

2008

HSBC Holdings plc

Capital and Risk Management
Interim Pillar 3 Disclosures
as at 30 June 2008

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Certain defined terms

Unless the context requires otherwise, 'HSBC Holdings' means HSBC Holdings plc and 'HSBC' or the 'Group' means HSBC Holdings together with its subsidiaries. Within this document the Hong Kong Special Administrative Region of the People's Republic of China is referred to as 'Hong Kong'.

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Cautionary statement regarding forward-looking statements

These *Capital and Risk Management Interim Pillar 3 Disclosures as at 30 June 2008* ('*Interim Pillar 3 Disclosures 2008*') contain certain forward-looking statements with respect to the financial condition, results of operations and business of HSBC. These forward-looking statements represent HSBC's expectations or beliefs concerning future events and involve known and unknown risks and uncertainty that could cause actual results, performance or events to differ materially from those expressed or implied in such statements. For example, certain of the market risk disclosures, some of which are only estimates and, therefore, could be materially different from actual results, are dependent on key model characteristics and assumptions and are subject to various limitations.

Certain statements, such as those that include the words 'potential', 'value at risk', 'estimated', 'expects', 'anticipates', 'objective', 'intends', 'plans', 'believes', 'estimates', and similar expressions or variations on such expressions may be considered 'forward-looking statements'. Written and/or oral forward-looking statements may also be made in the periodic reports to the US Securities and Exchange Commission ('SEC') on Form 20-F, Form 6-K, summary financial statements to shareholders, proxy statements, offering circulars and prospectuses, press releases and other written materials and in oral statements made by HSBC's Directors, officers or employees to third parties, including financial analysts.

Forward-looking statements involve inherent risks and uncertainties. Readers are cautioned that a number of factors could cause actual results to differ, in some instances materially, from those anticipated or implied in any forward-looking statement. Forward-looking statements speak only as of the date they are made, and it should not be assumed that they have been reviewed or updated in the light of new information or future events. Trends and factors that are expected to affect HSBC's results of operations are described in the 'Business Review', the 'Financial Review', and 'The Management of Risk' in the *Annual Report and Accounts 2007*. A more detailed cautionary statement is given on pages 4 and 5 of the *Annual Report and Accounts 2007*.

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Introduction

Interim Pillar 3 Disclosures 2008

The *Interim Pillar 3 Disclosures 2008* are summary narrative descriptions of the risk management processes of the Group. The disclosures supplement those already made in the *Annual Report and Accounts 2007* and *Interim Report 2008* for those risks covered by the disclosure requirements of the 'International Convergence of Capital Measurement and Capital Standards' ('Basel II') issued by the Basel Committee on Banking Supervision in June 2006.

The supervisory objectives of Basel II, which replaces the 1988 Basel Capital Accord, are to promote safety and soundness in the financial system and maintain an appropriate level of capital in the system, enhance competitive equality, constitute a more comprehensive approach to addressing risks, and focus on internationally active banks. Basel II is structured around three 'pillars': pillar 1, minimum capital requirements, pillar 2, supervisory review and pillar 3, market discipline.

The UK Financial Services Authority ('FSA') supervises HSBC on a consolidated basis, in accordance with the relevant EU directives which give effect to Basel II.

The FSA's rules, as set out in the General Prudential Sourcebook ('GENPRU') and the Prudential Sourcebook for Banks, Building Societies and Investment Firms ('BIPRU'), took effect from 1 January 2007 and implemented Basel II in the UK. GENPRU introduced changes to the definition of capital and the methodology for calculating a firm's capital resources requirements. BIPRU sets out the FSA's rules implementing the other requirements for banks, building societies and investment firms, and groups containing such firms. Transitional provisions regarding the implementation of capital requirement calculations meant that, in general, unless firms notified the FSA to the contrary, they continued to apply the existing capital requirement calculations until 1 January 2008.

Pillar 3 complements the minimum capital requirements and the supervisory review process. Its aim is to encourage market discipline by developing a set of disclosure requirements which will allow market participants to assess certain specified information on the scope of application of Basel II, capital, particular risk exposures, risk assessment processes, and hence the capital adequacy of the institution.

HSBC will publish its first full set of Pillar 3 disclosures, including quantitative tables, as at 31 December 2008, during the first half of 2009.

Frequency

The Group intends to publish comprehensive Pillar 3 disclosures at least annually in accordance with FSA requirements.

Media and location

The *Interim Pillar 3 Disclosures 2008* and other information on HSBC is available on HSBC's website: www.hsbc.com.

Verification

The *Interim Pillar 3 Disclosures 2008* have been subject to internal review procedures broadly consistent with those undertaken for unaudited information published in the Annual Report and Accounts or Interim Report. The information contained in the *Interim Pillar 3 Disclosures 2008* has not been audited by the Group's external auditors.

Consolidation basis

The basis of consolidation for accounting purposes is described on page 345 of the *Annual Report and Accounts 2007*.

