



# Risk Management Review

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*An Update to the Corporate Audit and Risk Management Committee*

*Why this topic is on the agenda: The Audit and Risk Management Committee Charter requires that the Committee discuss with management Citigroup's major credit, market, liquidity and operational risk exposures and the steps management has taken to monitor and control such exposures, including Citigroup's risk assessment and risk management policies.*

# Executive Summary

During the quarter, the markets remained volatile with the areas of focus continuing to be:

## Sub-prime

- The sub-prime weakness has continued with delinquency rates at historically high levels driving the Asset Backed Security BBB- index down from \$55.72 in early July to \$29.39 on September 28<sup>th</sup>. The sub-prime market continues to be fragile driven by increasing default rates and decreasing home values. The disruption in the sub-prime markets has spread to other markets, although the broader global economy continues to show signs of stability helped in part by the Federal Reserve rate cut of 50 basis points in September.
- The total sub-prime exposure in Markets and Banking was \$13bn with an additional \$16bn in Direct Super Senior and \$27bn in Liquidity and Par Puts. Sub-prime exposure was down slightly from last quarter.

## Leveraged Finance

- The first half of the year was a record for leveraged loan volumes and leveraged buyout activity. By July, the market had stalled due to investors concerns regarding pricing, covenants, and leverage. The Loan Credit Derivatives index (LCDX) reached its low on July 30<sup>th</sup>, at \$91.875 with spreads widening to 380 basis points. The LCDX has rebounded and is now at \$96.86. In another sign of improving market conditions, underwriters including Citi sold \$9.4bn of leveraged loans used for KKR's buyout of First Data Corp. in the biggest leveraged loan since the market froze in late June.
- As of September 30<sup>th</sup>, Citi has an approved total backlog of \$33.8bn of leveraged loans and \$13.8bn of high yield bridge loans which are scheduled to come to market in future quarters. The backlog consists of some very large financings including TXU \$6.5bn, Alltel \$7.5bn and Bell Canada \$13bn. In addition to the approved backlog which is unfunded, Citi has \$21.9bn of funded exposure to leveraged transactions which were due to come to market during the past four months which either failed to sell or were postponed due to market conditions. Of the \$69bn of total commitments at the end of the third quarter, \$57bn were highly leveraged finance commitments to financial sponsors, of which \$38bn are unfunded.

## Counterparty Risk

- Financial institutions have been impacted as a result of the weakness in the sub-prime market and the spillover into the Asset Backed Commercial Paper (ABCP) market. The US ABCP market have contracted by \$340bn since mid-July resulting in much of the funding coming on to the balance sheet of banks.
- Recent market events have led to a significant increase in classified names from 24 to 262, mostly in September, representing an increase of \$13bn of Total Outstanding and Unused Commitment (OSUC). Of the \$13bn in additional OSUC, \$3.9bn is from 48 counterparties with a classified rating of II or worse. The overall increase is primarily attributable to hedge funds and Special Purpose Vehicles. Notable losses from counterparties include Cambridge (\$35mm), American Home Mortgage (\$18mm), and Basis Capital (\$13mm).

# Credit Risk Overview

## Credit Portfolio Performance

(\$ Billions)	3Q07 <sup>(1)</sup>	2Q07	%Q-o-Q	3Q06	%Y-o-Y
Total Outstandings & Unused Commitments	\$1,234.8	\$1,104.6	12%	\$932.4 <sup>(4)</sup>	32%
Total Classifieds	\$43.3	\$27.0	60%	\$29.6	47%
Classified II or worse	\$15.5	\$6.7	131%	\$7.1	117%
Non-Performing Loans <sup>(2)</sup>	\$1.3	\$0.6	116%	\$0.7	87%
Cost of Credit (\$MM) <sup>(2)</sup>	\$152.6	(\$62.0)	346%	\$107.0	43%
Reserves <sup>(2)</sup>	\$4.5	\$4.3	5%	\$4.0	12%
Credit Risk Capital <sup>(3)</sup>	\$20.4	\$17.1	19%	\$12.6	62%

