ROYAL BANK OF CANADA
Form 424B2
November 16, 2017

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| RBC Capital Markets® | Filed Pursuant to Rule 424(b)(2)<br>Registration Statement No. 333-208507 |
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| Pricing Supplement Dated November 15, 2017 To the Product Prospectus Supplement No. TP-1, the Prospectus Supplement and the Prospectus, Each Dated January 8, 2016 | $923,000<br>Auto-Callable Contingent Coupon Barrier Notes Linked to the Lesser Performing of Three Equity Securities, Due November 20, 2019<br>Royal Bank of Canada |
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Royal Bank of Canada is offering Auto-Callable Contingent Coupon Barrier Notes (the “Notes”) linked to the lesser performing of three equity securities (each, a “Reference Stock” and collectively, the “Reference Stocks”). The Notes offered are senior unsecured obligations of Royal Bank of Canada, will pay a quarterly Contingent Coupon at the rate and under the circumstances specified below, and will have the terms described in the documents described above, as supplemented or modified by this pricing supplement.

| Reference Stocks | Initial Stock Prices | Coupon Barriers and Trigger Prices* |
|---|---|---|
| General Electric Company (“GE”) | $18.26 | $12.78, which is 70.00% of its Initial Stock Price |
| Macy’s Inc. (“M”) | $19.98 | $13.99, which is 70.00% of its Initial Stock Price |
| Newell Brands Inc. (“NWL”) | $28.01 | $19.61, which is 70.00% of its Initial Stock Price |

* Rounded to two decimal places.

The Notes do not guarantee any return of principal at maturity. Any payments on the Notes are subject to our credit risk.

Investing in the Notes involves a number of risks. See “Risk Factors” beginning on page PS-5 of the product prospectus supplement dated January 8, 2016, on page S-1 of the prospectus supplement dated January 8, 2016, and “Selected Risk Considerations” beginning on page P-7 of this pricing supplement.

The Notes will not constitute deposits insured by the Canada Deposit Insurance Corporation, the U.S. Federal Deposit Insurance Corporation or any other Canadian or U.S. government agency or instrumentality.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of the Notes or determined that this pricing supplement is truthful or complete. Any representation to the contrary is a criminal offense.

| Issuer: | Royal Bank of Canada | Stock Exchange Listing: | None |
|---|---|---|---|
| Trade Date: | November 15, 2017 | Principal Amount: | $1,000 per Note |
| Issue Date: | November 20, 2017 | Maturity Date: | November 20, 2019 |
| Observation Dates: | Quarterly, as set forth below. | Coupon Payment Dates: | Quarterly, as set forth below |
| Valuation Date: | November 15, 2019 | Contingent Coupon Rate: | 27.50% per annum |
| Contingent Coupon: | If the closing price of each Reference Stock is greater than or equal to its Coupon Barrier on the applicable Observation Date, we will pay the Contingent Coupon applicable to the corresponding Observation Date. You may not receive any Contingent Coupons during the term of the Notes. | | |
| Payment at Maturity (if held to maturity): | If the Notes are not previously called, we will pay you at maturity an amount based on the Final Stock Price of the Lesser Performing Reference Stock: | | |

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| | For each $1,000 in principal amount, $1,000 plus the Contingent Coupon at maturity, unless the Final Stock Price of the Lesser Performing Reference Stock is less than its Trigger Price.<br>If the Final Stock Price of the Lesser Performing Reference Stock is less than its Trigger Price, then the investor will receive at maturity, for each $1,000 in principal amount, a cash payment equal to:<br>$1,000 + ($1,000 x Reference Stock Return of the Lesser Performing Reference Stock)<br>Investors could lose some or all of their principal amount if there has been a decline in the trading price of the Lesser Performing Reference Stock. |
| Lesser Performing Reference Stock: | The Reference Stock with the lowest Reference Stock Return |
| Call Feature: | If the closing price of each Reference Stock is greater than or equal to its Initial Stock Price on any Observation Date, the Notes will be automatically called for 100% of their principal amount, plus the Contingent Coupon applicable to the corresponding Observation Date. |
| Call Settlement Dates: | The Coupon Payment Date corresponding to that Observation Date. |
| Final Stock Price: | For each Reference Stock, its closing price on the Valuation Date. |
| CUSIP: | 78013XAN8 |

| | Per Note | Total |
|---|---|---|
| Price to public[1] | 100.00% | $923,000.00 |
| Underwriting discounts and commissions[1] | 2.25% | $20,767.50 |
| Proceeds to Royal Bank of Canada | 97.75% | $902,232.50 |

[1]Certain dealers who purchased the Notes for sale to certain fee-based advisory accounts may have foregone some or all of their underwriting discount or selling concessions. The public offering price for investors purchasing the Notes in these accounts may be between $977.50 and $1,000 per $1,000 in principal amount.

The initial estimated value of the Notes as of the date of this pricing supplement is $920.07 per $1,000 in principal amount, which is less than the price to public. The actual value of the Notes at any time will reflect many factors, cannot be predicted with accuracy, and may be less than this amount. We describe our determination of the initial estimated value in more detail below.

RBC Capital Markets, LLC, which we refer to as RBCCM, acting as agent for Royal Bank of Canada, received a commission of $22.50 per $1,000 in principal amount of the Notes and used a portion of that commission to allow selling concessions to other dealers of up to $22.50 per $1,000 in principal amount of the Notes. The other dealers may forgo, in their sole discretion, some or all of their selling concessions. See “Supplemental Plan of Distribution (Conflicts of Interest)” below.

RBC Capital Markets, LLC

Auto-Callable Contingent Coupon Barrier Notes
Linked to the Lesser Performing of Three
Equity Securities, Due November 20, 2019
Royal Bank of Canada

SUMMARY

The information in this "Summary" section is qualified by the more detailed information set forth in this pricing supplement, the product prospectus supplement, the prospectus supplement, and the prospectus.

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| General: | This pricing supplement relates to an offering of Auto-Callable Contingent Coupon Barrier Notes (the "Notes") linked to the lesser performing of three equity securities (the "Reference Stocks"). |
| Issuer: | Royal Bank of Canada ("Royal Bank") |
| Issue: | Senior Global Medium-Term Notes, Series G |
| Trade Date: | November 15, 2017 |
| Issue Date: | November 20, 2017 |
| Term: | Two (2) years |
| Denominations: | Minimum denomination of $1,000, and integral multiples of $1,000 thereafter. |
| Designated Currency: | U.S. Dollars |
| Contingent Coupon: | We will pay you a Contingent Coupon during the term of the Notes, periodically in arrears on each Coupon Payment Date, under the conditions described below:<br>· If the closing price of each Reference Stock is greater than or equal to its Coupon Barrier on the applicable Observation Date, we will pay the Contingent Coupon applicable to that Observation Date.<br>· If the closing price of any of the Reference Stocks is less than its Coupon Barrier on the applicable Observation Date, we will not pay you the Contingent Coupon applicable to that Observation Date.<br>You may not receive a Contingent Coupon for one or more quarterly periods during the term of the Notes. |
| Contingent Coupon Rate: | 27.50% per annum (6.875% per quarter) |
| Observation Dates: | Quarterly on February 15, 2018, May 15, 2018, August 15, 2018, November 15, 2018, February 15, 2019, May 15, 2019, August 15, 2019 and the Valuation Date. |
| Coupon Payment Dates: | The Contingent Coupon, if applicable, will be paid quarterly on February 21, 2018, May 18, 2018, August 20, 2018, November 20, 2018, February 21, 2019, May 20, 2019, August 20, 2019 and the Maturity Date. |
| Record Dates: | The record date for each Coupon Payment Date will be the date one business day prior to that scheduled Coupon Payment Date; provided, however, that any Contingent Coupon payable at maturity or upon a call will be payable to the person to whom the payment at maturity or upon the call, as the case may be, will be payable. |
| Call Feature: | If, on any Observation Date, the closing price of each Reference Stock is greater than or equal to its Initial Stock Price, then the Notes will be automatically called. |
| Payment if Called: | If the Notes are automatically called, then, on the applicable Call Settlement Date, for each $1,000 principal amount, you will receive $1,000 plus the Contingent Coupon otherwise due on that Call Settlement Date. |
| Call Settlement Dates: | If the Notes are called on any Observation Date, the Call Settlement Date will be the Coupon Payment Date corresponding to that Observation Date. |
| Valuation Date: | November 15, 2019 |
| Maturity Date: | November 20, 2019 |

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| Initial Stock Price: | For each Reference Stock, its closing price on the Trade Date, as specified on the cover page of this pricing supplement. |

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| Final Stock Price: | For each Reference Stock, its closing price on the Valuation Date. |
| Trigger Price and Coupon Barrier: | For each Reference Stock, 70.00% of its Initial Stock Price, as specified on the cover page of this pricing supplement. |
| Payment at Maturity (if not previously called and held to maturity): | If the Notes are not previously called, we will pay you at maturity an amount based on the Final Stock Price of the Lesser Performing Reference Stock:<br>· If the Final Stock Price of the Lesser Performing Reference Stock is greater than or equal to its Trigger Price, we will pay you a cash payment equal to the principal amount plus the Contingent Coupon otherwise due on the Maturity Date.<br>· If the Final Stock Price of the Lesser Performing Reference Stock is below its Trigger Price, you will receive at maturity, for each $1,000 in principal amount, a cash payment equal to:<br>$1,000 + ($1,000 x Reference Stock Return of the Lesser Performing Reference Stock)<br>The amount of cash that you receive will be less than your principal amount, if anything, resulting in a loss that is proportionate to the decline of the Lesser Performing Reference Stock from the Trade Date to the Valuation Date. Investors in the Notes will lose some or all of their principal amount if the Final Stock Price of the Lesser Performing Reference Stock is less than its Trigger Price. |
| Stock Settlement: | Not applicable. Payments on the Notes will be made solely in cash. |
| Reference Stock Return: | With respect to each Reference Stock:<br>$\frac{\text{Final Stock Price} - \text{Initial Stock Price}}{\text{Initial Stock Price}}$ |
| Lesser Performing Reference Stock: | The Reference Stock with the lowest Reference Stock Return. |
| Market Disruption Events: | The occurrence of a market disruption event (or a non-trading day) as to any of the Reference Stocks will result in the postponement of an Observation Date or the Valuation Date as to that Reference Stock, as described in the product prospectus supplement, but not to any non-affected Reference Stock. |
| Calculation Agent: | RBC Capital Markets, LLC (“RBCCM”) |
| U.S. Tax Treatment: | By purchasing a Note, each holder agrees (in the absence of a change in law, an administrative determination or a judicial ruling to the contrary) to treat the Notes as a callable pre-paid cash-settled contingent income-bearing derivative contract linked to the Reference Stocks for U.S. federal income tax purposes. However, the U.S. federal income tax consequences of your investment in the Notes are uncertain and the Internal Revenue Service could assert that the Notes should be taxed in a manner that is different from that described in the preceding sentence. Please see the section below, “Supplemental Discussion of U.S. Federal Income Tax Consequences,” and the discussion (including the opinion of our counsel Morrison & Foerster LLP) in the product prospectus supplement dated January 8, 2016 under “Supplemental Discussion of U.S. Federal Income Tax Consequences,” which apply to the Notes. |

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| Secondary Market: | RBCCM (or one of its affiliates), though not obligated to do so, may maintain a secondary market in the Notes after the Issue Date. The amount that you may receive upon sale of your Notes prior to maturity may be less than the principal amount. |
| Listing: | The Notes will not be listed on any securities exchange. |
| Settlement: | DTC global (including through its indirect participants Euroclear and Clearstream, Luxembourg as described under “Description of Debt Securities—Ownership and Book-Entry Issuance” in the prospectus dated January 8, 2016). |
| Terms Incorporated in the Master Note: | All of the terms appearing above the item captioned “Secondary Market” on the cover page and pages P-2 and P-3 of this pricing supplement and the terms appearing under the caption “General Terms of the Notes” in the product prospectus supplement dated January 8, 2016, as modified by this pricing supplement. |

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Royal Bank of Canada

## ADDITIONAL TERMS OF YOUR NOTES

You should read this pricing supplement together with the prospectus dated January 8, 2016, as supplemented by the prospectus supplement dated January 8, 2016 and the product prospectus supplement dated January 8, 2016, relating to our Senior Global Medium-Term Notes, Series G, of which these Notes are a part. Capitalized terms used but not defined in this pricing supplement will have the meanings given to them in the product prospectus supplement. In the event of any conflict, this pricing supplement will control. The Notes vary from the terms described in the product prospectus supplement in several important ways. You should read this pricing supplement carefully.

This pricing supplement, together with the documents listed below, contains the terms of the Notes and supersedes all prior or contemporaneous oral statements as well as any other written materials including preliminary or indicative pricing terms, correspondence, trade ideas, structures for implementation, sample structures, brochures or other educational materials of ours. You should carefully consider, among other things, the matters set forth in "Risk Factors" in the prospectus supplement dated January 8, 2016 and in the product prospectus supplement dated January 8, 2016, as the Notes involve risks not associated with conventional debt securities. We urge you to consult your investment, legal, tax, accounting and other advisors before you invest in the Notes. You may access these documents on the Securities and Exchange Commission (the "SEC") website at www.sec.gov as follows (or if that address has changed, by reviewing our filings for the relevant date on the SEC website):

Prospectus dated January 8, 2016:
http://www.sec.gov/Archives/edgar/data/1000275/000121465916008810/j18160424b3.htm

Prospectus Supplement dated January 8, 2016:
http://www.sec.gov/Archives/edgar/data/1000275/000121465916008811/p14150424b3.htm

Product Prospectus Supplement dated January 8, 2016:
https://www.sec.gov/Archives/edgar/data/1000275/000114036116047446/form424b5.htm

Our Central Index Key, or CIK, on the SEC website is 1000275. As used in this pricing supplement, "we," "us," or "our" refers to Royal Bank of Canada.

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HYPOTHETICAL EXAMPLES

The table set out below is included for illustration purposes only. The table illustrates the Payment at Maturity of the Notes (including the final Contingent Coupon, if payable) for a hypothetical range of performance for the Lesser Performing Reference Stock, assuming the following terms and that the Notes are not automatically called prior to maturity:

| | |
|---|---|
| Hypothetical Initial Stock Price: | $100.00* |
| Hypothetical Trigger Price and Coupon Barrier: | $70.00, which is 70.00% of the hypothetical Initial Stock Price |
| Contingent Coupon Rate: | 27.50% per annum (or 6.875% per quarter). |
| Contingent Coupon Amount: | $68.75 per quarter |
| Observation Dates: | Quarterly |
| Principal Amount: | $1,000 per Note |

* The hypothetical Initial Stock Price of $100 used in the examples below has been chosen for illustrative purposes only and does not represent the actual Initial Stock Price of any Reference Stock. The actual Initial Stock Price for each Reference Stock is set forth on the cover page of this pricing supplement. We make no representation or warranty as to which of the Reference Stocks will be the Lesser Performing Reference Stock. It is possible that the Final Stock Price of each Reference Stock will be less than its Initial Stock Price.

Hypothetical Final Stock Prices are shown in the first column on the left. The second column shows the Payment at Maturity for a range of Final Stock Prices on the Valuation Date. The third column shows the amount of cash to be paid on the Notes per $1,000 in principal amount. If the Notes are called prior to maturity, the hypothetical examples below will not be relevant, and you will receive on the applicable Coupon Payment Date, for each $1,000 principal amount, $1,000 plus the Contingent Coupon otherwise due on the Notes.

| Hypothetical Final Stock Price of the Lesser Performing Reference Stock | Payment at Maturity as Percentage of Principal Amount | Cash Payment Amount per $1,000 in Principal Amount |
|---|---|---|
| $200.00 | 106.875%* | $1,068.75* |
| $175.00 | 106.875%* | $1,068.75* |
| $150.00 | 106.875%* | $1,068.75* |
| $125.00 | 106.875%* | $1,068.75* |
| $120.00 | 106.875%* | $1,068.75* |
| $110.00 | 106.875%* | $1,068.75* |
| $100.00 | 106.875%* | $1,068.75* |
| $90.00 | 106.875%* | $1,068.75* |
| $80.00 | 106.875%* | $1,068.75* |
| $70.00 | 106.875%* | $1,068.75* |
| $69.90 | 69.90% | $699.00 |
| $60.00 | 60.00% | $600.00 |
| $50.00 | 50.00% | $500.00 |
| $40.00 | 40.00% | $400.00 |

| | | |
|---|---|---|
| $30.00 | 30.00% | $300.00 |
| $20.00 | 20.00% | $200.00 |
| $10.00 | 10.00% | $100.00 |
| $0.00 | 0% | $0.00 |

*Including the final Contingent Coupon, if payable.

Hypothetical Examples of Amounts Payable at Maturity

The following hypothetical examples illustrate how the payments at maturity set forth in the table above are calculated, assuming the Notes have not been called.

Example 1: The price of the Lesser Performing Reference Stock increases by 25% from the Initial Stock Price of $100.00 to its Final Stock Price of $125.00. Because the Final Stock Price of the Lesser Performing Reference Stock is greater than its Trigger Price and Coupon Barrier of $70.00, the investor receives at maturity, in addition to the final Contingent Coupon of $68.75 otherwise due on the Notes, a cash payment of $1,000 per Note, despite the 25% appreciation in the price of the Lesser Performing Reference Stock.

Example 2: The price of the Lesser Performing Reference Stock decreases by 10% from the Initial Stock Price of $100.00 to its Final Stock Price of $90.00. Because the Final Stock Price of the Lesser Performing Reference Stock is greater than its Trigger Price and Coupon Barrier of $70.00, the investor receives at maturity, in addition to the final Contingent Coupon of $68.75 otherwise due on the Notes, a cash payment of $1,000 per Note, despite the 10% decline in the price of the Lesser Performing Reference Stock.

Example 3: The price of the Lesser Performing Reference Stock is $40.00 on the Valuation Date, which is less than its Trigger Price and Coupon Barrier of $70.00. Because the Final Stock Price of the Lesser Performing Reference Stock is less than its Trigger Price and Coupon Barrier of $70.00, the final Contingent Coupon will not be payable on the Maturity Date, and we will pay only $400.00 for each $1,000 in the principal amount of the Notes, calculated as follows:

Principal Amount + (Principal Amount x Reference Stock Return of the Lesser Performing Reference Stock)
= $1,000 + ($1,000 x -60.00%) = $1,000 - $600.00 = $400.00

* * *

The Payments at Maturity shown above are entirely hypothetical; they are based on prices of the Reference Stocks that may not be achieved on the Valuation Date and on assumptions that may prove to be erroneous. The actual market value of your Notes on the Maturity Date or at any other time, including any time you may wish to sell your Notes, may bear little relation to the hypothetical Payments at Maturity shown above, and those amounts should not be viewed as an indication of the financial return on an investment in the Notes.

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SELECTED RISK CONSIDERATIONS

An investment in the Notes involves significant risks. Investing in the Notes is not equivalent to investing directly in the Reference Stocks. These risks are explained in more detail in the section "Risk Factors" in the product prospectus supplement. In addition to the risks described in the prospectus supplement and the product prospectus supplement, you should consider the following:

- Principal at Risk — Investors in the Notes could lose all or a substantial portion of their principal amount if there is a decline in the trading price of the Lesser Performing Reference Stock between the Trade Date and the Valuation Date. If the Notes are not automatically called and the Final Stock Price of the Lesser Performing Reference Stock on the Valuation Date is less than its Trigger Price, the amount of cash that you receive at maturity will represent a loss of your principal that is proportionate to the decline in the closing price of the Lesser Performing Reference Stock from the Trade Date to the Valuation Date. Any Contingent Coupons received on the Notes prior to the Maturity Date may not be sufficient to compensate for any such loss.
- The Notes Are Subject to an Automatic Call — If on any Observation Date, the closing price of each Reference Stock is greater than or equal to its Initial Stock Price, then the Notes will be automatically called. If the Notes are automatically called, then, on the applicable Call Settlement Date, for each $1,000 in principal amount, you will receive $1,000 plus the Contingent Coupon otherwise due on the applicable Call Settlement Date. You will not receive any Contingent Coupons after the Call Settlement Date. You may be unable to reinvest your proceeds from the automatic call in an investment with a return that is as high as the return on the Notes would have been if they had not been called.
- You May Not Receive Any Contingent Coupons — We will not necessarily make any coupon payments on the Notes. If the closing price of any of the Reference Stocks on an Observation Date is less than its Coupon Barrier, we will not pay you the Contingent Coupon applicable to that Observation Date. If the closing price of any of the Reference Stocks is less than its Coupon Barrier on each of the Observation Dates and on the Valuation Date, we will not pay you any Contingent Coupons during the term of, and you will not receive a positive return on your Notes. Generally, this non-payment of the Contingent Coupon coincides with a period of greater risk of principal loss on your Notes. Accordingly, if we do not pay the Contingent Coupon on the Maturity Date, you will also incur a loss of principal, because the Final Stock Price of the Lesser Performing Reference Stock will be less than its Trigger Price.
- The Notes Are Linked to the Lesser Performing Reference Stock, Even if the Other Reference Stocks Perform Better — If any of the Reference Stocks has a Final Stock Price that is less than its Trigger Price, your return will be linked to the lesser performing of the three Reference Stocks. Even if the Final Stock Prices of the other Reference Stocks have increased compared to their respective Initial Stock Prices, or have experienced a decrease that is less than that of the Lesser Performing Reference Stock, your return will only be determined by reference to the performance of the Lesser Performing Reference Stock, regardless of the performance of the other Reference Stocks.
- Your Payment on the Notes Will Be Determined by Reference to Each Reference Stock Individually, Not to a Basket, and the Payment at Maturity Will Be Based on the Performance of the Lesser Performing Reference Stock — The Payment at Maturity will be determined only by reference to the performance of the Lesser Performing Reference Stock, regardless of the performance of the other Reference Stocks. The Notes are not linked to a weighted basket, in which the risk may be mitigated and diversified among each of the basket components. For example, in the case of notes linked to a weighted basket, the return would depend on the weighted aggregate performance of the basket components reflected as the basket return. As a result, the depreciation of one basket component could be mitigated by the appreciation of the other basket components, as scaled by the weighting of that basket component. However, in the case of the Notes, the individual performance of each of the Reference Stocks would not be combined, and the depreciation of one Reference Stock would not be mitigated by any appreciation of the other

Reference Stocks. Instead, your return will depend solely on the Final Stock Price of the Lesser Performing Reference Stock.

