scenario analysis for most of its businesses. The two goals of stress testing are to evaluate the firm's capacity to absorb potentially large losses and to identify the steps to take to reduce its risks and conserve capital.

At the time of the staff's review, stress testing was performed across all desks with the exception of the Max Recovery and EMC trading desks. The stress scenarios included the following historical events: September 11, 2001, the Russia/Long Term Capital Management Crisis of 1998, the Stock Market 1987 event, the 1994 Peso Devaluation, the 1997 Asian Flu, the 1994 Fed Hike, the Past two years' worst loss (one week scenario only), the Mid 2003 Rate Spike, and the Early 2004 Rate Spike.

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<sup>40</sup> Summit and Exotica are Unix-based systems. The three trades sampled were non-STP trades, and thus were manually entered into the Unix database.

<sup>41</sup> Because RIO does not contain individual trade information for mortgage derivatives, the staff traced DV01s from RiskLab into RIO. No differences were noted by the staff.

<sup>42</sup> Garter verbally informed the staff that the trade was finally captured on or about July 18, 2005. However, he could not verify that the date on which the trade was finally captured by RIO was in fact July 18, 2005 due to the complexity of the systems and volume of the data analyzed. The staff was provided documentation that all three trades tested were captured by RIO as of July 26, 2005.

For each of these events, MRM includes the effects that occurred on the specific day, the subsequent week, and the entire month following the event. The firm also conducts hypothetical firmwide stress testing incorporating the effects of several different factors. These factors include: interest rate rise and fall, bear flatten two-year, bull steepened, two-year equity drop, high-grade spreads widen, high-yield spreads widen, and emerging market spreads widen. Each of the hypothetical scenarios includes three individual portfolio scenarios: a 25%, 50%, and 100% effect. As a result, for each interest rate hypothetical scenario, the change in the portfolio is based on a 25, 50, and 100 basis point rise or fall. In addition to the firmwide P&L figures, MRM has the ability to break out the totals by desk and their associated time series.

Currently, the daily summary level firmwide stress testing is distributed to the Executive Committee in the daily RIO package. A monthly summary of the report is also submitted to the Executive Committee. The complete firmwide stress testing data, including the detail for all desks, is distributed via e-mail to all of MRM daily. Furthermore, individual Risk Managers forward the stress testing results to the trading desk heads.

The staff conducted a review of the stress test scenario analyses for the period April 19, 2005 through August 9, 2005. No material outlier stress test results were noted in this review.

## **9. Price Verification**

### ***a. Background***

Bear Stearns has established a MTM Committee responsible for overseeing the monthly firmwide price verification process and ensuring that the approaches used to validate the firm's valuations independently are robust, comprehensive, and effective. Risk Managers are responsible for submitting a monthly price verification memorandum to the MTM Committee informing the Committee members of the findings of the review. The MTM Committee is composed of senior management, MRM, and BUCs. The firm's risk management personnel work closely with the BUCs in preparing for the price verification process, also called the XPOS process; however, specific price verification responsibilities for MRM and BUC are not formally established in the firm's policies and procedures.

The firm maintains policies and procedures related to the price verification process. As stated previously, the price verification process is conducted monthly; however the firm expects all positions to be formally reviewed on a monthly basis. Nonetheless, the firm's policies state that each position should be independently reviewed at least quarterly.<sup>43</sup>

### ***b. Staff's Review***

#### **i. Commercial Mortgages**

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<sup>43</sup> Exceptions to the quarterly standard can be granted by Neff or the MTM Committee.



At month end, MRM is responsible for ensuring all mortgage positions are accurately priced. Lombardo primarily focuses on fixed rate loans within the commercial conduit.<sup>44</sup> The staff reviewed fifteen of these mortgages using an analysis of the July 29, 2005 and August 31, 2005 mortgage values. According to Lombardo, the benchmark economic indicator to price this book is the ten-year Treasury note. The staff compared the price increase or decrease to the ten-year Treasury note change over the same period. Nine of the 15 trader marks reviewed were less than the ten-year note change of 2.17%. Six of the marks were higher than the ten-year note change, with the highest being 2.57%. The differences between the actual mark and the ten-year note change ranged from .03% to .79%, which represents market value differences between \$93 and \$1,047,716. Lombardo indicated to the staff that he does not utilize specific price verification thresholds that would prompt further discussion or reviews. The staff believes the firm should enhance written policies to include procedural controls to require trader level or portfolio reviews based on predetermined thresholds.

## **ii. Residential Mortgages**

The staff requested a pricing explanation from MRM and the trading group for a selection of ten ARM loans and their corresponding marks between June 30, 2005 and July 29, 2005. Bret Ackerman (“Ackerman”), a residential mortgage trader, provided the staff with an explanation of how the sampled transactions were priced by the desk. According to Ackerman, the benchmark economic indicators for the ARMs desk are as follows: senior bonds are priced to swap spreads, while investment grade and non-investment grade loans are priced on a spread to Treasury securities. Positions are marked to market on a daily basis. Lombardo indicated that no specific thresholds are utilized for the review of residential loans; however, he indicated that he does not usually see large increases in the market values of these loans due to the generally short period between the acquisition of the loans and their subsequent securitization. The staff believes the firm should enhance written policies to include procedural controls to require trader level or portfolio reviews based on predetermined thresholds.

## **iii. Municipal Derivatives**

The staff conducted a review of the price verification process for municipal derivatives. The process is headed by Bellacosa’s risk management team, which consists of two risk management analysts. At month end, BUC personnel and the risk management analysts are responsible for obtaining various relevant municipal derivatives curve data, such as the Municipal Bond Market Association (“BMA”) Index.<sup>45</sup> For several positions in the municipal derivatives book, risk management compares counterparty market values to the municipal trader’s market values.<sup>46</sup>

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<sup>44</sup> Due to the nature of floating rate loans, Lombardo does not conduct price verification functions for floaters in the Commercial Conduit Desk because the floating loan values tend to remain at par while the interest rate changes over time.

<sup>45</sup> The Municipal BMA Index, formerly known as PSA Index, is a weekly high-grade market index comprised of seven-day tax exempt variable rate demand notes produced by the Municipal Market Data. The BMA Index yield is quoted every Wednesday.

<sup>46</sup> According to Bellacosa, for each trading book, the number of sampled positions reviewed by the analyst for market value comparison is not predetermined and depends on the analyst.

For some books, the risk analyst also compares basis point differences between the counterparty market values and the trader's market values. Positions that have sizable market value differences are compared to the corresponding BMA Index or other municipal swap curve to ensure that the trader is pricing positions according to the principal curve for that trading book. According to Bellacosa, the firm has not established municipal derivative pricing thresholds for its price verification process.

The staff conducted a review of the municipal derivative price verification process for all trading books for the month ending July 29, 2005. The staff reviewed a total of seven municipal derivative trading books. The staff noted that the municipal derivative risk management analyst did not have a consistent method for analyzing the pricing marks. According to Bellacosa, in some books, small basis point differences or market value differences may be significant while in others, larger basis point differences or market value differences may be insignificant. According to the XPOS report, reviewed by the staff as of July 29, 2005, no price adjustments were made during the staff's review period. According to the firm's XPOS reports, the aggregate cushion for all seven municipal derivative trading books was \$664,683. For all long and short values, a cushion exists when Bear Stearns' pricing marks are more conservative than those of the counterparty.

#### **iv. Mortgage Derivatives**

MRM is responsible for the mortgage derivative price verification process. Due to the complexity of mortgage derivative products, MRM employs various methods for determining the accuracy of the trader's marks. MRM performs independent price verification for 100% of the positions held in inventory. The staff sought to understand the process for balanced guaranteed swaps and caps, which are mortgage swaps subject to pre-payment risk. The staff was informed that such swaps are one of the products to which MRM devotes significant attention due to their risks, as well as their pricing and modeling complexities.

The staff selected to review the price verification process for balanced guaranteed swaps and caps as of August 31, 2005. The staff was provided with a spreadsheet containing all mortgage derivative portfolios. The price verification spreadsheet contains data from Datawarehouse, which is a books and records database containing inventory marks. Additionally, the spreadsheet compares the Datawarehouse data to two pricing curves, which are relevant to the pricing of these swaps. The two pricing curves, called Blank Curve and Mark-IT curve, contain pricing models derived from yield curve data from Summit and from internal volatility skews, respectively. MRM is responsible for reviewing the differences between the Datawarehouse MTM and the Blank Curve and Mark-IT curve. The spreadsheet also outlines a cushion or exposure for each of these curves. According to Garter, the firm does not maintain pricing thresholds for individual review of derivative pricing marks. Garter indicated that if he identifies significant price differences, he will review pre-payment assumptions due to the fact that the two aforementioned curves do not contain pre-payment assumptions yet the trader's pricing models do. Garter indicated that pricing adjustments are rarely done due to the conservative nature of the firm's mortgage derivative pricing methodology.

#### **v. Credit Default Swaps**

The CDS price verification process is conducted on a monthly basis by MRM. Within each trading book, the aggregate of all corporate positions in the book is translated into a DV01 equivalent. Further, all positions are broken down into maturity buckets ranging from three months to ten years. For each maturity bucket, CDS risk management compares the trader's corporate spread versus Market Partners corporate spreads.<sup>47</sup> MRM is responsible for conducting a comparison for all positions' DV01 by maturity. The multiplication of the DV01 figure by the spread risk difference constitutes the aggregate difference in market values between Market Partners and the firm. Differences are recorded in the spreadsheet. If material, the differences identified may warrant a pricing reserve, which is calculated by MRM. However, according to Jakob, most differences are recorded in the spreadsheet and verbally discussed with the trader to avoid a recurrence in subsequent months.

The staff conducted a review of two CDS trading books, the High-Grade Book and the High-Yield Book. The staff noted various differences in prices between the trader's mark and the Market Partners mark. However, no specific thresholds for review and investigation of price differences were noted by the staff. The staff noted that although Bear Stearns has policies related to price verification, the firm should implement procedural controls to require trader level or portfolio reviews based on predetermined thresholds.

## **10. Aged Inventory**

### ***a. Background***

The firm's Market Risk Manual defines the objectives of a general aged inventory review. These include the identification, tracking, and reporting of positions that have been on the books for over 90 days. The procedural standards focus on general firmwide aging principles, but do not address the details of any process specific to the variety of products traded across the firm. In addition, the standards recommend certain aging principles for Risk Managers, but are vague with the specific business areas where these recommendations should be implemented. The staff's review was limited to residential mortgages, commercial mortgages, and CDSs. The firm does not age inventory for municipal derivatives and mortgage derivatives due to the fact that these positions are long-term holdings in the balance sheet, and thus are not aged.

### ***b. Staff's Review***

#### **i. Commercial Loans**

Lombardo is currently responsible for aging inventory within the commercial loan business. MRM's aging inventory reports are derived primarily from GOTS.<sup>48</sup> The staff was informed that commercial conduit loans are the only commercial loan product aged, and the threshold for reporting is over 180 days and \$3,000,000. The staff selected ten commercial conduit loans from

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<sup>47</sup> Market Partners is an independent vendor that gathers credit spread data from 49 vendors. Market Partners data is received daily; however, the data is informally reviewed twice a week for accuracy.

<sup>48</sup> In addition to GOTS, the system utilizes an Active Log Report that captures data from the commercial loan database.

a loan inventory report dated July 29, 2005 and produced by GOTS. This report identified each commercial conduit loan, activity within the portfolio, and its corresponding issue date. The staff's loan selections had issue dates beyond 180 days and were not listed on the commercial conduit aged inventory report for June or July 2005. After presenting this information to Lombardo, the staff was informed that the GOTS report also contained loans that had been securitized and no longer held value. After further examination of the GOTS report and the June and July 2005 aged inventory report, the staff noted no exceptions.

## **ii. Residential Loans**

During its review of residential loans, the staff learned that EMC produces a separate monthly aging report for all loans and properties held in its balance sheet. MRM does not have responsibility for the creation or monitoring of EMC aged loans. The staff reviewed the May, June, and July 2005 reports that Lombardo received as part of an EMC accounting package. The staff noted that the May and June 2005 reports were distributed ten and eleven weeks after the respective month end. The staff was also informed that the July 2005 report was not distributed as part of the accounting package due to the fact that the August 2005 reports had been completed at that time. The staff was informed that the typical lag time with the report production and distribution ranged from 30 to 60 days and is typically part of a larger monthly accounting package. The EMC Aging Inventory report is created using WITS and monitors aging of loans and real estate owned property for 19 term buckets ranging from 0 to 30 days to over 4 years.

## **iii. Credit Default Swaps**

MRM is responsible for reviewing CDS aged inventory. MRM produces a monthly projection at mid-month to report all anticipated aged inventory to the firm's traders. All positions are subject to a 90-day look-back period, which serves to calculate the Starting Aged Position. Subsequently, the firm subtracts the sum of all risk reducing trades to determine which positions are truly aged. For example, sell or swap terminations represent risk reducing trades. As such, the firm employs an aging inventory methodology for these swaps similar to the First-In First-Out accounting methodology.

The staff sought to conduct a review of the firm's aging inventory reports for accuracy. Due to the large number of securities positions held by the CDS desk, the staff selected five positions for which to review the mid-month aged inventory projection report as of July 14, 2005, and compared it to the July 29, 2005 aged inventory report. The process between these two reports works identically to the month-end process. Thus, beginning July 14, 2005, the staff subtracted the daily risk-reducing trades to derive the final aged inventory figures as of July 29, 2005. No differences were noted by the staff.

# **11. Model Validation for VaR and Pricing Models**

## ***a. Pricing Models***

Bear Stearns has established a pricing model validation group headed by Viatcheslav Obratsov ("Obratsov"), Head of the Model Review group. The pricing model validation group, located in

London, England, employs various risk analysts responsible for conducting pricing model validation reviews for derivatives pricing models and other models.<sup>49</sup> According to Obraztsov, in approximately a three-year period, the group has completed pricing model reviews and validated over 140 derivative pricing models. Most models validated are created by FAST but independently validated by the pricing model validation group. The staff noted that the firm has general pricing model policies but no specific procedures related to the pricing model review process.

The pricing model validation group has classified its model review process into a pre-approval process and a re-review process. The pre-approval process applies to the review of entirely new models and the application of previously validated models to new products. Within the pre-approval process, a fast-track review is adopted for minor modifications to the design or usage of existing models. A full review process is conducted for major releases of new models. The re-review process is performed on all models previously validated that required enhancements or recommendations to be implemented by FAST.

The model validation group is responsible for reviewing models related to pricing inventory positions, models valuing reserves, models valuing Greeks, and models generating risk parameters for senior management. The model validation group is responsible for reviewing mathematical and financial assumptions, specifics of the model input parameters, and numerical implementation. Additionally, the group is responsible for examining model calibration techniques, pricing approach, model integration within the firm's trading and risk systems, calculations of Greeks, and risk reporting. The model review reports contain the review scope and recommendations made by the reviewer. Upon completion of the model review process the model review report is issued. Prior to issuance, the model review reports are presented to the Model Review Committee ("MRC"). The MRC meets six times a year, or approximately every two months.<sup>50</sup>

The staff conducted a review of ten pricing model reports, which included an MTM Valuation Review report. All reports were reviewed by the MRC and issued between early 2004 and early 2005. All ten reports contained one or more recommendations for pricing model improvement. Although the model pricing group's recommendations are tracked via a spreadsheet and presented to the MRC during each meeting, the staff noted that the pricing model group's recommendations do not appear to be implemented in a timely manner. For example, three of the ten pricing model reports reviewed recommended that a more advanced pricing model approach be implemented; however, all three aforementioned pricing model recommendations are either pending release or are yet to be programmed/modeled for release. Additionally, the MTM Valuation Review report issued for mortgage derivatives cited concerns with outdated

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<sup>49</sup> According to Obraztsov, the group was created to perform pricing model validation for derivatives models; however, at this time the group can focus on validating other models across the Bear Stearns entities. Obraztsov informed the staff that the group recently completed a pricing model validation for EMC's performing loan model and is in the process of reviewing EMC's non-performing loan model.

<sup>50</sup> The MRC is comprised of senior management from MRM, GCD, FAST, and senior management from the business unit managers who have experience developing and using the firm's trading models. The MRC works with MRM personnel to ensure that pricing models are independently vetted and controlled.

models created a decade ago and limited documentation on how the models work; however, no recommendations for corrective action were made in this review.

**b. Value-at-Risk Models**

The firm does not have a model validation process in place for its VaR models. FAST has been instrumental in developing the VaR models for most of the firm's businesses. The staff met with Manoj Singh ("Singh") to discuss the firm's VaR models and their data inputs. Singh indicated to the staff that the firm conducts a one-time validation process prior to the implementation of a new VaR model; however, at the present time the firm does not periodically evaluate the VaR models.

The staff sought to review the data inputs into RIO and the key sensitivity data imbedded within the system to enable the computation of VaR. Singh explained to the staff the processes undertaken by the firm's system to facilitate RIO's calculation of VaR. The firm has created a Unix database that maintains multiple files for each of the firm's business products. The Unix database is read by RIO on a daily basis; subsequently, RIO utilizes the risk data from the Unix database to derive the daily VaR calculation. The staff performed a review of six Unix database files related to corporate and mortgage risk factors and sensitivities for the period September 16, 2004 through September 16, 2005.<sup>51</sup> The corporate risk factors reviewed by the staff are utilized by the CDS and municipal derivatives VaR models, while the mortgage risk factors are utilized by the residential mortgage, commercial mortgage, and mortgage derivative VaR models. The staff noted that two of the six Unix files reviewed were not updated on a weekly basis as required by the firm's procedures, but rather, had update gaps of from several weeks to a month. The two files related to corporate spread data and sensitivities. As a result, the firm's daily VaR amounts for all corporate related products could be based on stale data at any point in time. Additionally, the staff recommends that the firm establish a periodic model review process as required by Exchange Act Rule 15c3-1(e)(d)(1)(ii).

**12. Backtesting**

Elaine Hutchinson ("Hutchinson") is responsible for monitoring and reviewing daily and weekly backtesting results across all firm portfolios. MRM compares each day's reported P&L with the previous day's reported VaR scaled at 70%, 90%, 95%, and 99% confidence intervals. For losses greater than the reported daily VaR, MRM investigates and logs explanations for the outlier data into RIO. MRM distributes backtesting results, generated by RIO, to senior management on a daily basis.

At the present time, MRM has fully implemented a backtesting methodology for "dirty P&L" (Bear Stearns defines "dirty P&L" as a P&L figure that includes fees). Nonetheless, in addition to dirty P&L, the firm intends to capture "static P&L" (a clean P&L figure that simply calculates the P&L impact in a position from one date to another) and "fee-adjusted P&L" (a figure calculated from dirty P&L, excluding fees and other non-trading P&L impacts from dirty

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<sup>51</sup> The staff conducted a one-year review for corporate spreads; however, mortgage sensitivity data, which is received daily, was reviewed for shorter time periods.

