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BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

DIVISION OF RESEARCH AND STATISTICS

Date: October 7, 2003

To: Myron Kwast

From: Paul Calem and Jim Follain

Subject: Meeting with Morgan Stanley on Competition Project

Attendees from Morgan Stanley: Roger Lister (Executive Director, Fixed Income Research Analyst covering US Banks, Brokers, GSEs); Ken Posner (Executive Director, Equity Research Analyst covering Specialty Finance, Mortgage Finance and GSEs); Michael Marschoun (Vice President in the area of RMBS modeling); Amtabh Arora (Executive Director, head of research for RMBS); Laura Heinz (Vice President, Fixed Income Research Analyst covering Specialty Finance and Mortgage Finance) and Greg. Kern (Associate in Fixed Income Research).

The attached questionnaire was distributed in advance of the meeting and served as a helpful guide to the conversation, although we did not follow it precisely. This memo highlights the major themes emphasized during the meeting.

1. *Basel II may have its biggest impacts in Europe.* Their view is that the role of regulators in the US has been one of driving banks towards better internal management of risk, particularly banks that lagged in adopting good practices, through a strong supervisory process, rather than creating rules to achieve increased capital adequacy. In Europe, regulations and rules have played a greater role in driving capital adequacy. They believe this greater role reflects weaker supervisory capabilities in Europe vs. the US, where supervisory powers have been strengthened over the past decade. Weaker European regulators can rely on Basel requirements to drive improvement and, hence, the changes in requirements

will tend to have larger impacts in Europe than the US, all else equal. In addition, US banks have plenty of capital so regulatory capital is not a binding constraint.

2. *A critical question is the degree to which economic capital tends to dominate decision-making relative to regulatory capital.* Their view is that large banks with a variety of lines of business primarily make investment decisions based upon economic capital. Regulatory capital requirements must be satisfied but do not drive the investment decisions for the bank as a whole as a general rule. Banks and outsiders may look at the amount of Tier 1 capital as a sign of relative strength among its peer group, but neither it or the Total capital requirement are among the most closely watched indicators of bank strength. This theme was emphasized by Roger Lister and reflects his experience with the internal processes used by banks to make investment decisions among assets and divisions and the external view of bond investors. Equity investors have shown more interest in bank capital of late; simple capital ratios are useful as an indicator of the direction of capital strength.

3. *Basel II will provide AIRB banks with an incentive to invest more heavily in residential mortgages with relatively low credit risk.* In other words, they believe the argument outlined in the attached document and underlying the project has merit and, all else equal, Basel II would shift mortgage investments toward the AIRB banks. However, a consensus did not exist among the MS staff regarding the magnitude of the effect. They also confirmed that the Basel II numbers we presented are largely consistent with their internal views. Specifically, they agreed that Basel II will lead to much lower regulatory capital requirements for 1-4 family residential mortgages than under Basel I and for non AIRB banks. More generally, they agreed that regulatory capital under Basel II will be more closely aligned to economic capital for residential mortgages than under Basel I.

4. *They identified several obstacles that may inhibit a significant shift by AIRB banks to invest more heavily in residential mortgages under Basel II.*
    a. *The liquidity premium associated with GSE MBS is substantial:* This may represent 20 bps or so of spread or value to holders of such bonds. Perhaps some non GSEs may rise to a level capable of providing similar liquidity

value; until they do the liquidity premium will lead banks to hold GSE MBS as their optimal investment vehicle for high quality residential mortgages versus unsecuritized but conforming whole loans.

b. *Interest rate risk generally inhibits investment in fixed rate mortgages.* The cost of hedging 30-year fixed-rate mortgages is high. Banks tend to invest in short-term tranches of CMOs with duration objectives of 2 - 3 years.