- The Call Feature and the Contingent Coupon Feature Limit Your Potential Return — The return potential of the Notes is limited to the pre-specified Contingent Coupon Rate, regardless of the appreciation of the Reference Stocks. In addition, the total return on the Notes will vary based on the number of Observation Dates on which the Contingent Coupon becomes payable prior to maturity or an automatic call. Further, if the Notes are called due to the Call Feature, you will not receive any Contingent Coupons or any other payment in respect of any Observation Dates after the applicable Call Settlement Date. Since the Notes could be called as early as the first Observation Date, the total return on the Notes could be minimal. If the Notes are not called, you may be subject to the full downside performance of the Lesser Performing Reference Stock even though your

potential return is limited to the Contingent Coupon Rate. As a result, the return on an investment in the Notes could be less than the return on a direct investment in the Reference Stocks.

- Your Return May Be Lower than the Return on a Conventional Debt Security of Comparable Maturity — The return that you will receive on the Notes, which could be negative, may be less than the return you could earn on other investments. Even if your return is positive, your return may be less than the return you would earn if you bought a conventional senior interest bearing debt security of Royal Bank.
- Payments on the Notes Are Subject to Our Credit Risk, and Changes in Our Credit Ratings Are Expected to Affect the Market Value of the Notes — The Notes are Royal Bank's senior unsecured debt securities. As a result, your receipt of any Contingent Coupons, if payable, and the amount due on any relevant payment date is dependent upon Royal Bank's ability to repay its obligations on the applicable payment dates. This will be the case even if the prices of the Reference Stocks increase after the Trade Date. No assurance can be given as to what our financial condition will be during the term of the Notes.
- There May Not Be an Active Trading Market for the Notes-Sales in the Secondary Market May Result in Significant Losses — There may be little or no secondary market for the Notes. The Notes will not be listed on any securities exchange. RBCCM and other affiliates of Royal Bank may make a market for the Notes; however, they are not required to do so. RBCCM or any other affiliate of Royal Bank may stop any market-making activities at any time. Even if a secondary market for the Notes develops, it may not provide significant liquidity or trade at prices advantageous to you. We expect that transaction costs in any secondary market would be high. As a result, the difference between bid and asked prices for your Notes in any secondary market could be substantial.
- The Initial Estimated Value of the Notes Is Less than the Price to the Public — The initial estimated value set forth on the cover page of this pricing supplement does not represent a minimum price at which we, RBCCM or any of our affiliates would be willing to purchase the Notes in any secondary market (if any exists) at any time. If you attempt to sell the Notes prior to maturity, their market value may be lower than the price you paid for them and the initial estimated value. This is due to, among other things, changes in the prices of the Reference Stocks, the borrowing rate we pay to issue securities of this kind, and the inclusion in the price to the public of the underwriting discount and the estimated costs relating to our hedging of the Notes. These factors, together with various credit, market and economic factors over the term of the Notes, are expected to reduce the price at which you may be able to sell the Notes in any secondary market and will affect the value of the Notes in complex and unpredictable ways. Assuming no change in market conditions or any other relevant factors, the price, if any, at which you may be able to sell your Notes prior to maturity may be less than your original purchase price, as any such sale price would not be expected to include the underwriting discount and the hedging costs relating to the Notes. In addition to bid-ask spreads, the value of the Notes determined by RBCCM for any secondary market price is expected to be based on the secondary rate rather than the internal funding rate used to price the Notes and determine the initial estimated value. As a result, the secondary price will be less than if the internal funding rate was used. The Notes are not designed to be short-term trading instruments. Accordingly, you should be able and willing to hold your Notes to maturity.
- The Initial Estimated Value of the Notes on the Cover Page of this Pricing Supplement Is an Estimate Only, Calculated as of the Time the Terms of the Notes Were Set — The initial estimated value of the Notes is based on the value of our obligation to make the payments on the Notes, together with the mid-market value of the derivative embedded in the terms of the Notes. See "Structuring the Notes" below. Our estimate is based on a variety of assumptions, including our credit spreads, expectations as to dividends, interest rates and volatility, and the expected term of the Notes. These assumptions are based on certain forecasts about future events, which may prove to be incorrect. Other entities may value the Notes or similar securities at a price that is significantly different than we do.

The value of the Notes at any time after the Trade Date will vary based on many factors, including changes in market conditions, and cannot be predicted with accuracy. As a result, the actual value you would receive if you sold the Notes in any secondary market, if any, should be expected to differ materially from the initial estimated value of your Notes.

- Market Disruption Events and Adjustments — The payment at maturity, each Observation Date and the Valuation Date are subject to adjustment as described in the product prospectus supplement. For a description of what constitutes a market disruption event as well as the consequences of that market disruption event, see “General Terms of the Notes—Market Disruption Events” in the product prospectus supplement.
- Our Business Activities May Create Conflicts of Interest — We and our affiliates expect to engage in trading activities related to the Reference Stocks that are not for the account of holders of the Notes or on their behalf. These trading activities may present a conflict between the holders’ interests in the Notes and the interests we and our affiliates will have in their

proprietary accounts, in facilitating transactions, including options and other derivatives transactions, for their customers and in accounts under their management. These trading activities, if they influence the share price of the Reference Stocks, could be adverse to the interests of the holders of the Notes. We and one or more of our affiliates may, at present or in the future, engage in business with the issuers of the Reference Stocks, including making loans to or providing advisory services. These services could include investment banking and merger and acquisition advisory services. These activities may present a conflict between our or one or more of our affiliates' obligations and your interests as a holder of the Notes. Moreover, we and our affiliates may have published, and in the future expect to publish, research reports with respect to the Reference Stocks. This research is modified from time to time without notice and may express opinions or provide recommendations that are inconsistent with purchasing or holding the Notes. Any of these activities by us or one or more of our affiliates may affect the share price of the Reference Stocks, and, therefore, the market value of the Notes.

- Owning the Notes Is Not the Same as Owning the Reference Stocks — The return on your Notes is unlikely to reflect the return you would realize if you actually owned shares of the Reference Stocks. For instance, you will not receive or be entitled to receive any dividend payments or other distributions on these securities during the term of your Notes. As an owner of the Notes, you will not have voting rights or any other rights that holders of these securities may have. Furthermore, the Reference Stocks may appreciate substantially during the term of the Notes, while your potential return will be limited to the applicable Contingent Coupon payments.
- You Must Rely on Your Own Evaluation of the Merits of an Investment Linked to the Reference Stocks — In the ordinary course of their business, our affiliates may have expressed views on expected movements in the Reference Stocks, and may do so in the future. These views or reports may be communicated to our clients and clients of our affiliates. However, these views are subject to change from time to time. Moreover, other professionals who transact business in markets relating to any Reference Stock may at any time have significantly different views from those of our affiliates. For these reasons, you are encouraged to derive information concerning the Reference Stocks from multiple sources, and you should not rely solely on views expressed by our affiliates.
- There Is No Affiliation Between the Issuers of the Reference Stocks and RBCCM, and RBCCM Is Not Responsible for any Disclosure by the Issuer of the Reference Stock — We are not affiliated with General Electric Company, Macy's Inc., or Newell Brands Inc. (each, a "Reference Stock Issuer"). However, we and our affiliates may currently, or from time to time in the future engage, in business with any Reference Stock Issuer. Nevertheless, neither we nor our affiliates assume any responsibilities for the accuracy or the completeness of any information that any other company prepares. You, as an investor in the Notes, should make your own investigation into the Reference Stocks.

Auto-Callable Contingent Coupon Barrier Notes
Linked to the Lesser Performing of Three
Equity Securities, Due November 20, 2019
Royal Bank of Canada

INFORMATION REGARDING THE REFERENCE STOCK ISSUERS

The Reference Stocks are registered under the Securities Exchange Act of 1934 (the "Exchange Act"). Companies with securities registered under that Act are required to file periodically certain financial and other information specified by the SEC. Information provided to or filed with the SEC can be inspected and copied at the public reference facilities maintained by the SEC or through the SEC's website at www.sec.gov. In addition, information regarding the Reference Stocks may be obtained from other sources including, but not limited to, press releases, newspaper articles and other publicly disseminated documents.

The following information regarding the issuers of the Reference Stocks is derived from publicly available information.

We have not independently verified the accuracy or completeness of reports filed by the issuers of the Reference Stocks with the SEC, information published by it on its website or in any other format, information about it obtained from any other source or the information provided below.

We obtained the information regarding the historical performance of the Reference Stocks set forth below from Bloomberg Financial Markets.

We have not independently verified the accuracy or completeness of the information obtained from Bloomberg Financial Markets. The historical performance of the Reference Stocks should not be taken as an indication of their future performance, and no assurance can be given as to the market prices of any Reference Stock at any time during the term of the Notes. We cannot give you assurance that the performance of any Reference Stock will not result in the loss of all or part of your investment.

General Electric Company ("GE")

General Electric Company is a diversified technology and financial services company. The company's products and services include aircraft engines, power generation, water processing, household appliances, medical imaging, business and consumer financing, and industrial products.

The company's common stock is listed on the New York Stock Exchange under the ticker symbol "GE."

Macy's Inc. ("M")

Macy's Inc. operates department stores in the United States. The company also operates direct mail catalog and electronic commerce subsidiaries.

The company's common stock is listed on the New York Stock Exchange under the ticker symbol "M."

Newell Brands Inc. ("NWL")

Newell Brands Inc. retails consumer products. The company offers housewares, home furnishings, office supplies, tools and hardware, and hair accessories.

The company's common stock is listed on the New York Stock Exchange under the ticker symbol "NWL."

Total RWAs[2]

**339.7 119.5 173.9 54.3 369.2 81.7 1,133.2**

At 31 December 2008

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Credit risk | 259.3 | 78.1 | 130.1 | 51.1 | 310.0 | 54.0 | 882.6 |
| Counterparty credit risk | 38.2 | 4.4 | 8.6 | 0.8 | 19.5 | 2.5 | 74.0 |
| Market risk[2] | 49.5 | 4.6 | 3.3 | 0.6 | 12.6 | 2.1 | 70.3 |
| Operational risk | 41.2 | 15.0 | 13.6 | 4.7 | 33.5 | 13.1 | 121.1 |
| Total RWAs[2] | 388.2 | 102.1 | 155.6 | 57.2 | 375.6 | 71.7 | 1,148.0 |

1 *The Middle East is disclosed as a separate geographical region with effect from 1 January 2009. Previously, it formed part of Rest of Asia-Pacific. Comparative data have been restated accordingly.*

2 *RWAs are non-additive across geographical regions due to market risk diversification effects within the Group.*

**Capital management and allocation**

HSBC s capital management approach is driven by its strategic and organisational requirements, taking into account the regulatory, economic and commercial environment in which it operates.

It is HSBC s objective to maintain a strong capital base to support the development of its business and to meet regulatory capital requirements at all times. To achieve this, the Group s policy is to hold capital in a range of different forms and from diverse sources and all capital raising is agreed with major subsidiaries as part of their individual and the Group s capital management processes.

The Group s policy is underpinned by the Capital Management Framework, which enables HSBC to manage its capital in a consistent and aligned manner. The framework, which is approved by the Group Management Board ( GMB ), incorporates a number of different capital measures
including market capitalisation, invested capital, economic capital and regulatory capital.

The responsibility for global capital allocation principles and decisions rests with GMB. Through its structured internal governance processes, HSBC maintains discipline over its investment and capital allocation decisions, seeking to ensure that returns on investment are adequate after taking account of capital costs. HSBC s strategy is to allocate capital to businesses on the basis of their economic profit generation, regulatory and economic capital requirements and cost of capital.

**Transferability of capital within the Group**

HSBC Holdings is the primary provider of equity capital to its subsidiaries. Each subsidiary manages its own capital to support its planned business growth and meet its local regulatory requirements within the context of the approved annual Group capital plan. In accordance with HSBC s Capital Management Framework, capital generated by

subsidiaries in excess of planned requirements is returned to HSBC Holdings, normally by way of dividends. During 2009 and 2008, none of the Group s subsidiaries experienced significant restrictions on paying dividends or repaying inter-company loans and advances.

**Internal assessment of capital adequacy**

HSBC assesses the adequacy of its capital by considering the resources necessary to cover unexpected losses arising from discretionary risks, being those which it accepts such as credit risk and market risk, or non-discretionary risks, being those which arise by virtue of its operations, such as operational risk and reputational risk. The HSBC Capital Management Principles, which are approved by GMB, together with related policies define the Internal Capital Adequacy Assessment Process ( ICAAP ) by which GMB examines the Group s risk profile from both regulatory and economic capital viewpoints and ensures that the Group s level of capital:

- remains sufficient to support the Group s risk profile and outstanding commitments;
- exceeds the Group s formal minimum regulatory capital requirements by an agreed margin;
- is capable of withstanding a severe economic downturn stress scenario; and
- remains consistent with the Group s strategic and operational goals, and shareholder and rating agency expectations.

The regulatory and economic capital assessments rely upon the use of models that are integrated into the Group s management of risk. Economic capital is the internally calculated capital requirement which is deemed necessary by HSBC to support the risks to which it is exposed, and is set at a confidence level consistent with a target credit rating of AA. The minimum regulatory capital that HSBC is required to hold is determined by the rules established by the FSA for the consolidated Group and by HSBC s local regulators for individual Group companies. The economic capital assessment is the more risk-sensitive measure as it covers a wider range of risks and takes account of the substantial diversification of risk accruing from the Group s operations. HSBC s economic capital models are calibrated to quantify the level of capital that is sufficient to absorb potential losses over a one-year time horizon to a 99.95 per cent level of confidence for its banking activities and to a 99.5 per cent level of confidence for its insurance activities and pension risks. HSBC s approach to capital management is
aligned to the Group s corporate structure, business model and strategic direction. The Group s discipline around capital allocation is maintained within established processes and benchmarks, in particular the approved annual Group capital plan, of which further details can be found on page 286 of the *Annual Report and Accounts 2009*.

Economic capital is the metric by which risk is measured and linked to capital within the Group s risk appetite framework. The framework, which expresses the types and quantum of risks to which HSBC wishes to be exposed, is approved annually by the Board of Directors of HSBC Holdings ( the Board ), and its implementation is overseen by GMB. Further details on the risk appetite framework may be found on page 14.

HSBC s risk management framework fosters the continuous monitoring of the risk environment and an integrated evaluation of risks and their interactions. Certain of these risks are assessed and managed via the capital planning process. Risks assessed via capital and those that are not are compared below:

Risks assessed via capital

**Credit (including counterparty credit), market and operational risk**

HSBC assesses economic capital requirements for these risk types by utilising the embedded operational infrastructure used for the pillar 1 capital calculation, together with an additional suite of models that take into account, in particular:

- the increased level of confidence required to meet HSBC s strategic goals (99.95 per cent); and
- internal assessments of diversification of risks within the Group s portfolios and, similarly, any concentrations of risk that arise.

The Group s economic capital assessment operates alongside the Group s regulatory capital process and consistently demonstrates a substantially lower overall capital requirement for credit risk than the regulatory equivalent, reflecting the empirical evidence of the benefits of global diversification. However, the Group maintains a prudent stance on capital coverage, ensuring that any model risk is mitigated. Economic capital requirements are used to monitor the Group s risks against its risk appetite.

**Interest rate risk in the banking book**

Interest rate risk in the banking book ( IRRBB ) is defined as the exposure of the non-trading products

of the Group to interest rates. Non-trading portfolios include positions that arise from the interest rate management of HSBC s retail and commercial banking assets and liabilities, and financial investments designated as available for sale and held to maturity. IRRBB arises principally from mismatches between the future yields on assets and their funding costs, as a result of interest rate changes. Analysis of this risk is complicated by having to make assumptions on embedded optionality within certain product areas such as the incidence of mortgage prepayments, and from behavioural assumptions regarding the economic duration of liabilities which are contractually repayable on demand such as current accounts. IRRBB economic capital is measured as the amount of capital necessary to cover an unexpected loss in the value of the Group s non-trading products over one year to a 99.95 per cent level of confidence.

**Insurance risk**

HSBC operates a bancassurance model which provides insurance products for customers with whom the Group has a banking relationship. Many of these insurance products are manufactured by HSBC subsidiaries but, where the Group considers it operationally more effective, third parties are engaged to manufacture and provide insurance products which HSBC sells through its banking network. The Group works with a limited number of market-leading partners to provide these products. When manufacturing products, the Group underwrites the insurance risk and retains the risks and rewards associated with writing insurance contracts.

Significant progress has been made in the finalisation of a risk-based capital methodology for the Group s insurance businesses. While this is being implemented across HSBC, a Net Asset Value capital deduction methodology is being employed for Group economic capital assessment purposes.

**Pension risk**

HSBC operates a number of pension plans throughout the world. Some of these pension plans are defined benefit plans, of which the largest is the HSBC Bank (UK) Pension Scheme. The benefits payable under the defined benefit plans are typically a function of salary and length of service. In order to fund the benefits, sponsoring Group companies (and in some instances, employees) make regular contributions in accordance with advice from actuaries and in consultation with the scheme s trustees (where relevant). The defined benefit plans
invest these contributions in a range of investments designed to meet their long-term liabilities.

Pension risk arises from the potential for a deficit in a defined benefit plan to arise from a number of factors, which could include:

- investments delivering a return below that required to provide the projected plan benefits. This could arise, for example, when there is a fall in the market value of equities, or when increases in long-term interest rates cause a fall in the value of fixed income securities held;
- the prevailing economic environment leading to corporate failures, thus triggering write-downs in asset values (both equity and debt);
- a change in either interest rates or inflation which causes an increase in the value of the scheme liabilities; and
- scheme members living longer than expected (known as longevity risk).

Pension risk is assessed by way of an economic capital model that takes into account potential variations in these factors, using a VAR model.

**Residual risk**

Residual risk is, primarily, the risk that mitigation techniques prove less effective than expected. This category also includes risks that arise from specific reputational or business events that give rise to exposures not deemed to be included in the major risk categories. HSBC conducts economic capital assessments of such risks on a regular, forward-looking basis to ensure that their impact is adequately covered by the Group s capital base.

Risks not explicitly assessed via capital

**Liquidity risk**

Liquidity and funding risk management is described in detail on page 244 of the *Annual Report and Accounts 2009.*

The Group uses cash-flow stress testing as part of its control processes to assess liquidity risk. HSBC does not manage liquidity through the explicit allocation of capital as, in common with standard industry practice, this is not considered to be an appropriate or adequate mechanism for managing these risks. However, HSBC recognises that a strong capital base can help to mitigate liquidity risk both by providing a capital buffer to allow an entity to raise funds and deploy them in liquid positions and by serving to reduce the credit risk taken by providers of funds to the Group.

**Structural foreign exchange risk**

Structural foreign exchange risks arise from the Group s net investments in subsidiaries, branches and associates, the functional currencies of which are other than the US dollar. Unrealised gains or losses due to revaluations of structural foreign exchange exposures are reflected in reserves, whereas other unrealised gains or losses arising from revaluations of foreign exchange positions are reflected in the income statement.

HSBC s structural foreign exchange exposures are managed with the primary objective of ensuring, where practical, that HSBC s consolidated capital ratios and the capital ratios of the individual banking subsidiaries are largely protected from the effect of changes in exchange rates. This is usually achieved by ensuring that, for each subsidiary bank, the ratio of structural exposures in a given currency to risk-weighted assets ( RWA s) denominated in that currency is broadly equal to the capital ratio of the subsidiary in question. The Group evaluates residual structural foreign exchange exposures using a VAR model, but typically does not assign any economic capital for these since they are managed within appropriate economic capital buffers.