P&L).<sup>52</sup> However, currently Bear Stearns produces accurate backtesting reporting figures solely for dirty P&L, while static P&L and fee-adjusted P&L are still in various stages of development for many portfolios. MRM is currently striving to complete static P&L for all portfolios in the near future. Once static P&L is in place, the firm will commence formal quarterly reviews of backtesting results, as recommended by Basel guidance.

The staff conducted a review of backtesting data for CDSs, FIDs, and mortgages for the 12 month period ended September 1, 2005. The staff identified two outlier results for the CDS business unit for this period. The staff obtained the daily backtesting log and noted that both outliers were properly investigated by MRM with specific position or P&L being attributed to the outlier results. No deficiencies were noted.

#### **Findings:**

- **The firm has a set of general policies but no procedures for its MRM functions.**

As a result, the firm has established limited policies addressing new trading limits, limit breaches, exceptions, limit reporting, and all other risk management controls. These policies should be enhanced to provide more specificity of the risk management procedures utilized.

- **The firm does not maintain an overall firmwide VaR limit.**

Bear Stearns does not have a Board or Committee approved overall firmwide VaR limit for its aggregate businesses that is sub-allocated downstream to its individual business lines. Based on industry practice, the staff believes that implementing a firmwide VaR limit established at a Board or Committee level would enhance its internal risk management controls.

- **Certain business heads can establish new trading limits and approve existing limit breaches with their sole written approval without direct approval from MRM.**

Risk management receives a copy of the limit approval memorandum after the limit has been established. The staff believes that requiring Risk Management approval in establishing trading limits and limit breaches will strengthen the Risk Management control function.

- **The firm's stress testing results are not the subject of periodic formal discussion of risk committees or other management discussion.**

Stress testing is produced daily for a variety of historical and hypothetical stress scenarios and is distributed via e-mail to senior management. However, the stress testing results are not formally incorporated into the firm's risk management framework. Also, two business areas, Max Recovery and EMC, are not included in stress testing scenarios. Since the staff's fieldwork completion, EMC is now added to the firm's stress test scenarios.

- **Differences in the firm's MRM reports were identified by the staff.**

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<sup>52</sup> P&L is calculated by MRS, a P&L system.

The staff conducted various MRM reviews and tests of the daily risk management reports and systems. The reviews identified certain differences as follows:

- The staff's data integrity review of EMC Core Loan Group's loans revealed that the EMC whole loan feed into RIO did not properly include unsettled positions.<sup>53</sup> The staff was informed that a new feed is to be completed shortly.
  - The staff is concerned that a mortgage derivative trader has the ability to prevent new trades from flowing into RIO. For example, a sample review of three mortgage derivative trades revealed that one with trade date July 6, 2005 was not processed by RIO until approximately July 18, 2005. This delay was due to the fact that the desk trader was still programming a pricing model for the trade in the Unix database.
  - For residential and commercial mortgages, the Mortgage Risk Management reports included VaR figures different from those in the Firmwide VaR Report. The differences were due to the fact that Mortgage Risk Management utilized an earlier version of the Firmwide VaR Report for that day.
  - The staff's review of CDS limit reporting for the period July 1, 2005 through August 31, 2005 revealed that certain issuer limit approvals were not obtained in a timely manner. The review also revealed that certain CDS issuers that had exceeded their spread limits, market value limits, and/or default to zero limits were not reported by risk management in the daily limit notification reports during the same period.
- **At the time of the staff's review, the firm's backtesting of "clean" or static P&L had not incorporated various businesses.**

The firm has completed its programming and coding for dirty P&L, while static or clean P&L is still in development for many trading areas. Basel guidance states that it is most appropriate to utilize clean P&L when performing backtesting.<sup>54</sup>

- **According to the firm, the FAST team conducts a one-time validation process for its VaR models upon release; however, the firm needs to establish controls and written procedures related to the update of VaR data inputs and a periodic model review process.**

The staff sought to review the data inputs that are read by RIO for purposes of calculating daily VaR. The staff reviewed six data files within the Unix database, which are inputs into RIO. The staff noted the firm's failure to update on a timely basis two of the six files used for sensitivities of corporate/credit spreads in that the data inputs, for which the firm's internal practice requires a weekly update, had gaps of from several weeks to a month without the updated spread/sensitivity information. As a result, the firm's daily VaR amounts could be based on stale data at any point in time. Additionally, the staff recommends that the firm establish a periodic model review process as required by Exchange Act Rule 15c3-1(e)(d)(1)(ii).

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<sup>53</sup> EMC Core Loan Group is a group headed by Jonathan Babkow ("Babkow"). Babkow's group is responsible primarily for non-performing and Scratch and Dent loans.

<sup>54</sup> See "Supervisory Framework for the use of 'Backtesting' in Conjunction with the Internal Models Approach to Market Risk Capital Requirements," January 1996.



- **The firm should enhance its pricing model validation policy to provide more specificity as to the procedures to be utilized.**

The pricing model validation team has focused on reviewing pricing model validation for derivatives. Additionally, the team has completed one EMC performing model review and is in the process of validating the EMC non-performing model. The staff reviewed ten model review reports from early 2004 to early 2005. The review of the ten model review reports disclosed the following:

- An MTM Valuation Review report issued on the valuation of mortgage derivatives cited concerns with outdated models created a decade ago and limited documentation on how the models work; however, no recommendations for corrective action were made in the review.
- Three of the ten pricing model reports reviewed recommended that a more advanced pricing model approach be implemented; however, the staff noted delays in the implementation of the pricing models. The three pricing models are either pending release or are yet to be programmed/modeled for release.

- **Price verification policies and procedures need to be enhanced.**

A review of the firm's price verification process revealed that existing policies need to be enhanced to include procedural controls to require trader level or portfolio reviews based on predetermined thresholds. Additionally, MRM and BUC responsibilities regarding price verification should be documented.

- **The firm needs to enhance its policies and procedures regarding the aging of inventory.**

For the products reviewed by the staff, the firm currently ages inventory for residential and commercial mortgages and CDSs. Bear Stearns policies and procedures need to be enhanced to encompass each business' aged inventory procedures. The staff is concerned that MRM does not receive an aging inventory report on residential mortgage loans on a timely basis. Moreover, Mortgage Risk Management is not the primary reviewer of this report; rather, the report is disseminated to various managers for review. For example, the staff noted that on August 23, 2005, Mortgage Risk Management received a copy of an EMC Aged Report for the period ending May 31, 2005; as a result, MRM is reviewing a document that is about 11 weeks aged.

## **E. BUSINESS CONTINUITY PLANNING**

### **1. Overview**

The senior management group primarily responsible for implementing Bear Stearns' business continuity plan ("BCP") consists of Peter Richards, the SMD of Information Technology; Ken Silverstein, SMD of Operations Administration; and Terrance Berland, SMD of Administration. These individuals report to the Chief Information Officer, Director of Operations, and Chief Financial Officer, respectively. Bear Stearns maintains an overall BCP as well as BCPs for its various business units and branch offices. The most recent version of the BCP was completed in December 2004 and approved by Sam Molinaro, the Chief Financial Officer.

## **2. Scope of Review**

The staff interviewed the BCP senior management team and reviewed the firm's overall BCP as well as branch office and business unit plans. In addition, the staff reviewed evaluations of the firm's BCP testing over the past two years. The staff examined Bear Stearns' program for progress towards the sound practices goals described in the Interagency Paper on Sound Practices to Strengthen the Resilience of the U.S. Financial System ("White Paper") and for compliance with NYSE Rule 446.

## **3. Description of Facilities**

The primary facility for the firm's trading operations is located at 383 Madison Avenue (Midtown Manhattan) with backup facilities located at the Bear Stearns campus in Whippany, NJ. The backup facility is approximately 30 miles away from the primary site in Midtown Manhattan. At the Whippany facility the firm operates two separate data centers that share processing duties. Each is capable of managing the entire firm's operations in the event the other is disabled, and each acts as a backup for the other. The firm currently operates a remote backup facility at an IBM data storage center in Sterling Forest, NY. The Sterling Forest facility is located approximately 32 miles from Whippany. Bear Stearns plans to replace its Sterling Forest operations with a new facility in Boulder, Colorado by March 2006.

The firm's Operations group is located at MetroTech offices in Brooklyn, NY. The primary backup facility for Operations is 383 Madison Avenue. Should 383 Madison Avenue become inaccessible, most of Operations would move to the Whippany facility. The Operations group for the firm's fixed income trading would move to CTC, located in Princeton, NJ. Bear Stearns has separate facilities at the Whippany facility for the trading and Operations groups and can accommodate both groups simultaneously.

All data from the main trading and operations centers are mirrored to Whippany in a synchronous format. When the remote disaster recovery site in Boulder becomes operational, information will be mirrored to it in an asynchronous format due to the distance of transmission. In the event Bear Stearns personnel are unable to access disaster recovery facilities, the firm has provided key employees with remote access capabilities allowing them to work from home. The firm maintains sufficient bandwidth for all such employees to access the systems simultaneously.

## **4. Compliance with NYSE Rule 446**

NYSE Rule 446 requires member firms to do the following: develop a BCP program, conduct an annual review of the plan, and disclose to its customers how the firm expects to deal with a significant business disruption. In addition, NYSE Rule 446 sets forth 10 elements that must be included in all BCPs. The staff reviewed the firm's BCP and met with personnel primarily responsible for implementing it. Bear Stearns satisfies all minimum elements required by NYSE Rule 446. Per the requirements of the rule, the firm provides a notification to customers that discloses how the firm will address significant business disruptions and how customers can access their funds and securities in the event of such a disruption. The notice is included in the account opening documentation and can also be found on the firm's public website.

## 5. Compliance with the White Paper

On April 8, 2003, the Federal Reserve, the Office of the Comptroller of the Currency, and the SEC issued the White Paper. The White Paper describes a set of sound practices relating to BCP that were identified by industry participants during a series of interviews and meetings with the agencies. The agencies intentionally avoided a regulatory scheme that would require all firms to take the same actions with respect to BCP, instead issuing general goals that each firm could address according to its individual profile. Below are the major elements.

*Identify clearing and settlement activities in support of critical financial markets.*

Bear Stearns is considered significant in the fixed income securities market. The firm's BCP addresses all phases of fixed income transactions from order entry to clearance and settlement. In addition, Bear Stearns applies its BCP across all business lines, thereby ensuring that, in the future, any market in which Bear Stearns becomes significant will already have adequate BCP processes ensuring continuity of operations.

*Determine appropriate recovery and resumption objectives.*

Bear Stearns has enough "hot" seats at BCP locations available to trading and Operations personnel to resume business operations in critical markets within one business day. According to the firm, based on the time of day of a disruption, transaction data should be recovered in four to twelve hours. The firm's planned facility in Boulder is expected to achieve recovery in less than four hours, which is the goal set forth in the White Paper. Since this site has not begun operating, it is not known through testing whether the expected recovery time can be met. The staff will review the firm's testing of the Boulder facility in its next examination.

*Maintain sufficient geographically dispersed resources to meet recovery and resumption objectives.*

Current distances between primary and backup facilities in trading, operations, and data processing are within industry norms and meet the White Paper objective of not sharing infrastructure and proximity with one another. The geographic spacing regarding data centers will change drastically with the opening of the Boulder data center, which will back up the Whippany facility in the event of a significant disruption.

*Routinely use or test recovery and resumption arrangements.*

The firm regularly tests data recovery and personnel usage of BCP facilities and systems. The firm has had occasion to use these facilities during the past few years without major problems. In October 2005, the firm participated with other large securities firms in a test of backup connectivity and reported successful interactions with all firms with which it currently operates.

### **Finding:**

- **Bear Stearns does not test the ability of the Sterling Forest facility to function as an emergency backup of its primary data center.**

The firm's response to the staff's finding is that it operates two data centers at Whippany and that each one is a backup for the other. The Sterling Forest site is treated as a secondary backup, not subject to the testing expected of a primary backup site. The staff believes that while

Whippany A can backup Whippany B (and vice versa) in the event of a small scale disruption such as an IT intrusion or building specific event, the firm runs the risk of both facilities being affected by the same event in that they are close in proximity and share infrastructure and personnel. If the two Whippany facilities are affected in a single event, Sterling Forest would be the primary backup site. As such, the firm should test the backup site. When the Boulder site becomes active, Bear Stearns should test the site as its primary data center backup.

**F. LEGAL AND COMPLIANCE**

**1. Overview**

The firm’s L&C function is organized as two separate departments within Bear Stearns, but there is often much collaboration between them. L&C is structured by product line or geographic location, and supports the consolidated business units in an advisory capacity while performing some level of surveillance and various other roles such as training and education.

L&C staffing levels have changed significantly over the past three years as follows:

|                   | <b>2003</b> | <b>2004</b> | <b>9/7/2005</b>          |
|-------------------|-------------|-------------|--------------------------|
| <b>Legal</b>      | 169         | 178         | 216                      |
| <b>Compliance</b> | <u>91</u>   | <u>144</u>  | <u>130</u> <sup>55</sup> |
| <b>TOTAL</b>      | 260         | 322         | 346                      |

Legal has increased its staffing by approximately 28% over the past three years. Compliance is in the process of restructuring and is currently filling various vacant positions. Compliance has increased its staffing during the past three years by approximately 43%.

Legal is led by the firm’s General Counsel, Michael Solender (“Solender”). Solender has been in his current position since January 2004. Tracy Whille (“Whille”), SMD of Global Compliance, leads Compliance. She reports directly to Solender.

**2. Legal Department**

There are 10 Senior Legal Managers, assigned by product line, who report to Solender. Each product line is subdivided by specific product or area. The product lines within Legal include the following: PCS, Investment Banking, Asset Management, FX and Futures, BSSC, International, Derivatives and Fixed Income, Restricted Stock, Litigation and Regulatory, and Equities.

Legal risk management at the firm involves communicating significant L&C issues to senior management and the Board through informal meetings and face-to-face interaction. Solender

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<sup>55</sup> Excludes nine people who moved from Compliance to PCS.

provides the Board with regular reports highlighting pending investigations, litigation, and compliance matters.

***a. Legal and Compliance Guidelines***

The L&C Guidelines were created in August 2005 and apply to all business areas of the firm regardless of legal entity or geographic location. The L&C Guidelines generally discuss the identification and escalation of issues. According to the L&C Guidelines, L&C employees are expected to identify, review, and analyze all L&C risks on a daily basis and should utilize their professional judgment to identify issues. The L&C Guidelines also state that “All L&C employees must escalate to their supervisors matters they deem appropriate.” Supervisors are given discretion as to whether or not an issue is escalated further. The L&C Guidelines also state that individuals who believe that an issue is not being properly addressed by their supervisor should communicate the issue directly to Solender or his designee.

Management within L&C conducts various meetings and relies on several working groups to communicate and provide a forum to resolve issues. A L&C Senior Staff Meeting and a Compliance Senior Staff Meeting are conducted on a weekly basis to discuss regulatory or legal issues affecting the firm. Groupwide issues are addressed during the weekly L&C Senior Staff Meetings. Solender is the Chairman of the meeting. Various L&C issues that may affect the firm, such as new laws and regulations, are discussed and minutes are recorded. Whille is the Chairperson of the Compliance Senior Staff Meeting. Compliance matters that affect the firm are discussed during the meetings. A Regulatory Working Group meets weekly to discuss inquiries, outstanding regulatory requests, examinations, and investigations. Legal has formed a Litigation Working Group that discusses new and active litigation and arbitrations and a Transactional Working Group that discusses transactions executed throughout the firm. The Human Resources Working Group meets on a biweekly basis and discusses human resource and employment matters. In addition, a Legal, Compliance, and Internal Audit Coordinating Group meets weekly to discuss any issues that affect those departments.

***b. ISDA Master Agreement***

The ISDA Master Agreement is an industry standard document that governs OTC derivative transactions. The terms of the agreement are based on the creditworthiness of the counterparty. The Derivatives/ISDA Masters Group is part of Legal. The group is composed of 14 lawyers responsible for negotiating the terms of the ISDA Master Agreement on behalf of Bear Stearns.

**3. Compliance Department**

Compliance works in an advisory capacity, provide training, monitoring, and surveillance. In addition, Compliance drafts policies and procedures to support the businesses in complying with rules and regulations. Compliance personnel are often situated near trading desks or within business units to address and advise on issues in a timely manner.

Whille was hired in April 2005 as the Chief of Fixed Income Compliance. After approximately four months at the firm, she was promoted to her current position. There are nine Senior Managers of Compliance, each assigned to a specific product line or area, who report directly to

Whille. The product lines within Compliance are subdivided as follows: BSSC, Investment Advisory, AML, International, Equities, PCS Compliance, Technology, Fixed Income, and BSIL. Since Whille's promotion, her former position has not been permanently filled, although Carmine Venezia ("Venezia") has been assigned acting Chief of Fixed Income Compliance. Venezia is an attorney, and is the MD of Fixed Income Capital Markets within Legal. There is currently no permanent senior level manager of Equity Compliance.<sup>56</sup>

***a. Core Compliance Procedures***

Every employee of Bear Stearns receives a copy of the Core Compliance Manual for U.S. Employees ("Compliance Manual"). The Compliance Manual applies to every U.S. based employee of every Bear Stearns entity regardless of title, seniority, or geographic location. The purpose of the Compliance Manual is to document rules that Bear Stearns deems necessary to deter wrongdoing and to promote compliance with applicable laws, rules, and regulations. The rules addressed in the Compliance Manual cover topics such as employee trading, gifts and gratuities, registration requirements, and communication with the public. Bear Stearns has also published a Code of Business Conduct and Ethics ("Code"), which is located on the Governance section of the corporate website. The Code sets written standards that the firm deems necessary to promote ethical conduct and compliance with applicable laws, rules, and regulations. The Code was intended to comply with SOX. It is organized into eight sections covering Accountability for Adherence to the Code; Compliance with Applicable Laws, Rules, and Regulations; Conflicts of Interest; Corporate Opportunities; Fair Dealing; Financial Reporting and Disclosure; Protection and Proper Use of Company Assets; and Confidentiality.

***b. Business Specific Written Procedures***

Each business unit has written procedures in place that correspond to the activity of the unit. Compliance relies on the business managers to perform certain surveillance of their respective product areas. Each business unit's written procedures contain a section stating Compliance's roles and responsibilities. These written procedures state that L&C personnel support the department in an advisory capacity and perform certain surveillance; however, they do not have line management authority. In addition, Compliance has developed its own written surveillance procedures for various businesses.

