

**Industry Practices in Estimating EAD and LGD for Revolving
Consumer Credits -- Cards
and Home Equity Lines of Credit**

RMA – The Risk Management Association

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I. Introduction and Survey Summary.

This paper summarizes the results of a recent survey conducted by the RMA Capital Working Group¹ in response to questions raised by U.S. regulators concerning industry practice in measuring Exposure-at-Default (EAD) and Loss-Given-Default (LGD) for revolving consumer credits, including credit cards, and home equity lines of credit (HELOCs). The paper also summarizes certain views of the Group expressed during a February 10, 2004 meeting with U.S. regulators. This meeting was convened, at the request of regulators, to discuss a broad range of issues with the major U.S. banks that lend in these consumer credit markets. Certain issues, on which a relatively broad consensus exists among Group members, are discussed below.

In general, the survey results show that a diversity exists in practice regarding the details of EAD and LGD measurements. Nevertheless, practice appears to be converging on certain key matters.

EADs

- For internal economic capital purposes, EADs typically are measured to include some amount of “loan equivalency” for undrawn lines (for both cards and HELOCs). In general, the degree of loan equivalency is affected by management’s demonstrated ability to manage the unused line (reducing or suspending the line when account behavior warrants).
- Typically, exposure amounts are calculated from internal historical experience regarding balances at default relative to current balances and/or relative to the amount of the line of credit. Such data cover periods of time that range widely from 1 to 7 years.
- EADs typically are measured for various “segments” of accounts. Segments, in turn, are defined by various factors such as FICO score, delinquency status, vintage, etc. The number of segment dimensions (or factors) ranges from 2 to 5; a complete list is given in the survey results below.

LGDs

- For internal Economic Capital purposes, LGDs are measured to include recovery costs.
- Very few banks discount recoveries or recovery costs back to the time of default.
- Very few banks use cash flows to measure losses; most use net chargeoffs.
- As in the case of EADs, internal data typically are used to estimate LGDs. Time periods for the data range from 1 to 5 years.

¹ The Capital Working Group of RMA — The Risk Management Association -- consists of senior risk management officers at large banking organizations responsible for the measurement of risk and the determination of Economic Capital. The names of the institutions represented on the Capital Working Group, along with staff members contributing to the preparation of this paper, are shown in an Appendix. Individual banking organizations that are members of the Group may be responding separately to the questions raised by the U.S. agencies and may hold opinions regarding Basel II and the U.S. ANPR that differ from those expressed in this paper.

II. The February 10 discussion.

Does securitization of revolving credit result in the transfer of significant credit risk to investors? Most respondents believe that securitization does transfer credit risk, yet many respondents do not decrease internal Economic Capital (“EC”) estimates to reflect such transfer. One reason for this latter treatment is that the best-practice internal EC allocations for credit risk are only a fraction of the Basel requirements, throughout most of the range of obligor PDs. Since absolute EC is small to begin with, the transferred risk, in terms of the reduction in EC, must also be very small. From a purely qualitative viewpoint, the degree of credit risk transferred will depend on the specifics of the securitization transaction, especially for credit cards. Note that the discussion below does not treat *liquidity risk* – the risk that the bank will have to fund unused lines or will have to fund balances that are transferred back to the bank (from the special purpose entity) in the event of an early amortization. Such risk should properly be treated by Basel within Pillar 2, as is now the case.

Reasons why credit risk is transferred during a securitization of credit card accounts include the following. The discussion below pertains to card securitization, but most of the same points apply to HELOC securitizations as well.

- Exposures: During the revolving period of credit card securitizations, draw-downs of unused lines will, to a large extent, be offset by pay-offs of principal on other accounts. The securitizations are structured to keep the investors’ interest in the securitized loan pool at a constant level. Credit card customer payments are allocated to investors based on the investors’ pro rata share of the loan pool. Those allocated payments are then used to purchase new draw-downs on behalf of investors. To the extent such draw-downs are associated with declining credit quality (as the troubled obligors use their lines), investors share with the bank in the funding and credit risk associated with these draw-downs. Only if such draw-downs exceed allocated payments, in which case the overall balance of the pool grows, would the originating bank’s exposure increase. If the overall balance in the pool remains constant or shrinks the bank’s exposure stays the same or declines.
- Credit Risk: Credit losses among securitized balances must legally be allocated to the securitization waterfall structure. While issuers are typically in the first-loss position of the waterfall and, as such, take dollar-for-dollar capital deductions on these positions, it is the waterfall – and not the issuer – that must legally absorb all credit losses.
- Credit Risk: To our knowledge, all public credit card securitizations are either credit enhanced by third party insurers or structured to sell subordinated, as well as senior tranches, to third parties. The subordinated tranches are generally rated A and BBB, and provide credit enhancement to the senior tranches. If the securitization is credit enhanced by a mono-line insurer, originators pay an insurance fee to have the insurer provide a “wrap” to the transaction, in lieu of issuing subordinated tranches to third-parties. In the presence of a wrap, generally, all the tranches held by third parties achieve AA/AAA ratings.