Details of the Group s management of structural foreign exchange risk can be found on page 257 of the *Annual Report and Accounts 2009.*

**Reputational risk**

Details of the Group s management of reputational risk can be found on page 263 of the *Annual Report and Accounts 2009.*

As a banking group, HSBC s reputation depends upon the way in which it conducts its business, but it can also be affected by the way in which clients to whom it provides financial services conduct themselves. A Group Reputational Risk Committee was established in 2008, at which Group functions with responsibility for activities that attract reputational risk are represented.

**Sustainability risk**

Sustainability (environmental and social) risks arise from the provision of financial services to companies or projects which run counter to the needs of sustainable development. Details of the Group s management of sustainability risk can be found on page 264 of the *Annual Report and Accounts 2009.*

**Business risk**

The FSA specifies that banks, as part of their internal assessment of capital adequacy process, should review their exposure to business risk.

Business risk is the potential negative impact on profits and capital from the Group not meeting its strategic objectives, as set out in the rolling operating plan, as a result of unforeseen changes in the business and regulatory environment, exposure to economic cycles and technological changes. HSBC does not explicitly set aside capital against business risk, as a distinct category, as it believes that this risk is effectively covered by the capital set aside for other major risks such as credit risk, market risk and operational risk.

**Scenario analysis and stress testing**

Scenario analysis and stress testing are important mechanisms in understanding the sensitivities of the Group capital and business plans to the adverse effects of extreme, but plausible, events. As well as considering the potential financial effect on plans, a key output of this tool is the consideration and establishment of management action plans for mitigating such events should they, or similar events, arise.

HSBC s scenario analysis and stress testing framework and processes are overseen by the Group Stress Testing Oversight Forum ( GSTOF ). GSTOF meets regularly to monitor and review scenario analysis and stress testing reports. Membership comprises representatives of Group and regional risk and capital management functions.

Regulatory capital supply is regularly assessed against demand under a range of stress scenarios, including projected global and local economic downturns. Qualitative and quantitative techniques are used to estimate the potential impact on HSBC s capital position under such scenarios. HSBC also participates, where appropriate, in standard scenario analyses requested by regulatory bodies.

In addition to macro-economic analysis, a suite of event-driven scenarios, including operational, market and credit events, are regularly formulated and analysed in detail, ensuring that management has considered the potential impact,

and what actions would be necessary, should a range of risks materialise.

In particular, this framework has aided management in mitigating some of the effects of the global financial crisis. While the prediction of future events cannot cover all eventualities, nor precisely

identify future events, a number of the scenarios analysed in the past provided additional management insight into the actions necessary to mitigate the risks when similar events occurred.

In addition to the suite of risk scenarios considered for the HSBC Group, each major subsidiary conducts regular macro-economic and event-driven scenario analyses specific to that region under the Group governance framework. Executive managers from across HSBC meet regularly to consider and debate the outcome of these scenarios and formulate recommended management actions. Macro-economic analyses are considered by GMB.

As part of the Group s risk appetite process, business and capital plans are supported by forecasts of the risk parameters that drive the Group s capital requirements. The Group and regional macro-economic stress tests consider sensitivities of these drivers under a variety of potential economic forecasts in order to examine the possible capital positions that could arise. In any material economic downturn, proactive and structured intervention by management is both an inevitable and necessary consequence. Therefore, HSBC incorporates the effect of such management actions in determining whether or not the Group is likely to be able to withstand such an event.

**Risk management objectives and policies**

**Overview**

All HSBC s activities involve, to varying degrees, the measurement, evaluation, acceptance and management of the previously noted risks or combinations of those risks.

As risk is not static, the risk profiles of HSBC and its individual entities change continually as the scope and impact of a range of factors, from transactional to geopolitical, change. The risk environment requires continual monitoring and assessment in an integrated manner in order to understand and manage the complex risk interactions across the Group. The risk management framework that HSBC has put in place is designed to meet these challenges and is described below in terms of its organisational structure, governance, risk strategies and appetite, and supporting, monitoring and reporting processes.

**Organisational structure**

Principal governing bodies

A well established risk governance and ownership structure ensures oversight of, and accountability for, the effective management of risk at Group, regional, customer group and operating entity levels.

The Board is the Group s senior governing body as defined by the FSA s rules. It approves HSBC s risk appetite framework, plans and performance targets for the Group and its principal operating subsidiaries, the appointment of senior officers, the delegation of authorities for credit and other risks and the establishment of effective control procedures.

The Board delegates authority for the day-to-day management of the Group to GMB, the Group s senior executive committee. Chaired by the Group Chief Executive, GMB s members include the Chief Financial Officer, Executive Director, Risk and Regulation; the Group Chief Technology and Services Officer; the Group Chief Risk Officer ( GCRO ) and other executives appointed by the Board. GMB exercises the powers and authorities of the Board in so far as they concern the management and day-to-day running of the Group in accordance with policies and directions determined by the Board. GMB s performance is assessed against the achievement of HSBC s strategy, medium-term outlook and rolling operating plans, building sustainable business and brand value around its customers, and a strong competitive performance in earnings per share growth and efficiency.

When considering risk matters, GMB convenes as the Risk Management Meeting ( RMM ), chaired by the Chief Financial Officer, Executive Director, Risk and Regulation. RMM is the Group s senior designated committee as

defined by the FSA s rules, and has responsibility for setting risk appetite and approving definitive risk policies and controls. It formulates high-level Group risk management policy, exercises delegated risk authorities and oversees the implementation of risk appetite and controls. It monitors all categories of risk, receives reports on actual performance and emerging issues, determines action to be taken and reviews the efficacy of HSBC s risk management framework.

The Group Audit Committee, which is formed of non-executive directors, meets regularly with HSBC s senior financial, internal audit, risk, legal and compliance management and the external auditor to consider HSBC Holdings financial reporting, the nature and scope of audit reviews and the effectiveness of the systems of internal control, compliance and risk management. The Committee has discussed the risk management recommendations of the Walker Review. Following the Committee s recommendation of appropriate terms of reference, a separate Group Risk

Committee was established by the Board on 26 February 2010.

The terms of reference of HSBC Holdings committees serve as models for those of Group companies. Further details on principal governing bodies are provided on pages 310 to 313 of the *Annual Report and Accounts 2009*.

The Global Risk function

Primary responsibility for managing risk at operating entity level lies with the respective boards and Chief Executive Officers ( CEO s), as custodians of their balance sheets and, at the most senior level, members of GMB. In their oversight and stewardship of risk management at Group level, however, GMB and RMM are supported by a dedicated Global Risk function, headed by the GCRO, who is a member of both bodies and reports to the Chief Financial Officer, Executive Director, Risk and Regulation.

Global Risk has functional responsibility for the principal financial risk types, namely retail and wholesale credit, market, operational, security and fraud risks. For these it establishes Group policy, exercises Group-wide oversight and provides reporting and analysis of portfolio composition and trends on a global and regional basis to senior management. Accountability and consistent control across the Global Risk function is provided through the Global Risk Management Board, chaired by the GCRO, the members of which include the Chief Risk Officers of HSBC s regions and the heads of risk disciplines within Group Management Office ( GMO ). Regional Chief Risk Officers report both within the business line to their local CEOs and also functionally to the GCRO, who has joint responsibility with CEOs for the appointment of the most senior risk officers and the setting of their performance objectives.

Group Risk works closely with its functional colleagues across the Group to develop and communicate global strategies and to guide the setting of consistent performance measures, targets and key performance indicators. It also co-ordinates the continued development of the Group s risk appetite, economic capital and stress testing frameworks and participates in discussions with regulators and in industry fora on risk and regulatory policy developments, assesses their implications and makes recommendations accordingly.

The Global Risk function also works closely with Asset and Liability Management Committees ( ALCO s) across the Group to harmonise capital management disciplines across risk types.

Geographical regions, global businesses and customer groups

The Group is organised into six geographical regions: Europe; Hong Kong; Rest of Asia-Pacific; Middle East (previously, Middle East was reported as part of Rest of Asia-Pacific); North America and Latin America, within which country managers are the Group s principal representatives in their respective jurisdictions.

Regional heads and country managers are responsible for growing and controlling Group businesses in line with Group standards, policies and procedures, and for ensuring that the Group s corporate responsibilities are met in the communities in which it operates.

The Group manages its business around its customers through two global businesses, Global Banking and Markets and Private Banking, and two customer groups, Personal Financial Services, which incorporates the Group s consumer finance businesses, and Commercial Banking.

**Group policy**

HSBC s risk management policies are encapsulated in the Group Standards Manual and cascaded in a hierarchy of policy manuals throughout the Group to communicate standards, instructions and guidance to employees. They support the formulation of risk appetite and establish procedures for monitoring and controlling risks, with timely and reliable reporting to management.

The principal risk categories to which the Group is exposed have each been assigned to risk owners within GMO functions for the purposes of general oversight and the development of risk measures, key risk indicators and stress testing processes at Group level, to ensure that the Group s risk appetite is adhered to and that RMM is kept abreast of emerging risk issues. Risk ownership extends to Group policies and procedures documented in the policy manuals which all Group offices must observe, subject to dispensations agreed by the risk owner and reviewed by internal audit.

HSBC regularly reviews and updates its risk management policies, systems and methodologies to reflect changes in law, regulation, markets, products and emerging best practice.

It is a responsibility of all Group officers to identify, assess and manage risks within the scope of their assigned responsibilities. Personal accountability, reinforced by the Group s governance structure and instilled by training and experience, helps to foster a disciplined and constructive culture

of risk management and control. Risk management is emphasised within the Group Remuneration policy and requirements are in place to ensure remuneration is consistent with effective risk management. Further details of the Group Remuneration policy are set out on page 318 of the *Annual Report and Accounts 2009*.

**Risk appetite**

HSBC s risk appetite framework describes the quantum and types of risk that HSBC is prepared to take in executing its strategy. It is central to an integrated approach to risk, capital and business management and supports the Group in achieving its return on equity objectives, as well as being a key element of meeting the Group s obligations under the supervisory review process of Basel II.

The formulation of risk appetite considers HSBC s risk capacity, its financial position, the strength of its core earnings and the resilience of its reputation and brand. It is expressed both qualitatively, describing which risks are taken and why, and quantitatively. HSBC s senior management attaches quantitative metrics to individual risk types to ensure that:

- underlying business activity may be guided and controlled so it continues to be aligned to the risk appetite framework;
- key assumptions underpinning risk appetite can be monitored and, as necessary, adjusted through subsequent business planning cycles; and
- business decisions expected to be necessary to mitigate risk are flagged and acted upon promptly.

The Group s risk appetite framework is also maintained at regional and customer group levels. It operates through two key mechanisms:

- the framework itself defines the governance bodies, processes, metrics and other features of how HSBC addresses risk appetite as part of its ongoing business; and
- periodic risk appetite statements define, at various levels in the business, the desired level of risk commensurate with return and growth targets and in line with the corporate strategy and stakeholder objectives.

The risk appetite framework covers both the beneficial and adverse aspects of risk. Within it, economic capital is a common currency by means of which risk is measured. It is used as the basis for risk evaluation, capital allocation and performance
measurement across regions and customer groups. Risk appetite is executed through the operational limits that control the levels of risk run by the Group, regions and customer groups and is measured using risk-adjusted performance metrics.

**Scope and nature of risk measurement and reporting systems**

The purpose of HSBC s risk measurement and reporting systems is to ensure that risks are comprehensively captured with all the attributes necessary to support well-founded decisions, that those attributes are accurately assessed and that information is delivered in a timely way to the right points in the organisation for those risks to be successfully managed and mitigated.

Risk measurement and reporting systems are also subject to a robust governance framework, to ensure that their design is fit for purpose and that they are functioning properly. Group risk information technology systems development is a key responsibility of the GCRO, while the operation and development of risk rating and management systems and processes are ultimately subject to the oversight of RMM and the Board.

HSBC invests significant resources in information technology systems and processes to maintain and improve its risk management capabilities. Group policy promotes the deployment of preferred technology where practicable. Group standards govern the procurement and operation of systems used in the Group s subsidiaries, processing risk

information within business lines and risk functions. The measurement and monitoring of the major risks encountered by the Group, including credit, market and operational risks, are increasingly delivered by central systems or, where this is not the case for sound business reasons, through structures and processes that nevertheless support comprehensive oversight by senior management. Much of this is being progressed within the formalised structure of a wide-reaching transformation programme ( One HSBC ) designed to integrate products, processes and systems.

Risk measurement, monitoring and reporting structures deployed at GMO level are replicated in global businesses and subsidiaries through a common operating model for integrated risk management and control. This model, the regional implementation of which was substantially completed during 2009, sets out the respective responsibilities of Group Risk, regional and country Risk functions in respect of such matters as risk governance and oversight, approval authorities and

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lending guidelines, global and local scorecards, management information and reporting, and relations with third parties including regulators, rating agencies and auditors.

There is regular reporting on risk to business line management, to specialist functions and to the senior governance bodies of the Group. In the case of credit risk, this includes portfolio reporting using key risk indicators. Examples of credit risk portfolio reporting are detailed on page 202 of the *Annual Report and Accounts 2009*.

**Credit risk**

Credit risk is the risk of financial loss if a customer or counterparty fails to meet a payment obligation under a contract. It arises principally from direct lending, trade finance and leasing business, but also from off-balance sheet products such as counterparty risk guarantees and credit derivatives, and from the Group s holdings of debt securities. Among the risks the Group engages in, credit risk generates the largest regulatory capital requirement. This includes a capital requirement for counterparty credit risk in the banking and trading books. Further details regarding the Group s management of counterparty credit risk can be found on page 33 below.

**Objectives**

The objectives of credit risk management, underpinning sustainably profitable business, are principally:

- to maintain a strong culture of responsible lending, supported by a robust risk policy and control framework;
- to both partner and challenge business originators effectively in defining and implementing risk appetite, and its re-evaluation under actual and scenario conditions; and
- to ensure independent, expert scrutiny and approval of credit risks, their costs and their mitigation.

**Organisation and responsibilities**

Group Risk supports the GCRO in overseeing credit risks at the highest level. Its major duties comprise: undertaking independent reviews of larger and higher-risk credit proposals, oversight of the Group s wholesale and retail credit risk management disciplines, ownership of the Group s credit policy and credit systems programmes, and reporting on risk matters to senior executive management and to regulators. It works closely with other parts of the Risk function, for example: with Fraud/Security Risk
on enhancement of protection against retail product fraud, with Market Risk on complex transactions, with Operational Risk on the internal control framework and with Risk Strategy on developing the Group s economic capital model, risk appetite process and stress testing. The responsibilities of Group Risk are set out in detail on pages 201 to 203 of the *Annual Report and Accounts 2009*.

Group-wide, the Credit Risk function comprises a network of credit risk management offices reporting within regional, integrated risk functions. Together with Group Risk, they fulfil an essential role as independent risk control units distinct from business line management in providing an objective scrutiny of risk rating assessments, credit proposals for approval and other risk matters.

HSBC operates through a hierarchy of personal credit limit approval authorities, not committee structures. Risk officers of individual operating companies, acting under authorities delegated by their boards and executive bodies within local and Group standards, are accountable for their recommendations and credit approval decisions. Each operating company is responsible for the quality and performance of its credit portfolios, and for monitoring and controlling all credit risks in those portfolios, to Group standards.

Above certain risk-based thresholds established in line with authorities delegated by the Board, GMO concurrence must be sought for locally-approved facilities before they are extended to the customer. Moreover, risk proposals in certain portfolios  sovereign obligors, banks, some non-bank financial institutions and intra-Group exposures  are approved centrally in GMO to facilitate efficient control and the reporting of regulatory large and cross-border exposures; most approval authorities for these exposures are delegated by the local CEO to the GCRO, with only limited levels of authority being maintained locally.

**Credit Analytics**

The Group Credit Analytics function is located within Group Risk as part of a wider analytics discipline supporting credit, economic capital and stress testing. Group Credit Analytics formulates technical responses to industry

developments and regulatory policy in the field of credit risk analytics. It develops HSBC s global credit risk models and maintains a directory of local models in use around the Group in order to facilitate governance, prioritise resources for independent review and inform the monitoring of progress toward the Group s implementation targets for the IRB advanced

HSBC HOLDINGS PLC
**Capital and Risk Management Pillar 3 Disclosures as at 31 December 2009** (continued)

approach. It also provides support for the Group Credit Risk Analytics Oversight Committee ( CRAOC ) which meets monthly and reports to RMM. Group CRAOC is chaired by the GCRO, and its membership is drawn from Global Risk, Group global businesses and customer groups and major Group subsidiaries; its primary responsibilities are to oversee the governance of HSBC s risk rating models for both wholesale and retail business, to manage the development of global models and to oversee the development of local models.

Parallel model governance and decision-making arrangements are in place in the Group s major subsidiaries.

**Measurement and monitoring credit risk rating systems**

HSBC s exposure to credit risk arises from a very wide range of customer and product types, and the risk rating systems in place to measure and monitor these risks are correspondingly diverse. Each major subsidiary typically has some exposures across this range, and requirements differ from place to place.

Credit risk exposures are generally measured and managed in portfolios of either distinct customer types or product categories. Risk rating systems for the former are designed to assess the default risk of, and loss severity associated with, customers who are typically managed as individual relationships; these rating systems tend to have a higher subjective content. Risk ratings systems for the latter are generally more purely analytical, applying techniques such as behavioural analysis across product portfolios comprising large numbers of homogeneous transactions.

Whatever the nature of the exposure, a fundamental principle of the Group s policy and approach is that analytical risk rating systems and scorecards are all merely tools at the disposal of management, serving ultimately judgemental decisions for which individual approvers are accountable. In the case of automated decision making processes, therefore, as used in retail credit origination where risk decisions may be taken at
the point of sale with no management intervention, that accountability rests with those responsible for the parameters built into those processes/systems and the controls surrounding their use. For distinct customers, the credit process provides for at least annual review of facility limits granted. Review may be more frequent, as required by circumstances, such as the development of adverse risk factors, and any consequent amendments to risk ratings must be promptly implemented.

HSBC seeks constantly to improve the quality of its risk management. Thus, for central management and reporting purposes, Group information technology systems have been deployed to process credit risk data efficiently and consistently; a database has been constructed within GMO Finance and Risk covering substantially all the Group s direct lending exposures and holding the output of risk rating systems Group-wide, to support regulatory reporting and to deliver comprehensive management information at an increasingly granular level.

Group standards govern the process through which risk rating systems are initially developed, judged fit for purpose, approved and implemented; the conditions under which analytical risk model outcomes can be overridden by decision-takers; and the process of model performance monitoring and reporting. The emphasis here is on an effective dialogue between business line and risk management, suitable independence of decision-takers, and a good understanding and robust challenge on the part of senior management.

Like other facets of risk management, analytical risk rating systems are not static and are subject to review and modification in the light of the changing environment and the greater availability and quality of data. Structured processes and metrics are in place to capture relevant data and feed this into continuous model improvement.

The following pages set out credit risk exposure values, RWAs and regulatory capital requirements as at 31 December 2009 along with 31 December 2008 comparatives.