***c. Surveillance Reports***

Compliance utilizes various surveillance reports to monitor business unit activity from an independent perspective. A summary of surveillance reports by business line as well as a copy of the Fixed Income Surveillance Procedures were provided to the staff. These procedures identify the firm's Fixed Income surveillance reports and state the reason the reports are reviewed. The firm maintains similar written procedures for Institutional Equities and the CG.

***d. Control Group***

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<sup>56</sup> Interviews with the firm revealed that Gary Distell is currently the acting Chief of Equity Compliance. He is an attorney in Legal who handles legal issues involving equity securities.

The CG is a division of Compliance. The MD of the CG, Amy Reynolds, reports directly to the Chief Compliance Officer of Equities and ultimately to Whille. According to the firm’s written procedures, the CG maintains the Watch List and restricted lists that enable it “to survey trading and, in certain instances, restrict or limit trading.” CG surveillance analysts monitor trading activity in customer, firm, employee, and employee related accounts.

#### 4. Committees

The firm does not have specific committees whose primary responsibility is L&C management. However, there are several committees that address L&C risk as part of their responsibilities, including the Executive Committee, Management and Compensation Committee (“MCC”), New Products Committee, Disclosure Committee, and Ethics Compliance Committee. As previously mentioned, the firm also relies on various working groups created specifically to address L&C risk on an ongoing basis.

The Executive Committee has been delegated authority by the Board to make policy decisions for the firm. All significant L&C issues are reported to the Executive Committee, which is the most senior-level committee. The MCC is responsible for approving the compensation for employees of Bear Stearns, in addition to considering matters that involve day-to-day business affairs. The New Products Committee reviews special structured transactions and new products, businesses, and transactions from a risk control and monitoring perspective. The Disclosure Committee assists in the review of disclosures to be made by the firm to help ensure that they are complete and accurate, fairly represent the firm’s financial condition, and are in compliance with the requirements of applicable securities laws, rules, and regulations. The Ethics Compliance Committee is responsible for administering and enforcing the firm’s code of ethics.

The firm’s Executive Committee and MCC receive regular updates from Solender regarding legal risk issues. In addition, committee members receive written updates from Legal on new and pending litigation.

#### 5. Staff’s Review

The staff reviewed the firm’s overall L&C risk system, including organizational structure, written procedures, surveillance documentation, and escalation and resolution of issues. The staff also considered the firm’s L&C systems and how they are implemented across both regulated and unregulated material affiliates.

The staff reviewed L&C’s role in five business areas, including EMC, GCS-Prime Brokerage, FID, Leveraged Finance, and the ARMs Trading Desk. In addition, the staff also reviewed L&C’s role in the acceptance and review of new products. These business units book transactions within several different Bear Stearns entities as shown in the following table:

| Business Unit       | Booking Entity |
|---------------------|----------------|
| EMC                 | EMC            |
| GCS-Prime Brokerage | BSSC           |

|                                  |                                       |
|----------------------------------|---------------------------------------|
| FIDs                             | BSB, BSSC, BSIL                       |
| Leveraged Finance                | Bear, Stearns Corporate Lending, Inc. |
| Fixed Income Trading Desk – ARMs | Bear Residential/EMC/BSSC             |

In conducting its review of these areas, the staff interviewed the L&C senior managers and select senior level business persons of the above Bear Stearns entities, in addition to Whille, Venezia, and David Weintraub, MD of Legal.

**Findings:**

**A. General L&C Weaknesses**

The staff noted the following weaknesses in the firm’s L&C controls during its examination:

- **The firm failed sufficiently to document the identification, escalation, and resolution of L&C issues.**

According to Exchange Act Rule 15c3-4, the firm is required to establish, document, and maintain a system of internal risk management controls to assist in managing legal risks. The firm’s written procedures generally state that matters should be escalated to the appropriate parties, but there is no specific escalation process.<sup>57</sup> Thus, the firm failed to maintain an audit trail of issues identified and escalated from subordinates to L&C senior management. The firm’s practices prevented the staff from reviewing the escalation and resolution process in most areas because the issues were not documented.

- **The firm’s L&C monitoring and surveillance system is based on an informal process and does not have the capability to track issues or trends that develop over time.**

Representatives from L&C believe that the firm will be better able to identify trends that develop over time by simply staying abreast of the issues that arise in L&C through daily interaction or meetings. The firm stated that documenting issues that have developed will be burdensome and expose the firm to significant legal risk. However, the staff believes that the documentation of issues is an essential tool for L&C to discover trends and to proactively manage the L&C function.

- **L&C has not formally documented the identification or assessment of all applicable rules, laws, regulatory requirements, and risks pertinent to the entire organization.**

The staff requested a description of how the firm identifies and monitors all laws to which it is subject. The firm responded by stating that L&C professionals must have an understanding of

<sup>57</sup> The staff noted that the CG maintains written escalation procedures; however, these procedures were updated during the staff’s examination and may have been modified to appease the staff’s concerns over escalated items. Subsequently, the staff requested items escalated from the SMD of the CG to the SMD of Global Compliance from the past year, but the firm could not produce such documentation.



the rules and regulations that are applicable to the business unit that they cover. In addition, the organization does not have an inventory of laws and risks that impact its businesses, or a formal risk assessment of those laws. However, the firm expects L&C personnel to keep abreast of the L&C risks for each business unit. Interviews with the firm revealed that certain senior L&C personnel were not aware of all of the L&C risks that threaten the specific business unit under their responsibility.

- **Many of the firm’s written procedures were newly created or updated during the staff’s examination.**

The staff requested L&C’s written procedures for each business unit reviewed. In many instances, they were created or updated during the course of the staff’s examination, apparently in response to the staff’s questions and concerns. As a result, the staff was unable to test the adequacy of the firm’s written procedures in most areas because the written procedures were not in place during the staff’s review period. However, the staff recognizes that updating these written procedures strengthens L&C controls. The following table contains a partial list of written procedures newly created or updated during the staff’s examination:

|   |                           |
|---|---------------------------|
| L&C Guidelines  | Documented in August 2005 |
| Vetting Department Supervisory Written Procedures         | Updated in October 2005   |
| Control Group Written Procedures                          | Updated in October 2005   |
| Control Group’s Expected Announcement Guidelines          | Created in October 2005   |
| Fixed Income Surveillance Written Procedures              | Updated in September 2005 |
| Institutional Equities Compliance Surveillance Procedures | Updated in September 2005 |
| Control Group Review Guidelines: Research Reports         | Updated in May 2005       |

In addition, the following table contains a partial list of business unit written procedures updated during the staff’s examination:

|   |                        |
|---|------------------------|
| BSSC GCS Risk Control Department Supervisory Procedures     | Updated in August 2005 |
| BSSC GCS Accounting Department Supervisory Procedures       | Updated in August 2005 |
| BSSC GCS Sales Management Department Supervisory Procedures | Updated in August 2005 |

- **The firm does not maintain any charters, mission statements, or written procedures defining the purposes of the working groups and other formal L&C meetings included in the L&C Guidelines.**

There are several working groups included in the L&C Guidelines, including the Regulatory Working Group, Litigation Working Group, Transactional Working Group, and L&C Internal

Audit Coordinating Group. In addition, the firm conducts weekly L&C Senior Staff Meetings and Compliance Senior Staff Meetings to discuss L&C issues. The firm maintains minutes for the L&C Senior Staff Meeting, but does not maintain a charter or mission statement. There is also no charter, mission statement, or minutes recorded for the Compliance Senior Staff Meeting.

- **There is no formal process by which individuals are assigned to issues that warrant the creation of a temporary ad hoc working group.**

There is no written documentation of the initiation, progress, or resolution of issues addressed by the ad hoc working groups. The firm provided the staff with a list of working groups with EMC Legal and/or Compliance participation from August 2004 to July 2005. However, this list was based solely on the recollections of EMC employees. A list of working groups was not provided for the other four areas the staff reviewed because, based on employee recollections in each area, no working groups were formed.

- **The firm may want to consider enhancing its process of addressing conflicts of interest between customers and the firm.**

The Ethics Compliance Committee currently addresses conflicts of interest that arise between the firm and senior management. According to the Ethics Compliance Committee charter, “the Committee shall evaluate potential conflicts of interest between the Corporation and its Senior Executives.” However, the firm does not have formalized procedures that address conflicts of interest between the firm and its customers. According to the firm, conflicts of interest are addressed monthly in the L&C Senior Staff Meeting.

- **The firm’s centralized function responsible for writing and updating policies and procedures across the entire organization is newly created and was not in place during the staff’s review.**

The firm has recently implemented the Compliance Coordination Group, which is responsible for writing and updating policies and procedures and vetting new rules. The group is currently staffed by two persons who commenced employment on September 26 and October 10, 2005. A centralized function responsible for updating policies and procedures will enable the firm to maintain consistent procedures that are updated in a timely fashion. Without this function in place, the staff found the firm’s policies and procedures to be of varying levels of completeness, or, in some cases, to be outdated or newly created.

- **Compliance has undergone significant personnel changes, which have left various areas of Compliance understaffed.**

At the commencement of the staff’s examination, the firm had two senior level positions open in Fixed Income and Equity Compliance. The firm has recently assigned two individuals to be the acting managers of Fixed Income and Equity Compliance. Both individuals work in Legal and already have full time responsibilities. In addition, the SMD of Global Compliance was in her current position for approximately one month and employed by the firm for only six months upon commencement of the staff’s examination. As a result, the staff is concerned with the

many personnel movements within Compliance which have resulted in employees taking on multiple responsibilities.

The staff also noted that there are three senior manager positions within EMC. One of the managers was hired in July 2005 and a second manager commenced his employment several months later upon the completion of the staff's fieldwork. Additionally, the Compliance function for EMC was newly created and filled by Gail Andrews ("Andrews"), Senior Vice President and Chief Compliance Officer. Andrews has been in her position at EMC only since July 2005. EMC is in the process of hiring a licensing specialist who will report directly to Andrews. The three senior managers of EMC Compliance have less than one year of experience at EMC, again raising concerns over the adequacy of the compliance function in several areas.

- **The firm has not performed an adequate follow-up review of new products submitted to the New Products Committee in that an independent control function has not performed its own review. In addition, the firm's written procedures do not address the new product follow-up process.**

A New Products and Special Structured Transactions Committee composed of senior level executives was formed in November 2003. Ken Kopelman, SMD of Derivatives and Fixed Income within Legal, is the secretary of the committee. The committee was formed to review new businesses, products, transactions, and arrangements that may increase the firm's risk exposure.

Each new product must be sponsored by a business unit. The sponsor presents the new product to the committee and also submits a written proposal. The Chairman of the committee communicates the disposition of the committee to the sponsor. In July 2005, the firm created a new procedure to document the firm's follow-up on approved new products. The committee submits a document to the business unit requesting a status report of the new product. The business unit's response to this is provided to IAD. The firm provided some evidence that the business unit has responded to the Committee's request for information. However, the firm has not fully implemented the procedure, in that an independent control function has not performed its own assessment of the new product. The staff believes that an independent control function (*i.e.*, internal audit), as opposed to the business unit, should be responsible for commenting on the status of the new product. Furthermore, the firm has not established a written procedure for the follow-up review of new products. Thus, the firm has failed to follow the recommendations stated in the NASD Notice to Members 05-26: New Products – NASD Recommends Best Practices for Reviewing New Products.

- **The firm failed to maintain procedures for its Centralized Compliance Unit ("CCU") in accordance with NASD Conduct Rule 3010 and NYSE Rule 342.**

The CCU is responsible for conducting surveillance reviews for the firm's PCS unit. The CCU is also responsible for conducting firm-wide reviews of employee e-mails by business line. Interviews with the firm revealed that the businesses perform an in-depth review of employee e-mails and the CCU performs a "buzz word" search on employee e-mails. The staff believes that the CCU plays an important role in performing surveillance, and as a result should have effective written procedures in place.

## **B. Weaknesses in Unregulated Products**

The staff noted the following L&C procedure weaknesses during its examination:

- **The firm has not created adequate L&C controls and procedures for unregulated businesses such as the residential mortgage business conducted in EMC and the FID business.**

The staff's review disclosed that the firm has not formally identified and documented the L&C risks associated with EMC and FID. The firm verbally communicated to the staff the three main legal risks that EMC L&C personnel monitor on a daily basis, including state law risk, vendor contract risk, and transactional risk. The firm monitors for these risks by reviewing a series of reports, some of which are produced by EMC and some of which are produced by Quality Control, which is a part of the business unit. The staff noted that although Legal performs these reviews, the reviews are not formally documented. Additionally, the firm was unable to define the compliance risks associated with EMC's business. The firm also informed the staff that the majority of EMC's compliance surveillance is performed by Quality Control.

In addition, the EMC Compliance Department does not utilize any surveillance reports to monitor EMC's operations. Although EMC has embedded many required elements of applicable law in its operating systems, these elements are not defined in the written procedures. Furthermore, although EMC uses subsystems such as ComplianceEase to check compliance with loans it purchases, this function is performed by the business unit, as opposed to Compliance.

It was noted that, although the firm was able to communicate the L&C risks of the FID business, these risks also have not been formally documented. Moreover, L&C does not have any formal record of documentation, escalation, resolution, or tracking of issues for either EMC or FID.

- **The EMC L&C written procedures are inadequate in that:**
  - EMC Legal procedures do not address various reports utilized by Legal, such as Internal Audit reports, Quality Assurance reports, Weekly Intake Reports and the Weekly Action Log.
  - EMC Legal procedures do not address the Mortgage L&C Committee or the New Laws Committee. The Mortgage L&C Committee meets every other week to oversee high cost loan issues. There are seven committee members. On the weeks that the committee does not meet, a subcommittee of three members, called the New Laws Committee, meets to discuss legal developments.
  - EMC Legal procedures do not address law changes. A working group called the Law Change Group was formed in July 2005 to address law changes.
  - EMC Compliance procedures are dated 2001 and apply to the Compliance Audit Department, which no longer exists.

## **C. Weaknesses in Regulated Products**

The following comments relate to weaknesses and deficiencies in the firm's written procedures in which the firm failed to establish, maintain, or enforce its written procedures in accordance with NASD Conduct Rule 3010 and NYSE Rule 342.

- **The firm failed to maintain written procedures discussing the vetting process of prime brokerage clients.**

Approximately six months ago, the firm implemented a New Client Vetting Committee. The purpose of the committee is to perform reviews of existing hedge fund clients as well as to assist in the vetting process of new clients. During the staff's examination, the firm provided the staff with the newly created written procedures regarding this process; however, these procedures were not in place during the staff's review period.

- **The firm's written procedures relating to the Capital Introduction Group ("CIG") do not state the role that L&C has in the CIG process.**

Interviews with the firm revealed that a member of both Legal and Compliance is involved in the CIG; however, CIG written procedures do not state L&C's roles and responsibilities in this group.

- **L&C failed to follow its written procedures concerning the review for QIB compliance for leveraged finance transactions in that the firm failed to document the review of the BCP047-A report.**

The BCP047-A is a report containing accounts that have conducted activity in Rule 144A securities from the previous day and are not coded in the firm's system as having a current QIB certification on file. According to the Fixed Income Surveillance Procedures, the report is reviewed: "for accounts for which Bear Stearns does not have a QIB certification on file on the firm's Excel spreadsheet of QIB certifications. If a QIB certification is required, check Dealogic to ascertain if Dealogic has a certification. If a certification is located on Dealogic, review it for accuracy and print for inclusion of the firm's Excel spreadsheet. If Dealogic does not have a certification, send an e-mail to RR to obtain one, and list the request on the QIB list request list until such time as it is received."

The firm stated that there is a surveillance analyst responsible for reviewing the Dealogic system; however, no documentation of the review is maintained.

- **The written procedures for the CG do not address all surveillance reviews that it conducts.**

For example, the Expected Announcements List ("EAL") and the Pipeline Surveillance Reports were not included in these written procedures. The firm subsequently provided the staff with written procedures for the EAL that were created during the course of the staff's examination.

- **The CG failed to enforce its written procedures by not documenting all surveillance reviews.**

The staff requested evidence that CG surveillance analysts had performed Watch List reviews for a sample of four leveraged finance deals from the past year. Although the firm did provide evidence that some reviews had been performed, it could not produce sufficient evidence that all reviews had been conducted for the deals that the staff selected. For example, the firm provided

the staff with a report that documented the review of trading in securities recently added to the Watch List. However, the firm failed to produce records that evidence the review of the Watch List for the period that the security remained on the Watch List.

- **The CG failed to establish written procedures to document items escalated through the L&C chain of command to the SMD of Global Compliance.**

The staff noted that the CG does not maintain written procedures for the escalation of items from CG surveillance analysts to the MD of the CG or from the MD to the SMD of Global Compliance. The firm updated its written procedures in this area during the staff's examination, but the staff found that the firm had not documented CG's escalations prior to this.

- **The firm does not review mortgage securities transactions in accordance with the criteria identified in its written procedures.**

The Fixed Income Surveillance Procedures state that the MBS/ABS Transaction Report #BMB733 is reviewed for suitability, authority, mark-ups, and manipulative conduct. Interviews with the surveillance analyst who reviews mortgage transactions revealed that he reviews the report solely for markups. The remaining reviews are performed by the business unit.

- **The firm failed to follow its written procedures regarding the escalation and documentation of surveillance review exceptions of mortgage securities transactions.**

The Fixed Income Surveillance Procedures state that "Exceptions are maintained by the compliance analyst in accordance with regulatory requirements." There is no documentation of issue escalation or resolution for compliance issues noted in surveillance reviews. Although surveillance analysts review an exception report called the 48 Hour Price Look Back Report #BMB736 for mark-ups on mortgage products, issues that are escalated are not documented and maintained. There is no record other than miscellaneous notes maintained by the surveillance analyst. Subsequent to the staff commenting on this weakness, the firm informed the staff that it had begun to document and retain evidence of its surveillance reviews.

- **The Fixed Income Surveillance Procedures are inadequate in that they do not address all compliance issues or concerns, such as wash trades and parking. In addition, the firm failed to document these reviews.**

The firm is planning to implement surveillance reports to identify wash trades and parking; however, these written procedures have not been established and the firm has no evidence that these reviews have been conducted.

#### **D. Weakness in Information Barriers**

The staff noted a physical weakness in the firm's L&C controls during the staff's examination. The following weakness applies to the firm's Fixed Income trading desks located on the 8<sup>th</sup> Floor of 383 Madison Avenue.