(1) All 3Q07 data in the Credit table is as of August 2007

(2) Cost of Credit and Non-Performing Loans for 3Q07 reflects full first quarter estimates

(3) Credit Risk Capital reflects the quarterly average Risk Capital amount

(4) Excludes margin loans

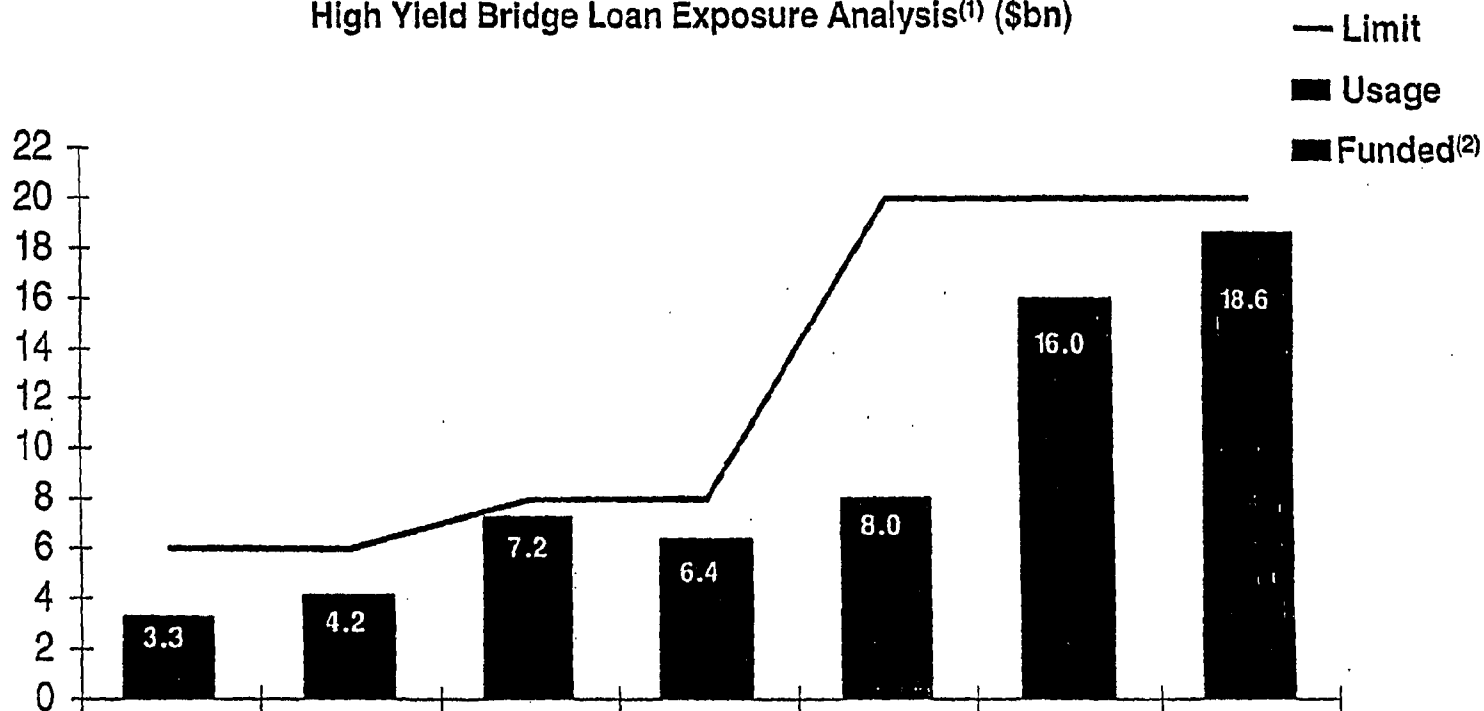
### We continue to closely watch High-Risk sectors: Autos and Financial Institutions