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*Table 3: Credit risk summary*

| | At 31 December 2009 | | | | At 31 December 2008 | | | |
|---|---|---|---|---|---|---|---|---|
| | **Exposure value US$bn** | **Average exposure value US$bn** | **RWAs US$bn** | **Capital required[1] US$bn** | Exposure value US$bn | Average exposure value US$bn | RWAs US$bn | Capital required[1] US$bn |
| **Total credit risk capital requirements** | | | | | | | | |
| Credit risk | **1,887.2** | **1,846.7** | **903.5** | **72.3** | 1,809.1 | 1,919.5 | 882.6 | 70.6 |
| Counterparty credit risk[2] | **130.2** | **147.3** | **51.9** | **4.2** | 184.4 | 179.6 | 74.0 | 5.9 |
| Total | **2,017.4** | **1,994.0** | **955.4** | **76.5** | 1,993.5 | 2,099.1 | 956.6 | 76.5 |
| **Credit risk analysis by exposure class** | | | | | | | | |
| Exposures under the IRB advanced approach | **1,405.0** | **1,215.8** | **598.1** | **47.9** | 1,179.6 | 1,295.2 | 480.2 | 38.4 |
| Retail: | | | | | | | | |
| secured on real estate property[3] | **277.6** | **269.2** | **136.6** | **11.0** | 256.6 | 266.0 | 110.2 | 8.8 |
| qualifying revolving retail | **148.8** | **147.2** | **77.4** | **6.2** | 142.4 | 163.3 | 75.5 | 6.0 |
| SMEs[4] | **12.3** | **13.3** | **6.8** | **0.5** | 14.5 | 17.6 | 7.1 | 0.6 |
| other retail[5] | **71.8** | **79.7** | **40.2** | **3.2** | 89.0 | 102.7 | 55.3 | 4.4 |
| Total retail | **510.5** | **509.4** | **261.0** | **20.9** | 502.5 | 549.6 | 248.1 | 19.8 |
| Central governments and central banks | **237.6** | **195.6** | **33.4** | **2.7** | 143.5 | 130.3 | 22.7 | 1.8 |
| Institutions | **180.3** | **187.2** | **40.0** | **3.2** | 182.5 | 246.2 | 39.3 | 3.1 |
| Corporates[6] | **399.5** | **239.2** | **244.7** | **19.6** | 261.3 | 280.7 | 155.6 | 12.5 |
| Securitisation positions[7] | **77.1** | **84.4** | **19.0** | **1.5** | 89.8 | 88.4 | 14.5 | 1.2 |
| Exposures under the IRB foundation approach | **7.9** | **163.4** | **4.3** | **0.3** | 171.3 | 186.0 | 103.8 | 8.3 |
| Corporates[6] | **7.9** | **163.4** | **4.3** | **0.3** | 171.3 | 186.0 | 103.8 | 8.3 |
| Exposures under the standardised | **474.3** | **467.5** | **301.1** | **24.1** | 458.2 | 438.3 | 298.6 | 23.9 |

approach

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Central governments and central banks | **64.6** | **57.5** | **0.9** | **0.1** | 59.4 | 39.5 | 5.9 | 0.5 |
| Institutions | **41.8** | **48.3** | **9.9** | **0.8** | 48.2 | 37.1 | 15.1 | 1.2 |
| Corporates | **180.5** | **175.0** | **165.1** | **13.2** | 168.5 | 170.1 | 150.8 | 12.1 |
| Retail | **53.7** | **58.2** | **40.4** | **3.2** | 61.2 | 66.2 | 45.7 | 3.7 |
| Secured on real estate property | **32.3** | **27.9** | **17.1** | **1.4** | 28.4 | 29.0 | 14.8 | 1.2 |
| Past due items | **4.6** | **3.9** | **6.5** | **0.5** | 3.4 | 2.5 | 4.3 | 0.4 |
| Regional governments or local authorities | **1.3** | **0.9** | **1.2** | **0.1** | 0.8 | 0.4 | 0.8 | 0.1 |
| Equity | **8.8** | **8.1** | **15.3** | **1.2** | 8.0 | 8.2 | 12.4 | 0.9 |
| Other items[8] | **86.7** | **87.7** | **44.7** | **3.6** | 80.3 | 85.3 | 48.8 | 3.8 |
| Total | **1,887.2** | **1,846.7** | **903.5** | **72.3** | 1,809.1 | 1,919.5 | 882.6 | 70.6 |

1 *Calculated as 8 per cent of RWAs.*

2 *For further details of counterparty credit risk, see page 33.*

3 *Exposure values in the Retail IRB Secured on real estate property exposure class for North America include balances that have been reduced due to partial write-offs, as described on page 205 of the* Annual Report and Accounts 2009.

4 *The FSA allows exposures to small and medium-sized enterprises ( SME s) to be treated under the Retail IRB approach, where the total amount owed to the Group by the counterparty is less than EUR 1 million and the customer is not managed as individually as a corporate counterparty.*

5 *Includes overdrafts and personal lending.*

6 *At December 2009, corporate portfolios in France, Hong Kong and Rest of Asia-Pacific completed the transition from foundation to advanced IRB. Comparative data have not been restated.*

7 *Excludes securitisation positions deducted from capital (that would otherwise be risk-weighted at 1,250 per cent). Securitisation positions deducted from capital are shown in Table 1 and Table 26.*

8 *Primarily includes such items as fixed assets, prepayments, accruals and Hong Kong Government certificates of indebtedness. Also includes immaterial exposures to Regulatory high-risk categories, Short-term claims, Securitisation positions, Collective investment undertakings, Administrative bodies and non-commercial undertakings, and Multilateral development banks under the standardised approach.*

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HSBC HOLDINGS PLC

**Capital and Risk Management Pillar 3 Disclosures as at 31 December 2009** (continued)

Exposure values are allocated to a region based on the country of incorporation of the HSBC subsidiary or proportionally consolidated associate where the exposure was originated.

*Table 4: Credit risk exposure analysis by geographical region*

| | Exposure value | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Europe US$bn | Hong Kong US$bn | Rest of Asia-Pacific[1] US$bn | Middle East[1] US$bn | North America[2] US$bn | Latin America US$bn | Total exposure US$bn | RWAs US$bn | Average RW % |
| **At 31 December 2009** | | | | | | | | | |
| **IRB advanced approach** | **512.2** | **292.5** | **154.9** | **20.5** | **396.8** | **28.1** | **1,405.0** | **598.1** | **43** |
| Central governments and central banks | **25.5** | **80.5** | **42.1** | **13.7** | **53.4** | **22.4** | **237.6** | **33.4** | **14** |
| Institutions | **47.4** | **80.0** | **27.4** | **6.6** | **13.2** | **5.7** | **180.3** | **40.0** | **22** |
| Corporates[3] | **157.3** | **73.2** | **62.5** | **0.2** | **106.3** | | **399.5** | **244.7** | **61** |
| Retail | **216.3** | **57.3** | **22.6** | | **214.3** | | **510.5** | **261.0** | **51** |
| Securitisation positions[4] | **65.7** | **1.5** | **0.3** | | **9.6** | | **77.1** | **19.0** | **25** |
| **IRB foundation approach** | **7.9** | | | | | | **7.9** | **4.3** | **54** |
| Corporates[3] | **7.9** | | | | | | **7.9** | **4.3** | **54** |
| **Standardised approach** | **154.9** | **40.9** | **146.3** | **48.5** | **25.8** | **57.9** | **474.3** | **301.1** | **63** |
| Central governments and central banks | **33.3** | | **27.8** | **3.5** | | | **64.6** | **0.9** | **1** |
| Institutions | **17.3** | | **20.6** | **3.6** | **0.2** | **0.1** | **41.8** | **9.9** | **24** |
| Corporates | **50.5** | **0.6** | **73.0** | **30.1** | **2.5** | **23.8** | **180.5** | **165.1** | **91** |
| Retail | **9.0** | **5.5** | **10.1** | **5.5** | **4.3** | **19.3** | **53.7** | **40.4** | **75** |
| | **10.5** | **3.1** | **10.3** | **2.2** | **1.9** | **4.3** | **32.3** | **17.1** | **53** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Secured on real estate property | | | | | | | | | |
| Past due items | **1.1** | | **0.3** | **1.1** | | **2.1** | **4.6** | **6.5** | **141** |
| Regional governments or local authorities | | | | **0.2** | | **1.1** | **1.3** | **1.2** | **92** |
| Equity | **3.3** | **1.3** | **0.9** | | **3.2** | **0.1** | **8.8** | **15.3** | **174** |
| Other items[5] | **29.9** | **30.4** | **3.3** | **2.3** | **13.7** | **7.1** | **86.7** | **44.7** | **52** |
| Total | **675.0** | **333.4** | **301.2** | **69.0** | **422.6** | **86.0** | **1,887.2** | **903.5** | **48** |
| At 31 December 2008 | | | | | | | | | |
| IRB advanced approach | 452.3 | 166.7 | 81.7 | 16.9 | 436.1 | 25.9 | 1,179.6 | 480.2 | 41 |
| Central governments and central banks | 24.0 | 28.3 | 40.8 | 11.2 | 18.2 | 21.0 | 143.5 | 22.7 | 16 |
| Institutions | 56.6 | 72.6 | 25.0 | 5.7 | 17.7 | 4.9 | 182.5 | 39.3 | 22 |
| Corporates[3] | 119.3 | 0.1 | 0.1 | | 141.8 | | 261.3 | 155.6 | 60 |
| Retail | 184.7 | 56.7 | 15.6 | | 245.5 | | 502.5 | 248.1 | 49 |
| Securitisation positions[4] | 67.7 | 9.0 | 0.2 | | 12.9 | | 89.8 | 14.5 | 16 |
| IRB foundation approach | 48.6 | 67.7 | 54.7 | 0.3 | | | 171.3 | 103.8 | 61 |
| Corporates[3] | 48.6 | 67.7 | 54.7 | 0.3 | | | 171.3 | 103.8 | 61 |
| Standardised approach | 158.8 | 34.6 | 127.6 | 56.0 | 26.8 | 54.4 | 458.2 | 298.6 | 65 |
| Central governments and central banks | 32.3 | | 23.0 | 3.9 | | 0.2 | 59.4 | 5.9 | 10 |
| Institutions | 23.5 | 0.5 | 20.6 | 3.4 | | 0.2 | 48.2 | 15.1 | 31 |
| Corporates | 51.2 | 2.7 | 52.0 | 37.2 | 2.8 | 22.6 | 168.5 | 150.8 | 89 |
| Retail | 11.1 | 4.0 | 16.4 | 6.6 | 4.2 | 18.9 | 61.2 | 45.7 | 75 |
| Secured on real estate property | 9.9 | 2.1 | 7.7 | 2.3 | 2.2 | 4.2 | 28.4 | 14.8 | 52 |
| Past due items | 0.4 | 0.1 | 0.6 | 0.6 | 0.1 | 1.6 | 3.4 | 4.3 | 126 |
| Regional governments or local authorities | | | | 0.3 | | 0.5 | 0.8 | 0.8 | 100 |
| Equity | 3.0 | 2.6 | 0.2 | 0.2 | 2.0 | | 8.0 | 12.4 | 155 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Other items[5] | 27.4 | 22.6 | 7.1 | 1.5 | 15.5 | 6.2 | 80.3 | 48.8 | 61 |
| Total | 659.7 | 269.0 | 264.0 | 73.2 | 462.9 | 80.3 | 1,809.1 | 882.6 | 49 |

1 *The Middle East is disclosed as a separate geographical region with effect from 1 January 2009. Previously, it formed part of Rest of Asia-Pacific. Comparative data have been restated accordingly.*

2 *Exposure values in the Retail IRB Secured on real estate property exposure class for North America include balances that have been reduced due to partial write-offs, as described on page 205 of the* Annual Report and Accounts 2009.

3 *At December 2009, corporate portfolios in France, Hong Kong and Rest of Asia-Pacific completed the transition from foundation to*

*advanced IRB. Comparative data have not been restated.*

4 *Excludes Securitisation positions deducted from capital (that would otherwise be risk-weighted at 1,250 per cent). Securitisation positions deducted from capital are shown in Table 1 and Table 26.*

5 *Primarily includes such items as fixed assets, prepayments, accruals and Hong Kong Government certificates of indebtedness. Also includes immaterial exposures to Regulatory high-risk categories, Short-term claims, Securitisation positions, Collective investment undertakings, Administrative bodies and non-commercial undertakings, and Multilateral development banks under the*

*standardised approach.*

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*Table 5: Risk weightings analysis by geographical region*

| | Europe US$bn | Hong Kong US$bn | Rest of Asia-Pacific[1] US$bn | Middle East[1] US$bn | North America[2] US$bn | Latin America US$bn | Total US$bn |
|---|---|---|---|---|---|---|---|
| **At 31 December 2009** | | | | | | | |
| **IRB advanced approach[3]** | | | | | | | |
| Total exposure value | **512.2** | **292.5** | **154.9** | **20.5** | **396.8** | **28.1** | **1,405.0** |
| Total RWAs | **152.3** | **79.9** | **58.9** | **7.4** | **285.3** | **14.3** | **598.1** |
| Average RW (%) | **30** | **27** | **38** | **36** | **72** | **51** | **43** |
| **IRB foundation approach[3]** | | | | | | | |
| Total exposure value | **7.9** | | | | | | **7.9** |
| Total RWAs | **4.3** | | | | | | **4.3** |
| Average RW (%) | **54** | | | | | | **54** |
| **Standardised approach** | | | | | | | |
| Total exposure value | **154.9** | **40.9** | **146.3** | **48.5** | **25.8** | **57.9** | **474.3** |
| Total RWAs | **80.9** | **19.1** | **91.3** | **39.3** | **21.0** | **49.5** | **301.1** |
| Average RW (%) | **52** | **47** | **62** | **81** | **81** | **85** | **63** |
| **Total credit risk** | | | | | | | |
| Total exposure value | **675.0** | **333.4** | **301.2** | **69.0** | **422.6** | **86.0** | **1,887.2** |
| Total RWAs | **237.5** | **99.0** | **150.2** | **46.7** | **306.3** | **63.8** | **903.5** |
| Average RW (%) | **35** | **30** | **50** | **68** | **72** | **74** | **48** |
| At 31 December 2008 | | | | | | | |
| IRB advanced approach[3] | | | | | | | |
| Total exposure value | 452.3 | 166.7 | 81.7 | 16.9 | 436.1 | 25.9 | 1,179.6 |
| Total RWAs | 138.7 | 24.3 | 15.8 | 4.9 | 287.3 | 9.2 | 480.2 |
| Average RW (%) | 31 | 15 | 19 | 29 | 66 | 36 | 41 |
| IRB foundation approach[3] | | | | | | | |
| Total exposure value | 48.6 | 67.7 | 54.7 | 0.3 | | | 171.3 |
| Total RWAs | 33.0 | 39.5 | 31.2 | 0.1 | | | 103.8 |
| Average RW (%) | 68 | 58 | 57 | 33 | | | 61 |
| Standardised approach | | | | | | | |
| Total exposure value | 158.8 | 34.6 | 127.6 | 56.0 | 26.8 | 54.4 | 458.2 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Total RWAs | 87.6 | 14.3 | 83.1 | 46.1 | 22.7 | 44.8 | 298.6 |
| Average RW (%) | 55 | 41 | 65 | 82 | 85 | 82 | 65 |
| Total credit risk | | | | | | | |
| Total exposure value | 659.7 | 269.0 | 264.0 | 73.2 | 462.9 | 80.3 | 1,809.1 |
| Total RWAs | 259.3 | 78.1 | 130.1 | 51.1 | 310.0 | 54.0 | 882.6 |
| Average RW (%) | 39 | 29 | 49 | 70 | 67 | 67 | 49 |

1 *The Middle East is disclosed as a separate geographical region with effect from 1 January 2009. Previously, it formed part of Rest of Asia-Pacific. Comparative data have been restated accordingly.*

2 *Exposure values in the Retail IRB Secured on real estate property exposure class for North America include balances that have been reduced due to partial write-offs, as described on page 205 of the* Annual Report and Accounts 2009.

3 *At December 2009, corporate portfolios in France, Hong Kong and Rest of Asia-Pacific completed the transition from foundation to advanced IRB. Comparative data have not been restated.*

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**Capital and Risk Management Pillar 3 Disclosures as at 31 December 2009** (continued)

*Table 6: Credit risk exposure analysis by counterparty sector*

| | Exposure value | | | | | | |
|---|---|---|---|---|---|---|---|
| At 31 December 2009 | Personal US$bn | Corporate and Commercial US$bn | Govern-ment US$bn | Financial[1] US$bn | Banks US$bn | Total exposure US$bn | RWAs US$bn |
| **IRB advanced approach** | **498.2** | **401.7** | **237.6** | **90.1** | **177.4** | **1,405.0** | **598.1** |
| Central governments and central banks | | | **237.6** | | | **237.6** | **33.4** |
| Institutions | | | | **2.9** | **177.4** | **180.3** | **40.0** |
| Corporates[2] | | **389.4** | | **10.1** | | **399.5** | **244.7** |
| Retail[3] | **498.2** | **12.3** | | | | **510.5** | **261.0** |
| Securitisation positions[4] | | | | **77.1** | | **77.1** | **19.0** |
| **IRB foundation approach** | | **7.3** | | **0.6** | | **7.9** | **4.3** |
| Corporates[2] | | **7.3** | | **0.6** | | **7.9** | **4.3** |
| **Standardised approach** | **79.6** | **193.2** | **65.9** | **5.2** | **43.7** | **387.6** | **256.4** |
| Central governments and central banks | | | **64.6** | | | **64.6** | **0.9** |
| Institutions | | | | **0.1** | **41.7** | **41.8** | **9.9** |
| Corporates | | **178.7** | | **1.8** | | **180.5** | **165.1** |
| Retail | **49.0** | **4.7** | | | | **53.7** | **40.4** |
| Secured on real estate property | **27.9** | **4.4** | | | | **32.3** | **17.1** |
| Past due items | **2.7** | **1.9** | | | | **4.6** | **6.5** |
| Regional governments or local authorities | | | **1.3** | | | **1.3** | **1.2** |
| Equity | | **3.5** | | **3.3** | **2.0** | **8.8** | **15.3** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Total | **577.8** | **602.2** | **303.5** | **95.9** | **221.1** | **1,800.5** | **858.8** |
| Other items[5] | | | | | | **86.7** | **44.7** |
| Total exposures | | | | | | **1,887.2** | **903.5** |
| At 31 December 2008 | | | | | | | |
| IRB advanced approach | 488.0 | 268.7 | 141.3 | 101.9 | 179.7 | 1,179.6 | 480.2 |
| Central governments and central banks | | | 141.3 | | 2.2 | 143.5 | 22.7 |
| Institutions | | | | 5.0 | 177.5 | 182.5 | 39.3 |
| Corporates[2] | | 254.2 | | 7.1 | | 261.3 | 155.6 |
| Retail[3] | 488.0 | 14.5 | | | | 502.5 | 248.1 |
| Securitisation positions[4] | | | | 89.8 | | 89.8 | 14.5 |
| IRB foundation approach | | 161.4 | | 9.9 | | 171.3 | 103.8 |
| Corporates[2] | | 161.4 | | 9.9 | | 171.3 | 103.8 |
| Standardised approach | 82.7 | 183.8 | 60.1 | 0.9 | 50.4 | 377.9 | 249.8 |
| Central governments and central banks | | | 59.3 | | 0.1 | 59.4 | 5.9 |
| Institutions | | | | | 48.2 | 48.2 | 15.1 |
| Corporates | | 167.6 | | 0.9 | | 168.5 | 150.8 |
| Retail | 56.2 | 5.0 | | | | 61.2 | 45.7 |
| Secured on real estate property | 24.1 | 4.3 | | | | 28.4 | 14.8 |
| Past due items | 2.4 | 1.0 | | | | 3.4 | 4.3 |
| Regional governments or local authorities | | | 0.8 | | | 0.8 | 0.8 |
| Equity | | 5.9 | | | 2.1 | 8.0 | 12.4 |
| Total | 570.7 | 613.9 | 201.4 | 112.7 | 230.1 | 1,728.8 | 833.8 |
| Other items[5] | | | | | | 80.3 | 48.8 |
| Total | | | | | | 1,809.1 | 882.6 |

1 *Includes non-bank financial institutions and corporates.*

2 *At December 2009, corporate portfolios in France, Hong Kong and Rest of Asia-Pacific completed the transition from foundation to advanced IRB. Comparative data have not been restated.*

3 *Exposure values in the Retail IRB Secured on real estate property exposure class for North America include balances that have been reduced due to partial write-offs, as described on page 205 of the* Annual Report and Accounts 2009.

4 *Excludes Securitisation positions deducted from capital (that would otherwise be risk-weighted at 1,250 per cent). Securitisation positions deducted from*

*capital are shown in Table 1 and Table 26.*

5 *Primarily includes such items as fixed assets, prepayments, accruals and Hong Kong Government certificates of indebtedness for which a counterparty sector split is not appropriate. Also includes immaterial exposures to Regulatory high-risk categories, Short-term claims, Securitisation positions, Collective investment undertakings, Administrative bodies and non-commercial undertakings, and Multilateral development banks under the standardised approach.*

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The following is an analysis of exposures by period outstanding from the reporting date to the maturity date. The full exposure value is allocated to a residual maturity band based on the contractual end date.