- **The firm’s physical separation of the Fixed Income trading desks and Leveraged Finance employees should be strengthened to be more consistent with Section 15(f) of the Exchange Act.**

Fixed Income traders are situated on the same floor as the Leveraged Finance employees and there are few physical barriers separating the areas other than a hallway and a glass room for some Leveraged Finance employees. Traders could theoretically walk by a desk in Leveraged Finance and gain access to material non-public information regarding an issuer’s pending leveraged deal. Thus, the firm’s physical barriers for these areas appear to be ineffective.

## **G. ANTI-MONEY LAUNDERING**

### **1. Overview**

As a condition of the Commission’s approval of its application to be supervised as a CSE, BS&Co.’s UHC must agree in its undertaking to establish, document, and maintain procedures for the detection and prevention of money laundering and terrorist financing as part of its internal risk management control system. The staff’s review of Bear Stearns’ AML program focused on the AML Group’s organizational structure, policies and procedures, surveillance, customer identification program (“CIP”), and training, as well as on IAD’s independent test of the program.

The staff conducted a review of the firm’s compliance with the AML provisions of the Bank Secrecy Act and the USA PATRIOT Act as well as their respective regulations. As part of the review, the staff interviewed key AML personnel and reviewed the firm’s AML policies, procedures, and other documentation relating to the firm’s AML program (*e.g.*, independent test reports, due diligence files, and training materials).

### **2. Organizational Structure**

In the summer of 2005, Arlene Semaya (“Semaya”) became the firm’s Chief AML Compliance Officer, replacing Nikki Kowalski. In this capacity, Semaya has daily oversight of the firm’s efforts with respect to AML and Office of Foreign Asset Control (“OFAC”) compliance. The firm’s AML function is composed of the AML Group and the CIP Group. These groups consist of several managers who report directly to Semaya and oversee specific AML functions (*e.g.*, transaction surveillance, customer identification, information sharing, OFAC compliance, and due diligence). In addition, Semaya has responsibility for coordinating the firm’s AML and anti-terrorist financing efforts globally. Semaya reports directly to Beth Golden, the Global Compliance Director and Legal Advisor to the General Counsel, who reports to Solender, the firm’s General Counsel.

The AML Group utilizes a number of committees for key processes. The AML Committee consists of senior management representatives and is responsible for consulting with the Chief AML Compliance Officer regarding the adoption or amendment of AML policies. The Suspicious Activity Report (“SAR”) Committee consists of senior management representatives and is responsible for reviewing and approving all SARs prior to filing. Lastly, the Customer

Review Committee is composed of three senior management representatives and is responsible for reviewing proposed customer relationships escalated by the Chief AML Compliance Officer.

In addition to the processes documented by Bear Stearns' policies and procedures, Semaya holds biweekly conference calls with appropriate compliance personnel to ensure the consistency and quality of AML procedures in affiliated entities. The firm has two sets of AML related policies and procedures: the AML Program procedures (dated May 18, 2005) and the CIP (dated May 25, 2005). These procedures generally address the firm's AML responsibilities.<sup>58</sup>

### **3. Surveillance Program**

#### ***a. Anti-Money Laundering Monitoring System***

Surveillance is primarily conducted through the AML Monitoring System ("AMLMS"), a proprietary software system that generates daily reports of transactions flagged according to a matrix of risk factors. The risk matrix includes, among other things, factors such as client identification data (*e.g.*, jurisdiction and entity type), financial profile, transaction history, and wire and trade activity. Based on calendar year 2004 information, AMLMS flagged an average of approximately 1,500 transactions each day for review. According to Michael Wassell, the firm's Chief Investigator and AML Surveillance Group Head, all of the firm's transactions, including transactions executed in non-U.S. jurisdictions, are reviewed through AMLMS, except for derivative transactions and transactions in the firm's proprietary accounts.

The AML Surveillance Group is responsible for reviewing the reports generated by AMLMS. This group also investigates information referred from other areas within the firm (*e.g.*, the margin department and business units), information referred from outside the firm (*e.g.*, introducing brokers ("IBs"), law enforcement, and regulatory inquiries), and information from third-party vendors that match account holders' data against negative information in the public domain. Based on calendar year 2004 information, the AML Surveillance Group opened more than 200 in-depth investigations, evaluated and approved more than 200 checks and wires referred by other business units, and filed 59 SARs with the Department of the Treasury Financial Crimes Enforcement Network.

The firm is implementing a new transaction screening program developed by Mantas, Inc., a third-party vendor widely used in the financial services community. The implementation date for Mantas is November 1, 2005, but the firm will run both AMLMS and Mantas jointly until the firm is comfortable with the new software.

For testing purposes, the staff obtained a list of all SARs filed during the period from January 1, 2005 to August 8, 2005. Of 56 filed SARs, the staff reviewed nine to test the firm's SARs policies and procedures and due diligence. No deficiencies were noted.

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<sup>58</sup> The firm's AML Program procedures apply to: (1) BS&Co.; (2) BSSC; (3) Institutional Direct, Inc.; (4) CTC; (5) White River Securities, Inc.; and (6) Bear Stearns Asset Management. In addition to the overall firm procedures, CTC has its own AML program, and Bear, Stearns Japan Ltd.; BSIL; BSB; and Bear Stearns Singapore PTE Ltd. have developed and implemented their own AML policies and procedures to comply with their respective regulatory schemes.



## Findings:

- **The firm has not evaluated the money laundering risks associated with its proprietary transactions and has not adopted an appropriate system for monitoring those transactions that pose money laundering risks.**

Pursuant to Exchange Act Rule 15c3-1e(a)(viii)(D), the UHC must agree as part of the “internal risk manage control system for the affiliate group, [to] establish, document, and maintain procedures for the detection and prevention of money laundering and terrorist financing.” The firm does not appear to have evaluated the money laundering risks associated with its proprietary transactions or to have designed, using a risk-based approach, a system to monitor transactions that pose such a risk. The firm should evaluate the money laundering risks associated with its proprietary transactions and adopt a system for monitoring those transactions that pose money laundering risks.

- **The staff’s review noted that Bear Stearns is not surveilling the firm’s proprietary trading accounts that trade through the registered broker-dealer for suspicious activity.**

Under 31 C.F.R. §103.19(a)(2), adopted pursuant to USA PATRIOT Act §356, the registered broker-dealer must, among other things, report a suspicious transaction if the transaction “is conducted or attempted *by, at, or through* a broker-dealer. . .” (emphasis added). The regulation does not exempt a broker-dealer’s proprietary transactions from the reporting requirements and the Department of Treasury has stated that its AML rules are meant to be interpreted broadly. As the firm is not overseeing any proprietary transactions, it cannot determine if there are suspicious proprietary transactions to report.

### *b. OFAC Screening*

OFAC screening is performed through the firm’s Automated Blocked List Screening (“ABLS”) system and the Cage Banking System (“DBNK”). ABLS is a proprietary software program that screens new accounts against OFAC’s list of Specially Designated Nationals (“SDN List”) and a list of entities and jurisdictions subject to “special measures.” ABLS also screens all accounts against any additions to these lists. Any hits are reviewed by the AML Group the following business day. The AML Group also uses ABLS to screen domestic and international inbound and outbound wire transfers, outgoing checks drawn through cashiers, debits from accounts through the automated clearing house, and sweep transactions for free credit balances into money markets and mutual funds to determine whether the recipient or payee is a prohibited party or located in a prohibited jurisdiction.

DBNK screens domestic and international wire transfers, checks, certain FX transactions, and debits from accounts through the automated clearing house against the SDN List and a list of entities and jurisdictions subject to special measures. DBNK reports hits as they occur (rather than in a daily batch), and these hits are reviewed by AML personnel throughout the business day. ABLS and DBNK are updated via an automatic feed from a third-party vendor, Acquity, when the OFAC lists are updated.

In addition to the automated screening systems, the firm also manually screens the following: parties associated with loans originated by Bear Stearns Residential Mortgage, all new employees entered into the human resources personnel tracking system, certain third-party vendors that propose to do business with the firm (based on reports submitted by different business units), and the name and country of issuance of securities physically delivered to the firm through the Depository Trust Company.

The firm also uses various external services to screen accounts. The process requires the firm to submit information about the account holder, beneficial owner, principal, or authorized party to designated vendors that maintain databases used by financial institutions for credit monitoring and regulatory compliance. Each business day, the vendors screen the information provided by the firm. Any matches are reported and investigated by the AML Group.

#### **4. CIP Group**

The CIP Group uses a risk based approach that sorts all new accounts into four ascending risk categories. The factors used to sort new accounts initially into the four risk categories include, among others, the type of account, whether the customer is an individual or entity, and the jurisdiction of the account. Accounts falling into the first three risk categories (Risk Levels 1 through 3) are processed entirely by the CIP Group within the firm's Operations Department. Accounts falling into Risk Level 4 – the highest risk category – are subject to pre-approval by the AML Group.

Verification of a customer's identity may be performed through documents, automated systems provided by third-party vendors, or a combination of both. Under the firm's risk based approach, specific identification and verification requirements vary depending on the risk category. During the account opening process, the customer's name is also automatically screened through ABLIS for OFAC purposes. In addition, if any key fields are changed (*e.g.*, changing the account from individual to joint or changing the address) the account will be placed into the "pending level" for branch manager approval and will be re-reviewed for OFAC compliance.

Furthermore, as noted in the firm's CIP procedures, CIP is applied to traditional and non-traditional accounts. The procedures specifically note that CIP also applies to various counterparty transactions arising out of contractual relationships in investment banking and other capital markets services, and to counterparty transaction that arise from a contractual relationships governing derivative trades, securities lending and borrowing, and firm-administered hedge funds.

The staff selected seven customers identified on the firm's Risk Level 4 accounts. After selecting the sample, the firm disclosed that two of the accounts were not Risk Level 4 accounts (one account was an unsecured debit account with no transactions and the other account was a broker-dealer conversion account that was no longer being used). For the remaining five accounts, the staff obtained and reviewed the approved forms and documentation utilized to verify the customer's identification. No deficiencies were noted.

#### **5. Training**

The AML Group provides ongoing training to all appropriate employees. The firm adopted a risk based approach to employee training, prioritizing its efforts according to two factors: the money laundering and other relevant risks inherent in a given business or operational unit, and the relative capacity of employees to detect and prevent money laundering and other illicit activities, given their responsibilities and positions. The appropriate employees are determined by the AML Group in consultation with Legal, Compliance, and relevant business units. Training is generally provided via in-person or online sessions. New employees designated to take AML training are contacted by the AML Group and directed to an online AML training presentation. The firm also is implementing an online AML training module developed by a third-party vendor that will be mandatory for all appropriate employees. The AML Group maintains records of employees required to complete training, as well as those who have completed the training. The group also maintains copies of the training materials. Employees are informed of changes in the relevant AML legislation, regulations, and/or procedures through targeted training and written announcements.

The staff reviewed the firm's 2004 and 2005 training materials along with AML policy announcements and updates. No deficiencies were noted.

## **6. Independent Test**

NYSE Rule 445(3) requires a regular independent test of the firm's AML program. The results of this test are forwarded to the AML Committee. In 2004, IAD conducted five separate independent tests and prepared corresponding reports: (1) USA PATRIOT Act Sections 313 and 319 – Foreign Bank Certifications; Section 314 – Information Sharing; and Section 352 – AML Program; (2) Anti-Money Laundering Program – OFAC Review; (3) USA PATRIOT Act Section 356 – Suspicious Activity Reporting and AMLMS; (4) USA PATRIOT Act Section 312 – Special Due Diligence Programs for Certain Non-U.S. Individual/Joint and Offshore Personal Investment Vehicles; and (5) USA PATRIOT Act Section 326 – Customer Identification Program. The staff reviewed these audit reports onsite during the examination.

### **Finding:**

- **Reviews of the firm's branch offices are not submitted to the AML Committee as part of the yearly independent test.**

According to Semaya, AML program activities taking place at branch offices are reviewed as part of IAD's branch office review. As such, those activities, including any identification of findings and weaknesses, are not incorporated into the firm's designated AML independent test. Because the results of branch office reviews are not forwarded to the AML Committee, the committee is not receiving a full picture of the effectiveness of the AML program.

## **7. Introducing Brokers and Piggyback Firms**

Bear Stearns, through BSSC, has a sizable presence as a clearing firm. To verify the firm's AML processes and procedures specific to its clearing operations, the staff interviewed key BSSC personnel, reviewed BS&Co.'s relevant AML procedures, reviewed BSSC's Supervisory and Compliance policies and procedures, reviewed BSSC's master clearing agreement, and

reviewed due diligence files on IBs and brokers with sub-clearing agreements through IBs (“Piggyback Firms”). According to the firm, the AML provision in the firm’s master clearing agreement is non-negotiable, and there have been no instances of the AML provision being altered for any IB. This provision requires the IB to comply with AML laws and regulations and places the burden on IBs to maintain an AML program. The firm does not take on any AML responsibilities of IBs. The firm does provide assistance for IBs in their AML duties, including, but not limited to, providing tools for detecting suspicious activity, screening IBs’ customer accounts against government lists (OFAC list) and for negative information, and notifying the IB of any customer that might be subject to foreign bank certification.

The firm’s AML procedures state that the IB is expected to know its customers and to be the first line of defense in preventing and detecting money laundering and other suspicious activity. The procedures also specify that, prior to entering into a clearing relationship, the firm must undertake reasonable due diligence efforts regarding the IB. The due diligence efforts include, among others, a comprehensive evaluation of all materials provided by the IB, review of appropriate regulatory filings, and examination the IB’s financial reports. The staff selected five IB due diligence files and confirmed that the materials contained within those files were consistent with the firm’s policies and procedures. No deficiencies were noted.

**Finding:**

- **The firm has not consistently performed due diligence on Piggyback Firms.**

The firm’s written supervisory procedures do not address due diligence requirements of Piggyback Firms trading through sub-clearance agreements. According to Denis McCarthy, Head of BSSC Compliance, the firm performs abbreviated due diligence on each Piggyback Firm. The staff requested two due diligence files from the firm’s list of Piggyback Firm relationships. The firm was unable to provide a due diligence file for one of those selected, an Argentina-based broker-dealer trading through an introducing firm in Miami, Florida.

**H. CREDIT RISK MANAGEMENT**

**1. Overview**

The staff conducted a review of the firm’s credit risk management controls, procedures, and practices. The staff’s review focused on GCD’s organizational structure, policies and procedures, limit monitoring and reporting, internal credit ratings (“ICRs”), collateral management, credit files, and trade capture. An emphasis was placed on the controls implemented by GCD to manage the firm’s exposures related to business conducted by the UMAs.

In conducting the review, the staff held meetings with the following firm personnel:

|                 |                             |
|-----------------|-----------------------------|
| Michael Alix    | SMD, Head of GCD            |
| Judith Modica   | MD, Policy & Administration |
| Wayne Buchan    | SMD, Financial Institutions |
| Samuel Reckford | MD, Systems                 |

|                |                                |
|----------------|--------------------------------|
| Rupert T. Cox  | SMD, Risk Measurement          |
| Barbara Biel   | SMD, Chair of GCC, Hedge Funds |
| John Mancuso   | MD, Futures Operations         |
| Eric Cappleman | AD, Hedge Funds                |
| Andrew K. Louw | AD, Risk Measurement           |
| Matt Redshaw   | SMD, Derivative Operations     |
| Ariadne Capsis | MD, Derivative Operations      |
| Matthew Chasin | SMD, Fixed Income Financing    |
| David Marren   | SMD, Fixed Income Financing    |
| Timothy Greene | SMD, Fixed Income Financing    |
| Joseph Fusco   | MD, GCS                        |
| Jeff Marcus    | SMD, GCS                       |
| Chris Engdall  | SMD, GCS                       |

## 2. Credit Risk Management Structure and Procedures

### a. Organizational Structure

GCD is charged with measuring, monitoring, and managing counterparty credit risk on a global basis. It is independent from marketing, origination, structuring, and trading personnel. The head of GCD, Michael Alix (“Alix”), reports to Steinberg, a member of the MCC and the Board. GCD is comprised of 86 professionals globally and is structured by region, with personnel in New York, San Francisco, London, Dublin, Hong Kong, and Tokyo. Counterparties with headquarters overseas are reviewed by GCD personnel in the regional offices. The New York office is responsible for global credit oversight.

Guidelines for GCD are set by the CPC. The CPC was created by the Executive Committee in 1980 and is comprised of senior risk and business managers. Alix serves as the Chairperson of the CPC. In 2003, the MCC re-affirmed the CPC as the firm’s formal credit risk decision making body, with responsibility and authority for counterparty credit risk management. The CPC establishes guidelines for the GCD by approving exposure measurement standards, reviewing concentrations of credit risk, setting documentation and credit support standards, and reviewing new or unusual credit related transactions. The CPC generally meets weekly.

The Global Credit Committee (“GCC”) is a subcommittee of the CPC. The GCC, which includes several members of the CPC, implements policy through its review and approval of counterparty credit limits and collateral requirements. Barbara Biel, an SMD in GCD responsible for hedge funds and international business, serves as the Chairperson of the GCC. The GCC meets weekly or more often as needed. The International Credit Committee (“ICC”) is a subcommittee of the GCC that is comprised solely of members outside the U.S. so as to accommodate routine credit reviews in foreign time zones. Kanwardeep Ahluwalia, an SMD in the GCD London office, serves as Chairperson of the ICC. The ICC meets approximately once a month.

In order to assess the professional qualifications of GCD’s credit analysts, the staff requested résumés from five analysts to determine whether they are qualified and knowledgeable with

respect to credit analysis.<sup>59</sup> All five of the analysts have undergraduate degrees in business, finance, or economics. Three of the five are fluent in Italian, Cantonese, or Korean. Two are Series 7 and 63 licensed, and another is a CFA Level 1 candidate. All five have notable previous work experience with respect to credit operations and analysis. More specifically, four have worked at a credit desk and have direct experience conducting credit analysis and evaluation. Based on the review of their résumés, it appears that the five GCD analysts are well qualified and knowledgeable.

#### ***b. Policies and Procedures***

GCD's primary responsibilities include assessing the credit quality of counterparties and setting, monitoring, and controlling counterparty credit limits. GCD manages the credit exposure related to trading activities by giving credit approval for counterparties, assigning ICRs, establishing credit limits by counterparty and country, and requiring master netting agreements and collateral in appropriate circumstances. GCD uses the computer based GRMS to store information about counterparties, ratings, and limits and to monitor counterparty credit risk activity. The GCD Policies and Procedures Manual ("GCD Manual") provides guidelines for the practices employed to address the functions of GCD.

The staff reviewed the GCD Manual, which was dated August 2005, to determine if it is comprehensive and adequately describes the duties of the department. According to Judith Modica ("Modica"), MD over policy and administration for GCD, the written procedures are reviewed on a periodic basis and revised by GCD as conditions warrant. Revisions are approved by the CPC and copies are distributed to all GCD employees. However, the GCD Manual is not yet available on the firm's Intranet. Within specific areas, the staff found the GCD Manual to be unclear or incomplete. Specific deficiencies are discussed in detail within the appropriate sections of this report.