To the extent the Basel capital requirements – and especially the U.S. “well-capitalized” requirements – are viewed as targeting an A or better insolvency probability for regulated banks, the existence of these lower-rated subordinated tranches held by third parties is clear evidence of the transference of credit risk from the regulated bank.

- Credit Risk: Even if no subordinated tranches existed, the transference of the risk associated with the extreme “tail” of the loss distribution – the AAA senior tranche – reduces the expected loss to the FDIC in the event of bank insolvency.

In general, the RMA Group believes that the current Basel II treatment of securitized revolving consumer credits, while viewed by some members as conservative, is nevertheless not the most pressing issue of concern. Rather, the major concern of the banks is that the current structure of Basel II Asset-Value-Correlations (“AVCs”) is misaligned. For cards, the Basel II AVCs are more than 4 times as high as internal AVCs in the lowest PD buckets – i.e., AVCs for credit cards are much, much too high for high quality card obligors. Meanwhile, Basel II HELOC AVCs are set equal to AVCs for single-family-residential mortgages, and are more than 50% higher than current industry estimates. Similarly, Basel AVCs for “other retail” credits, after the January 30, 2004 change by Basel,² range from 16% (at low PDs) to 3% at high PDs. Throughout most of the PD range, this Basel treatment contrasts sharply with the results of the February 2003 RMA Group study on internal AVCs for retail credits.³ In that study, AVCs for “other retail” credits range around 4-6%. Moreover, for the banks, for all retail products, AVCs tend to be “flat” rather than decline as PD rises. This flatness represents a consensus that, while AVCs may be related to wealth (wealthier borrowers having higher AVCs), the AVCs are not related to PD (see discussion below). Below we discuss AVCs for specific retail asset classes, and then conclude with suggestions for improving relative capital charges across all retail asset classes.

Credit Card AVCs. The 2003 RMA study on internal risk measurement practices for consumer credits indicates that Group members assign AVCs for credit cards in the range of 2-3%. Moreover, as indicated above, this range is relatively “flat” in that internal AVCs do not decline significantly as PD rises. The Basel II proposal calls for card AVCs to start out at 11% at the low-PD end of the spectrum, and then fall to 2% for the highest PD obligors. Thus, throughout much of the “prime credit” portion of the AVC range, Basel AVCs are much higher than used in industry practice. As a result, the Basel capital charges for credit card exposures are misaligned relative to other forms of consumer credit and relative to commercial lending. This problem is obviously more severe for the mono-line card issuers than for an AIRB bank offering commercial credits as well as cards.

There are several possible solutions to the problem with Basel AVCs for credit cards. First, the Basel AVCs could be lowered to approximately 2-3% throughout the PD spectrum. A lowering of the Basel AVCs for just the high PD end of the spectrum (say, from 11% to 5%) would also help solve the misalignment of relative capital charges.

² Basel Committee on Banking Supervision, “Modifications to the capital treatment for expected and unexpected credit losses in the New Basel Accord,” January 30, 2004, p. 3.

³ See RMA, “Retail Credit Economic Capital Estimation – Best Practices, February 2003.

However, the retention of a sharply declining AVC function (as PD rises) is not as supportable from a purely theoretical perspective as a flat function.⁴ Under either choice, since Basel will be recalibrating the overall capital requirements anyway, in light of a series of changes to Basel II since the QIS 3 exercise, the resulting decline in AVCs for cards would not necessarily result in further decline in actual, aggregate bank regulatory capital requirements at most AIRB banks.