The basis of consolidation for regulatory purposes differs from that used for the financial consolidation in that holdings in insurance and non-financial entities are excluded. Holdings in insurance entities are instead deducted from regulatory capital. Holdings in non-financial entities are risk-weighted, subject to certain overall limits, above which a deduction from regulatory capital is required. Investments in banking associates, defined as holdings of at least 20 per cent or where HSBC exercises significant influence, which are equity accounted in the financial consolidation, are proportionally consolidated for regulatory purposes.

Scope of Basel II permissions

Credit risk

With effect from 1 January 2008, with the FSA's approval, HSBC has adopted the internal ratings-based ('IRB') advanced approach for the majority of its businesses, with the remainder of its credit risks assessed using either the IRB foundation or standardised approaches. A plan is in place to extend coverage of the advanced approach over the next three years, leaving a small residue of exposures on the standardised approach.

Market risk

HSBC calculates its market risk capital requirements using value at risk ('VAR') where permitted by the FSA and otherwise by using the standardised regulatory rules.

Operational risk

HSBC has adopted the standardised approach for determining the Group's operational risk capital requirements.

Risk management objectives and policies

Overview

HSBC is one of the largest banking and financial services organisations in the world. Through its international network of subsidiaries and associates in 85 countries and territories, the Group offers a comprehensive range of financial services to more than 100 million customers through four customer groups and global businesses: Personal Financial Services (including consumer finance); Commercial Banking; Global Banking and Markets; and Private Banking.

Details of the Group's principal activities and its strategic direction can be found on page 11 of the *Interim Report 2008*.

All HSBC's activities involve the measurement, evaluation, acceptance and management of some degree of risk, or combination of risks, the most important categories being credit risk (including cross-border country risk), insurance risk, liquidity risk, market risk (including foreign exchange, interest rate and equity price risks), operational risk and reputational risk.

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. This framework is described below: its organisational structure, risk governance and ownership, risk strategies and appetite, and the scope and nature of supporting monitoring and reporting processes.

Organisational structure

Principal governing bodies

The Board of Directors of HSBC Holdings plc approves plans and performance targets for the Group and its principal subsidiaries, the appointment of senior officers, the establishment of effective control procedures and the delegation of authorities. It delegates the management and day-to-day running of HSBC to the Group Management Board ('GMB').

GMB is the Group's senior executive committee. Chaired by the Group Chief Executive, its members include the Group Finance Director, the Group Chief Operating Officer, the Group Chief Risk Officer 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, adherence to core standards of business conduct and brand values 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 Group Finance Director. RMM is the Group's senior 'designated committee' as defined by the FSA's rules, and has

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responsibility for setting risk appetite and approving definitive risk policies and controls. It monitors all categories of risk and receives reports which allow it to review the effectiveness of HSBC's risk management policies.

The Group Audit Committee, which is formed of non-executive directors, meets regularly with HSBC's senior financial, internal audit, credit, 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 terms of reference of HSBC Holdings' committees serve as models for those of Group companies. Further details on principal governing bodies are provided in the *Annual Report and Accounts 2007* on pages 197 and 301 to 304.

The Group Risk function

GMB, RMM, HSBC's regional offices and its subsidiaries are supported by a dedicated Group Risk function, based in Head Office in London with functional responsibility for the principal financial risk types: retail and wholesale credit, market, operational and security/fraud risks on a global basis. Group Risk is headed by the Group Chief Risk Officer, who reports to the Group Finance Director within an integrated Finance and Risk function. Similar structures involving the creation of local Chief Risk Officers are being extended to all major Group subsidiaries and customer groups during 2008. Group Risk establishes Group policy, monitors risk profiles and emerging risk issues and provides reporting and analysis of portfolio composition on a global and regional basis to senior management. Group Risk also co-ordinates the further development of HSBC's economic capital model and its risk appetite and stress testing frameworks. Additional details are provided in the *Annual Report and Accounts 2007* on pages 197-198.

Chief Risk Officers in each major operating subsidiary typically report directly to their local Chief Executive Officer or country manager but also have a reporting line to the Group Chief Risk Officer. The Group Chief Risk Officer is involved with the Chief Executive Officers and country managers in appointing the most senior risk officers and setting 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, key performance indicators and targets. The Group Risk function works closely with the Group's Asset and Liability Committees to harmonise capital management disciplines across risk types.

Primary responsibility for managing risk at operating entity level lies with local Chief Executive Officers as custodians of their balance sheets under authorities granted by their respective boards. A number of senior Chief Executive Officers have regional responsibilities and are members of GMB.

Geographical regions

The Group is organised into five geographical regions: Europe, Hong Kong, Rest of Asia-Pacific (including the Middle East and Africa), 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.

Global businesses and customer groups

The Group manages its business 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, encapsulated in the Group Standards Manual and cascaded through a hierarchy of policy manuals across the Group, are designed to support the formulation of risk appetite, guide employees 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 Head Office 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 and processes to reflect changes in markets, products and emerging best practice.