#### ***c. Counterparty Information***

The firm has dealings with over 9,500 counterparties, the majority of which are mortgage finance companies, financial institutions, or hedge funds.<sup>60</sup> Mortgage finance companies and financial institutions account for 60% of the firm's net exposure. Other types of counterparties include individual/retail clients, tax exempt and corporate entities, structured funds, and investment advisors.

### **3. Credit Systems**

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<sup>59</sup> The staff reviewed the qualifications of the following five analysts: John Rhee (hired in fourth quarter 2003), Christina L. Aimone (hired in fourth quarter 2002), Katie Ng (hired in third quarter 2004), Mathew Moore (hired in 2004), and Rahul Bahadkar (hired in third quarter 2004 and currently a team leader).

<sup>60</sup> Of the 9,532 counterparties identified in GCD's presentation to the SEC on August 25, 2005, 4,050 counterparties were classified as "Mortgage Finance & Financial Institutions" (60% of net exposure), 2,647 were classified as "Hedge Funds" (3% of net exposure), 984 were classified as "Europe (excluding Hedge Funds)" (20% of net exposure), 728 were classified as "Special Credit Services" (1% of net exposure), 640 were classified as "Tax Exempts & Corporates" (12% of net exposure), 304 were classified as "Asia" (3% of net exposure), and 179 were classified as "Structured Funds" (1% of net exposure).

*a. Overview*

GCD utilizes three systems in its risk management operations. GRMS is the firm's primary credit risk management system. It has a graphical user interface that provides flexible access to the GRMS database and a number of pre-fabricated risk management reports, as well as the ability to create customized reports and analyses. The GRMS database houses all relevant credit risk data such as client profiles, client limits, exposure levels, client transaction activity and portfolio information, ratings history, and scorecard information. The web based system used to compute potential exposure ("PE") is called Credit Lab. The PE calculation is based on a Monte Carlo simulation model.

Position data is uploaded each night from SWAP to GRMS and Credit Lab. The uploaded file reloads the entire portfolio of transactions rather than just the transactions for that day. The firm believes that this method of transferring data is most efficient. In Credit Lab, the information is used to calculate PE, which is then sent via electronic file to GRMS. GRMS also receives nightly electronic feeds from various front office systems. These feeds supply GRMS with unsettled transaction data for various products as well as reference data such as rate information and pricing data.

*b. Transaction Testing*

**i. Review of Transaction Flows/Data Integrity**

To ensure that the firm's systems are properly integrated and capture key information, the staff selected samples of transactions and traced their flow from the firm's derivative database, SWAP, and the firm's mortgage data base, MORT, into GRMS. In addition, the staff tested that the firm's Credit Lab system is calculating PE for each transaction and that the PE is reflected correctly in GRMS.

**ii. Testing of Interest Rate and Credit Derivatives**

GCD explained that interest rate swap and CDSs flow from SWAP into GRMS via an overnight feed. SWAP also sends a transaction feed to Credit Lab. The transaction feed loads the entire portfolio of credit derivatives into GRMS and Credit Lab allowing Credit Lab to calculate PE based on a Monte Carlo model, and then sends the calculated PE amount back to GRMS.

The staff selected 25 interest rate derivative transactions and 25 CDS transactions from the firm's July 25-29, 2005 trade blotter to verify that the firm's transactions flowed properly between its systems. For each of the transactions selected, the firm provided a clear audit trail of the transactions, including screen shots of the transaction in T2 and GRMS. GRMS also reflected each item's calculated PE, which was verification that PE had been calculated and sent to GRMS. No exceptions were noted.

**iii. Testing of Commercial and Residential Loans**

The staff selected eight bulk residential loan transaction commitments from the population of residential loans that were funded during the month of July 2005. The sample transactions totaled approximately \$2.4 billion and originated from three desks: Fixed Rate, ARMs, and

Scratch and Dent. The staff's purpose in tracing the transactions was to verify that the firm's transactions flowed properly between its systems. For each of the transactions selected, the staff verified that the firm's systems provided a clear audit trail of the transactions, including screen shots of the transaction in MORT and GRMS. The staff also verified that the calculated PE had been sent to and was correctly reflected in GRMS. No exceptions were noted.

**c. *Stress Testing and Scenario Analysis***

The staff focused its review of the firm's credit risk stress testing and scenario analysis on the prime brokerage business.<sup>61</sup> As of its latest fiscal year end (November 30, 2004), the firm had almost 2,000 prime brokerage clearance clients, which includes hedge funds, professional investors, and the proprietary accounts of other broker-dealers. The accounts are large and the positions carried are often complex and highly leveraged. For measuring and managing this risk, the firm uses a combination of maximum potential exposure ("MPE"),<sup>62</sup> stress testing, and scenario analysis,<sup>63</sup> which is performed using the firm's internally developed Risk Analysis and Control System ("RACS"). The use of RACS was the focus of the staff's review of the firm's use of stress testing and scenario analysis.

**i. *Background***

Prime brokerage client risk management operations using RACS are carried out by the Risk Control Department ("RC Department") of the Global Clearing Services Division of BSSC ("Bear Stearns Global Clearing Services" or "BSGCS"). The RC Department is headed by a SMD and staffed with qualified professionals with varied backgrounds, including trading, financial engineering, credit analysis, and systems development and maintenance. The risk manager teams, which evaluate client portfolios and trading activity, are located in New York, San Francisco, and London.

RACS is run every evening to measure the risk of every security and every portfolio held by each BSGCS client. New accounts are evaluated on the same basis as existing accounts, but using an expected portfolio, as communicated by the prospective client, instead of actual portfolios. RACS begins the measurement of risk at the individual security level, where it revalues securities in over 200 scenarios employing various models. The results of each of the security level revaluations are then rolled up to a client portfolio level, giving appropriate treatment to hedged positions (risk reducing) and outright or directional positions (risk increasing). The theoretical revaluations on both levels are compared to the client's capital to ensure capital adequacy. The evaluation process includes the analysis and measurement of liquidity, concentration, volatility, interest rate, credit spread, country, and/or currency risk. In

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<sup>61</sup> "Prime brokerage" includes transactions with one broker-dealer (the executing broker-dealer) that transfers the position to another broker-dealer (the clearing or prime broker) that carries the customer's account and clears the transaction.

<sup>62</sup> MPE is the liquidating equity of the client account, reduced by the VaR of the positions.

<sup>63</sup> Scenario analysis is a form of stress testing that is applied to a portfolio of positions to simulate the effect upon a portfolio of possible future economic events. It may also be referred to as "what if" analysis.



its measurement and analysis of the liquidity and concentration of each position held by a customer, RACS considers the total market capitalization and average daily volume of the position.

RACS produces exception reports on a daily basis, which the analysts review as part of their daily surveillance and analysis routine. For example, the system is programmed to produce an exception report on a client with large percentage losses of account equity or identified concentrations of high risk or illiquid positions. The production of the exception reports is triggered by parameters set in the system for each of the risk factors. The categories of risk factors are: equity, volatility, interest rates, credit spreads, and time. RACS is programmed to perform scenario analyses on the basis of multiple combinations of these risk factors: equity and interest rates; equity and volatility; equity, volatility, and credit spreads; equity, volatility, interest rates, and credit spreads; volatility and time; and equity, volatility, interest rates, credit spreads, and time. The RC Department prepares an “a.m. report” every morning based on its analysis of the exception reports. This report details exceptions to be discussed in the daily RC Department risk meeting. This meeting is referred to as the “daily risk call” and takes place at 8:30 each morning. Also, when necessary, the analyst communicates with the margin department regarding the status of a client’s account collateral. The “p.m. report” is prepared at the end of the day reflecting final disposition of the open items from the a.m. report.

## **ii. Testing**

The staff performed a high level review to assess whether RACS was utilized by the firm as described in its written procedures. For review purposes, the staff selected the RACS report for trades as of October 4, 2005. The report contained 33 customers that had been flagged by RACS for further investigation. For review purposes the staff selected five accounts: Ritchie Maple Trading Ltd (LEA); Heyman Investment Assoc (007); Paradigm Equities FD II (SSB); SAB Capital Partners LP (UVJ); and Archimedes Overseas Ltd. (VLF). For each of these accounts, the RC Department senior analyst, Joseph Fusco, reviewed with the staff why the account had made it to the exception report, including tracing the positions in question back into the client’s position summary and the results of the analyst’s investigation of the positions. Based on its review of these cases, the staff concluded that the firm had operated RACS as described in the policy manual.

## **4. Credit Risk Monitoring**

### ***a. Limits***

#### **i. Limit Setting**

GCD has established credit limits as a primary method of monitoring and controlling credit risk exposure. GCD employs four kinds of limits: family, client, facility, and country. Family limits are set at the most aggregated basis. Family limits cover all clients within a family structure. Client limits cover a specific client, its direct subsidiaries, and any guaranteed facilities. All client limits must fit within the overall family limit. Facility limits cover a particular product in a specific Bear Stearns entity. For example, there would be a facility limit for trading swaps in the legal entity BSCM. There would also be a separate limit for the same counterparty trading

swaps, but in a different legal entity. All facility limits must fit within the overall client limit. Finally, GCD also sets country limits. GCD currently sets country limits for only four countries: Brazil, Columbia, Peru, and Turkey. The country limit represents the maximum exposure that the firm may have to a counterparty in a specific country, regardless of its credit quality. Therefore, any counterparty domiciled in a country with a country limit cannot have a limit set higher than the relevant country limit, regardless of the counterparty's credit quality.

All family and client limits are set in terms of PE. Facility limits are set in terms of either PE or notional amounts, depending on the product. The GCD Manual provides a conversion grid for converting notional limits to PE. The firm intends, over time, to move most of its limits to PE.

According to the GCD Manual, analysts are responsible for assigning credit limits to counterparties. Analysts may assign credit limits based on their individually assigned credit authority. Each employee of GCD with credit authority is issued a Credit Authority Memo, which specifies the analyst's authority. Based on the assigned authority level in the Credit Authority Memo, the policies and procedures provide a grid that establishes the maximum limit level that each analyst is authorized to assign to counterparties of a given ICR for a specific tenor. Analysts who wish to give a larger limit than allowed by their Credit Authority Memo must obtain the approval of a manager or credit committee with the appropriate authority level. Credit limits must be refreshed at least annually, and the credit limits are revisited in depth when the analyst performs the periodic credit review for each counterparty.<sup>64</sup>

In order to test the credit limit setting process, the staff reviewed the Credit Authority Memos for the analysts who set 10 different facility limits. No exceptions were noted.

## **ii. Limit Monitoring**

Limit utilization is tracked and reported daily through GRMS. On a daily basis GRMS produces Product Summary Reports ("PSRs") for each product category. The PSRs contain exposure, limit, and other details for each counterparty with a limit or activity in the product category. GRMS also produces a Surveillance Summary Report that lists all limit exceptions that appear on the PSRs. The reports indicate for each item which analyst covers the account.

The staff selected a sample of 20 limit exceptions from the July 29, 2005 PSRs, including five from the Repo PSR and fifteen from the OTC Derivatives PSR. The staff also obtained a copy of the Surveillance Summary Report from the same date to ensure that all exceptions noted on the PSRs correctly flowed to the Surveillance Summary Report. Three items from the staff's selection did not appear on the Surveillance Summary Report.<sup>65</sup> Each of the three items is managed in the Counterparty Hedge Book.<sup>66</sup> GRMS continues to calculate PE for trades in the

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<sup>64</sup> Although the limits are refreshed annually, unless the limit is actually changed, the date on limit memos in the credit file are not updated. The limits are considered updated as of the date of the most recent credit review.

<sup>65</sup> The three counterparties were (1) Tyco International Group, S.A.; (2) Bogota Distrito Capital Secretaria De Hacienda De Bogota D.C.; and (3) Xerox Corporation. Each of these counterparties had a PE limit of zero for OTC derivatives, yet showed positive exposure on the OTC Derivatives PSR.

<sup>66</sup> Items in the Counterparty Hedge Book are tagged within GRMS so that they will not be captured in the Surveillance Summary Reports.

Counterparty Hedge Book, but GCD does not measure PE against limits because the risk of the portfolio is managed by Risk Management.

The Surveillance Summary Reports are distributed to credit analysts and management. Analysts are expected to research the limit breaches of counterparties that they cover. Limit exceptions are generally resolved by granting a temporary limit increase, permanently increasing a limit, changing the facility limits of the client,<sup>67</sup> or allowing the position to come off the books naturally on the basis of its maturity. Credit analysts can also require traders to reduce their exposure.

The staff selected a sample of 19 limit excessions from the September Surveillance Summary Reports. The staff requested documentation evidencing the research and resolution of the limit excessions. In each instance the firm was able to provide adequate documentation evidencing the review of and reasons for the limit breach. It was also able to provide proper documentation evidencing how and why limit breaches were removed from the limit exception report.

***b. Counterparty Watch Lists***

The firm has recently implemented a Watch List that allows GCD to tag counterparties for enhanced monitoring. GRMS allows an analyst to check a box in the counterparty profile, which then adds the firm to the Watch List. Analysts may use the same process to remove firms from the Watch List. Analysts do not need to obtain approval prior to adding or removing a counterparty from the Watch List. Analysts may add any counterparty, regardless of rating, to the firm's Watch List. When a counterparty is added to the Watch List, the analyst must provide a rationale, which appears on the face of the Watch List. However, the system does not permit entry of the date when a counterparty is placed on the Watch List, which makes it impossible to age counterparties on the Watch List. GCD does not require that the analyst document within the credit file the reason for placing a counterparty on the Watch List. The staff was also informed that the firm currently has no ability to run reports detailing when a counterparty is removed from the Watch List.

The staff is concerned that the firm is unable to age Watch List items. The staff is also concerned that the rationale for placing a counterparty on the Watch List is not documented in the credit file. In the event of turnover, the reason for placement on the Watch List, or even the fact that the counterparty was ever placed on the Watch List, could be lost. Moreover, the staff is particularly concerned that analysts may remove counterparties from the Watch List without entering any reason and without any managerial oversight.

The firm indicated that it intends to make several improvements to the Watch List. The CPC has recently requested that the firm provide reports on the Watch List and that items be aged. The CPC also has requested a list of counterparties that have been removed from the Watch List.

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<sup>67</sup> An analyst may change how the facility limits are allocated when another facility limit for the same client is not being fully utilized. The analyst can then shift some of the unused capacity from one facility limit to the other. Because the client limit is not affected by reallocating the sub-limits, the analyst making the change does not need to have the appropriate credit authority evidenced by a Credit Authority Memo.

The Procedures Manual also references a watch list referred to as the “SCS Watch List.” This watch list is used by the margining departments to indicate counterparties with specific collateral requirements.

**Findings:**

- **The firm’s policies and procedures do not describe how the SCS Watch List is to be used, nor does it describe what enhanced monitoring must be performed on the counterparties on the SCS Watch List.**

The policies and procedures also do not adequately describe the SCS Watch List.

- **The staff’s review uncovered several weaknesses in the operation of the Watch List.**

For instance, analysts are not required to document within the counterparty credit file the reason for placing a client on the Watch List, nor are they required to provide a rationale for removing counterparties from the Watch List. The Watch List does not allow for aging of Watch List items. Additionally, GCD does not require approval for removing counterparties from the Watch List.

**c. Reporting**

The staff reviewed GCD’s efforts to meet the CSE reporting requirements contained in Exchange Act Rule 15c3-1(g)(b)(1). In addition, the staff reviewed the quality and coverage of credit risk reports sent to senior management.

**i. CSE Reporting Requirements**

Modica explained that, at the time of the staff’s review, Bear Stearns did not produce any of the reports required by the CSE Rules. However, she stated that the firm would have all required reports “prior to CSE approval.” She added that the firm currently produces all information required for the reports, but that the reports are not compiled in the format required by the CSE Rules.

**ii. Other Credit Reports**

The staff reviewed GCD’s existing reports to determine whether they provide management with adequate information with respect to credit risks. Although the firm’s written procedures did not identify which reports are used by senior management to monitor risks, GCD provided the staff with a list of daily and weekly reports it sends to the CPC and managers within GCD. More specifically, the weekly reports sent to the CPC include: (1) Internal Rating Changes; (2) Summary of Net Exposures by Product and Bear Stearns Entity; (3) Summary of Net Exposure by Product and Rating; (4) Net Exposure over \$25 million by Counterparty; and (5) Large Weekly Changes in Potential or Net Exposure. GCD explained that GRMS provides daily reports that are available to CPC members as needed. In addition, large derivative exposures are reported to the Derivatives managers and are reported to the firm’s Risk Committee. GCD also provides several reports to analysts and managers, via GRMS, that capture a variety of

information related to risk measurement.<sup>68</sup> Lastly, the CPC receives a daily and monthly report on loans booked in custodial trust companies.

The staff reviewed copies of weekly reports sent to the CPC for the week ending July 29, 2005 to verify that the reports provide adequate and timely information with respect to credit risks. The reports appeared thorough and timely. No exceptions were found.

#### **Findings:**

- **The firm has not yet completed the specific CSE reports for credit risk as required by Exchange Act Rule 15c3-1(g)(b)(1).**
- **GCD's written procedures do not detail the types of reports that are sent to senior management, the frequency of each report, and the distribution lists of each report.**

Without procedures reflecting senior management review of key credit reports, the staff cannot be certain that key reports are reviewed in a timely manner by senior management.

### **5. Margining**

The staff's review of the firm's collateral management process and procedures focused on collateral calls issued for derivative products within Derivative Operations and calls issued by the Fixed Income Financing Group.

#### ***a. Structure and Responsibilities of Derivative Operations***

Derivative Operations is managed by Matthew Redshaw ("Redshaw"), SMD, and Ariadne Capsis ("Capsis"), MD, and is responsible for all OTC derivative trade processing, reconciling trades from the front office systems to the margin system, rate resets, settling transactions, manually inputting counterparty credit terms into the margin system, and handling both incoming and outgoing margin calls. Derivative Operations has offices in New York, Tokyo, and Dublin.

Derivative Operations uses DerivClear to manage margin calls. The group's responsibilities include ensuring that margin call notices are generated and confirmed with the counterparty, resolving disputed margin calls in a timely manner, and informing senior management of trading, middle office, and credit of delinquent margin calls.