c. *Operating risk, broadly defined, is substantial in the mortgage business and will hinder large increases in investment by those without the appropriate expertise to manage such risk.* This risk is perhaps better thought of as a classic "agency" problem in which the incentives to originators and investors are not always aligned. It takes much expertise and many resources to combat this problem; hence, those without such expertise may be reluctant to make major decisions solely on the basis of changes in regulatory capital. We discussed at length some of the problems revealed by a recent mortgage banking subsidiary as a case in point.

    i. *A key reason this is so important is that the magnitude of problems can be large.* So, for example, poor interest rate risk management can lead to major crises. Morgan Stanley also provided the example of Home Side, a mortgage subsidiary of Australia National Bank. This case demonstrated how lack of risk management expertise including calculation errors led to $1+ billion in losses, sales of the business, and firing of key managers.

d. *The leverage ratio is a key consideration for many AIRB banks.* Ken Posner was especially clear on this point and cited papers he has done on the comparative advantage (or disadvantage) of banks relative to the GSEs regarding the holding of interest rate risk. A typical AIRB bank currently focuses more attention on the well-capitalized leverage ratio (5 percent) than the Tier 1 ratio. Since residential mortgages have their largest impacts on the Tier 1 ratio than the leverage ratio, banks have less of an incentive to make a major move into residential mortgages. All agreed that the current leverage ratio need not be a permanent deterrent to additional investment in residential mortgages if banks simultaneously increase their investments in loans with Tier 1 capital requirements above the leverage ratio,

e. *Rating agency capital may be the binding constraint for large banks.*

5. *Banks currently invest in adjustable rate and hybrid mortgages as opposed to fixed rate mortgages.* Morgan staff suggested that 70-75 percent of ARMS and hybrids are not securitized. Depending on the degree to which regulatory capital has been a binding constraint on such investment (in particular, on the degree to which banks have met Basel I requirements through low-cost arbitrage), non-AIRB banks may become somewhat disadvantaged in this area under Basel II. An important opportunity for banks is the ability to cross-sell or gain entree with a household by originating a mortgage and servicing it versus viewing mortgages a just an investment or regulatory capital adjustment.

6. *Jumbos are mostly securitized.* However, smaller banks and thrifts may hold jumbos for some time prior to sale, because they find it profitable to do so. Incentives created by Basel II may eliminate the profitability of such a "pipeline".

7. *This leads naturally to the questions: what is the least costly way of meeting regulatory capital requirements? How much regulatory capital arbitrage is going on?* This is a key point emphasized by Roger Lister. That is, at the end of the day, banks will consider various ways of meeting regulatory capital requirements. His sense is that in today's environment, the cost of hedging the various noncredit risks associated with mortgages - operating, liquidity, and interest rate (including prepayment) - is excessive and would cut deeply into the profits associated with investment in many kinds of mortgages. Of course, this might change in the future as hedging devices and costs continue to decline due to both greater demands and technology improvements.

5. *If the costs of hedging interest rate risks are so high, why are thrifts so successful in their investments in ARMs?* This is a natural question that follows. The answer is that the funding of ARMs with floating rate deposits provides thrifts with Roger

Lister labeled a "natural hedge". This is available to them owing to the relatively simple portfolio they have. The thrifts and banks then work on mitigating basis risk between deposit rates and ARM rates. But even this strategy only applies particularly well to short-term ARMs and not the 7-1(1 year adjustable for 7 years) hybrids.

9. *Precedents in securitization do exist to allow appropriate unbundling.* We discussed a particular type of security that might allow banks to act on the incentive offered by Basel II to AIRB banks that would allow the unbundling of the operating and interest rate risk noted above. Two were pioneered by Freddie Mac and Wall Street firms - MODERNS and an indexed security used for CRA lending. These securities would permit banks to invest in credit risk and unbundle much of the operating and interest rate risk associated with such investments. They would buy the security and earn interest on the amount they invest. Losses to the mortgages are deducted from the balance on which the interest is being paid. The CRA security is similar except that the interest is paid on the difference between the losses on the CRA loans and a benchmark pool of nonCRA loans. At the current time, the costs of these may be excessive for all but the largest investors, but they may decline in the future, especially if the demand for them increases.