*Table 7: Credit risk exposure analysis by residual maturity*

| | Exposure value | | | | | |
|---|---|---|---|---|---|---|
| | Less than 1 year[1] US$bn | Between 1 and 5 years US$bn | More than 5 years US$bn | Undated US$bn | Total exposure US$bn | RWAs US$bn |
| **At 31 December 2009** | | | | | | |
| **IRB advanced approach** | **622.0** | **414.2** | **365.7** | **3.1** | **1,405.0** | **598.1** |
| Central governments and central banks | **154.4** | **61.8** | **21.2** | **0.2** | **237.6** | **33.4** |
| Institutions | **105.9** | **70.6** | **2.0** | **1.8** | **180.3** | **40.0** |
| Corporates[2] | **167.7** | **168.4** | **62.3** | **1.1** | **399.5** | **244.7** |
| Retail[3] | **140.4** | **110.9** | **259.2** | | **510.5** | **261.0** |
| Securitisation positions[4] | **53.6** | **2.5** | **21.0** | | **77.1** | **19.0** |
| **IRB foundation approach** | **4.2** | **3.1** | **0.6** | | **7.9** | **4.3** |
| Corporates[2] | **4.2** | **3.1** | **0.6** | | **7.9** | **4.3** |
| **Standardised approach** | **116.8** | **213.8** | **49.1** | **94.6** | **474.3** | **301.1** |
| Central governments and central banks | **20.7** | **39.7** | **4.2** | | **64.6** | **0.9** |
| Institutions | **16.9** | **24.9** | | | **41.8** | **9.9** |
| Corporates | **51.2** | **114.7** | **14.1** | **0.5** | **180.5** | **165.1** |
| Retail | **21.6** | **27.3** | **4.8** | | **53.7** | **40.4** |
| Secured on real estate property | **1.7** | **5.8** | **24.8** | | **32.3** | **17.1** |
| Past due items | **3.2** | **0.9** | **0.5** | | **4.6** | **6.5** |
| Regional governments or local authorities | **0.5** | **0.2** | **0.6** | | **1.3** | **1.2** |
| Equity | | | | **8.8** | **8.8** | **15.3** |
| Other items[5] | **1.0** | **0.3** | **0.1** | **85.3** | **86.7** | **44.7** |
| Total | **743.0** | **631.1** | **415.4** | **97.7** | **1,887.2** | **903.5** |
| At 31 December 2008 | | | | | | |
| IRB advanced approach | 457.8 | 393.7 | 324.0 | 4.1 | 1,179.6 | 480.2 |
| | 74.3 | 52.5 | 15.4 | 1.3 | 143.5 | 22.7 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Central governments and central banks | | | | | | |
| Institutions | 97.7 | 79.7 | 2.6 | 2.5 | 182.5 | 39.3 |
| Corporates[2] | 77.7 | 118.0 | 65.3 | 0.3 | 261.3 | 155.6 |
| Retail[3] | 136.4 | 140.5 | 225.6 | | 502.5 | 248.1 |
| Securitisation positions[4] | 71.7 | 3.0 | 15.1 | | 89.8 | 14.5 |
| IRB foundation approach | 80.5 | 64.2 | 25.1 | 1.5 | 171.3 | 103.8 |
| Corporates[2] | 80.5 | 64.2 | 25.1 | 1.5 | 171.3 | 103.8 |
| Standardised approach | 111.7 | 217.9 | 44.6 | 84.0 | 458.2 | 298.6 |
| Central governments and central banks | 0.6 | 58.7 | 0.1 | | 59.4 | 5.9 |
| Institutions | 18.2 | 29.7 | 0.2 | 0.1 | 48.2 | 15.1 |
| Corporates | 61.1 | 91.2 | 15.1 | 1.1 | 168.5 | 150.8 |
| Retail | 24.0 | 31.2 | 6.0 | | 61.2 | 45.7 |
| Secured on real estate property | 1.2 | 5.6 | 21.6 | | 28.4 | 14.8 |
| Past due items | 2.0 | 0.9 | 0.5 | | 3.4 | 4.3 |
| Regional governments or local authorities | 0.2 | 0.4 | 0.2 | | 0.8 | 0.8 |
| Equity | | | | 8.0 | 8.0 | 12.4 |
| Other items[5] | 4.4 | 0.2 | 0.9 | 74.8 | 80.3 | 48.8 |
| Total | 650.0 | 675.8 | 393.7 | 89.6 | 1,809.1 | 882.6 |

1 *Revolving exposures such as overdrafts are considered to have a residual maturity of less than one year.*

2 *At December 2009, corporate portfolios in France, Hong Kong and Rest of Asia-Pacific completed the transition from foundation to*

*advanced IRB. Comparative data have not been restated.*

3 *Exposure values in the Retail IRB Secured on real estate property exposure class for North America include balances that have been reduced due to partial write-offs, as described on page 205 of the* Annual Report and Accounts 2009.

4 *Excludes Securitisation positions deducted from capital (that would otherwise be risk-weighted at 1,250 per cent). Securitisation positions deducted from capital are shown in Table 1 and Table 26.*

5 *Primarily includes such items as fixed assets, prepayments, accruals and Hong Kong Government certificates of indebtedness. Also includes immaterial*

*exposures to Regulatory high-risk categories, Short-term claims, Securitisation positions, Collective investment undertakings, Administrative bodies and non-commercial undertakings, and Multilateral development banks under the standardised approach.*

## Application of the IRB approach for credit risk

This section sets out HSBC s overall risk rating systems, a description of the population of credit risk analytical models and the Group s approaches to model governance and the use of IRB metrics.

### Risk rating systems

HSBC s Group-wide credit risk rating framework incorporates the PD of an obligor and loss severity expressed in terms of EAD and LGD. These measures are used to calculate regulatory expected loss ( EL ) and capital requirements. They are also used in conjunction with other inputs to inform rating assessments for the purpose of credit approval and many other risk management decisions.

The narrative explanations that follow relate to the advanced IRB approaches, that is advanced IRB for distinct customers and Retail IRB for the portfolio-managed retail business. Under the Group s Basel II roll-out plans, a number of Group companies are in transition to advanced IRB approaches. At December 2009, corporate portfolios in France, Hong Kong and Rest of Asia-Pacific completed the transition from foundation to advanced IRB approaches. Other Group companies and portfolios remain on the standardised or foundation approaches under Basel II, pending the definition of local regulations or model approval, or under exemptions from IRB treatment. Further details of HSBC s use of the standardised approach can be found on page 31.

**Wholesale business**

PD for wholesale customer segments Central Governments and Central Banks (sovereigns), Institutions, Corporates and for certain individually assessed personal customers, is estimated using a Customer Risk Rating ( CRR ) scale of 22 grades, of which 20 are non-default grades representing varying degrees of strength of financial condition and two are default grades. A score generated by a model for the individual obligor type is mapped to the corresponding CRR. The process through which this or a judgementally amended CRR is then recommended to, and reviewed by, a credit approver takes into account all information relevant to the risk rating determination, including external ratings where available. The finally approved CRR is mapped to a PD value range of which the mid-point is used in the regulatory capital calculation.

EAD and LGD estimation for the wholesale business is subject to a Group framework of basic principles which permits flexibility in the definition
of parameters by HSBC s operating entities to suit conditions in their own jurisdictions. Group Risk provides co-ordination, benchmarks and the sharing and promotion of best practice. EAD is estimated to a 12-month horizon and broadly represents the current exposure plus an estimate for future increases in exposure, taking into account such factors as available but undrawn facilities and the crystallisation of contingent exposures, post-default. LGD focuses on the facility and collateral structure, involving such factors as facility priority/seniority, the type and value of collateral, type of client and regional variances in experience, and is expressed as a percentage of EAD.

**Retail business**

The wide range of application and behavioural models used in the management of retail portfolios has been supplemented with models used to derive the measures of PD, EAD and LGD required for Basel II. For management information and reporting purposes, retail portfolios are segmented according to local, analytically-derived EL bands, which map to 10 composite EL grades, facilitating comparability across the Group s retail customer segments, business lines and product types.

### Global and local models

Global PD models have been developed for asset classes or clearly identifiable sub-classes where the customer relationship is managed on a global basis: sovereigns, banks, certain non-bank financial institutions and the largest

corporate clients, typically operating internationally. Such global management facilitates consistent implementation by Group Risk and HSBC s operating subsidiaries worldwide of standards, policies, systems, approval procedures and other controls, reporting, pricing, performance guidelines and comparative analysis. All global models require FSA approval for IRB accreditation and fall directly under the remit of the Group CRAOC.

Local PD models are developed where the risk profile of obligors is specific to a country, sector or other non-global factor. This applies to large corporate clients having distinct characteristics in a particular geography, middle market corporates, corporate and retail small and medium-sized enterprises ( SME s) and all other retail segments. There are several hundred such models in use or under development within HSBC.

The Group s approach to EAD and LGD, the framework for which is described under Risk rating systems above, similarly encompasses both global

and local models. The former include EAD and LGD models for each of sovereigns and banks, as exposures to these two customer types are managed centrally by Group Risk. All local EAD and LGD models fall within the scope and principles of the Group EAD and LGD framework, subject to dispensation from Group Risk.

### Model governance

Model governance is under the general oversight of Group CRAOC, whose responsibilities are set out in Credit Analytics on page 16 above. Group CRAOC has regional and entity-level counterparts with comparable terms of reference, because the development, validation and monitoring of local models to meet local requirements and using local data are the responsibility of regional and/or local entities under the governance of their own management, subject to overall Group policy and oversight. Such models are typically approved by national or regional regulators and need to be passed to Group CRAOC only if they apply to exposures exceeding a prescribed monetary threshold or are otherwise deemed material.

Group Risk publishes Group standards for the development, independent review, maintenance and performance monitoring of credit risk analytical models, including governance over the successive stages of a model s life-cycle. Group governance standards cover such topics as the delineation of responsibilities at various stages of model development: ownership, development/validation, independent review and performance monitoring. The standards provide for monetary and/or qualitative thresholds above which decisions must be escalated to higher authority, and establish minimum intervals at which activities must be carried out, e.g. all models must be reviewed at least annually, or more frequently as the need arises. The threshold for referral via Group CRAOC to RMM is a portfolio coverage of US$20 billion or more by risk-weighted assets. Group CRAOC may deem a model material, due to the higher-risk nature of the customer sector in question.

Compliance with Group standards is subject to examination both by risk oversight and review from within the Risk function itself and by internal audit. While the standards set out minimum general requirements, Group Risk has discretion to approve dispensations, and fosters best practice between offices by means of regular risk and finance team contact, internet-based instruction, business centres of excellence, a Group Risk expert forum and associated seminars.

### Use of internal estimates

Internal estimates derived from applying the IRB approach are not only employed in the calculation of RWAs for the purpose of determining regulatory capital requirements, but also in many other contexts within risk management and business processes. Such uses continue to develop and become more embedded in management practice, as experience grows and the repository of quality data increases.

These uses include:

- **credit approval**: authorities, including those for specific counterparty types and transactions, are delegated to HSBC s operating companies using a risk-based approach with authorities graded according to CRR;

- **credit risk analytical tools**: IRB models, scorecards and other methodologies are valuable tools deployed in the assessment of customer and portfolio risk;

- **risk appetite**: IRB measures are an important element of risk appetite definition at customer, sector and portfolio levels, and in the implementation of the Group risk appetite framework, for instance in subsidiaries operating plans;

- **portfolio management**: regular reports to the Board, RMM and Group Audit Committee contain analyses of risk exposures, e.g. by customer segment and quality grade, employing IRB metrics;

- **pricing**: customer relationship managers apply an IRB Risk-Adjusted Return on Capital ( RAROC ) methodology in RWA and profitability calculators; and

- **economic capital**: IRB measures provide customer risk components for the economic capital model that has been implemented across HSBC to improve the consistent analysis of economic returns, help determine which

customers, business units and products add greatest value, and drive higher returns through effective economic capital allocation.

The following tables provide an analysis of the IRB risk measures used to calculate RWAs under the IRB approach and set out the distribution of IRB exposures by credit quality. The exposure weighted average PD (or LGD) is calculated as the sum of PD (or LGD) multiplied by the exposure value, divided by the total exposure value for the IRB advanced exposure class. The exposure weighted average risk weight is the average risk weight for the exposure class.

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**Capital and Risk Management Pillar 3 Disclosures as at 31 December 2009** (continued)

*Table 8: IRB advanced exposure analysis of risk components*

| | Exposure Value US$bn | Exposure weighted average PD % | Exposure weighted average LGD % | Exposure weighted average risk weight % | Undrawn commit-ments US$bn | RWAs US$bn |
|---|---|---|---|---|---|---|
| **IRB advanced exposure classes** | | | | | | |
| **At 31 December 2009** | | | | | | |
| Central governments and central banks | **237.6** | **0.16** | **19.9** | **14** | **4.7** | **33.4** |
| Institutions | **180.3** | **0.49** | **32.5** | **22** | **9.0** | **40.0** |
| Corporates[1, 2] | **395.3** | **3.32** | **38.9** | **61** | **203.0** | **242.2** |
| At 31 December 2008 | | | | | | |
| Central governments and central banks | 143.5 | 0.20 | 20.3 | 16 | 6.2 | 22.7 |
| Institutions | 182.5 | 0.47 | 29.6 | 22 | 6.8 | 39.3 |
| Corporates[1,2] | 261.3 | 2.17 | 37.8 | 60 | 43.9 | 155.6 |

1 *Excludes Specialised Lending exposures subject to the supervisory slotting approach.*

2 *At December 2009, corporate portfolios in France, Hong Kong and Rest of Asia-Pacific completed the transition from foundation to advanced IRB. Comparative data have not been restated.*

*Table 9: IRB advanced exposure analysis by obligor grade*[1]

| | At 31 December 2009 | | | | |
|---|---|---|---|---|---|
| | Exposure value US$bn | Exposure weighted average PD % | Exposure weighted average LGD % | Exposure weighted average risk weight % | RWAs US$bn |
| **Central governments and central banks** | | | | | |
| Minimal default risk | **164.8** | **0.02** | **13.2** | **3** | **5.1** |
| Low default risk | **46.1** | **0.07** | **31.4** | **18** | **8.2** |
| Satisfactory default risk | **14.6** | **0.24** | **36.9** | **40** | **5.9** |
| Fair default risk | **5.3** | **1.03** | **45.4** | **83** | **4.4** |
| Moderate default risk | **5.8** | **2.18** | **44.1** | **122** | **7.1** |
| Significant default risk | **0.7** | **6.42** | **45.1** | **186** | **1.3** |
| High default risk | **0.3** | **9.69** | **85.7** | **400** | **1.2** |

| | | | | | |
|---|---|---|---|---|---|
| Special management | | **22.85** | **79.5** | **419** | **0.2** |
| | **237.6** | **0.16** | **19.9** | **14** | **33.4** |
| **Institutions** | | | | | |
| Minimal default risk | **38.2** | **0.03** | **27.1** | **6** | **2.3** |
| Low default risk | **89.2** | **0.09** | **32.2** | **13** | **12.0** |
| Satisfactory default risk | **40.6** | **0.27** | **34.3** | **31** | **12.5** |
| Fair default risk | **7.9** | **0.99** | **42.5** | **76** | **6.0** |
| Moderate default risk | **1.6** | **2.93** | **49.9** | **131** | **2.1** |
| Significant default risk | **0.8** | **6.11** | **52.8** | **163** | **1.3** |
| High default risk | **1.5** | **12.22** | **59.7** | **220** | **3.3** |
| Special management | **0.2** | **20.60** | **47.3** | **250** | **0.5** |
| Default | **0.3** | **100.00** | **50.2** | | |
| | **180.3** | **0.49** | **32.5** | **22** | **40.0** |
| **Corporates**[2, 3] | | | | | |
| Minimal default risk | **32.3** | **0.03** | **40.3** | **15** | **4.7** |
| Low default risk | **74.8** | **0.10** | **40.6** | **25** | **18.4** |
| Satisfactory default risk | **124.5** | **0.40** | **38.0** | **48** | **60.1** |
| Fair default risk | **92.3** | **1.26** | **38.8** | **79** | **73.1** |
| Moderate default risk | **38.7** | **3.00** | **37.0** | **107** | **41.6** |
| Significant default risk | **12.0** | **6.41** | **35.3** | **133** | **15.9** |
| High default risk | **8.7** | **10.89** | **39.7** | **190** | **16.5** |
| Special management | **5.2** | **32.00** | **38.7** | **190** | **9.9** |
| Default[4] | **6.8** | **100.00** | **51.2** | **29** | **2.0** |
| | **395.3** | **3.32** | **38.9** | **61** | **242.2** |

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| | At 31 December 2008 | | | | |
|---|---|---|---|---|---|
| | Exposure value US$bn | Exposure weighted average PD % | Exposure weighted average LGD % | Exposure weighted average risk weight % | RWAs US$bn |
| Central governments and central banks | | | | | |
| Minimal default risk | 106.6 | 0.03 | 14.1 | 5 | 4.8 |
| Low default risk | 19.9 | 0.08 | 30.6 | 18 | 3.6 |
| Satisfactory default risk | 7.1 | 0.34 | 44.2 | 59 | 4.2 |
| Fair default risk | 5.1 | 1.56 | 59.8 | 89 | 4.5 |
| Moderate default risk | 4.0 | 1.90 | 39.2 | 105 | 4.2 |
| Significant default risk | 0.6 | 3.43 | 30.5 | 133 | 0.8 |
| High default risk | 0.1 | 9.54 | 45.5 | 200 | 0.2 |
| Special management | 0.1 | 19.76 | 86.0 | 400 | 0.4 |
| | 143.5 | 0.20 | 20.3 | 16 | 22.7 |
| Institutions | | | | | |
| Minimal default risk | 57.2 | 0.03 | 23.9 | 6 | 3.4 |
| Low default risk | 85.9 | 0.08 | 29.9 | 13 | 11.1 |
| Satisfactory default risk | 24.7 | 0.27 | 34.6 | 34 | 8.5 |
| Fair default risk | 9.9 | 1.28 | 39.1 | 79 | 7.8 |
| Moderate default risk | 2.5 | 2.60 | 50.6 | 156 | 3.9 |
| Significant default risk | 0.5 | 5.61 | 57.2 | 200 | 1.0 |
| High default risk | 1.2 | 12.78 | 51.0 | 242 | 2.9 |
| Special management | 0.3 | 24.18 | 39.1 | 233 | 0.7 |
| Default | 0.3 | 100.00 | 27.2 | | |
| | 182.5 | 0.47 | 29.6 | 22 | 39.3 |
| Corporates[2, 3] | | | | | |
| Minimal default risk | 42.7 | 0.03 | 34.9 | 16 | 6.7 |
| Low default risk | 38.5 | 0.10 | 41.4 | 28 | 10.7 |
| Satisfactory default risk | 83.1 | 0.39 | 38.7 | 49 | 41.0 |
| Fair default risk | 57.5 | 1.21 | 36.5 | 81 | 46.4 |
| Moderate default risk | 18.6 | 2.82 | 35.6 | 101 | 18.7 |
| Significant default risk | 11.3 | 6.26 | 37.7 | 144 | 16.3 |
| High default risk | 3.9 | 11.36 | 37.3 | 162 | 6.3 |
| Special management | 3.8 | 26.19 | 39.6 | 205 | 7.8 |
| Default[4] | 1.9 | 100.00 | 41.8 | 89 | 1.7 |

| | | | | | |
|---|---|---|---|---|---|
| | 261.3 | 2.17 | 37.8 | 60 | 155.6 |

1 *See glossary for definition of obligor grades.*
2 *Excludes Specialised Lending exposures subject to the supervisory slotting approach.*
3 *At December 2009, corporate portfolios in France, Hong Kong and Rest of Asia-Pacific completed the transition from foundation to advanced IRB. Comparative data have not been restated.*
4 *There is a requirement to hold additional capital for unexpected losses on defaulted exposures where LGD exceeds best estimate of EL. As a result, in some cases, RWAs arise for exposures in default.*

*Table 10: IRB foundation exposure analysis by obligor grade*

| | **Exposure value US$bn** | **Exposure weighted average risk weight %** | **RWAs US$bn** |
|---|---|---|---|
| **At 31 December 2009 Corporates[1,2]** | **7.9** | **54** | **4.3** |
| At 31 December 2008 | | | |
| Corporates[1,2] | | | |
| Minimal default risk | 20.7 | 15 | 3.2 |
| Low default risk | 41.7 | 26 | 10.8 |
| Satisfactory default risk | 61.3 | 55 | 33.8 |
| Fair default risk | 28.7 | 106 | 30.3 |
| Moderate default risk | 13.0 | 131 | 17.0 |
| Significant default risk | 4.1 | 166 | 6.8 |
| High default risk | 0.5 | 180 | 0.9 |
| Special management | 0.5 | 200 | 1.0 |
| Default | 0.8 | | |
| | 171.3 | 61 | 103.8 |

1 *Excludes Specialised Lending exposures subject to the supervisory slotting approach.*
2 *At December 2009, corporate portfolios in France, Hong Kong and Rest of Asia-Pacific completed the transition from foundation to advanced IRB. The residual exposures have not been disclosed by obligor grade as the amounts are not significant at Group level. Comparative data have not been restated.*

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**Capital and Risk Management Pillar 3 Disclosures as at 31 December 2009** (continued)

The EL bandings for the retail business summarise a more granular EL scale for these customer segments which combine obligor and facility/product risk factors in a composite measure of PD and LGD. The definitions of PD and LGD for retail portfolios are both subject to degrees of national regulators discretion and the international variability of the measures preclude their direct use
as global comparators. The composite EL measure enables the diverse risk profiles of retail portfolios across the Group to be assessed on a more comparable scale than through the direct utilisation of PD and LGD measures. The Middle East and Latin America are not included in this table as retail exposures in these regions are calculated under the standardised approach.