#### **i. Margin Call Process**

Derivative Operations manages its margin call process from the New York office. However, much of the operations are conducted from the Dublin office. The group operates in this fashion

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<sup>68</sup> For example, the PSR captures daily limits and utilization for the following facilities: bonds borrowed, derivatives, repos, futures, forwards, international DVP, stock loan/borrow, municipals, FX, and corporates. Each salesperson receives a daily report on his or her clients' limits and activities. The Global Credit Quant Group receives a daily report on PE before and after the application of collateral. Operations receives a daily report on initial margin requirements for interest rate derivative counterparties using a VaR methodology.

because margin calls are time sensitive and the use of the Dublin office allows the group to take advantage of the relative time advantage in Dublin. The Open Margin Call Report and the Delinquent Margin Call Report are run each day on an overnight cycle and are available to the Dublin Office at the start of each day. The Open Margin Call Report includes all new margin calls that were generated overnight as well as all margin calls that remain open and are currently delinquent. The Delinquent Call Report includes all margin calls that are past due, and in most cases there will be comments that indicate the reason for the delinquency. Margin personnel are required to make the margin call by 11:00 a.m. ET if they are to expect to receive the collateral by the close of business that day. Margin personnel use the aforementioned reports to make the calls. The calls are assigned to margin personnel alphabetically, which allows margin personnel to become familiar with counterparties. Margin personnel will typically inform the counterparty of the call via facsimile and then will follow up with a telephone call. The counterparty may agree to the call and post the required collateral, or they may dispute all or a portion of the call. Margin disputes primarily arise from MTM differences or portfolio differences. Derivative Operations advised the staff that if there is a partial dispute, margin personnel will collect the undisputed portion, research the remaining issue, and ensure that the call is ultimately resolved in a timely manner. However, the staff notes that the firm has no written procedures relating to disputed or delinquent margin calls.

## **ii. Testing**

The staff reviewed the Open Margin Call Report and the Delinquent Call Report dated August 18, 2005 and requested information related to 10 counterparties who had either a current or an aged margin call. The staff reviewed the records provided by Bear Stearns to assess whether the call was issued, how timely the margin was posted by the counterparty, whether the amount posted was sufficient, and whether SWAP used the proper data inputs listed in the Credit Support Annex (“CSA”) to calculate the margin call. The firm provided a CSA for each counterparty along with various screen shots from SWAP that display a clear audit trail of the margin call and when it was resolved. The counterparties sampled were primarily hedge funds but also included large financial institutions.

The staff determined that each of the 10 counterparty profiles in SWAP reflected the proper data elements that were negotiated in the CSA. Specifically, the staff verified that the unsecured threshold, the ratings scale that determines the unsecured threshold, and the minimum transfer were correct. These fields are relevant because they are variables in the margin call calculation. Each margin call was either completed by the counterparty in full or the call was diminished due to a portfolio or MTM reconciliation and the diminished amount was subsequently paid.

### ***b. Structure and Responsibilities of Fixed Income Financing***

Fixed Income Financing is managed by David Marren and Tim Greene, the Co-Heads of Fixed Income Finance. The Fixed Income Financing Desk (“FIF Desk”) is responsible for financing the firm’s inventory and customer positions and currently finances various types of collateral, such as U.S. Treasury securities, agency debentures, agency MBS, and commercial MBS.

The FIF Desk is divided into two areas: mortgages and governments. Both areas are responsible for ensuring that margin call notices are generated and confirmed with the counterparty,

resolving disputed margin calls in a timely manner, and informing senior management of trading and credit of delinquent margin calls.

### **i. Margin Call Process**

Although the mortgage area uses Mortfin to monitor its calls and the government area uses Spitfire, the process for managing and monitoring calls is the same for both areas. The calls are displayed on Exposure Reports that are generated from the areas' respective systems. The calls are primarily made by telephone, but some are made by facsimile. Margin personnel are required to make the margin call by 10:00 a.m. ET if they are to expect to receive the collateral by the close of business that day. The counterparty either agrees to the call and sends in cash or collateral or asks that the trades be repriced. A counterparty may ask for a reprice if the MTM change will eliminate or substantially diminish the margin call. If the call is not eliminated after the reprice, the counterparty is required to settle the difference by sending cash or securities to the firm. If a counterparty does agree to a call but does not send in the required margin, it will end up on the Fail Report the following day. Counterparties generally post margin if they have agreed to it and most items on the Fail Report are operational issues. The Fail Report is distributed to the FIF Desk managers and to GCD. The staff notes that the firm does not have written procedures relating to disputed and delinquent margin calls.

### **ii. Testing**

The staff reviewed the Exposure Reports from September 30, 2005 through October 6, 2005 and requested records of 10 margin calls to determine if sufficient margin was posted and if it was posted in a timely manner. The firm provided records that reflected a clear audit trail showing that each margin call was either satisfied by the posting of cash or securities or was repriced and the counterparty satisfied a lesser amount.

#### **Finding:**

- **The staff's review revealed that the firm does not have written procedures regarding delinquent margin calls, the resolution of disputed margin calls, or the liquidation process.**

The firm did indicate that liquidation would be addressed on a case-by-case basis.

## **6. Credit Files**

Counterparty credit files are maintained both electronically and physically. The majority of information in the credit file is generally maintained electronically within GRMS. The physical files generally contain older information and supporting documentation, such as financial statements. The firm's procedures explicitly state that information maintained within GRMS does not need to be replicated in the physical files. The credit file also does not need to contain information that is readily available online, such as financial statements for public companies.

Credit files are designed to encompass all information necessary for assessing the credit quality of the counterparty. Credit files include internal and external ratings, the written credit review, financial performance, legal documentation and master agreements, correspondence files, and

other important information. The analyst is required to provide hyperlinks and describe the location of any important information that is not housed directly within the credit system.

The firm's policies and procedures outline the basic information that must be maintained within the credit file. The staff selected a sample of 24 counterparties to test the firm's compliance with its written credit file procedures. No exceptions were noted.

*a. Credit Reviews*

The firm's policies and procedures require that all counterparties with credit limits be reviewed at least annually. Periodic credit reviews are designed to create the rationale on which ICRs and credit limits are based. Consequently, during the annual credit review, credit ratings and credit limits are also refreshed. During the credit review, analysts are expected to conduct in-depth analyses of the counterparty's financial statements, business risks, and industry. Analysts are also expected to gain firsthand knowledge of the status of a counterparty's operations through onsite visits and telephone interviews.

Credit reviews are documented in one of three ways. First, the credit review may be evidenced through the profile screens on GRMS. Second, a formal credit review memorandum is generated for any clients that are sent to a credit committee. The credit review memorandum is created by adding commentary to a standard template created in GRMS from the information in the profile screens. Finally, certain peer groups of counterparties may be reviewed collectively in a portfolio review. When the portfolio review method is used, the analyst will provide a hyperlink to the stored portfolio review in each of the counterparty credit files.

**Finding:**

- **The firm did not perform timely reviews of all counterparties as required by its written policies and procedures.**

GCD maintains a Clients to be Reviewed Report that details all counterparty credit reviews that are overdue. The staff reviewed the September 22, 2005 Clients to be Reviewed Report. The report revealed that 745 counterparties, representing more than \$2.5 billion in exposure, were overdue for a credit review. Of these, nine counterparties were overdue by over 90 days. The staff also found one firm that was both overdue for a credit review and on the firm's Watch List.

*b. Internal Credit Ratings*

The firm has applied to the Commission to compute its CSE credit risk capital charge utilizing an internal ratings based method. The firm has supplied a description of its internal ratings system, including copies of its internal manuals that describe in detail the ICR framework. The staff conducted a review of the firm's ICR system, including how analysts assign and update counterparty credit ratings and whether the firm had met the requirements of the rules.

GCD began implementation of its scorecard system approximately one year prior to the staff's review. Currently, the firm has completed nine scorecard templates for industrials, general obligation debt, healthcare, financial institutions, investment advisors, unlevered funds, hedge funds, special purpose vehicles, and individuals. The firm will continue to develop scorecard



templates as necessary. Internal ratings for firms not subject to a scorecard will be based on the expert judgment of the analyst.

Scorecards are separated into three major sections: Financial, Business Risk, and Final Rating. The Financial and Business Risk sections are each further separated into categories that depend on the type of scorecard (*i.e.*, the Hedge Fund Scorecard will have different categories from the Healthcare Scorecard). Common categories for the Financial section include size, liquidity, and leverage. Common categories for the business risk section include market risk, management, and industry risk. The Financial categories are automatically populated by GRMS with the prior three years' financial data.<sup>69</sup> Based on this data, the scorecard will suggest a rating. Using expert judgment, the analyst then manually enters a rating for the category. If the rating chosen by the analyst differs from the suggested ratings, the analyst must provide a written rationale.

Each of the categories is weighted, and the scorecard then automatically calculates a total rating for each section and a rating for the entire counterparty in the Final Rating section. The analyst can then change the final rating for the counterparty based either on expert judgment or on other factors. Any changes to the calculated rating must be accompanied by a written rationale.

### **Finding:**

- **The firm did not provide the rationale for changing the category ratings on several of the scorecards.**

The staff reviewed the scorecards for 12 counterparties, including five hedge funds. The staff found that in 11 of the 12 instances the analyst had changed one or more category ratings from the scorecard's suggested rating. Of these 11 instances, the staff's review discovered five cases in which the analyst did not record any rationale for having changed the rating.<sup>70</sup>

## **I. OPERATIONAL RISK MANAGEMENT**

The operational risk management framework and infrastructure at Bear Stearns was initiated in January, 2004, and is still largely in the developmental stage. Bear Stearns' Operational Risk Management Group ("ORM") has adopted policies and procedures that include an operational loss definition, developed indices to indicate changes in the firmwide risk profile, piloted a self-assessment tool, initiated monthly management reporting, and developed an advanced measurement approach ("AMA") implementation action plan and gap analysis. ORM has also begun to collect internal loss data and has made plans to gather external data from Algorithmics's FIRST (formerly FitchRisk) database. ORM will supplement the FIRST data

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<sup>69</sup> Most Financial categories will have multiple measures. For instance, under Size, the scorecard will present the latest three years' data for both Total Assets and Total Equity. The scorecard will then suggest a rating based on the Total Assets data and will also suggest a separate rating based on the Total Equity data.

<sup>70</sup> The staff further notes that the proper rationale was provided for each of the five Hedge Fund Scorecards. Therefore, five of the six remaining scorecards (83%) with altered category ratings were not completed in compliance with the firm's policies and procedures.

with its own observations. ORM's current focus is on ensuring the quality and completeness of the data that populate its internal loss database.

The firm initially intends to compute operational risk charges according to the basic indicator approach, as described in Basel II.<sup>71</sup> The firm plans to transition to the AMA in 2008 and is engaged in projects to implement that goal. Bear Stearns does not plan to begin testing the statistical model that will be used for the AMA until 2007.

ORM is headed by Joseph Noto ("Noto"), AD. Noto oversees the coordination, development, and implementation of operational risk management policies and methodologies on a firm-wide basis. He is located in the credit risk management function and reports to Alix, head of Global Credit Risk Management, and Neff, Global Head, Risk Management Department. Modica, MD, Policy and Administration, consults with ORM to coordinate policy development.

The staff's review of the firm's operational risk management system focused on the following areas:

- corporate governance structure - the staff evaluated whether the Board and senior management appeared to be actively involved in the oversight of the operational risk data as well as the development and maintenance of quantification techniques;
- risk management system (including operational risk data collection) - the staff assessed whether the system appeared to be conceptually sound and implemented with integrity; and
- resources - the staff evaluated whether sufficient resources were allocated to monitor ORM and enable the development of quantification techniques to measure exposure.

Bear Stearns' corporate governance for the operational risk function is comprised of the equivalent of three full-time, dedicated ORM staff positions. In addition to the dedicated personnel, substantive contribution to the operational risk management function is made by various other parts of Bear Stearns, including: business unit management; controllers and operational personnel; the Operational Risk Management Working Group; the Executive Committee; the Audit Committee; IAD; and the firm's external auditors. The staff reviewed the Audit Committee's Charter, as well as IAD's policies and audit plan, as they relate to operational risk. The staff's review of the Audit Committee members' credentials, as represented on the firm's website and of the curriculum vitae of the members of the Operational Risk Working Group,<sup>72</sup> revealed no obvious weaknesses. The staff's review of the following: Bear Stearns' operational risk policies and procedures, slides of ORM's presentations to the Audit Committee and the Executive Committee, Global Operational Risk Management Monthly Updates, BSIL Operational Risk Policy, and BSIL risk reports, revealed that the firm's global and London

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<sup>71</sup> Bear Stearns has indicated that the FSA will require it to compute a separate operational risk charge for its London business activities. It is anticipated that the London calculation will be based on the standard approach with a 15% charge for sales and trading. This secondary calculation will not impact the firm-wide operational risk calculation.

<sup>72</sup> The Operational Risk Working Group is made up of senior managers from GCD, Risk Management, Controllers, Operations, and IAD. The group oversees the strategic development of the formal operational risk management function.

Board committees and the senior management of the firm appear to be involved in the development of the policy and oversight of the operational risk function.

The staff's discussions with Noto, Alix, Neff, and Modica, as well as its reviews of documentation prepared and maintained by ORM, revealed that the firm has begun to implement a functional operational risk management system. However, it is too early to evaluate the effectiveness of the system. ORM has identified early warning and key risk indicators, and reports regularly to management on the firm's performance based on them. The firm's Gap Analysis (dated August 18, 2005) identifying the criteria for the standardized approach appears to realistically evaluate the firm's objectives and progress toward achievement of the AMA. The firm's schedule of operational risk management capital calculations from August 2002 through May 2005 indicates that the firm has a sufficient understanding of the basic approach to computing operational risk charges correctly. The firm has begun to develop reporting processes for events that will populate its internal loss database, drawing from events captured in error accounts, omnibus accounts, and legal settlement accounts that are reported in the general ledger.

The staff reviewed the internal loss database, which currently contains approximately 500 operational events that occurred as far back as 2002. The internal loss database was populated by employees throughout the firm. In the future, business units will have primary responsibility for reporting and ensuring resolution of reported events. The firm has begun selecting events for population of its external event database and plans to develop procedures that describe its selection processes. The staff has not evaluated the quality and quantity of events recorded in the external losses database. The staff's review of the firm's pilot self-assessment effort revealed that ORM has drafted risk and control self assessment questionnaires for five functional areas in each business: the front office, risk management, IT, BUCs, and operations. The questionnaires were circulated to the ARMs and government business units during the summer of 2005. ORM is currently evaluating the responses to the questionnaires.

The firm has not yet fully developed its quantification techniques, including its operational risk scenarios, or a methodology for incorporating scenario analysis into the operational risk capital charge. The firm has, however, developed a detailed plan to ensure that all of the requirements of Basel II are met and that ORM continues to move forward in meeting its milestones.

#### **Findings:**

- **Bear Stearns has not yet fully developed comprehensive policies and procedures for its independent operational risk management function.**

The firm has begun to develop policies and procedures around the operational risk management function. At this stage, its written policies and procedures appear to be incomplete. The staff has identified the following areas that the firm should address:

- Bear Stearns' procedures should clearly delineate the appropriate responsibilities for employees performing operational risk management functions, including event reporting by controllers and event resolution and escalation by business unit managers.

- The staff's review of ORM's internal loss data reporting database revealed a number of incomplete event descriptions. ORM needs more explicit guidance regarding the process for collection and verification of event entries.
  - The firm's lack of policies and procedures for collecting internal P&L data pertaining to operational events incurred in the trading area prevents consistency and completeness. The firm has not adopted a sufficiently comprehensive listing of events that should be included in (or excluded from) operational risk reporting.
  - ORM does not have written policies and procedures that explain the selection criteria it uses in populating its own external loss data reporting database from events posted in the FIRST database.
  - The policy manual entitled "Operational Risk Management Policy and Framework: The Bear Stearns Companies, Inc.," should be updated to explicitly identify the Audit Committee's operational risk-related responsibilities,<sup>73</sup> and should specifically name the Audit Committee as a recipient of the ORM periodic risk reports.
- **ORM's current policy requires annual reporting to the Audit Committee. As Bear Stearns moves closer to the AMA, ORM should report to the Audit Committee more frequently.**

ORM's summary of reporting responsibilities states that it is required to report only annually to the Audit Committee in its operational risk supervisory/oversight function. As a result, the Audit Committee may not be aware of significant events in operational risk management, and decisions that ORM has made, as they occur. As articulated in the manual Supervisory Guidance on Operational Risk – Advanced Measurement Approaches for Regulatory Capital,<sup>74</sup> "effective Board and Management oversight forms the cornerstone of an efficient operational risk process." Therefore, as Bear Stearns moves toward implementation of the AMA, ORM should begin reporting to the Audit Committee more frequently than annually.

- **The firm's Audit Committee Charter should be updated to include its ORM oversight responsibility.**

The staff's review of the January 5, 2005 Audit Committee Charter disclosed that the charter did not identify responsibility for oversight of the operational risk management function.

- **Bear Stearns should adopt a firm-wide definition of operational risk.**

The staff's review of the internal audit policies and procedures that relate to operational risks revealed that IAD uses a different definition of operational risk from ORM's. The IAD Guide

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<sup>73</sup> The November 2004 policies indicate that the Board and relevant committees are responsible for reviewing and approving the ORM policy and framework, delegating authority to firm managers to manage operational risk, and being aware of operational risk as a separate and distinct risk category. The policies also provide responsibilities for the Executive Committee, the Global Operational Risk Working Group, corporate operational risk management, business lines and functional areas, embedded personnel, IAD, and the New Business and Special Structured Transactions Committee.

<sup>74</sup> "Supervisory Guidance on Operational Risk – Advanced Measurement Approaches for Regulatory Capital" was issued on July 2, 2003.

states: “Operational risk pertains to processing and settlement risks. Processing risks relate to the authorization and timely and accurate recording of a trade or transaction. Settlement risks relate to the movement and safeguarding of securities and/or funds, as well as the reconciliation of securities and cash balances to the Firm’s records.” ORM’s definition, which is in accordance with the Basel Committee’s, provides: “Operational risk is the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events.” Bear Stearns should ensure that all areas of the firm are basing their operational risk decisions on a common definition.