ATTACHMENT: Questions Posed to Morgan Stanley
Paul Calem and Jim Follain of the Federal Reserve Board
September 19, 2003

Purpose of Study: The purpose is to examine the potential of Basel II to generate an advantage to AIRB banks in the market for 1 -4 family residential mortgages *investments.* Basel II would reduce the minimum regulatory capital charge for the credit risk associated with investments in high quality 1-4 family residential mortgages and in the higher rated tranches of nonagency mortgage-backed securities relative to Basel I. See Table 1. The key questions are: i) will the reduction would lead to significant increases in the demand for such investments by the AIRB banks at the expense of non-AIRB banks; and, ii) will non-AIRB banks be placed at a disadvantage relative to AIRB banks in the market for mortgages?

Purpose of Interviews: A number of banks, rating agencies, and investment banks are being contacted during the ANPR period to seek both general and specific feedback on the question. Results of the interviews may be referenced in the final report, which may be made public.

Specific questions for discussion:

1. Background information:
   - For which mortgage product / risk segments is economic capital substantially less than regulatory capital under Basel I and II?
   - What is the extent of your investments in the Jumbo prime fixed-rate or adjustable-rate MBS?
   - What fraction of your 1 -4 family mortgage investments would qualify as "conforming"?
2. Business model issues:
   - Do internal pricing policies assign significant weight to regulatory capital requirements?
   - What obstacles or market realities may limit the ability of banks to take advantage of the lower regulatory capital requirements for these investments?
   - We are particularly interested in the role of interest rate risk in mortgages.
     1. For example, would concerns about the interest rate risk associated with mortgages and the difficulty of unbundling credit and interest rate risk dominate any reductions in the regulatory capital requirements for the credit risk in such investments?
     2. Also, the demand for adjustable-rate mortgages by AIRB banks increase owing to their lower regulatory capital charge and their lower interest rate risk?
   - Does the investment decision hinge upon a strong originations business model or are they largely separable?
     1. For example, would "reps and warrants" lead to excessive and difficult to manage capital requirements?
     2. Would the length of time from origination to sale be much affected by the reduced capital charges for credit risk?
     3. Does the investment decision hinge upon the liquidity of the mortgage investments; for example, would highly liquid MBS still be strongly preferred over whole loan investments?
3. Other considerations:
   - Would the reductions in the regulatory capital requirements for mortgages affect your ability to compete with nonbank entities such as the GSEs or the FHLBs?
   - Would you expect other retail investment decisions to be effected?

Table 1: Proposed Basel II Capital for 1-4 Family Residential Mortgages

Selected examples of simulated PD, LGD, and Basel II capital by risk segments

LTV / FICO Score	Annualized 10-year Default Rate (PD) (percent) (1)	Loss Generated by Default (Recession LGD) (percent) (2)	Risk Weight (percent) (3)	Marginal Tier 1 Capital Requirement (Basis points) (4)
70 / 620	0.27	16	9	34
70 / 660	0.16	16	6	23
70 / 700	0.10	16	4	16
70 / 740	0.07	16	3	12
80 / 620	0.51	20	17	67
80 / 660	0.31	20	12	48
80 / 700	0.20	20	9	35
80 / 740	0.15	21	7	29
90 / 620	1.00	25	34	136
90 / 660	0.62	26	25	100
90 / 700	0.42	26	19	76
90 / 740	0.30	26	15	61
95 / 620	1.38	26	45	181
95 / 660	0.87	27	34	135
95 / 700	0.58	28	26	104
95 / 740	0.43	28	21	84
Jumbo Prime Pool	0.27	25	13	53
Alt-A Pool	0.28	35	19	77
Seasoned & Diversified Portfolio of Prime Loans	0.19	25	10	40

Source: Calculation by FRB staff.