Another solution was raised at the meeting with regulators. This solution would allow individual AIRB banks, with specific approval from supervisors, to use internally estimated AVCs within the Basel capital model for credit cards. Given the importance of card lending in the U.S., and given the rapid improvements in credit risk measurement in recent years, this approach would provide an excellent first step in moving toward a full internals models approach. The model being used for regulatory capital allocation would remain the Basel Asymptotic Single Risk Factor (ASRF) model, but each of the inputs – EAD, LGD, PD, and AVC – would be estimated by each AIRB bank, if the bank’s internal estimation procedures were deemed satisfactory by its supervisors. Of course, internal AVC estimation for all credits, not such credit cards, would bring Basel II even closer to best practice.

HELOC AVCs. Many Group members do not make a large distinction between AVCs for HELOCs and AVCs for single-family-residential mortgages (SFRs). Both types of products attract internal AVCs of around 10% or below. Thus, Basel’s decision to use a 15% AVC for SFRs (instead of the industry median less-than-10%), represents AVCs for first mortgages and home equity loans that are on the order of 50% too high. While we believe that both HELOCs and SFRs have been assigned AVCs that are too high, there are some arguments for bringing down the HELOC AVCs even further than the AVCs for SFRs.

- Basel, in deciding on a 15% AVC for SFRs, was compensating, at least in part, for the fact that the Basel consumer credit risk models do not contain a maturity adjustment. Home equity loans, however, typically are shorter duration than SFRs. Thus, in a Basel model with no maturity adjustment, the implied AVCs should be lower for HE loans/HELOCs than for SFRs.
- SFRs typically held in the portfolio of banks are non-conforming. Such non-conforming SFRs typically would exhibit less diversification than conforming loans – and this reason too may be behind the high SFR AVC chosen by Basel. Second mortgages held by banks, however, tend to be written in cases where the first mortgage is conforming. Not only does this imply greater diversification in the bank portfolio of second mortgages, but also conforming SFRs tend to involve lower-wealth obligors than is the case for non-conforming loans. As indicated above, industry risk practitioners argue that AVCs decline with wealth, since wealthier borrowers have larger, more diversified asset portfolios whose values are more highly correlated with the macro risk factor. Thus, second mortgages

⁴ Most industry risk practitioners argue that AVCs decline with wealth. That is, wealthier borrowers have larger, more diversified asset portfolios whose values are more highly correlated with the macro risk factor. Unfortunately, the Basel II structure contains no such AVC-wealth adjustment. In such a world, having AVCs decline as PD rises can be thought of as a substitute (albeit a poor one) for using a wealth-AVC relationship.

for lower-wealth issuers of conforming first mortgages, should exhibit lower AVCs than the non-conforming SFRs on the books of the AIRB banks.

- From a practical perspective, HELOCs are becoming very much like credit cards in terms of the manner in which consumers think about and use such lines of credit. HELOCs have become, like cards, a common tool in adjusting consumption needs to the timing of income flows. In credit card lending, the essential economic fact is that AVCs must be quite low, because observed fat-tail losses have not been high, even during the most recent recession, when portfolio card losses soared. For example, so far as we know, no pool of securitized card accounts for the respondent banks has suffered an early amortization triggering event, even during the last recession. These low tail events are the basis behind the low AVCs used by the industry in assessing internal EC for credit cards – and logic suggests similarly low AVCs for HELOCs.

The RMA Group and individual bank members are in the process of improving estimates of AVCs for HELOCs.⁵ In the interim, a more realistic aligning of Basel credit capital allocations would call for a significant reduction in AVCs for all consumer credit products, combined with a significant flattening of the AVC-PD functions. A very simple 3 or 4 bucket approach to the Basel treatment of retail AVCs would bring the Basel structure into closer alignment with current practice. This structure might look like the following:

- Cards: AVCs of 3% across the board.
- Other Retail: AVCs of 5% across the board.
- Short duration home equity credits, such as HELOCs: AVCs of 8% across the board.
- Longer duration home equity credits, including SFRs: AVCs of 8% plus an upward maturity adjustment.
- Alternatively, all three “basic” buckets could involve a maturity adjustment.

III. The RMA 2004 Survey of EAD-LGD Estimation Practices for Cards and HELOCs.

Fourteen Group members responded to the survey. Of these, 4 offer cards but not HELOCs; another 4 offer HELOCs but not cards. Thus, 10 institutions filled out the survey for each type of product. Not all of these 10 institutions answered every question.