**J. CAPITAL REVIEWS**

**1. Overview**

The staff’s capital review focused on the most recent capital computations available for Bear Stearns and BS&Co., which were as of May 31, 2005. The pro-forma Bear Stearns computation incorporated calculations performed in accordance with Basel standards, as required by the CSE Rules. The pro-forma BS&Co. computation incorporated capital charges determined using the VaR calculations, instead of haircuts that would be applicable under the “standard” net capital rules. This treatment was extended to BS&Co. inventory positions that are deducted as non-allowable assets under the “standard” net capital rules, but appear in the broker-dealer VaR calculation. The firm combined the assets of BS&Co. with its wholly owned and fully guaranteed subsidiary BSSC for purposes of calculating capital under the alternative net capital rule.<sup>75</sup> However, as part of the net capital calculation, BSSC was subject to the “standard” net capital charges, which were then combined with the alternative capital charges calculated for BS&Co. Considered separately, BS&Co.’s tentative net capital was only slightly above the early warning threshold of \$5 billion, as specified in the CSE Rules. As such, Bear Stearns has asked the Division of Market Regulation for permission to consolidate the tentative net capital of BS&Co. and BSSC so that it will remain well above that threshold. The two combined entities are hereafter referred to as the “U.S. Broker-Dealers.”

**2. UHC Computation**

**a. Overview**

|   | May 31, 2005 (\$ millions) |               |
|---|----------------------------|---------------|
|   | Gross Balance              | Risk-Weighted |
| Credit Risk:                            |                            |               |
| Cash and cash equivalents               | 7,450                      | 818           |
| Segregated cash and customer securities | 5,774                      | 1,357         |
| Repurchase and reverse repurchase       | 96,355                     | 1,980         |
| Stock borrowing and lending             | 93,452                     | 441           |
| Margin lending                          | 38,323                     | 9,836         |

<sup>75</sup> The firm obtained a legal opinion regarding the arrangement between BS&Co. and BSSC, including the ability to distribute BSSC’s assets to BS&Co. within a period of 30 calendar days.

|   |        |                      |
|---|--------|----------------------|
| OTC derivatives                             | 4,689  | 8,487                |
| CTC corporate loans (Unfunded Commitments)  | 422    | 176                  |
| Corporate loans drawn – (CTC)               | 416    | 867                  |
| Mortgage warehousing – Unfunded Commitments | 1,065  | 15                   |
| Credit Risk Charges                         |        | <u>23,977</u>        |
| Market Risk:                                |        |                      |
| Long Trading Book                           |        | 6,490                |
| Defaulted consumer loans                    | 92,043 | 958                  |
| Other trading book assets not in VaR        |        | 2,249                |
| Market Risk Charges                         |        | <u>9,697</u>         |
| Other Assets:                               |        |                      |
| Private equity / illiquid assets            | 1,873  | 6,889                |
| Broker dealer receivables                   | 4,668  | 4,668                |
| All other <sup>76</sup>                     | 3,728  | 1,612                |
| Other Assets Risk Charges                   |        | <u>13,169</u>        |
| Operational Risk:                           |        | 11,750               |
| Total Risk-Weighted Assets:                 |        | <u><u>58,593</u></u> |
| Sources of Capital:                         |        |                      |
| Tier 1 Capital:                             |        |                      |
| Shareholders' Equity                        | 9,709  | 9,709                |
| Add: Minority Interests                     |        | 278                  |
| Less: 50% shortfall in reserves             |        | (156)                |
| Goodwill and Intangibles                    |        | (352)                |
| Deferred tax asset (net of recovery)        |        | (1,423)              |
| Net Tier 1 Capital                          |        | 8,056                |
| Tier 2 Capital:                             |        |                      |
| Capital Trust Preferred                     | 263    | 263                  |
| Qualifying Long Term debt                   | 4,954  | 4,954                |
| Less: 50% shortfall in reserves             |        | (156)                |
| Net Tier 2 Capital                          |        | 5,061                |
| Total Allowable Capital                     |        | <u><u>13,117</u></u> |

<sup>76</sup> The firm reversed out deferred tax assets totaling \$1.764 billion and goodwill totaling \$352 million to then risk-weight the remainder at 100% as part of the calculations.

Ratios:

|  |        |
|--|--------|
| Tier 1 Capital to Risk-Weighted Assets | 13.75% |
| Total Capital to Risk-Weighted Assets  | 22.39% |

The staff's review included tracing capital components from the computation to Bear Stearns' Form 10-Q filing as of May 31, 2005. The staff also verified, to the extent possible, that all appropriate on and off balance sheet items from this filing were included in capital adequacy calculations. As part of the review of the Bear Stearns capital computation, the staff examined in detail cumulative preferred stock, capital trust preferred securities, long-term debt, and calculations of market and credit risk charges for a number of products, including OTC derivatives, margin lending, repurchase and reverse repurchase agreements, and securities borrowing and lending transactions. OTC derivatives and margin lending were selected for detailed review because they are the two largest components of the firm's credit risk-weighted assets ("RWAs"). Repurchase and reverse repurchase agreements and securities borrowing and lending transactions (securities financing transactions) were selected due to their disproportionately large size in terms of balance sheet amounts. It should be noted that OTC derivatives transactions are subject to both market and credit risk charges.

***b. Capital Methodology, Assumptions, and Interpretations***

The firm's capital methodology with respect to selected products is discussed in relevant sections pertaining to market and credit risk deductions. The methodology used with respect to other items, which is not discussed in those sections, includes the following:

- The exposure at default ("EAD") for fixed credit exposures is equivalent to the balance sheet amount. These exposures include cash equivalents and loans that are not supported by daily MTM or collateral/margining arrangements.
- Unfunded commitments held outside of the trading book are converted to balance sheet equivalents using standard credit conversion factors of 20% for commitments under one year and 50% for commitments over one year.
- Unfunded mortgage warehousing commitment notional amounts were converted to PE by estimating the volatility of the underlying collateral and then converting to balance sheet equivalents using standard credit conversion factors.
- Receivables, such as broker-dealer receivables, receivables from unsettled transactions, fails-to-deliver, and interest and dividends are risk-weighted at 100% of the balance sheet amount.
- Private equity assets are risk-weighted at 400%. Unfunded private equity commitments are converted to on balance sheet equivalents using conversion factors of 20% and 50%, depending on the length of the commitment. These balance sheet equivalents are then risk-weighted at 400%.
- All other assets are risk-weighted at 100% of the balance sheet amount.

Conversations with the Division of Market Regulation disclosed that Bear Stearns falls under a Federal Reserve "grandfathering" clause with respect to private equity and private equity commitments that allows the firm to apply a risk weight of only 100%. Furthermore, it should

be noted that the Basel Committee issued formal guidance in July 2005 pertaining to a number of areas, which resulted in a substantial reduction of the firm's capital requirements in subsequent computations.<sup>77</sup> For example, unsettled transactions, which were previously risk-weighted by the firm at 100%, do not require capital charges under the new guidance. In addition, the staff noted that the firm's calculated capital requirements with respect to margin lending decreased in subsequent capital computations due to more accurate calculations that incorporated netting and individual credit ratings (see the "Margin Lending" section under Credit Risk Charges below). However, these reductions in capital requirements were offset by required additional specific risk charges on the firm's trading book positions as well as additional reductions in Tier I and Tier II capital, as mandated by the Division of Market Regulation (see Market Risk Charges below).

*c. Allowable Capital*

Bear Stearns' Tier I capital was comprised of shareholders' equity, totaling \$9.709 billion, less the following deductions: net deferred tax assets of \$1.423 billion;<sup>78</sup> goodwill and identifiable intangibles of \$352 million; and 50% of shortfalls between expected losses and credit provisions, totaling \$156 million. The shareholders equity total includes \$444 million in cumulative preferred stock issues outstanding.

Bear Stearns' Tier II capital was comprised of capital trust preferred stock, totaling \$263 million, and senior unsecured long-term debt issued by the holding company with a remaining maturity of nine years or more, totaling \$4.954 billion.<sup>79</sup> The capital trust preferred stock may be considered Tier I capital under Federal Reserve's Regulation Y, which serves as the basis for inclusion of these instruments in capital. As such, Bear Stearns has indicated to the staff that it may request to reclassify these securities as Tier I capital. The long-term debt issues are included under the phase-out period specified in the CSE Rules. Tier II capital is offset by the remaining 50% of any shortfalls between expected losses and credit provisions, totaling \$156 million.

The staff's in-depth review of prospectuses related to cumulative preferred stock issues and a sample of long-term debt issues included in Tier II capital disclosed that these instruments appear to fulfill all criteria for such inclusion. In addition, the capital trust preferred stock

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<sup>77</sup> The guidance is entitled "The Application of Basel II to Trading Activities and the Treatment of Double Default Effects."

<sup>78</sup> The alternative net capital rule, which refers to the Federal Reserve's Regulation Y for calculation of necessary deductions, requires that the firm deduct deferred tax assets to the extent they exceed the lesser of 10% of Tier I capital or the amount that the firm is projected to realize within one year of the most recent calendar quarter-end date. For purposes of calculating the 10% limitation, Tier I capital is defined as net of goodwill.

<sup>79</sup> According to firm officials, senior unsecured long-term debt issued by the holding company with a remaining maturity of nine years or more is representative of issues that have an original weighted average maturity of at least five years.



appears to fulfill all Regulation Y requirements, including the right of deferral of dividends for up to 20 consecutive quarter periods without creating an event of default or acceleration.<sup>80</sup>

The staff noted as part of its review that long-term debt included in Tier II capital exceeded 50% of Tier I capital. Regulation Y (Appendix A) requires a 50% limitation with respect to subordinated debt. Firms applying for CSE status may only include long-term debt as part of their capital for up to three years, with the possibility of extending that period for an additional two years. Therefore, the staff treated the firm's long-term debt as subordinated debt for purposes of its review and applied the aforementioned limitation pertaining to subordinated debt. In addition, the Division of Market Regulation has indicated to the staff that the firm will be required to comply with the 50% limitation. Prior to all of the staff's other adjustments to the firm's capital calculation as of May 2005, the application of the 50% limitation resulted in a reduction of the firm's allowable CSE capital by \$926 million. The firm subsequently applied the 50% limitation to its July 2005 capital calculation.

#### *d. Market Risk Charges*

Bear Stearns' market risk charges are determined by calculating firmwide VaR measures for most inventory positions, which are determined primarily based on the historical simulation method. The VaR measure reflects a 99% confidence level with a 10-day holding period. Historical simulation relies on determining the historical returns of a portfolio over a given time frame from a time series of price or risk factor data. The simulated historical portfolio returns are then used to estimate the future probability distribution of losses. The firm has employed historical simulation to capture market risk across different product types from the observed risk factor moves using a variety of calculation methodologies appropriate for different position types.

The firm has also developed "parametric" add-on methodologies to capture the risk from additional risk factors that do not lend themselves readily to historical simulation. For a miniscule portion of trading book positions, VaR calculations are based solely on "parametric" add-on methodologies. This treatment results in significantly higher market risk charges than the historical simulation method. The aforementioned trading book positions include defaulted consumer loans, which are not traded actively.<sup>81</sup> The firm conservatively applies a multiplier of four to determine its applicable market risk charges, notwithstanding preliminary results of the backtesting of VaR models.

The historical simulation captures broad movements of classes of securities and reflects, to some extent, certain additional risks (*e.g.*, specific risk). However, the Division of Market Regulation has opined that the Bear Stearns VaR models do not adequately capture all specific risks, particularly with respect to non-equity, non-investment grade securities. The firm was aware

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<sup>80</sup> The staff noted that Regulation Y states that "trust preferred securities are defined as undated preferred securities issued by a trust..." however, the prospectus for Bear Stearns' trust preferred securities contains a redemption date for the preferred securities, as well as for the underlying debentures.

<sup>81</sup> During a meeting with the firm on October 17, 2005, the Division of Market Regulation did not object to the firm's trading book treatment of this portfolio of positions.

that additional specific risk charges beyond those already included in VaR were necessary, and therefore included additional specific risk charges totaling \$12.038 billion in RWAs as part of its July 2005 capital calculation. Furthermore, the Division of Market Regulation required Bear Stearns to deduct \$650 million from allowable capital for its securitization residual positions, with a 50% deduction from Tier I and a 50% deduction from Tier II capital as part of the same capital computation.<sup>82</sup>

Some trading book positions did not enter the VaR calculations. For those positions, the firm utilized a 100% risk weighting. However, the firm did not systematically identify all items that did not enter the VaR calculation as of May 2005. Instead, they calculated charges on material items it knew were not included in VaR as of March 2005. At the staff's request, the firm provided the staff with the more recent list of items that were excluded from VaR as of July 2005, which it claims contains "the entire population." The list was compiled based on reconciliations performed as described below. Due to time constraints, the staff was unable to test the firm's assertion.

Bear Stearns is currently in the process of implementing reconciliations to ensure that all trading book positions are captured as part of VaR calculations. The reconciliation processes reviewed by the staff involved comparing data between Datawarehouse, a data repository for multiple back office systems, and VaR files, which are loaded into VaR engines that perform the calculations. Data in Datawarehouse is reconciled on a monthly basis to the general ledger.<sup>83</sup> Reconciliations performed by the firm are by whitebooks or trading desks. Conversations with firm officials disclosed that the firm still does not perform reconciliations for some classes of inventory positions that are included in VaR calculations and, therefore, cannot ascertain that all positions were captured in the VaR calculations. These include swap positions that are booked outside of Summit, such as certain mortgage-related derivatives. Bear Stearns officials stated that reconciliations for cash products are currently at more advanced stages than for other products, as the firm has been refining them over several months, while reconciliations for other types of products were implemented more recently. The staff reviewed reconciliations for three different whitebooks: MBS, interest rate derivatives, and credit trading. While the staff was comfortable with the overall design of the reconciliation processes reviewed, it noted that material unexplained discrepancies still existed at the time of the staff's review.

During its review, the staff learned that the market risk system that generates VaR used to determine applicable market risk charges does not include month-end adjustments. A firm representative indicated that cash and OTC derivatives may have many month-end adjustments, but the materiality of these adjustments could not be determined at the time of the review. As a result, the firm's capital calculations do not fully reflect market RWAs and, consequently, could overstate the capital ratios. Firm officials stated that they will hold monthly meetings to discuss breaks and month-end adjustments. If these items materially affect calculated market risk charges, they will re-run VaR using numbers that incorporate the aforementioned adjustments.

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<sup>82</sup> These positions were generally non-investment grade ABS and MBS.

<sup>83</sup> In addition, the firm performs daily reconciliations of data between the front and back office systems.

*e. Credit Risk Charges*

Bear Stearns determined its applicable credit risk charges based on the Advanced Internal Ratings Based approach promulgated by Basel II, using probability of default (“PD”) and loss given default (“LGD”) parameters to determine credit risk weights. The firm assigned a LGD amount of 62% for all credit exposures.<sup>84</sup> Internal ratings and PDs were validated against extensive external data maintained by Standard & Poor’s and Moody’s.<sup>85</sup>

The firm’s PE numbers used in credit risk charge calculations for selected products are based on the concept of MPE, using a 99% confidence interval.<sup>86</sup> According to firm officials, using MPE as part of calculations of credit risk charges results in calculations of extreme exposure numbers that are not realistic.<sup>87</sup> MPE numbers for prime brokerage margin lending activity are calculated using a holding period of 10 days, and then compared to counterparties’ liquidating equity to determine if any exposures exist. MPEs for OTC derivatives are calculated using a holding period of one year, with the future collateral movements simulated using a 10-day holding period, except for credit derivatives, for which the simulation uses a one-month holding period. MPEs for securities financing transactions are calculated using a holding period of five days for each portfolio of counterparty trades.

The firm’s computations of applicable credit risk charges as part of the May 2005 capital calculation were accomplished using Excel spreadsheets with Basel formulas (“capital spreadsheets”), as well as data downloaded from the credit risk system. The firm was also in the process of implementing its “capital calculator” as part of a project to automate CSE calculations going forward.<sup>88</sup> The capital calculator is in the form of an Access database that receives feeds from the credit risk system and aggregates all data used as part of capital calculations in one location. It should be noted that the firm is also developing the capacity to perform calculations of credit risk charges for all products within the credit risk system, which will eventually replace the calculations within the capital calculator.

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<sup>84</sup> This percentage is based on the average LGD for senior unsecured debt from 1997 through 2004, as stated in the “CSE: Loss Given Default Calibration” analysis conducted by PWC on behalf of Bear Stearns. The aforementioned time period includes periods of stress, as required by Basel standards.

<sup>85</sup> As part of the validation process, the firm performed regression analysis with respect to the abovementioned external data and smoothed any data anomalies that existed (for example, in some instances, higher rated counterparties may have been assigned higher probabilities of default than lower rated counterparties, or vice versa).

<sup>86</sup> The firm modified its model used for credit monitoring purposes, which uses a 97.7% confidence interval.

<sup>87</sup> Bear Stearns officials stated that, in the near future, they would like to use a more realistic measure of PE called expected positive exposure (“EPE”). This measure will show the average expected exposures, which are generally significantly lower than the MPEs. By using EPE, the firm will realize significant reductions in applicable credit risk charges.

<sup>88</sup> The firm stated that it hired PWC, which reviewed the capital calculator and signed off on the accuracy of the setup.

The staff's review of credit risk charges/deductions from capital included performing the required calculations with respect to selected products to verify the accuracy of the firm's calculations, as well as comparing, on a sample basis, the internal ratings and PDs that were assigned to individual counterparties as part of the same calculations against the credit risk system. The staff also tested the completeness of the firm's general ledger by tracing all securities financing transactions for a sample of counterparties from source reports, such as repurchase/reverse repurchase subsidiary reports, to the credit risk system and the general ledger. These reviews did not yield any findings of note. As part of those reviews, the staff noted that the firm conservatively uses the highest PD percentage with respect to counterparties without assigned credit ratings.

The staff also assessed the adequacy of firm reconciliations to ensure the completeness of its calculations. These reconciliations leverage previously existing reconciliations of the front and back office systems to the general ledger and extend the process to the credit risk system and to the capital calculator for securities financing transactions.<sup>89</sup> The review disclosed that the firm's reconciliation processes are in various stages of development and cannot ensure the completeness of the capital calculations thus far. Examples of specific deficiencies are addressed by product in respective sections below. As part of its review, the staff learned that the credit risk system does not currently capture month-end adjustments (*e.g.*, accrued interest) posted to the general ledger. Therefore, the capital calculation reviewed by the staff is not complete. Firm officials have stated that the credit risk system has been reconfigured to capture those adjustments commencing September 2005.

Furthermore, conversations with Bear Stearns officials disclosed that the firm's capital calculations do not reflect appropriate credit risk charges on long settlement or forward-settling trades.<sup>90</sup> According to guidance issued by the Basel Committee in July 2005, these trades are subject to appropriate credit risk charges. According to the same firm officials, the bulk of the forward-settling trades are mortgage related transactions.<sup>91</sup> As of month-end September 2005, the firm's net exposure from mortgage-related forward-settling transactions totaled approximately \$144 million. It should also be noted that the firm has not yet implemented a PE model with a 99% confidence interval for these transactions, and could not provide an estimate of impact on capital of including the required credit risk charges.