- North American Autos:** North American (NA) net credit exposure as of 8/31/07 was \$5.3bn – little changed from \$5.2bn at 5/31/07. Total classifieds for the NA Autos portfolio was \$2.4bn with \$1.6bn of this amount classified II (Ford \$635mm, General Motors \$770mm, ResCap \$152mm and Visteon \$37mm). Effective September 6, 2007, GMAC entered into an agreement with Citi, pursuant to which Citi has committed to provide up to \$21.4bn in multi-asset-backed funding facilities to the companies. The Facilities will replace an existing \$10bn asset-backed funding facility and include commitments to provide funding for U.S. automobile-related assets, mortgage assets, and other assets across GMAC and its subsidiaries (most notably ResCap). A total of \$14.4bn will be available for immediate funding upon execution of the Facilities, with the additional \$7bn becoming available subject to Citi's ability to syndicate any exposure below a self-imposed \$14.4bn funding cap. Liquidity remains satisfactory at both Ford and GM; as of June 30, Ford had \$17.1bn available in cash and equivalents and \$11.5bn available under its Revolving Credit Facility. GM bolstered its liquidity in 2Q07 with the close of a \$4.1bn, 364-day Revolving Credit Facility and the sale of Allison Transmission for \$5.6bn. Outlook for NA industry players for 2007 remains weak due to continued strong foreign competition, still-high energy and raw materials costs, and expected 40% downturn in the heavy truck sector.
- Financial Institutions:** Net credit exposure as of 8/31/07 was \$157.8bn – up 21.8% from \$129.5bn at 12/31/06. Total classifieds for the Financial Institutions portfolio was \$3.6bn, up from \$1.0bn at 12/31/06. In Europe, the main adverse impact on Financial Institutions has been on German and UK banks while in North America, it was mortgage bankers, specialty finance companies and more recently financial guarantors. Other banks, insurers and managed/mutual funds while exposed to sub-prime were largely unaffected or had manageable credit exposures. German banks, IKB and Sachsen, were unable to fund their sizeable off balance sheet commercial paper conduit commitments as the commercial paper markets began to dry up and had to be bailed out by various German banks. US sub-prime exposures, tightening liquidity and larger haircuts across most funding markets dramatically impacted mortgage lenders. The Federal Reserve and the Bank of England loosening has brought about some stability, though market liquidity remains tight with significantly improved pricing and shorter terms. The focus remains on banks in the UK, Spain and Ireland and in North America, mortgage sectors, specialty finance companies and financial guarantors, particularly ACA and Radlan.

# Credit Risk Overview

## Other Risks

High Yield Bridge Loan Exposure Analysis<sup>(1)</sup> (\$bn)



	1Q06	2Q06	3Q06	4Q06	1Q07	2Q07	3Q07
Approved, Not Committed	0.0	1.2	0.4	0.7	0.4	3.4	0.0
CCC Bond Rating	1.3	1.3	5.3	4.2	2.2	3.2	6.8

**Footnotes:**

- (1) High Yield Bridge Loans are defined as loans with facility risk ratings 5- or worse to issuers where the primary source of repayment depends on either a capital markets issuance or asset sales and the issuers do not have clear-cut access to the senior bank debt market to refinance these loans. Report as of September 28, 2007.
- (2) Aggregate funded high yield bridge risk has a discussion trigger of \$1bn. This is NOT a limit.



# Market Risk Exposure Trends

During the quarter, some businesses experienced losses while others performed fairly well despite the difficult environment.