*Table 11: Retail IRB exposure analysis by geographical region*

| | Exposure value | | | | |
|---|---|---|---|---|---|
| | Europe US$bn | Hong Kong US$bn | Rest of Asia-Pacific US$bn | North America[1] US$bn | Total exposure US$bn |
| **At 31 December 2009** | | | | | |
| **Secured on real estate property** | | | | | |
| Expected loss band | | | | | |
| less than 1% | **110.9** | **34.1** | **19.3** | **63.2** | **227.5** |
| greater than or equal to 1% and less than 5% | **2.6** | **0.3** | **0.6** | **14.4** | **17.9** |
| greater than or equal to 5% and less than 10% | **0.5** | | | **9.9** | **10.4** |
| greater than or equal to 10% and less than 20% | **0.2** | | | **5.7** | **5.9** |
| greater than or equal to 20% and less than 40% | **0.1** | | | **3.1** | **3.2** |
| greater than or equal to 40% and exposures in default | **1.2** | **0.1** | **0.3** | **11.1** | **12.7** |
| Total retail secured on real estate property exposures | **115.5** | **34.5** | **20.2** | **107.4** | **277.6** |
| **Qualifying revolving retail exposures** | | | | | |
| Expected loss band | | | | | |
| less than 1% | **35.8** | **11.9** | | **46.6** | **94.3** |
| greater than or equal to 1% and less than 5% | **7.7** | **2.6** | | **21.1** | **31.4** |
| greater than or equal to 5% and less than 10% | **1.6** | **0.5** | | **8.9** | **11.0** |
| greater than or equal to 10% and less than 20% | **0.7** | **0.2** | | **4.8** | **5.7** |
| greater than or equal to 20% and less than 40% | **0.2** | **0.1** | | **1.5** | **1.8** |
| greater than or equal to 40% and exposures in default | **0.9** | | | **3.7** | **4.6** |

| | | | | | |
|---|---|---|---|---|---|
| Total qualifying revolving retail exposures | **46.9** | **15.3** | | **86.6** | **148.8** |
| | | | | | |
| **SMEs**[2] | | | | | |
| Expected loss band | | | | | |
| less than 1% | **4.1** | **0.1** | | **0.8** | **5.0** |
| greater than or equal to 1% and less than 5% | **5.3** | | | **0.2** | **5.5** |
| greater than or equal to 5% and less than 10% | **0.4** | | | | **0.4** |
| greater than or equal to 10% and less than 20% | **0.3** | | | | **0.3** |
| greater than or equal to 20% and less than 40% | **0.1** | | | | **0.1** |
| greater than or equal to 40% and exposures in default | **1.0** | | | | **1.0** |
| | | | | | |
| Total SMEs exposures | **11.2** | **0.1** | | **1.0** | **12.3** |
| | | | | | |
| **Other retail**[3] | | | | | |
| Expected loss band | | | | | |
| less than 1% | **33.2** | **6.1** | **2.3** | **4.3** | **45.9** |
| greater than or equal to 1% and less than 5% | **6.0** | **0.9** | **0.1** | **6.0** | **13.0** |
| greater than or equal to 5% and less than 10% | **1.3** | **0.2** | | **2.8** | **4.3** |
| greater than or equal to 10% and less than 20% | **0.6** | **0.1** | | **2.8** | **3.5** |
| greater than or equal to 20% and less than 40% | **0.2** | | | **1.3** | **1.5** |
| greater than or equal to 40% and exposures in default | **1.4** | **0.1** | | **2.1** | **3.6** |
| | | | | | |
| Total other retail exposures | **42.7** | **7.4** | **2.4** | **19.3** | **71.8** |
| | | | | | |
| **Total retail** | | | | | |
| Expected loss band | | | | | |
| less than 1% | **184.0** | **52.2** | **21.6** | **114.9** | **372.7** |
| greater than or equal to 1% and less than 5% | **21.6** | **3.8** | **0.7** | **41.7** | **67.8** |
| greater than or equal to 5% and less than 10% | **3.8** | **0.7** | | **21.6** | **26.1** |
| greater than or equal to 10% and less than 20% | **1.8** | **0.3** | | **13.3** | **15.4** |
| greater than or equal to 20% and less than 40% | **0.6** | **0.1** | | **5.9** | **6.6** |
| greater than or equal to 40% and exposures in default | **4.5** | **0.2** | **0.3** | **16.9** | **21.9** |
| | | | | | |
| Total retail exposures | **216.3** | **57.3** | **22.6** | **214.3** | **510.5** |

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| | Exposure value | | | | |
|---|---|---|---|---|---|
| | Europe US$bn | Hong Kong US$bn | Rest of Asia-Pacific US$bn | North America[1] US$bn | Total exposure US$bn |
| At 31 December 2008 | | | | | |
| Secured on real estate property | | | | | |
| Expected loss band | | | | | |
| less than 1% | 87.2 | 31.7 | 12.7 | 81.4 | 213.0 |
| greater than or equal to 1% and less than 5% | 2.4 | 0.5 | 0.3 | 15.7 | 18.9 |
| greater than or equal to 5% and less than 10% | 0.5 | | | 5.9 | 6.4 |
| greater than or equal to 10% and less than 20% | 0.2 | | | 3.9 | 4.1 |
| greater than or equal to 20% and less than 40% | | | | 3.7 | 3.7 |
| greater than or equal to 40% and exposures in default | 0.8 | 0.2 | 0.2 | 9.3 | 10.5 |
| Total retail secured on real estate property exposures | 91.1 | 32.4 | 13.2 | 119.9 | 256.6 |
| Qualifying revolving retail exposures | | | | | |
| Expected loss band | | | | | |
| less than 1% | 26.8 | 12.2 | | 48.9 | 87.9 |
| greater than or equal to 1% and less than 5% | 5.1 | 2.4 | | 23.6 | 31.1 |
| greater than or equal to 5% and less than 10% | 1.1 | 0.4 | | 8.7 | 10.2 |
| greater than or equal to 10% and less than 20% | 0.5 | 0.1 | | 5.6 | 6.2 |
| greater than or equal to 20% and less than 40% | 0.2 | 0.1 | | 1.8 | 2.1 |
| greater than or equal to 40% and exposures in default | 0.7 | | | 4.2 | 4.9 |
| Total qualifying revolving retail exposures | 34.4 | 15.2 | | 92.8 | 142.4 |
| SMEs[2] | | | | | |
| Expected loss band | | | | | |
| less than 1% | 6.0 | | | 0.5 | 6.5 |
| greater than or equal to 1% and less than 5% | 6.8 | | | | 6.8 |
| greater than or equal to 5% and less than 10% | 0.5 | | | | 0.5 |
| greater than or equal to 10% and less than 20% | 0.2 | | | | 0.2 |
| greater than or equal to 20% and less than 40% | 0.1 | | | | 0.1 |
| greater than or equal to 40% and exposures in default | 0.4 | | | | 0.4 |
| Total SMEs exposures | 14.0 | | | 0.5 | 14.5 |
| Other retail[3] | | | | | |
| Expected loss band | | | | | |
| less than 1% | 34.6 | 7.5 | 2.4 | 6.4 | 50.9 |

| | | | | | |
|---|---|---|---|---|---|
| greater than or equal to 1% and less than 5% | 6.7 | 1.1 | | 11.8 | 19.6 |
| greater than or equal to 5% and less than 10% | 1.5 | 0.3 | | 4.1 | 5.9 |
| greater than or equal to 10% and less than 20% | 0.9 | 0.1 | | 3.8 | 4.8 |
| greater than or equal to 20% and less than 40% | 0.3 | | | 2.2 | 2.5 |
| greater than or equal to 40% and exposures in default | 1.2 | 0.1 | | 4.0 | 5.3 |
| Total other retail exposures | 45.2 | 9.1 | 2.4 | 32.3 | 89.0 |
| Total retail | | | | | |
| Expected loss band | | | | | |
| less than 1% | 154.6 | 51.4 | 15.1 | 137.2 | 358.3 |
| greater than or equal to 1% and less than 5% | 21.0 | 4.0 | 0.3 | 51.1 | 76.4 |
| greater than or equal to 5% and less than 10% | 3.6 | 0.7 | | 18.7 | 23.0 |
| greater than or equal to 10% and less than 20% | 1.8 | 0.2 | | 13.3 | 15.3 |
| greater than or equal to 20% and less than 40% | 0.6 | 0.1 | | 7.7 | 8.4 |
| greater than or equal to 40% and exposures in default | 3.1 | 0.3 | 0.2 | 17.5 | 21.1 |
| Total retail exposures | 184.7 | 56.7 | 15.6 | 245.5 | 502.5 |

1 *Exposure values in the Retail IRB Secured on real estate property exposure class for North America include balances that have been reduced due to partial write-offs, as described on page 205 of the* Annual Report and Accounts 2009.

2 *The FSA allows exposures to SMEs to be treated under the Retail IRB approach, where the total amount owed to the Group by the counterparty is less than EUR 1 million and the customer is not managed as individually as a corporate counterparty.*

3 *Includes overdrafts and personal lending.*

## Risk mitigation

HSBC s approach when granting credit facilities is to do so on the basis of capacity to repay, rather than place primary reliance on credit risk mitigation. Depending on a customer s standing and the type of product, facilities may be provided unsecured. Mitigation of credit risk is nevertheless a key aspect of effective risk management and, in a diversified financial services organisation such as HSBC, takes many forms. There is no material concentration of credit risk mitigation held.

The Group s general policy is to promote the use of credit risk mitigation, justified by commercial prudence and good practice as well as capital efficiency. Specific, detailed policies cover the acceptability, structuring and terms of various types of business with regard to the availability of credit risk mitigation, for example in the form of collateral security, and these policies, together with the determination of suitable valuation parameters, are subject to regular review to ensure that they are supported by empirical evidence and continue to fulfil their intended purpose.

The most common method of mitigating credit risk is to take collateral. In HSBC s residential and commercial real estate businesses, a mortgage over the property is usually taken to help secure claims. Physical collateral is also typically taken in vehicle financing in some jurisdictions, and in various forms of specialised lending and leasing transactions where physical assets form the principal source of facility repayment. In the commercial and industrial sectors, charges are created over business assets such as premises, stock and debtors. Loans to private banking clients may be made against the pledge of eligible marketable securities or cash (known as Lombard lending) or real estate. Facilities to SMEs are commonly granted against guarantees given by their owners and/or directors. Guarantees from third parties can arise where the Group extends facilities without the benefit of any alternative form of security, e.g. where it issues a bid or performance bond in favour of a non-customer at the request of another bank.

In the institutional sector, trading facilities are supported by charges over financial instruments such as cash, debt securities and equities. Financial collateral in the form of marketable securities is used in much of the Group s over-the-counter ( OTC ) derivatives activities and in its securities financing business (securities lending and borrowing or repos and reverse repos). Netting is extensively used and is a prominent feature of market standard documentation.

HSBC s Global Banking and Markets business utilises credit risk mitigation to actively manage the credit risk of its portfolios, with the goal of reducing concentrations in individual names, sectors or portfolios. The techniques in use include credit default swaps, structured credit notes and securitisation structures. Buying credit protection creates credit exposure against the protection provider, which is monitored as part of the overall credit exposure against the relevant name (see also Collateral arrangements on page 34).

Settlement risk arises in any situation where a payment in cash, securities or equities is made in the expectation of a corresponding receipt of cash, securities or equities. Daily settlement limits are established to cover the aggregate of HSBC s transactions with a counterparty on any single day. Settlement risk on many transactions, particularly those involving securities and equities, is substantially mitigated by settling through assured payment systems or on a delivery-versus-payment basis.

Policies and procedures govern the protection of the Group s position from the outset of a customer relationship, for instance in requiring standard terms and conditions or specifically agreed documentation permitting the offset of credit balances against debt obligations and through controls over the integrity, current valuation and, if necessary, realisation of collateral security.

The valuation of credit risk mitigants seeks to monitor and ensure that they will continue to provide the secure repayment source anticipated at the time they were taken. Where collateral is subject to high volatility, valuation is frequent; where stable, less so. Trading businesses typically carry out daily valuations. In the residential mortgage

business, on the other hand, Group policy prescribes valuation at intervals of up to three years, or more frequently as the need may arise, at the discretion of the business line, by a variety of methods ranging from use of market indices to individual professional inspection.

In terms of their application within an IRB approach (for the standardised approach, see page 31), risk mitigants are considered in two broad categories: first, those which reduce the intrinsic probability of default of an obligor and therefore operate as adjustments to PD estimation; secondly, those which affect the estimated recoverability of obligations and require adjustment of LGD or, in certain circumstances, EAD. The first include, typically, full parental guarantees; the second, collateral security of various kinds such as cash or mortgages over residential property.

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The adjustment of PD estimation is also subject to supplementary methodologies in respect of a sovereign ceiling constraining the risk ratings assigned to obligors in countries of higher risk, and of partial parental support.

EAD and LGD values, in the case of individually assessed exposures, are determined by reference to regionally approved internal risk parameters based on the nature of the exposure. For retail portfolios, credit mitigation data is incorporated into the internal risk parameters for risk exposures and feeds continuously into the calculation of the EL band value summarising both customer delinquency and product or facility risk. Credit and risk mitigation data form the inputs submitted to a centralised database by all Group offices, upon which a risk engine then performs calculations applying the relevant Basel II rules and approach.

The table below details the effective value of credit risk mitigation. Under the IRB advanced approach, financial collateral is taken into account in
the LGD. Under the IRB foundation approach, for financial collateral, an adjustment (or haircut ) is applied to the collateral to take account of price volatility. This adjusted collateral value is then subtracted from the exposure value to create an adjusted exposure value . The exposure value covered by collateral is the difference between original exposure value and adjusted exposure value. An adjustment is then applied to LGD to reflect the credit risk mitigation. Similarly, for physical collateral, the LGD of an exposure will be adjusted depending on certain factors, including the value and type of the asset taken as collateral. For unfunded protection, which includes credit derivatives and guarantees, a substitution method is applied. The exposure value covered by collateral is substituted by a similar exposure to the protection provider. Under the IRB foundation approach, the PD of the obligor is substituted by the PD of the protection provider. Under the IRB advanced approach the recognition is more complicated and may involve a PD or LGD adjustment or both.

*Table 12: IRB exposure credit risk mitigation analysis*

| | **At 31 December 2009** | | | At 31 December 2008 | | |
|---|---|---|---|---|---|---|
| | **Exposure value covered by eligible financial and other collateral US$bn** | **Exposure value covered by credit derivatives or guarantees US$bn** | **Exposure value US$bn** | Exposure value covered by eligible financial and other collateral US$bn | Exposure value covered by credit derivatives or guarantees US$bn | Exposure value US$bn |
| **Exposures under the IRB advanced approach**[1] | | | | | | |
| Central governments and central banks | **n/a** | | **237.6** | n/a | 0.2 | 143.5 |
| Institutions | **n/a** | **25.1** | **180.3** | n/a | 20.0 | 182.5 |
| Corporates[2] | **n/a** | **43.3** | **399.5** | n/a | 8.2 | 261.3 |
| Retail[3] | **n/a** | **23.7** | **510.5** | n/a | 25.0 | 502.5 |
| **Exposures under the IRB foundation approach** | | | | | | |
| Corporates[2] | **0.4** | **0.2** | **7.9** | 18.3 | 22.8 | 171.3 |

1 *Under the IRB advanced approach eligible financial collateral is reflected in the Group s loss given default (LGD) model. As such, separate disclosure of exposures covered by eligible financial collateral is not applicable.*

2

*At December 2009, corporate portfolios in France, Hong Kong and Rest of Asia-Pacific completed the transition from foundation to advanced IRB. Comparative data have not been restated.*

3 *Exposure values in the Retail IRB Secured on real estate property exposure class for North America include balances that have been reduced due to partial write-offs, as described on page 205 of the* Annual Report and Accounts 2009.

## Loss experience and model validation

HSBC analyses credit loss experience in order to assess the performance of its risk measurement and control processes, and to inform corrective measures. This analysis includes validation of the outputs of predictive risk analytical models, compared with other reported measures of risk and losses.

The disclosures below set out:

commentary on the relationship between regulatory expected loss ( EL ) and impairment allowances recognised in the Group s financial statements;

EL and impairment charges by exposure class (within Retail IRB, also by sub-class) and by region (Tables 13 and 14); and

model performance: projected and actual IRB metrics for major global models in the Group s portfolio (Table 15).

**EL and impairment allowances**

EL is calculated on IRB portfolios other than Securitisations, and FSA rules require that, to the extent that EL exceeds individual and collective impairment allowances, it is to be deducted from capital. When comparing EL with accounting impairment allowances on the related assets, differences need to be taken into account between the definition of EL under Basel II principles and impairment allowances within financial statements prepared under IFRSs. For example:

EL is generally based on through-the-cycle PD estimates over a 1-year future horizon, determined via statistical analysis of historical default experience, while impairment assesses
incurred loss at a point in time, including losses that have not yet been identified. Further detail of policy on the impairment of loans and advances is provided on pages 371 to 374 of the *Annual Report and Accounts 2009*;

EL is based on downturn estimates of LGD while impairment allowances are based on loss experience at the balance sheet date; and

EL is based on exposure values that incorporate expected future drawings of committed credit lines, while impairment allowances are, generally, based on on-balance sheet assets.

These and other technical differences influence the way in which the impact of business and economic drivers is expressed in the accounting and regulatory measures. The following tables 13 and 14 set out EL and actual loss experience for IRB credit risk exposures.

*Table 13: IRB credit risk expected loss and impairment charges analysis by exposure class*

| | Expected loss[1,2,3] as at 1 January | | Impairment charge for year ended 31 December | |
|---|---|---|---|---|
| | 2010 | **2009** | **2009** | 2008 |
| | US$bn | **US$bn** | **US$bn** | US$bn |
| **IRB exposure classes** | | | | |
| Central governments and central banks | 0.2 | **0.1** | | |
| Institutions | 0.4 | **0.3** | **0.1** | 0.1 |
| Corporates | 5.9 | **3.4** | **3.7** | 2.4 |
| Retail | 19.8 | **20.9** | **16.0** | 17.3 |
| secured on real estate property | 8.5 | **7.7** | **5.8** | 5.0 |
| qualifying revolving retail | 6.7 | **6.6** | **5.8** | 5.8 |
| other retail | 3.9 | **6.0** | **4.4** | 6.5 |
| SMEs | 0.7 | **0.6** | | |

| | | | | |
|---|---|---|---|---|
| Total | 26.3 | **24.7** | **19.8** | 19.8 |

1 *EL comparatives as at 1 January 2008 are not disclosed since Basel II figures were compiled on a pro-forma basis only.*
2 *EL is not calculated for Securitisation positions so this IRB exposure class is not included in the analysis above.*
3 *Exposure values in the Retail IRB Secured on real estate property exposure class for North America include balances that have been reduced due to partial write-offs, as described on page 205 of the* Annual Report and Accounts 2009.

*Table 14: IRB credit risk expected loss and impairment charges analysis by geographical region*

| | **Expected loss[1,2,3] as at 1 January** | | **Impairment charge for year ended 31 December** | |
|---|---|---|---|---|
| | 2010 | **2009** | **2009** | 2008 |
| | US$bn | **US$bn** | **US$bn** | US$bn |
| Europe | 6.7 | **4.8** | **3.9** | 2.7 |
| Hong Kong | 0.9 | **0.8** | **0.4** | 0.6 |
| Rest of Asia-Pacific | 0.9 | **0.4** | **0.2** | 0.1 |
| Middle East | 0.1 | **0.1** | **0.1** | |
| North America | 17.7 | **18.6** | **15.2** | 16.4 |
| Total | 26.3 | **24.7** | **19.8** | 19.8 |

1 *EL comparatives as at 1 January 2008 are not disclosed since Basel II figures were compiled on a pro-forma basis only.*
2 *EL is not calculated for Securitisation positions so this IRB exposure class is not included in the analysis above.*
3 *Exposure values in the Retail IRB Secured on real estate property exposure class for North America include balances that have been reduced due to partial write-offs, as described on page 205 of the* Annual Report and Accounts 2009.

Impairment charges reflect loss events which arose during the financial year and changes in estimates of losses arising on events which occurred prior to the current year. The majority of EL at 1 January 2009 and of the impairment charge for the year ended 31 December 2009 relates to Retail exposures in North America. The drivers of the impairment allowances and charges for 2009 in North America, including delinquency experience and loss severities, are discussed on page 239 of the *Annual Report and Accounts 2009*.

Full details of the Group s impaired loans and advances, past due but not impaired assets and impairment allowances and charges are set out on pages 227 to 243 of the *Annual Report and Accounts 2009*. These figures are prepared on an accounting consolidation basis but are not significantly different from those calculated on a regulatory consolidation basis. The Group s approaches for determining impairment allowances are explained on pages 203 to 205 of the *Annual Report and Accounts 2009*. Details of the Group s past due but not impaired assets are provided on pages 229 to 230 of the *Annual Report and Accounts 2009*.