Below we reproduce the questions from the survey. Each question is followed by a summary of the responses, in bold face type. As always, individual responses are confidential.

⁵ In addition, the Group is examining the possibility of providing additional research regarding AVCs for SFRs – research that could help resolve differences in the outcomes of previous industry versus government research on such AVCs.

Credit Card Product:

- a. Is the increase in utilization of defaulting revolvers included as a component of EAD or LGD (i.e., LGDs are greater than 100%)?

7 of 10 said EAD

2 of remaining 3 said “transitioning” to EAD

1 said it does not allocate EC to unused lines

- b. Please provide specifics for EAD – remember all of our surveys are on a no-name basis and we share with regulators only the median data or a qualitative discussion of the range of practice.

- 1) How do you express EAD? For example,

- a) $EAD = \text{current balance}$
- b) $EAD = \text{current limit}$
- c) $EAD = \text{current balance} + \alpha * \text{unused line}$
- d) $EAD = \sigma * \text{current balance}$
- e) $EAD = \sigma * \text{limit}$
- f) Combination of Above (be specific)

4 of 10 said version c)

4 of 10 said version d)

1 said version e)

1 uses Balances (does not allocate EC to unused line)

- 2) Do the EAD factors include accrued interest and unpaid fees for defaulted credits?

5 of 10 said yes. A “no” response generally means that only the principal balance is treated as an exposure at default, but that accrued interest and fees are deducted from recoveries. Thus, banks answering with a “no” measure lower EADs, and correspondingly higher LGDs, than banks answering with a “yes.”

- 3) Are the EAD factors calculated from internal historical data, industry benchmarks or management judgment?

All 10 use internal historical data

- 4) If statistical analysis, are EAD factors calculated at segment level or account level?

4 calculate EAD at account level and aggregate up to segment.

6 calculate EAD at the segment level.

- 5) Are EAD factors dollar weighted averages, simple averages or medians?

8 use \$weighted averages (i.e., balance weighted, also known as default weighted).

2 use simple averages of account data.

- 6) What is the length of the sample period used for the statistical analysis?

Ranges from 1 to 7 years. Of the 8 answers, 4 use sample periods of 4 years or more, 3 use periods ranging from 2-3 years, and 2 use one-year sample periods.

- 7) Are EAD factors meant to represent stress environments, long term averages or current environment?

5 of 10 mean EAD to express current conditions.

4 mean EAD to represent a long-term average over observation period.

1 means EAD to represent a stress EAD.

- 8) What are the dimensions driving EAD factors , segmentation approach for each factor and number of buckets. Please specify if relationship is continuous.

Dimension	Segmentation Approach	Number of Buckets
Single EAD Factor		
FICO Score		
Behavior Score		
Delinquency Status		
Borrower Type		
Sub-product		
Age		
Other?		

1 of 10 respondents expresses EAD only at the portfolio level. The other 9 use at least 2 drivers to establish “buckets” or segments. These banks use 2 or more drivers from the list above, plus balance, limit, and utilization. The total number of segments ranges from less than 10 to well over 100. However, one cannot simply multiply out the number of ranges for each factor to arrive at the total number of segments – e.g., 5 FICO buckets times 4 Age buckets times 10 behavioral score buckets, etc – because many resulting buckets have no or few observations of default. Only 1 bank uses a continuous function (involving three risk factor variables) to determine EAD.

c. How do you measure LGD?

1) What is the denominator of the LGD estimate?

8 of 10 use EAD or balance at default.

1 uses \$ chargeoffs at default.

1 answer requires further discussion.

2) Does the denominator include accrued fees and interest (i.e. unpaid)?

9 institutions answered the question.

4 of 9 answered yes; 5 answered no. See response to question b 2), above.