## Credit Markets

- The sell-off, beginning in late June, intensified in July and August after various reports of sub-prime losses and the heavy forward supply of leveraged buy out-related financings triggered a significant re-pricing of corporate credit risk. In mid-July, prices spiraled lower as margin calls following initial price declines forced asset sales that put further downward pressure on prices. This de-levering effect quickly spilled over into the Commercial Paper market, with short-term investors shunning any Asset-Backed Commercial Paper (ABCP) programs associated with mortgages or structured finance, including those financing illiquid asset backed securities (ABS) and collateralized debt obligations (CDO) assets.
- The five-year Investment Grade Credit Derivative Index (CDX) widened +40 basis points to +80 basis points before closing at +56 basis points, while the iTraxx Europe index widened +25 basis points to +38 basis points. The CDX High Yield index widened from +340 basis points to a high of +525 basis points before recovering to +404 basis points, while iTraxx Crossover widened +100 basis points to +326 basis points. Total Citi Markets and Banking net investment grade credit spread increased by \$0.8mm per basis point to \$5.9mm per basis point. Net CMB jump-to-default exposure to high yield corporates declined from \$15.1bn to \$14.0bn.

## Mortgages

- The sub-prime weakness has continued with delinquency rates at historically high levels driving the Asset Backed Security BBB- index down from \$55.72 in early July to \$29.39. The weakness has spread up the capital structure, with the 07-1 AAA and AA falling to its lows of \$89.29 and \$63.19, respectively on August 16<sup>th</sup>, before recovering to \$94.92 and \$80.89. The sub-prime spillover was seen widely across the mortgage market with Prime and Alt-A loans widening from 20 basis points and 22 basis points, respectively, to 48 basis points and 96 basis points.
- The 30-year fixed mortgage rate climbed from 6.35% to 6.66%, before dropping to 6.32% as of September 28<sup>th</sup>. Prepayment speeds decreased despite seasonal effects, due to higher rates, tightening of underwriting standards and housing market deterioration.

3Q07 Revenues and Risk Trends		
Division / Desk	Revenue (\$mm)	Risk Trends since 2Q07
Structured Credit Products	(1,420)	↔
US / Europe Credit Trading	(500)	↓
Relative Value	(195)	↔
Municipals	332	↓
Risk Treasury	342	↑
Global FX	365	↓
FICC Emerging Markets	933	↓
Global Equity	1,396	↓

## Market Risk Exposure Trends (cont.)

### Global Equities

- Global markets were mixed with US, Brazil and China increasing 3%, 11% and 45%, respectively, and Western Europe and Japan decreasing 3% to 7%. The S&P implied short-term volatilities spiked up to 30% in mid-August, then dropped back to below 20% after the Federal Reserve cut in September.
- Year-to-date revenues for the Equity Division are \$5.4bn, or 125% of the original year-to-date budget. All equity product lines and all regions except Japan have performed at or above their original revenue targets, with Asia Pacific revenues at \$1bn, well over the budget for 2007 of \$700mm due in part to strong customer flows on Derivatives and Cash and brisk underwriting activity. Markets and Banking total equity exposure is \$4.6bn while equity division volatility exposure is \$32mm per volatility point.

### Local Markets

- Despite volatility in the market, Local Markets had strong revenues during the quarter. In Central and Eastern Europe, Middle East and Africa, Turkish markets rallied in the run up to the parliamentary elections in late July. The Turkish lira reached a six-year high of 1.237 versus USD while the stock market jumped 8% reaching an all time high as markets priced in a victory for the ruling AK party. Significant FX exposures remain in Polish zloty and Russian rouble, with the latter reaching a peak of \$940mm in September. In Latin America, markets weakened with Brazilian real and Colombian peso down 8%. In Asia, China increased rates by 81 basis points and in two separate moves increased bank's reserve requirements by 100 basis points. Notable positions for the quarter include accrual DV01 of \$(3)mm per basis point and FX volatility with a peak position of \$12mm per volatility point. In Mexico, interest rates went up 11 basis points on average and the peso appreciated 1.1% closing at 10.92. Value-at-Risk for Emerging Markets is \$22.3mm.