### *Margin Lending*

Bear Stearns' margin lending balances comprised \$38.32 billion in assets as of May 31, 2005. The firm calculated RWAs totaling \$9.84 billion for this business. Margin lending has two components: prime brokerage and retail margin. Calculations of RWAs included only "Type 7"

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<sup>89</sup> Firm officials have stated that reconciliations to the capital calculator have been expanded to a number of additional products since May 2005, including OTC derivatives and cash.

<sup>90</sup> Long settlement trades are defined as transactions with a settlement or delivery lag of longer than the lower of the market standard for a particular instrument or five business days, and should be treated as forward contracts up to the settlement date.

<sup>91</sup> These transactions include whole loans, MBS, and TBAs.

accounts, which represent a subset of prime brokerage accounts consisting of clients borrowing against collateral that is held at other Bear Stearns entities. As a conservative measure, the firm treated these transactions as unsecured exposures. It should be noted that these transactions accounted for only less than 6% of the entire margin lending portfolio. The other components, such as the remaining prime brokerage and retail margin transactions, were not included in the RWA calculations. The firm maintains that required charges on the retail margin business are very low. Therefore, the Division of Market Regulation requested that the firm include an add-on credit risk charge for this business using the following methodology: PE totaling 1% of the gross debits; PD of 0.03%; and LGD of 100%. During a meeting with the Division of Market Regulation on October 17, 2005, firm officials stated that the July 2005 capital calculation also included charges on joint back office accounts totaling approximately \$400 million in RWAs. In addition, the firm calculated an add-on credit risk charge of \$100 million in RWAs on retail margin balances using the method requested by the Division of Market Regulation.

The staff noted that calculated credit risk charges related to the margin lending business decreased by more than 50% between May and August of 2005, from \$9.84 billion to \$4.48 billion in RWAs. Bear Stearns officials stated that the higher May 2005 requirements appear to be due to both the capital spreadsheets' inability to net all counterparties with credit balances systematically and the usage of a high risk credit rating of six for all counterparties, which represents a PD of 7.01%, as opposed to their actual specific credit ratings. In some cases, the actual credit ratings of counterparties represented PDs that were as low as 0.03%.

During this review, the staff noted that the firm does not currently have a formal reconciliation process from the margin lending business to the general ledger, and thus cannot ensure the completeness of its credit risk charges related to this product. The firm anticipates beginning the reconciliation process for the prime brokerage component of margin lending for Bear Stearns' August 2005 capital calculation.

#### *OTC Derivatives*

Bear Stearns' OTC derivative positions totaled \$4.69 billion on a gross basis as of May 2005. The firm calculated RWAs totaling \$8.48 billion for these positions. However, the firm did not have a reconciliation process in place for OTC derivatives as of May 2005. Therefore, the staff requested documentation related to the reconciliations that were subsequently performed for OTC derivatives in July 2005. This process consists of a reconciliation that compares the credit risk system to SWAP. Operations performs ongoing reconciliations that compare SWAP to the general ledger. However, the process did not include a reconciliation to the firm's capital calculator. Therefore, the staff could not ensure that all OTC derivatives positions were included in the credit risk charge calculations. The staff also closely reviewed a number of material items listed on the reconciliation between the credit risk system and SWAP. Based on the staff's review of supporting documentation and discussions with management, all items selected were reasonably supported.

#### *Securities Financing*

The repurchase and reverse repurchase agreements and securities borrowed and loaned balances totaled \$96.34 billion and \$93.45 billion on a gross basis, respectively, as of May 2005. The

firm calculated RWAs on these products totaling \$1.980 billion and \$441 million,<sup>92</sup> respectively. As part of its review, the staff examined the supporting documentation and reconciliations. It was noted that the firm has implemented a complete reconciliation process for these products, which includes comparisons of balances among the general ledger, front and back office systems, the credit risk system, and the capital calculator. However, the staff noted that the credit risk system does not capture transactions from systems that record certain foreign repurchase and reverse repurchase agreement transactions, as well as repurchase and reverse repurchase transactions with CTC customers. As a result, the firm did not calculate credit risk charges on those transactions. In addition, the staff noted as part of the reconciliation of financing transactions by counterparty between the credit risk system download and the capital spreadsheets used as part of the May 2005 capital calculation, that the capital spreadsheets did not include approximately 28% of the counterparties due to “limited server disk space.” As a result, RWAs for securities financing transactions were understated by approximately \$528 million.<sup>93</sup> Firm officials stated that the problem “was immediately fixed by moving the output of future PE files to a server with enough space to handle the data load subsequent to the May 2005 calculation.”

*f. Allowance for Operational Risk*

In order for BS&Co. to use a risk-based methodology for calculating its net capital requirement, Bear Stearns is required to develop an operational risk management infrastructure and to calculate a capital charge for operational risk. These requirements for the UHC are mandated by the Basel standards.

The three methods of calculating operational risk capital requirements are the Basic Indicator Approach, the Standardized Approach, and the AMA. The Basic Indicator Approach is calculated by taking the average of the past three years’ revenues, net of interest expense, and multiplying that amount by 15%. The Standardized Approach is calculated by categorizing revenue into eight business lines and multiplying by a factor ranging from 12% to 18%, depending on the type of business line. The AMA capital requirement is calculated based on a statistical model that captures the biggest one-year loss the firm could experience over the next 1,000 years.

Bear Stearns elected to calculate its capital requirement under the Basic Indicator Approach in its draft CSE application. Pursuant to this approach, the UHC’s operational risk charge was calculated to be \$940 million, or \$11.75 billion in RWAs as of May 31, 2005. Firm officials stated that Bear Stearns is planning to convert to an AMA approach to calculate operational risk

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<sup>92</sup> It should be noted that the firm used February 2005 securities borrowed and loaned data as part of its May 2005 calculations, due to certain labor-intensive processes that were in place at the time. The staff satisfied itself that securities borrowed and loaned balances do not vary significantly from month to month.

<sup>93</sup> Because the capital spreadsheets do not include contractual amounts for transactions and the firm was unable to provide this information, the staff was able to compare the credit risk system download to the capital spreadsheets only by counterparty name. Based on this analysis, the staff discovered that there were approximately 142 counterparties missing from the capital spreadsheets. The staff’s proposed adjustments for repurchases/reverse repurchases and securities borrowed/loaned totaled \$432 million and \$96 million, respectively. Firm officials agreed with the methodology used to derive those adjustments.

charges; however, at this time, the firm does not anticipate implementation of the more advanced approach until after 2006.

### 3. The U.S. Broker-Dealers Computation

Listed below is a comparison of the capital computations as calculated under the standard net capital rules versus the alternative methodology for the U.S. Broker-Dealers as of May 31, 2005 (in millions \$):

|                             | <u>Standard</u> | <u>CSE</u>          | <u>Difference</u> |
|-----------------------------|-----------------|---------------------|-------------------|
| Gross Capital <sup>94</sup> | 11,445          | 11,445              | 0                 |
| Tentative Net Capital       | 7,142           | 9,454 <sup>95</sup> | 2,312             |
| Haircut/Market Risk Charges | 2,426           | 587 <sup>96</sup>   | 1,839             |
| Net Capital                 | 4,716           | 8,867               | 4,151             |

The staff's review included a reconciliation of the components of capital calculations to the individual FOCUS reports filed for both BS&Co. and BSSC. The staff's testing of capital components at the UHC level included reviews of further supporting detail for cash, repurchase and reverse repurchase agreements, and securities borrowed and loaned transactions that are carried on BS&Co.'s books. The staff noted during its review that the U.S. Broker-Dealers computation under the alternative methodology does not include credit risk charges for OTC derivatives positions. When the staff inquired, the firm indicated that the OTC derivatives positions carried by BS&Co. were immaterial. The U.S. Broker-Dealers computation as of July 31, 2005 incorporated a credit risk charge for OTC derivatives of \$100 million. Due to the late date of the presentation, the staff did not review the methodology or accuracy of the OTC derivatives credit risk charge being applied to the U.S. Broker-Dealers' July 2005 computation. The staff will include a review of this charge in its next examination of the firm.

The staff also noted that the July 31, 2005 calculation differed from the May 31, 2005 in that the July calculation included a \$600 million deduction from gross allowable capital for non-marketable securities. The firm explained that this deduction was for the market value of residual positions of investments in collateralized mortgage obligations or other securitizations held in BS&Co. These positions are rated non-investment grade, and are typically the first securities to absorb losses. In addition, the July 31, 2005 calculation included a \$300 million charge for specific risk. The firm explained that this charge was for the specific risk not picked up in the VaR calculation for non-investment grade securities that are also held in BS&Co.

<sup>94</sup> Gross capital of the U.S. Broker-Dealers is composed of the consolidated equity in BS&Co. and the subordinated debt issued by BS&Co. and BSSC that is held by the UHC (BS&Co. equity of \$1.096 billion in BSSC is eliminated in consolidation).

<sup>95</sup> Tentative net capital of the U.S. Broker-Dealers was calculated by deducting the consolidated non-allowable assets and other deductions at both entities, except for non-marketable securities included in BS&Co.'s VaR calculations.

<sup>96</sup> Similar to the UHC computation, in order to determine the applicable market risk charges, the U.S. Broker-Dealers computation incorporates a multiplier of four applied to the BS&Co. VaR amount calculated.

Since neither of these charges were included in the May 31, 2005 capital calculation, the staff has not reviewed the accuracy of the charges. The staff will include in its next examination of the firm a review of the charges for residual positions and for specific risk.

**Findings:**

- **Bear Stearns did not calculate sufficient specific risk charges on its trading book assets as part of its May 2005 capital calculation, thereby overstating its CSE capital ratios.**

The firm subsequently incorporated \$12.038 billion in RWAs for additional specific risk charges as part of its July 2005 capital calculation.

- **The firm's reconciliation processes among the general ledger, the market and credit risk systems, and the capital calculator are currently in various stages of development.**

The firm needs to finalize the reconciliation processes to ensure the completeness of the capital calculations going forward.

- **The market risk and credit risk systems, which are used to determine the majority of the charges included in the capital calculations, do not include month-end adjustments (e.g., accrued interest).**
- **The credit risk system does not capture transactions from systems that record certain foreign repurchase and reverse repurchase transactions, as well as repurchase and reverse repurchase transactions with CTC customers.**

As a result, the firm did not calculate credit risk charges on these transactions as of May 2005.

- **The firm did not calculate credit risk charges on long settlement, or forward-settling trades as part of its May 2005 capital calculation.**
- **The firm did not calculate any credit risk charges related to its retail margin business as part of its May 2005 capital calculation.**
- **The firm did not apply, or otherwise include, credit risk charges on OTC derivatives positions held by the U.S. Broker-Dealers in the Bear Stearns May 2005 CSE capital calculation.**

The staff noted that the July 2005 U.S. Broker-Dealers CSE capital calculation contains a credit risk charge of \$100 million for OTC derivatives positions.

**K. FUNDING AND LIQUIDITY**

**1. Overview**



Bear Stearns' funding and liquidity management process is conducted primarily on a consolidated basis and encompasses all subsidiaries and affiliates. The firm also monitors the UHC on a stand-alone basis. The consolidated entity's funding mix as of May 31, 2005 included the following: \$9.9 billion in shareholder equity, \$30.9 billion in long-term debt excluding the current portion, and \$16.7 billion in unsecured short-term debt. The two largest components of unsecured short-term debt are the current portion of long-term debt (\$6.7 billion) and commercial paper (\$6.3 billion). Collectively, these two compose approximately 78.4% of unsecured short-term debt. It should also be noted that the UHC issues nearly all of the consolidated entity's long-term debt.

The key assumption made by the firm as part of the funding and liquidity management function is a loss of access to unsecured financing in a stress scenario (*i.e.*, the firm would not be able to roll over maturing unsecured debt), which would necessitate the shift to secured financing. In order to measure and monitor its liquidity and ability to shift to secured financing, the firm utilizes two main tools: a net cash capital calculation and a liquidity ratio. In addition, the firm maintains a limited CFP and monitors various funding related ratios such as double leverage and secondary double leverage ratios. The staff's review of trends with respect to the double leverage and secondary double leverage ratios disclosed that firm ratios are generally in line with industry peer ratios. As part of its review, the staff noted that the firm does not maintain funding and liquidity written policies and procedures, with the exception of limited policies and procedures related to the firm's CFP.<sup>97</sup>

The first main tool, cash capital, measures the extent to which long-term funding needs exceed the portion of the firm's assets that cannot be used to obtain collateralized funding. These assets include illiquid and/or fixed assets, as well as haircuts on securities. Haircuts can be defined as the excess of the market value of securities over their loan value that the firm would be required to put up as collateral. These items are considered cash capital requirements that must be prudently supported by long-term funding. An excess in cash capital indicates that the firm would not be required to obtain unsecured financing or be forced to liquidate assets to meet its maturing debt obligations for at least one year.

The second main tool, the liquidity ratio, reflects in percentage terms the excess (or deficit) of liquidity available (generally cash plus borrowing value of unencumbered, highly liquid securities) over liquidity required (unsecured short-term debt and long-term debt maturing in less than 12 months). A liquidity ratio over 100% indicates that the firm is able to meet all of its obligations maturing within one year. Finally, the CFP contains a course of action that the firm will take to maintain financial liquidity in the event of a loss of access to unsecured funding.

## **2. Cash Capital**

The staff reviewed trends in the firm's cash capital position and disclosures regarding cash capital in the firm's public filings (*i.e.*, Form 10-Q filing), and verified the accuracy of the cash capital components as of May 31, 2005. Bear Stearns sets a minimum target for its cash capital

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<sup>97</sup> Robert Upton, Assistant Treasurer, stated that the funding and liquidity policies and procedures were in the process of being drafted.

equal to 2.5% of haircuts on securities that need to be supported by cash capital sources with maturity of at least one year. In its draft application, the firm stated that its cash capital “always exceeds internal targets.” In addition, the firm’s Form 10-Q filing as of May 31, 2005 states that the firm’s cash capital “typically exceeds \$1 billion.” Furthermore, the Form 10-Q filing also states “On June 20, 2005, the firm issued \$1 billion of long-term debt to restore the aforementioned typical excess.”

During its review, the staff noted that during the quarter covered by the May 2005 Form 10-Q filing, the firm’s cash capital was below its target two out of the three months,<sup>98</sup> and always below \$1 billion. The firm agreed that the use of the language “always exceeds internal targets” in the draft CSE application was inaccurate. In addition, firm officials agreed that the use of the language “typically exceeds \$1 billion” in its May 2005 Form 10-Q filing might be potentially misleading. However, they maintained that when considering the firm’s cash capital position over a 53-month time period, the use of the word “typically” is accurate. The firm, however, failed to include any corresponding disclosure in the filing regarding the elongated time frame over which the statement would then be a more accurate depiction of its position. Lastly, according to the firm’s own charts, the cash capital position as of month-end June 2005 was in a record deficit position of over \$2 billion. This directly contradicts the statement in the May 2005 Form 10-Q filing that the firm issued long-term debt to restore the typical excess.

### **3. Liquidity Ratio**

The staff reviewed trends with respect to the firm’s liquidity ratios on both a consolidated and UHC stand alone basis. In addition, the staff reviewed in detail the components of the firm’s liquidity ratio computations and verified their accuracy as of May 31, 2005. On a consolidated basis, the ratio appeared adequate, both historically and currently. However, discussions with the Division of Market Regulation concerning the UHC level ratio disclosed that it might be significantly overstated because it includes intercompany payables from regulated affiliates, which may not be available in a stressed environment. As such, the Division of Market Regulation has requested that the firm establish a liquidity pool or reserve at the UHC level, comprised of approximately \$2 billion in cash and \$3 billion in securities.

### **4. Contingency Funding Plan**

The firm’s current CFP consists of a nine page, broadly described action plan. Limited policies and procedures related to the CFP state that the objective of the plan is to maintain firm liquidity for 12 months without access to unsecured financing. CFP policies and procedures also describe very general action steps the firm will take to manage an event driven impairment or liquidity crisis, defined by the firm as a loss of access to uncommitted, unsecured, confidence based funding. The plan is reviewed by senior management on an annual basis.<sup>99</sup> As a funding and liquidity tool, in addition to its cash capital and liquidity ratio analyses, the firm also considers its

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<sup>98</sup> The staff noted that the firm’s target, which represents a percentage of haircuts, was typically below \$1 billion over the previous 12 months.

<sup>99</sup> Although the CFP is reviewed by the Treasurer, Michael Minikes, and the CFO, Sam Molinaro, Upton stated that he is the only one who approves the plan.

ability to sustain a hypothetical liquidity crisis through its stress loss liquidity analysis (“SLLA”). This analysis examines two independent stress scenarios: a \$2 billion loss in the MBS business and a \$2 billion loss in the equities business, as well as the related impacts of increased margin requirements, increased derivatives collateral requirements due to a one-notch downgrade, and cash required to meet draws of various unfunded commitments. Upton described these two scenarios as being inconceivable with “a zero percent probability” of occurring. The staff perceived the firm’s SLLA as a component of its CFP.

The staff’s review of the CFP disclosed that it might be inadequate and inconsistent with practices in the industry. Specifically, the CFP and SLLA do not consider realistic stress scenarios, do not contain projected weekly cash flow analyses, and do not require specific actions when liquidity falls below stated goals in a stress environment according to internal analyses. The stress scenarios currently considered appear highly improbable and, consequently, often result in projected liquidity of less than 12 months, in contravention of the CFP’s stated objective.<sup>100</sup> Instead, the analysis should consider realistic stress scenarios that might occur under reasonable probability assumptions. Further, under more realistic stress scenarios, the analysis should illustrate sufficient liquidity to meet obligations maturing over a one year period. In addition, CFPs of industry peers have included detailed weekly cash flow analyses reflecting all sources and uses of funds over a 12-month period and the impacts of stress events on cash flows. Upton agreed that such items would be valuable improvements to the firm’s CFP, and consistent with other firms’ practices.

#### **Findings:**

- **The firm has not implemented written policies and procedures related to the funding and liquidity area, with the exception of a limited CFP.**
- **The firm’s CFP does not (i) consider realistic stress scenarios, (ii) contain projected weekly cash flow analyses, or (iii) require specific actions when liquidity falls below stated goals in a stress environment according to internal analyses.**

## **VII. CONCLUSION**

The findings contained in this report have been conveyed to the firm and to the Division of Market Regulation for review in consideration of BS&Co.’s application for CSE status.

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<sup>100</sup> The April 30, 2005 SLLA (included in the May 2005 CFP) revealed that if there were a \$2 billion loss in MBS or equities, the firm would have sufficient liquidity for only 190 and 230 days, respectively. This is inconsistent with the objective of the CFP to “meet obligations over a twelve month period.”

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