- 3) Is the LGD calculation approach based on net chargeoffs or cashflows?
9 answered the question.
5 of 9 answered cashflows.
4 of 9 answered net chargeoffs.
- 4) Does the LGD estimation process include recovery costs?
9 of 10 answered yes.
- 5) Are the recovery costs constant or variable by segment and time?
8 answered.
4 of 8 answered yes. Of these, 2 measure recovery costs that vary by time and segment; 1 measures costs that vary by segment and will later vary by time; 1 was not specific.
2 said the LGD is constant over segments and time.
- 6) Are the cashflows or net loss amounts discounted to present value at time of default?
2 of 9 providing answers said yes.
- 7) How is the discount rate determined?
Two answers:
1 said discount rate is average portfolio rate on accounts with a balance, plus x% to account for higher risk associated with recoveries.
1 said current cost of funds.
- 8) Do you use a rate higher the average for the product to account for the higher risk associated with recoveries on defaulted accounts?
Only 1 answered yes, as per previous question.
- 9) Is the discount rate constant or variable over time?
1 answered constant.
1 answered variable, according to the current cost of funds.

10) Are the LGD factors calculated from internal historical data, industry benchmarks or management judgment?

All 10 use internal historical data for LGD.

11) If statistical analysis, are LGD factors calculated at segment level or account level?

3 of 10 said segment.

3 of 10 said account level, aggregating to segment.

4 said at the portfolio level.

12) If statistical analysis, what is the length of the sample period used for the statistical analysis? **1 to 7 yrs.**

13) Are LGD factors dollar weighted averages, simple averages or medians?

9 answered the question.

8 of 9 said \$weighted averages.

1 said simple averages.

14) Are LGD factors meant to represent stress environments, long term averages, current environment, or not specified?

9 answered the question.

4 of 9 said current environment.

4 of 9 said long-term averages.

1 answer requires further investigation.

15) What are the dimensions driving factors , segmentation approach for each factor and number of buckets. Please specify if relationship is continuous.

Dimension	Segmentation Approach	Number of Buckets
Single LGD Factor		
FICO Score		
Behavior Score		
Delinquency Status		
Borrower Type		
Sub-product		
Age		

Of 9 firms providing answers, 4 said they use a single LGD factor for the portfolio. The other 5 used from 2 to 5 risk factors from the list above, plus utilization and balance. One of the 5 institutions using 2 or more risk factors also differentiated LGD by “type” of charge-off (e.g., contractual non-payment versus bankruptcy versus deceased, etc.). Again, the number of LGD buckets was less than that implied by simply multiplying out the number of risk factor ranges – since some buckets held no or few defaults. One bank uses a continuous LGD function employing 3 LGD factors.

Home Equity Lines Product:

- a. Is the increase in utilization of defaulting revolvers included as a component of EAD or LGD (i.e., LGDs are greater than 100%)

Of the 10 institutions, 8 use EAD, and 2 are transitioning to EAD.

- b. Please provide specifics for EAD – remember all of our surveys are on a no-name basis and we share with regulators only the median data or a qualitative discussion of the range of practice.

- 1) How do you express EAD? For example,
 - a) EAD = current balance
 - b) EAD = current limit
 - c) EAD = current balance + σ * unused line
 - d) EAD = σ * current balance
 - e) EAD = σ * limit

f) Combination of Above (be specific)

6 of 10 use c); 1 uses a) and is transitioning to c); 1 uses a); 1 uses e); and 1 uses a) and is transitioning to e).

2) Do the EAD factors include accrued interest and unpaid fees for defaulted credits?

8 of 10 said no. See answer to question b 2) under Cards above.

3) Are the EAD factors calculated from internal historical data, industry benchmarks or management judgment?

9 of 10 said internal data. 1 uses industry benchmarks.

4) If statistical analysis, are EAD factors calculated at segment level or account level?

8 answered the question.

3 use account level data, aggregating to segment when needed; 1 uses portfolio level data; 1 uses product level data; 2 use segment level data; 1 uses segment level and is transitioning to account level data.

5) Are EAD factors dollar weighted averages, simple averages or medians?

7 answered the question.

5 of 7 use \$weighted averages; 1 uses simple averages; 1 uses \$weighted averages transitioning to simple averages of account EADs.

6) What is the length of the sample period used for the statistical analysis?

7 provided answers ranging from 2 to 5 years. Of these 7, 4 use data over a 4 to 5 year sample period.

7) Are EAD factors meant to represent stress environments, long term averages or current environment?

9 provided answers:

3 mean the EAD to represent current conditions; 5 mean the EAD to represent long-term averages; 1 means the EAD to represent stress conditions.

- 8) What are the dimensions driving EAD factors, segmentation approach for each factor and number of buckets. Please specify if relationship is continuous.