**Model performance**

The large number of models operated by HSBC in most exposure classes results in data at individual model level being in most cases immaterial in the context of the whole Group. Disclosure of such data could place proprietary information at risk, whilst aggregation of it would greatly reduce its usefulness.

HSBC has therefore chosen to disclose model performance data only for the major global models in use at the present time (see Table 15 below).

The table below shows projected and actual values for key Basel II metrics in respect of the models for Central governments and central banks, Institutions and Global Large Corporate models. The projections represent opening values at 1 January 2009, and actuals represent the defaults and losses experienced during the year as a percentage of total facility limits.

*Table 15: IRB advanced models projected and actual values*

| | 2009 | | | | |
|---|---|---|---|---|---|
| | PD | | LGD | | EAD[1] |
| | Projected | Actual | Projected | Actual | Actual |
| | % | % | % | % | % |
| Central governments and central banks model | **0.20** | | **20.3** | | |
| Institutions model | **0.47** | **0.05** | **29.6** | **8.7** | **73.0** |
| Global Large Corporates model[2] | **0.46** | **0.06** | **33.8** | **44.1** | **100.0** |

1 *Exposure at default of defaulted counterparties as a percentage of their total facility limits. Projected EAD figures for defaulted borrowers are not disclosed, this population having been undefined at the start of the period.*

2 *The Global Large Corporates model covers the segment of the largest, and generally lower-risk, corporates whose annual turnover exceeds US$700 million. The PD analysis includes all IRB advanced or foundation exposures. The LGD and EAD analyses include IRB advanced exposures only because, under the IRB foundation approach, regulatory LGD parameters are applied. Actual LGD percentage for the Global Large Corporates model reflects additional conservatism applied to estimates of recoveries over time from specific defaults within the large corporate portfolio.*

**Application of the standardised approach for credit risk**

The standardised approach is applied where exposures do not qualify for use of an IRB approach and/or where an exemption from IRB has been granted. The standardised approach requires banks to use risk assessments prepared by External Credit Assessment Institutions ( ECAI s) or Export Credit Agencies to determine the risk weightings applied to rated counterparties.

ECAI risk assessments are used by HSBC as part of the determination of risk weightings for the following classes of exposure:

Central governments and central banks;

Institutions;

Corporates;

Securitisation positions;

Short-term claims on institutions and corporates;

Regional governments and local authorities; and

Multilateral development banks.

HSBC has nominated three FSA-recognised ECAIs for this purpose Moody s Investors Service, Standard & Poor s Ratings Group and the Fitch Group. HSBC has not nominated any Export Credit Agencies.

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HSBC HOLDINGS PLC
**Capital and Risk Management Pillar 3 Disclosures as at 31 December 2009** (continued)

| Credit quality step | Moody s assessments | S&P s assessments | Fitch s assessments |
|---|---|---|---|
| 1 | Aaa to Aa3 | AAA to AA | AAA to AA |
| 2 | A1 to A3 | A+ to A | A+ to A |
| 3 | Baa1 to Baa3 | BBB+ to BBB | BBB+ to BBB |
| 4 | Ba1 to Ba3 | BB+ to BB | BB+ to BB |
| 5 | B1 to B3 | B+ to B | B+ to B |
| 6 | Caa1 and below | CCC+ and below | CCC+ and below |

Data files of external ratings from the nominated ECAIs are matched with customer records in the Group s centralised credit database.

When calculating the risk-weighted value of an exposure using ECAI risk assessments, risk systems identify the customer in question and look up the available ratings in the central database according to the FSA s rating selection rules. The systems then apply the FSA s prescribed credit quality step mapping to derive from the rating the relevant risk weight.

All other exposure classes are assigned risk weightings as prescribed in the FSA s rulebook.

Under guidance from the FSA, bank exposures guaranteed under the UK Government guarantee scheme are eligible to be treated under the standardised approach and therefore benefit from a zero per cent risk weighting.

Banking associates exposures are calculated under the standardised approach and, at 31 December 2009, represented approximately 10 per cent of total Group RWAs.

The tables below set out the distribution of standardised exposures across credit quality steps. Due to their aggregate proportion of the total standardised approach exposure value being 1 per cent or less, an analysis of credit quality step allocations for Regional governments or local authorities, Short-term claims, Securitisation positions, Collective investment undertakings and Multilateral development banks is not set out below.

*Table 16: Standardised approach exposure analysis by credit quality step*

| | **At 31 December 2009** | | At 31 December 2008 | |
|---|---|---|---|---|
| | **Exposure value US$bn** | **RWAs US$bn** | Exposure Value US$bn | RWAs US$bn |
| **Central governments and central banks** | | | | |
| Credit quality step 1 | **33.2** | | 32.2 | |
| Credit quality step 2 | **30.6** | | 26.6 | |
| Credit quality step unrated | **0.8** | | 0.6 | |

| | | | | |
|---|---|---|---|---|
| | **64.6** | **0.9** | 59.4 | 5.9 |
| **Institutions** | | | | |
| Credit quality step 1 | **16.0** | | 18.9 | |
| Credit quality step 2 | | | 0.1 | |
| Credit quality step 3 | **0.7** | | 0.1 | |
| Credit quality step 4 | | | 0.7 | |
| Credit quality step 5 | **0.1** | | 0.2 | |
| Credit quality step 6 | | | 0.1 | |
| Credit quality step unrated | **25.0** | | 28.1 | |
| | **41.8** | **9.9** | 48.2 | 15.1 |
| **Corporates** | | | | |
| Credit quality step 1 | **6.5** | | 10.3 | |
| Credit quality step 2 | **6.8** | | 4.1 | |
| Credit quality step 3 | **27.2** | | 27.1 | |
| Credit quality step 4 | **5.1** | | 3.8 | |
| Credit quality step 5 | **1.6** | | 0.9 | |
| Credit quality step 6 | **0.5** | | 0.2 | |
| Credit quality step unrated | **132.8** | | 122.1 | |
| | **180.5** | **165.1** | 168.5 | 150.8 |

Risk mitigation

For exposures subject to the standardised approach covered by an eligible guarantee, non-financial collateral, or credit derivatives the exposure is divided into covered and uncovered portions. The covered portion, determined after applying an
appropriate haircut for currency and maturity mismatch (and for omission of restructuring clauses for credit derivatives, where appropriate) to the amount of protection provided, attracts the risk weight of the protection provider, while the uncovered portion attracts the risk weight of the

obligor. For exposures fully or partially covered by eligible financial collateral, the value of the exposure is adjusted under the Financial Collateral Comprehensive Method using supervisory volatility adjustments, including those arising from currency mismatch, which are determined by the specific type of collateral (and, in the case of eligible debt securities, their credit quality) and its liquidation
period. The adjusted exposure value is subject to the risk weight of the obligor.

The table below sets out the effective value of credit risk mitigation for exposures under the standardised approach, expressed as the exposure value covered by the credit risk mitigant.

*Table 17: Standardised approach exposure credit risk mitigation analysis*

| | **At 31 December 2009** | | | At 31 December 2008 | | |
|---|---|---|---|---|---|---|
| | **Exposure value covered by eligible financial and other collateral US$bn** | **Exposure value covered by credit derivatives or guarantees US$bn** | **Exposure value US$bn** | Exposure value covered by eligible financial and other collateral US$bn | Exposure value covered by credit derivatives or guarantees US$bn | Exposure value US$bn |
| **Exposures under the standardised approach** | | | | | | |
| Central governments and central banks | | **0.8** | **64.6** | | 0.2 | 59.4 |
| Institutions | | **14.9** | **41.8** | | 17.3 | 48.2 |
| Corporates | **6.8** | **1.4** | **180.5** | 3.9 | 4.7 | 168.5 |
| Retail | **0.8** | **0.2** | **53.7** | 0.8 | 0.7 | 61.2 |
| Secured on real estate property | | | **32.3** | | 0.5 | 28.4 |
| Past due items | **0.1** | | **4.6** | 0.1 | | 3.4 |
| Other items[1] | **0.2** | **0.2** | **86.7** | 0.3 | | 80.3 |

1 *Primarily includes such items as fixed assets, prepayments, accruals and Hong Kong Government certificates of indebtedness. Also includes immaterial exposures to Regulatory high-risk categories, Short-term claims, Securitisation positions, Collective investment undertakings, Administrative bodies and non-commercial undertakings, and Multilateral development banks under the standardised approach.*

## Counterparty credit risk

Counterparty credit risk arises for OTC derivatives and securities financing transactions. It is calculated in both the trading and non-trading book, and is the risk that a counterparty to a transaction may default before completing the satisfactory settlement of the transaction. An economic loss occurs if the transaction or portfolio of transactions with the counterparty has a positive economic value at the time of default.

There are three approaches under Basel II to calculating exposure values for counterparty credit risk: the standardised, the mark-to-market and the IMM. Exposure values calculated under these methods are used to determine RWAs using one of the credit risk approaches. Across the Group, HSBC uses both the mark-to-market method and the IMM for counterparty credit risk. Under the IMM, the EAD is calculated by multiplying the effective expected positive exposure with a multiplier called alpha. Alpha accounts for several portfolio features that increase the expected loss in the event of default above that indicated by effective expected positive exposure: co-variance of

exposures, correlation between exposures and default, concentration risk and model risk. It also accounts for the level of
volatility/correlation that might coincide with a downturn. The default alpha value of 1.4 is used. Limits for counterparty credit risk exposures are assigned within the overall credit process for distinct customer limit approval. The measure used for counterparty credit risk management both limits and utilisations is the 95th percentile of potential future exposure.

The models and methodologies used in the calculation of counterparty risk are approved by the Counterparty Risk Methodology Committee which operates under delegated authority of the RMM. In line with the IMM governance standards models are subject to independent review when they are first developed and ongoing, annual review.

### Credit risk adjustment

HSBC adopts a credit risk adjustment (also frequently known as a credit valuation adjustment ) against OTC derivative transactions to reflect within fair value the possibility that the counterparty may default, and HSBC may not receive the full market value of the transactions. HSBC calculates a separate credit risk adjustment for each HSBC legal entity, and within each entity for each counterparty to which the entity has exposure. The adjustment

aims to calculate the potential loss arising from the portfolio of derivative transactions against each third party, based upon a modelled expected positive exposure profile, including allowance for credit risk mitigants such as netting agreements and Credit Support Annexes ( CSA s). The scenario analyses used to generate exposure profiles are consistent with the analysis tools and methodological approach used to generate the exposure profiles used by the Group s risk functions for exposure management purposes or, where applicable, as the basis for portfolios where exposures are calculated under the IMM. Details of the Group credit risk adjustment methodology are provided on page 170 of the *Annual Report and Accounts 2009.*

### Collateral arrangements

To calculate a counterparty s net risk position, for counterparty credit risk, HSBC revalues all financial instruments and associated collateral positions on a daily basis. A dedicated Collateral Management function independently monitors counterparties associated collateral positions and manages a process which ensures that calls for collateral top-ups or exposure reductions are made promptly. Processes exist for the resolution of situations where the level of collateral is disputed or the collateral sought is not received.

Eligible collateral types are documented by a CSA of the International Swaps and Derivatives Association ( ISDA ) Master Agreement and are controlled under a policy which ensures the collateral agreed to be taken exhibits characteristics such as price transparency, price stability, liquidity, enforceability, independence, reusability and eligibility for regulatory purposes. A valuation haircut policy reflects the fact that collateral may fall in value between the date the collateral was called and the date of liquidation or enforcement. In practice at least 95 per cent of collateral held as credit risk mitigation under CSAs is either cash or government securities.

### Credit ratings downgrade

It has increasingly become the practice for market participants to employ credit ratings downgrade language clauses in industry standard master agreements such as the ISDA Master Agreement as a form of risk control. These clauses are designed to trigger a series of events which may include the termination of transactions by the non-affected party, or assignment by the affected party, if its credit rating falls below a specified level.

HSBC controls the inclusion of credit ratings downgrade language in industry standard master agreements by requiring each Group office to obtain the endorsement of a senior member of the Treasury function and the relevant local Credit authority prior to obtaining approval from Group Risk.

HSBC s position with regard to credit ratings downgrade language is monitored through reports which are produced on a regular basis. A report is produced which identifies the trigger ratings and individual details for documentation where credit ratings downgrade language exists within an ISDA Master Agreement. A further report is produced which identifies the additional collateral requirements where credit ratings downgrade language affects the threshold levels within a collateral agreement. At 31 December 2009, the additional collateral required to be posted for a one notch downgrade was US$996 million (2008: US$426 million) and for a two notch downgrade was US$1,261 million (2008: US$789 million).

### Wrong-way risk

Wrong-way risk is an aggravated form of concentration risk and arises when there is a strong correlation between the counterparty s probability of default and the mark-to-market value of the underlying transaction. Wrong-way risk can be seen in the following examples:

- where the counterparty is resident and/ or incorporated in an emerging market and seeks to sell a non-domestic currency in exchange for its home currency;

- where the trade involves the purchase of an equity put option from a counterparty whose shares are the subject of the option;
- the purchase of credit protection from a counterparty who is closely associated with the reference entity of the credit default swap or total return swap; and
- the purchase of credit protection on an asset type which is highly concentrated in the exposure of the counterparty selling the credit protection.

HSBC uses a range of tools to control and monitor wrong-way risk, including requiring entities to obtain prior approval before undertaking wrong-way risk transactions outside pre-agreed guidelines. The Credit Risk Management functions undertake control and monitoring processes and a regular meeting of a committee comprising senior management from Global Markets, Credit, Market Risk Management and Finance is responsible for reviewing and actively managing wrong-way risk, including allocating capital.

*Table 18: Counterparty credit risk net derivative credit exposure*[1]

| | At 31 December | |
|---|---|---|
| | **2009** | 2008 |
| | **US$bn** | US$bn |
| **Counterparty credit risk**[2] | | |
| Gross positive fair value of contracts | **250.9** | 494.9 |
| Less: netting benefits | **(168.5)** | (355.9) |
| Netted current credit exposure | **82.4** | 139.0 |
| Less: collateral held | **(21.1)** | (27.4) |
| Net derivative credit exposure | **61.3** | 111.6 |

1 *This table provides a further breakdown of totals reported in the* Annual Report and Accounts 2009 *on an accounting consolidation basis. The same figures are not significantly different when consolidated on a regulatory basis.*
2 *Excludes add-on for potential future exposures.*

*Table 19: Counterparty credit risk exposure analysis by exposure class*

| | IMM | | Mark-to-market method[1] | | Total counterparty credit risk | |
|---|---|---|---|---|---|---|
| | Exposure value US$bn | RWAs US$bn | Exposure value US$bn | RWAs US$bn | Exposure value US$bn | RWAs US$bn |
| **At 31 December 2009** | | | | | | |
| **IRB advanced approach** | **20.2** | **8.1** | **101.7** | **39.1** | **121.9** | **47.2** |
| Central governments and central banks | **3.2** | **0.2** | **4.8** | **0.5** | **8.0** | **0.7** |
| Institutions | **7.6** | **2.2** | **57.8** | **13.7** | **65.4** | **15.9** |
| Corporates | **9.4** | **5.7** | **39.1** | **24.9** | **48.5** | **30.6** |
| **IRB foundation approach** | | | **4.3** | **2.4** | **4.3** | **2.4** |
| Corporates | | | **4.3** | **2.4** | **4.3** | **2.4** |
| **Standardised approach** | | | **4.0** | **2.3** | **4.0** | **2.3** |
| Institutions | | | **1.7** | **0.8** | **1.7** | **0.8** |
| Corporates | | | **1.5** | **1.4** | **1.5** | **1.4** |
| Retail | | | **0.5** | | **0.5** | |
| Short-term claims | | | **0.1** | **0.1** | **0.1** | **0.1** |
| Multilateral development banks | | | **0.1** | | **0.1** | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Administrative bodies and non-commercial undertakings | | | **0.1** | | **0.1** | |
| Total | **20.2** | **8.1** | **110.0** | **43.8** | **130.2** | **51.9** |
| At 31 December 2008 | | | | | | |
| IRB advanced approach | 31.3 | 10.6 | 115.2 | 43.3 | 146.5 | 53.9 |
| Central governments and central banks | 4.6 | 0.4 | 4.5 | 0.3 | 9.1 | 0.7 |
| Institutions | 11.8 | 3.4 | 31.6 | 6.6 | 43.4 | 10.0 |
| Corporates | 14.9 | 6.8 | 79.1 | 36.4 | 94.0 | 43.2 |
| IRB foundation approach | | | 9.8 | 3.8 | 9.8 | 3.8 |
| Corporates | | | 9.8 | 3.8 | 9.8 | 3.8 |
| Standardised approach | | | 28.1 | 16.3 | 28.1 | 16.3 |
| Central governments and central banks | | | 0.7 | | 0.7 | |
| Institutions | | | 14.1 | 5.2 | 14.1 | 5.2 |
| Corporates | | | 12.6 | 10.6 | 12.6 | 10.6 |
| Short-term claims | | | 0.5 | 0.4 | 0.5 | 0.4 |
| Multilateral development banks | | | 0.1 | | 0.1 | |
| Regional governments or local authorities | | | 0.1 | 0.1 | 0.1 | 0.1 |
| Total | 31.3 | 10.6 | 153.1 | 63.4 | 184.4 | 74.0 |

1 *Includes add-on for potential future exposure.*

HSBC HOLDINGS PLC

**Capital and Risk Management Pillar 3 Disclosures as at 31 December 2009** (continued)

*Table 20: Counterparty credit risk exposure analysis by product*

| | IMM | | Mark-to-market method[1] | | Total counterparty credit risk | |
|---|---|---|---|---|---|---|
| | Exposure value US$bn | RWAs US$bn | Exposure value US$bn | RWAs US$bn | Exposure value US$bn | RWAs US$bn |
| **At 31 December 2009** | | | | | | |
| OTC derivatives[1] | **20.2** | **8.1** | **94.3** | **40.9** | **114.5** | **49.0** |
| Securities financing transactions | | | **14.7** | **2.6** | **14.7** | **2.6** |
| Other[2] | | | **1.0** | **0.3** | **1.0** | **0.3** |
| Total | **20.2** | **8.1** | **110.0** | **43.8** | **130.2** | **51.9** |
| At 31 December 2008 | | | | | | |
| OTC derivatives[1] | 31.3 | 10.6 | 137.7 | 59.6 | 169.0 | 70.2 |
| Securities financing transactions | | | 10.3 | 2.5 | 10.3 | 2.5 |
| Other[2] | | | 5.1 | 1.3 | 5.1 | 1.3 |
| Total | 31.3 | 10.6 | 153.1 | 63.4 | 184.4 | 74.0 |

1 *OTC derivatives under the mark-to-market method include add-on for potential future exposure.*

2 *Includes free deliveries not deducted from capital.*

*Table 21: Credit derivative transactions*[1]

| | At 31 December 2009 | | At 31 December 2008 | |
|---|---|---|---|---|
| | Protection bought US$bn | Protection sold US$bn | Protection bought US$bn | Protection sold US$bn |
| **Credit derivative products used for own credit portfolio** | | | | |
| Credit default swaps | **6.9** | **0.1** | 8.0 | 0.2 |
| Total return swaps | | | 0.4 | |
| Total notional value | **6.9** | **0.1** | 8.4 | 0.2 |

| **Credit derivative products used for intermediation** | | | | |
|---|---|---|---|---|
| Credit default swaps | **590.3** | **601.2** | 750.8 | 779.1 |
| Total return swaps | **15.6** | **19.6** | 16.4 | 22.8 |
| Credit spread options | **0.3** | **0.2** | 1.0 | 1.1 |
| Other | **1.6** | **1.3** | 1.0 | 2.6 |
| Total notional value | **607.8** | **622.3** | 769.2 | 805.6 |

1 *This table provides a further breakdown of totals reported in the* Annual Report and Accounts 2009 *on an accounting consolidation basis. The same figures are not significantly different when consolidated on a regulatory basis.*

## Securitisation

### Group securitisation strategy

HSBC acts as originator, sponsor, liquidity provider and derivative counterparty to its own originated and sponsored securitisations, as well as those of third party securitisations. HSBC s strategy is to use securitisations to meet the needs of the Group for aggregate funding, to the extent that market, regulatory treatments and other conditions are suitable, and for customer facilitation. The Group has senior exposures to the securities investment conduits ( SIC s), Mazarin Funding Limited, Barion Funding Limited, Malachite Funding Limited and Solitaire Funding Limited, which are not considered core businesses, and resulting exposures are being repaid as the securities held by the SICs amortise.

### Group securitisation roles

The roles played by HSBC in the securitisation process are as follows:

**Originator**: where HSBC originates the assets being securitised, either directly or indirectly;

**Sponsor**: where HSBC establishes and manages a securitisation programme that purchases exposures from third parties; and

**Investor**: where HSBC invests in a securitisation transaction directly or provides derivatives or liquidity facilities to a securitisation.