### Interest Rates and Currencies

- The Federal Open Market Committee lowered the Fed Funds rate at the September 18<sup>th</sup> meeting by 50 basis points to 4.75% and the discount rate to 5.25%. Rates are currently much lower than in late June, with two-year notes settling at 3.99%, down 90 basis points, and ten-year notes at 4.60%, down by 50 basis points. The two-year and ten-year spread steepened to 61 basis points from 20 basis points last quarter. Volatility hit five-year highs and swap spreads widened dramatically with the two-year spread moving the most as a result of the flight to quality and the liquidity dislocation in short-term paper. The Markets and Banking USD interest rate risk, excluding municipals, increased from \$(10.1)mm per basis point to \$(10.3)mm per basis point.
- Carry trades are back in favor following the rate cut in the US, and on expectations of further reductions later in the year. JPY and EUR strengthened 7% and 5%, respectively, against USD, with EUR reaching a record high of \$1.4267 on September 28<sup>th</sup>. Average Value-at-Risk for Global Foreign Exchange was \$7.4mm.



# Market Risk Exposure Trends (cont.)

## Municipals

- During the first three quarters of 2007, Citigroup underwrote transactions worth a combined \$45bn, or a 14% market share. The 20-year municipal rate decreased six basis points to 4.28%. The 20-year Muni/Libor ratio increased 4.2% to 79%, as municipal rates underperformed taxable rates. However, the ratio had been as cheap as 84.6% due to the flight to quality in August.
- The combined trading and Available-For-Sale Municipal exposure of the division decreased from \$(23.9)mm per basis point to \$(23.2)mm per basis point. The quarterly change in the cost-to-close of the Citibank Tender Option Bond program was \$(474)mm.

## Commodities

- There was continued volatility due to variable views on demand, weather and supplies as the Commodity Research Bureau Commodity Index was up 7.1%. Crude oil West Texas Intermediate price closed at \$81.66 per barrel, up 28% from June 1<sup>st</sup>. At the beginning of the quarter natural gas prompt contracts traded as high as \$8.00 per million British thermal units finally settling down to \$6.87 per million British thermal units on September 28<sup>th</sup>. Palladium ended down 14% closing at \$352 per ounce.
- Phibro's average net oil exposure was \$527mm compared to \$408mm last quarter. Natural Gas average exposure was \$124mm. Two additional primary risk exposures continue to be Palladium with an average exposure of \$347mm and Equity with an average exposure of \$284mm. Overall risk profile was little changed over the quarter as reflected in average VaR of \$29.5mm from \$33.6mm last quarter.

Risk type	Mark-to-Market			Accrual			Total Economic		
	3Q07	2Q07	3Q06	3Q07	2Q07	3Q06	3Q07	2Q07	3Q06
Average CMB Value-at-Risk	\$141mm	\$139mm	\$84mm						
Stress Loss (Risk Manager Estimate)	\$3.5bn	\$3.2bn	\$2.5bn	\$1.5bn	\$1.5bn	\$1.3bn	\$4.2bn	\$3.9bn	\$3.0bn
Risk Capital	\$3.4bn	\$3.3bn	\$2.2bn	\$4.9bn	\$3.6bn	\$2.9bn			



# Operational Risk

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## ▶ Highlights

- Quarter-to-date losses are \$31 mm, a 1% decrease from 2Q07.

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## Redacted for Privilege

- The CMB Stand Alone Operational Risk Capital for 3Q07 increased by \$11mm to \$6.33bn.
  - Capital Markets & Banking – Stand Alone \$6.08bn
  - Global Transaction Services – Stand Alone \$0.25bn

## ▶ Underwriting, Distribution, Conflicts and Structured Products

- The total number of transactions reviewed by the Capital Markets Approval Committee (CMAC) during the quarter was 119, down approximately 22% from the prior quarter, with Fixed Income having the sharpest decline. Screenings of Credit Derivatives were focused almost exclusively on credit risk and regulatory capital mitigation.
- In the CMAC review process, some transactions could only be approved subject to a reduction of equal or greater amount of assets and capital, as the bank continues to focus on balance sheet usage.