Dimension	Segmentation Approach	Number of Buckets
Single EAD Factor		
FICO Score		
Behavior Score		
Delinquency Status		
Borrower Type		
Sub-product		
Age		
Lien Position		
OLTV		
CLTV		

4 of the 10 use a single EAD factor for the portfolio; 1 has yet to decide its approach; 5 use two or more factors to bucket EAD. The factors include FICO, CLTV, sub-product; delinquency status; lien position; OLTV; and age of account. One bank uses three factors within a continuous estimating function for EAD.

- c. How do you measure LGD?
- 1) What is the denominator of the LGD estimate?

9 of 10 said EAD or balance at default.

1 uses an EL approach in which industry benchmarks are used to obtain LGD – this is plugged into the EL measurement to obtain PD.

- 2) Does the denominator include accrued fees and interest (i.e. unpaid)?
Of 9 providing answers, 5 said yes, 4 said no. See answer to question b 2) under Cards, above.

- 3) Is the LGD calculation approach based on net chargeoffs or cashflows?
Of 9 providing answers, 7 said net chargeoffs; 1 said cashflow; and 1 said chargeoffs transitioning to cashflow.

- 4) Does the LGD estimation process include recovery costs?
6 of 9 respondents said yes.

- 5) Are the recovery costs constant or variable by segment and time?
6 provided answers: 2 said constant and 4 said variable. Of these 4, 2 said variable by segment and time, 1 said variable by segment, and 1 did not provide a distinction.

- 6) Are the cashflows or net loss amounts discounted to present value at time of default?
**8 answered the question:
5 of 8 said no.
2 said yes.
1 said no, transitioning to yes.**

- 7) How is the discount rate determined?
3 answers:
 - **Lowest pass rate plus x% for a risk premium.**
 - **Interest rate on loss accruals.**

- **Long-term bank-required ROE.**
- 8) Do you use a rate higher than the average for the product to account for the higher risk associated with recoveries on defaulted accounts?
2 of 3 answering said no.
- 9) Is the discount rate constant or variable over time?
2 of 3 said discount rate varies because portfolio rate varies.
- 10) Are the LGD factors calculated from internal historical data, industry benchmarks or management judgment?
8 of 10 said internal data.
1 said judgment, transitioning to internal data.
1 said all three.
- 11) If statistical analysis, are LGD factors calculated at segment level or account level?
8 answered the question:
3 said account level.
3 said segment level.
1 said sub-product level.
1 said portfolio level.
- 12) If statistical analysis, what is the length of the sample period used for the statistical analysis?
1 to 5 years. Of 7 responding to question, 4 used sample periods of 4 to 5 years.
- 13) Are LGD factors dollar weighted averages, simple averages or medians?
7 answered the question:
5 said \$weighted averages.
2 said simple averages of defaulted account LGDs.

14) Are LGD factors meant to represent stress environments, long term averages, current environment, or not specified?

9 answered the question:

2 said current environment.

7 said long-term averages over existing sample period.

15) What are the dimensions driving factors, segmentation approach for each factor and number of buckets. Please specify if relationship is continuous.

Dimension	Segmentation Approach	Number of Buckets
Single LGD Factor		
FICO Score		
Behavior Score		
Delinquency Status		
Borrower Type		
Sub-product		
Age		
Other		
Lien Position		
OLTV		
CLTV		

4 of 10 have a single LGD factor for the portfolio.

6 use 2 or more LGD factors to segment the portfolio. The factors used include FICO, Lien position, CLTV, Delinquency status, OLTV, sub-product type, and age. One bank uses a continuous function with 3 factors to estimate LGD.

Appendix

Institutions in the RMA Capital Working Group:

Bank of America	JPMorganChase & Co.
Bank of Montreal	KeyCorp
Bank of New York	MBNA
Bank One	PNC Financial Services Group
Capital One	Providian Financial
Citicorp	Royal Bank of Canada
Comerica	Union Bank of California
Discover Financial Services	Wachovia
FleetBoston Financial	Washington Mutual Bank
Household International (HSBC)	Wells Fargo

Institutions providing responses to this survey:

Bank of America	MBNA
Bank One	Providian Financial
Capital One	Royal Bank of Canada
Household International	Union Bank of California
FleetBoston Financial	Wachovia
JPMorganChase & Co.	Washington Mutual Bank
KeyCorp	Wells Fargo

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