### HSBC as Originator

HSBC uses SPEs to securitise customer loans and advances that it has originated, mainly in order to

diversify its sources of funding for asset origination and for capital efficiency purposes. In such cases, the loans and advances are transferred by HSBC to the SPEs for cash, and the SPEs issue debt securities to investors to fund the cash purchases, commonly known as a traditional securitisation. This activity is conducted in a number of regions and across a number of asset classes listed below in Table 22. HSBC also acts as a derivative counterparty. Credit enhancements to the underlying assets may be used to obtain investment grade ratings on the senior debt issued by the SPEs. The majority of these securitisations are consolidated for accounting purposes by HSBC. HSBC has also established multi-seller conduit securitisation programmes for the purpose of providing access to flexible market-based sources of finance for HSBC s clients to finance discrete pools of third-party originated trade and vehicle finance loan receivables.

In addition, HSBC uses SPEs to mitigate the capital absorbed by some of the customer loans and advances it has originated. Credit derivatives are used to transfer the credit risk associated with such customer loans and advances to an SPE, using securitisations commonly known as synthetic securitisations. These SPEs are consolidated for accounting purposes when HSBC is exposed to the majority of risks and rewards of ownership.

### HSBC as Sponsor

HSBC is sponsor to a number of types of securitisation entity:

HSBC sponsors three active multi-seller conduit vehicles which were established to provide finance to clients Regency Assets Ltd in Europe, Bryant Park Funding LLC in the US and Performance Trust Ltd in Canada to which HSBC provides senior liquidity facilities and programme wide credit enhancement.

HSBC sponsors four SICs set up to take advantage of spread differentials between the long-term underlying assets and shorter term funding costs. Solitaire Funding Limited and Mazarin Funding Limited are asset backed commercial paper conduits to which HSBC provides transaction-specific liquidity facilities; Barion Funding Limited and Malachite Funding Limited are vehicles to which HSBC provides senior term funding. HSBC also provides a first loss letter of credit to Solitaire Funding Limited.

Full details of these entities can be found on page 182 of the *Annual Report and Accounts 2009*.

### HSBC as Investor

HSBC has exposure to third party securitisations across a wide range of sectors in the form of investments, liquidity facilities and as a derivative counterparty.

### Valuation of securitisation positions

The performance of a securitisation position is primarily driven by the performance of the assets underlying that securitisation position. HSBC uses a combination of market standard systems and third party data providers to monitor the performance data for securitisation exposures.

The valuation process of HSBC s investments in securitisation exposures primarily focuses on quotations from third parties, observed trade levels and calibrated valuations from market standard models. This process did not change in 2009. Further details can be found on page 166 of the *Annual Report and Accounts 2009*.

### Group securitisation activities in 2009

HSBC s securitisation activities in 2009 mainly consisted of transactions entered into with customers, as both sponsor and investor, in the normal course of business. The other main securitisation activity conducted in the period was the repurchase of a proportion of outstandings in Metrix Funding Ltd and Metrix Securities plc which were vehicles representing pools of securitised loans.

There has been a migration to lower securitisation ratings during 2009. This is a result of the performance of the underlying assets being outside the expectations established at inception of the original securitisations, and changes to the ratings methodology of the principal credit rating agencies. During the first quarter of 2009, credit rating agencies reassessed their rating models for US sub-prime and Alt-A residential mortgaged-backed securities which resulted in significant downgrades. In response to this, HSBC has undertaken a number of re-securitisations so that the ratings inputs into the regulatory capital calculation are a more granular reflection of the underlying risk profile. As a result, the regulatory capital required to be held in respect of these assets is more closely aligned to the underlying risk profile of the assets.

### Securitisation accounting treatment

For accounting purposes, HSBC consolidates SPEs when the substance of the relationship indicates that HSBC controls them. In assessing control, all relevant factors are considered, including qualitative and quantitative aspects. Full details of these

assessments can be found on pages 181 to 182 of the *Annual Report and Accounts 2009.*

HSBC reassesses the required consolidation accounting tests whenever there is a change in the substance of the relationship between HSBC and an SPE, for example, when the nature of HSBC s involvement or the governing rules, contractual arrangements or capital structure of the SPE change.

The transfer of assets to an SPE may give rise to the full or partial derecognition of the financial assets concerned. Only in the event that derecognition is achieved are sales and any resultant gains on sales recognised in the financial statements. In a traditional securitisation, assets are sold to an SPE and no gain or loss on sale is recognised at inception.

Full derecognition occurs when HSBC transfers its contractual right to receive cash flows from the financial assets, or retains the right but assumes an obligation to pass on the cash flows from the assets, and transfers substantially all the risks and rewards of ownership. The risks include credit, interest rate, currency, prepayment and other price risks.

Partial derecognition occurs when HSBC sells or otherwise transfers financial assets in such a way that some but not substantially all of the risks and rewards of ownership are transferred but control is retained. These financial assets are recognised on the balance sheet to the extent of HSBC s continuing involvement.

Loans, credit cards, debt securities and trade receivables that have been securitised under arrangements by which HSBC retains a continuing involvement in such transferred assets do not generally qualify for derecognition. Continuing involvement may entail retaining the rights to future cash flows arising from the assets after investors have received their contractual terms (for example, interest rate strips); providing subordinated interest; liquidity support; continuing to service the underlying asset; or entering into derivative transactions with the securitisation vehicles. As such, HSBC continues to be exposed to risks associated with these transactions.

Where assets have been derecognised in whole or in part, the rights and obligations that HSBC retains from its continuing involvement in securitisations are initially recorded as an allocation of the fair value of the financial asset between the part that is derecognised and the part that continues to be recognised on the date of transfer.

### Securitisation regulatory treatment

For regulatory purposes, SPEs are not consolidated where significant risk has been transferred to third parties. Exposure to these SPEs are risk weighted as securitisation positions for regulatory purposes, including any derivatives or liquidity facilities. Of the US$11.4 billion (2008: US$21.4 billion) of unrealised losses on available-for-sale ( AFS ) debt securities disclosed in the *Annual Report and Accounts 2009*, US$10.5 billion (2008: US$16.2 billion) relates to assets within SPEs that are not consolidated for regulatory purposes. The remaining US$0.9 billion (2008: US$5.2 billion) is subject to the FSA s prudential filter that removes unrealised gains and losses on AFS debt securities from capital and also adjusts the exposure value of the positions by the same amount before the relevant risk weighting is applied.

At September 2009, Metrix Funding Ltd and Metrix Securities plc ceased to be treated under the securitisation methodology following the natural evolution of the underlying pools and the arm s length repurchase by HSBC of a portion of the notes. As this no longer meets the requirement of significant transfer of risk to be treated as securitisations under regulatory rules, the pool of underlying commercial loans is now risk weighted.

### Calculation of risk-weighted assets for securitisation exposures

Basel II specifies two methods for calculating credit risk requirements for securitisation positions in the non-trading book, being the standardised and IRB approaches. Both approaches rely on the mapping of rating agency credit ratings to risk weights, which range between 7 per cent and 1,250 per cent. Positions that would be weighted at 1,250 per cent are deducted from capital. HSBC has nominated three FSA-recognised ECAIs for this purpose Moody s Investors

Service, Standard and Poors Ratings Group and the Fitch Group.

Within the IRB approach, HSBC uses the Ratings Based Method ( RBM ) for the majority of its non-trading book securitisation positions, and the Internal Assessment Approach ( IAA ) for unrated liquidity facilities and programme wide enhancements for asset-backed securitisations.

HSBC uses the IRB approach for the majority of its non-trading book securitisation positions, while those in the trading book are treated like other market risk positions.

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Securitisation exposures analysed below are on a regulatory consolidated basis and include those deducted from capital, rather than risk weighted. Movement in the year represents any purchase or sale of securitisation assets, the repayment of capital on amortising or maturing securitisation assets, the inclusion of trading book assets when their credit ratings fall below investment grade and the
revaluation of these assets. Movements in the year also reflect the re-assessment of assets no longer treated under the securitisation framework. When assets within re-securitisations are re-securitised to achieve a more granular rating, there is no change in the exposure value, and so no movement in the year is reported.

*Table 22: Securitisation exposures movement in the year*

| | Total at 1 January US$bn | Movement in year | | | Total at 31 December US$bn |
|---|---|---|---|---|---|
| | | As originator US$bn | As sponsor US$bn | As investor US$bn | |
| **2009** | | | | | |
| Aggregate amount of securitisation exposures (retained or purchased) | | | | | |
| Residential mortgages | **5.7** | | | **(0.3)** | **5.4** |
| Commercial mortgages | **3.0** | | **0.1** | **0.9** | **4.0** |
| Credit cards | **0.1** | | | **(0.1)** | |
| Leasing | **0.7** | | **(0.5)** | **(0.1)** | **0.1** |
| Loans to corporates or SMEs | **8.9** | **(1.8)** | **(0.4)** | **(6.4)** | **0.3** |
| Consumer loans | **1.4** | | **(0.5)** | **0.1** | **1.0** |
| Trade receivables | **17.3** | | **(2.5)** | | **14.8** |
| Re-securitisations[1] | **54.3** | | **(4.9)** | **5.4** | **54.8** |
| Total | **91.4** | **(1.8)** | **(8.7)** | **(0.5)** | **80.4** |
| 2008 | | | | | |
| Aggregate amount of securitisation exposures (retained or purchased) | | | | | |
| Residential mortgages | 4.9 | | | 0.8 | 5.7 |
| Commercial mortgages | 2.9 | | 0.1 | | 3.0 |
| Credit cards | 0.1 | | | | 0.1 |
| Leasing | 0.7 | | | | 0.7 |
| Loans to corporates or SMEs | 5.4 | | 3.5 | | 8.9 |
| Consumer loans | 1.4 | | | | 1.4 |
| Trade receivables | 16.8 | | 0.5 | | 17.3 |
| Re-securitisations | 47.8 | | 4.8 | 1.7 | 54.3 |
| Total | 80.0 | | 8.9 | 2.5 | 91.4 |

1

*Re-securitisations principally include exposures to Solitaire Funding Limited, Mazarin Funding Limited, Barion Funding Limited and Malachite Funding Limited.*

*Table 23: Securitisation exposures analysis by transaction type*

| | **At 31 December 2009** | | | At 31 December 2008 | | |
|---|---|---|---|---|---|---|
| | **Traditional transactions US$bn** | **Synthetic transactions US$bn** | **Total US$bn** | Traditional transactions US$bn | Synthetic transactions US$bn | Total US$bn |
| **As originator**[1] | | **0.1** | **0.1** | 0.9 | 1.0 | 1.9 |
| Commercial mortgages | | **0.1** | **0.1** | | 0.1 | 0.1 |
| Loans to corporates or SMEs | | | | 0.9 | 0.9 | 1.8 |
| **As sponsor** | **58.6** | | **58.6** | 67.3 | | 67.3 |
| Commercial mortgages | **0.3** | | **0.3** | 0.2 | | 0.2 |
| Leasing | | | | 0.5 | | 0.5 |
| Loans to corporates or SMEs | | | | 0.4 | | 0.4 |
| Consumer loans | | | | 0.5 | | 0.5 |
| Trade receivables | **14.8** | | **14.8** | 17.3 | | 17.3 |
| Re-securitisations | **43.5** | | **43.5** | 48.4 | | 48.4 |
| **As investor** | **21.7** | | **21.7** | 22.2 | | 22.2 |
| Residential mortgages | **5.4** | | **5.4** | 5.7 | | 5.7 |
| Commercial mortgages | **3.6** | | **3.6** | 2.7 | | 2.7 |
| Credit cards | | | | 0.1 | | 0.1 |
| Leasing | **0.1** | | **0.1** | 0.2 | | 0.2 |
| Loans to corporates or SMEs | **0.3** | | **0.3** | 6.7 | | 6.7 |
| Consumer loans | **1.0** | | **1.0** | 0.9 | | 0.9 |
| Re-securitisations | **11.3** | | **11.3** | 5.9 | | 5.9 |
| Total | **80.3** | **0.1** | **80.4** | 90.4 | 1.0 | 91.4 |

1 *For securitisations in which HSBC*

*acts as both originator and sponsor, the exposure is disclosed under originator only.*



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*Table 24: Securitisation exposures analysis by method*

| | **At 31 December 2009** | | | | At 31 December 2008 | | | |
|---|---|---|---|---|---|---|---|---|
| | **Standard-ised US$bn** | **Ratings based US$bn** | **IAA US$bn** | **Total US$bn** | Standard-ised US$bn | Ratings based US$bn | IAA US$bn | Total US$bn |
| **As originator**[1] | | **0.1** | | **0.1** | | 1.9 | | 1.9 |
| Commercial mortgages | | **0.1** | | **0.1** | | 0.1 | | 0.1 |
| Loans to corporates or SMEs | | | | | | 1.8 | | 1.8 |
| **As sponsor** | | **50.5** | **8.1** | **58.6** | | 60.6 | 6.7 | 67.3 |
| Commercial mortgages | | **0.3** | | **0.3** | | 0.2 | | 0.2 |
| Leasing | | | | | | 0.5 | | 0.5 |
| Loans to corporates or SMEs | | | | | | 0.4 | | 0.4 |
| Consumer loans | | | | | | | 0.5 | 0.5 |
| Trade receivables | | **6.7** | **8.1** | **14.8** | | 11.1 | 6.2 | 17.3 |
| Re-securitisations | | **43.5** | | **43.5** | | 48.4 | | 48.4 |
| **As investor** | **0.2** | **21.5** | | **21.7** | | 22.2 | | 22.2 |
| Residential mortgages | | **5.4** | | **5.4** | | 5.7 | | 5.7 |
| Commercial mortgages | | **3.6** | | **3.6** | | 2.7 | | 2.7 |
| Credit cards | | | | | | 0.1 | | 0.1 |
| Leasing | | **0.1** | | **0.1** | | 0.2 | | 0.2 |
| Loans to corporates or SMEs | **0.1** | **0.2** | | **0.3** | | 6.7 | | 6.7 |
| Consumer loans | | **1.0** | | **1.0** | | 0.9 | | 0.9 |
| Re-securitisations | **0.1** | **11.2** | | **11.3** | | 5.9 | | 5.9 |
| Total | **0.2** | **72.1** | **8.1** | **80.4** | | 84.7 | 6.7 | 91.4 |

1 *For securitisations in which HSBC*

*acts as both originator and sponsor, the exposure is disclosed under originator only.*

*Table 25: Securitisation exposures asset values and impairment charges*

| | **At 31 December 2009** | | | At 31 December 2008 | | |
|---|---|---|---|---|---|---|
| | **Underlying assets[1,2]** | | **Securitisation exposures impairment** | Underlying assets[1,2] | | Securitisation exposures impairment |
| | **Total** | **Impaired and past due** | **charge** | Total | Impaired and past due | charge |
| | **US$bn** | **US$bn** | **US$bn** | US$bn | US$bn | US$bn |
| **As originator** | **2.6** | | | 8.4 | | |
| Residential mortgages | **0.9** | | | 1.0 | | |
| Commercial mortgages | **1.3** | | | 1.3 | | |
| Credit cards | **0.4** | | | 1.7 | | |
| Loans to corporates or SMEs | | | | 4.4 | | |
| **As sponsor** | **51.1** | **3.2** | **1.0** | 55.0 | 0.7 | 0.1 |
| Commercial mortgages | **1.8** | | | 1.9 | | |
| Loans to corporates or SMEs | | | | | | 0.1 |
| Trade receivables | **10.9** | | | 13.4 | | |
| Re-securitisations[2] | **38.4** | **3.2** | **1.0** | 39.7 | 0.7 | |
| **As investor[3]** | | | **0.5** | | | |
| Residential mortgages | | | **0.1** | | | |
| Re-securitisations | | | **0.4** | | | |
| Total | | | **1.5** | | | 0.1 |

1 *Securitisation exposures may exceed the underlying asset values when HSBC provides liquidity facilities while also acting as derivative*

*counterparty and a note holder in the SPE.*

2 *For re-securitisations where HSBC has derived regulatory capital based on the underlying pool of assets, the asset value used for the regulatory capital calculation is used in the disclosure of Total underlying assets. For other re-securitisations the carrying value of the assets per the* Annual Report and Accounts 2009 *is disclosed.*

3 *For securitisations where HSBC acts as investor, information on third party underlying assets is not available.*

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*Table 26: Securitisation exposures analysis by risk weighting*

| | **Exposure value** | | | Exposure value | | |
|---|---|---|---|---|---|---|
| | **Movement in the year 2009 US$bn** | **Total at 31 December 2009 US$bn** | **Capital required 2009 US$bn** | Movement in the year 2008 US$bn | Total at 31 December 2008 US$bn | Capital required 2008 US$bn |
| **Long-term category risk weights** | | | | | | |
| less than or equal to 10% | **(16.4)** | **50.9** | **0.3** | 9.4 | 67.3 | 0.4 |
| greater than 10% and less than or equal to 20% | **6.1** | **19.4** | **0.2** | 1.3 | 13.3 | 0.2 |
| greater than 20% and less than or equal to 50% | **(1.0)** | **1.6** | **0.1** | | 2.6 | 0.1 |
| greater than 50% and less than or equal to 100% | **2.0** | **2.7** | **0.2** | | 0.7 | 0.1 |
| greater than 100% and less than or equal to 650% | **1.4** | **2.3** | **0.7** | | 0.9 | 0.4 |
| Deductions from regulatory capital[1] | **1.6** | **3.2** | **3.2** | 0.7 | 1.6 | 1.6 |
| Total | **(6.3)** | **80.1** | **4.7** | 11.4 | 86.4 | 2.8 |
| **Short-term category risk weights** | | | | | | |
| less than or equal to 10% | **(4.7)** | **0.3** | | | 5.0 | |
| Total | **(4.7)** | **0.3** | | | 5.0 | |

1 *Values reported at 31 December 2008 did not include trading book securitisation positions.*

When securitising a revolving pool of exposures, the originator transfers a pool of exposures to an SPE. The SPE then issues notes to external investors backed by a portion of this pool. The originator s interest is the proportion of the pool which is not in use as collateral backing for notes issued to investors. The originator s interest has increased in 2009 as notes have matured and been repaid.

*Table 27: Securitisation exposures securitised revolving exposures*

| **At 31 December 2009** | | At 31 December 2008 | |
|---|---|---|---|
| **Originator s interest US$bn** | **Investor s interest US$bn** | Originator s interest US$bn | Investor s interest US$bn |
| **3.4** | **0.3** | 1.8 | 1.7 |

Average outstanding amount of securitised revolving exposures

## Market risk

Market risk is the risk that movements in market risk factors, including foreign exchange rates, commodity prices, interest rates, credit spreads and equity prices, will reduce HSBC s income or the value of its portfolios.

HSBC separates exposures to market risk into trading and non-trading portfolios. Trading portfolios include those positions arising from market-making, position-taking and other marked-to-market positions so designated. Non-trading portfolios include positions that arise from the interest rate management of HSBC s retail and commercial banking assets and liabilities, financial investments designated as available for sale and held to maturity.

Where appropriate, HSBC applies similar risk management policies and measurement techniques to both trading and non-trading portfolios. The application of these to the trading portfolios is described in the section below.

### Objectives

The objective of HSBC s market risk management is to manage and control market risk exposures in order to optimise return on risk while maintaining a market profile consistent with the Group s status as one of the world s largest banking and financial services organisations.

### Organisation and responsibilities

The management of market risk is principally undertaken in Global Banking and Markets using risk limits approved by the GMB. Limits are set for portfolios, products and risk types, with market liquidity being a principal factor in determining the level of limits set.

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Group Risk develops the Group s market risk management policies and measurement techniques. Each major operating entity has an independent market risk management and control function which is responsible for measuring market risk exposures in accordance with the policies defined by Group Risk, and monitoring and reporting these exposures against the prescribed limits on a daily basis.

Each operating entity is required to assess the market risks which arise on each product in its business. It is the responsibility of each operating unit to ensure that market risk exposures remain within the limits specified for that entity. The nature of the hedging and risk mitigation strategies
performed across the Group corresponds to the market instruments available within each operating jurisdiction. These strategies range from the use of traditional market instruments, such as interest rate swaps, to more sophisticated hedging strategies to address a combination of risk factors arising at portfolio level.

## Measurement and monitoring

HSBC uses a range of tools to monitor and limit market risk exposures within its trading portfolios. These include sensitivity analysis, VAR and stress testing.

*Table 28: Market risk capital requirements*

| | **At 31 December 2009** | | At 31 December 2008 | |
|---|---|---|---|---|
| | **Capital required[1] US$bn** | **RWAs US$bn** | Capital required[1] US$bn | RWAs US$bn |
| **Market risk** | | | | |
| Interest rate position risk requirement[2] | **1.1** | **14.0** | 1.4 | 17.1 |
| Foreign exchange position risk requirement[2] | **0.1** | **0.8** | 0.1 | 0.6 |
| VAR requirement | **1.0** | **13.0** | 1.8 | 23.2 |
| Capital requirement calculated under local regulatory rules[3] | **1.9** | **23.9** | 2.3 | |