It is a prime responsibility of HSBC's management to identify, assess and ultimately control the broad spectrum of risks to which the Group is subject. Group employees are expected to manage risk within the scope of their assigned responsibilities. Personal accountability, reinforced by the Group's governance structure and appropriate training and development, helps to foster a disciplined and constructive culture of risk management and control.

Risk appetite

HSBC's risk appetite describes the quantum and types of risk that HSBC is prepared to take in executing its strategy.

Risk appetite is expressed in both qualitative terms, describing which risks are taken and the reason why they are taken and quantitative terms, being the amount of risk that is taken. HSBC 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
- anticipated mitigating business decisions are flagged and acted upon promptly.

HSBC considers its risk appetite framework as 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 in meeting the Group's obligation under pillar 2 of the Basel Accord. The formulation of risk appetite considers HSBC's risk capacity, the Group's financial position, the strength of its core earnings and the resilience of its reputation and brand.

Risk appetite is set and approved annually by the HSBC Board of Directors and is overseen at a Group level on an ongoing basis by GMB and RMM. The risk appetite framework is also maintained at regional and customer group levels.

The Board of HSBC governs risk appetite through two key mechanisms:

- The risk appetite framework defines the processes, metrics, governance bodies and other features of how HSBC addresses risk appetite as part of its ongoing business.
- 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 positive, or beneficial, and negative, or adverse, aspects of risk. Within the risk appetite framework, economic capital is the common currency through which risk is measured and used as the basis for capital allocation, performance measurement and risk evaluation 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 through the use of risk-adjusted performance metrics.

Scope and nature of risk reporting and measurement systems

HSBC invests in information technology systems and processes to improve its risk management capabilities, ensuring that the governance process described above is equipped with the tools to critically evaluate proposals and to give direction as necessary. Typically, decentralised operations under the responsibility of local and regional management process risk information within business lines and functions, using the Group's systems wherever appropriate. Group policies govern the deployment of standard and preferred Group technology.

Within the Group Risk function, HSBC has constructed a centralised database covering substantially all the Group's direct lending exposures to support regulatory reporting and deliver comprehensive management information at an increasingly granular level. For wholesale credit risk, a relationship management and credit facilities application system for bank counterparties is operational throughout the Group, while a similar system covers almost all Group corporate business by value. For retail business, the Group issues and monitors the implementation of standards for risk analytical and processing systems.

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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 compared with key risk indicators. Examples of credit risk portfolio reporting are detailed on page 199 of the *Annual Report and Accounts 2007*. Risk measurement, monitoring and reporting structures are mirrored in Group subsidiaries and global businesses.

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 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.

Objectives

The aims 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

The Group Credit Risk function supports the Group Chief Risk Officer, as head of the Risk function, in overseeing credit risks at the highest level. Its major duties comprise: undertaking independent reviews of larger and higher-risk credit proposals, reporting on risk matters to senior executive management and to regulators, providing Group credit analytics, wholesale and retail credit risk management disciplines, developing the Group's economic capital model, risk appetite framework and stress testing and owning the Group's credit policy and credit systems programmes. It works closely with other parts of Group Risk, for example with Fraud/Security Risk on the development of protection against retail product fraud, with Market Risk on complex transactions and with Operational Risk on the internal control framework. Its responsibilities are set out in detail on pages 198 - 199 of the *Annual Report and Accounts 2007*.

Group-wide, the credit risk function comprises a network of credit risk management offices reporting within regional, integrated risk functions. These offices, including the Group Credit Risk function, 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 a system of personal credit authorities, not credit 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, Head Office 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 the Group Credit Risk function to facilitate efficient control and the reporting of regulatory large and cross-border exposures; most approval authorities for these exposures are delegated by Chief Executive Officers back to the Group Chief Risk Officer, with only minor levels of authority being maintained locally for operational convenience.

Group credit analytics

The Group Credit Risk function monitors, and formulates responses to, industry developments and regulatory policy in the field of credit risk analytics. It owns and 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 oversee progress toward the Group's implementation targets for the IRB approach. It provides secretarial support for the Credit Risk Analytics Oversight Committee, which meets monthly and reports to RMM. Chaired by the Group Chief Risk Officer, the committee's members are drawn from Group Risk, Global Banking and Markets, Commercial

Banking 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 – risk rating systems

HSBC's exposure to credit risk arises from a wide range of asset classes, customers and product types. A breakdown of the Group's exposures to major sectors is provided on pages 158 to 159 of the *Interim Report 2008*.

To measure and manage the risk in these exposures, both to individually assessed customers and to those aggregated into portfolios, the Group employs diverse risk rating systems and methodologies: judgemental, analytical, and hybrids of the two. The main characteristics of the Group's credit risk rating systems are set out below.

Application of IRB parameters

HSBC's Group-wide credit risk rating framework incorporates probability of default ('PD') of an obligor and loss severity expressed in terms of exposure at default ('EAD') and loss given default ('LGD'). These measures are used to calculate expected loss and capital requirements. They are also used in conjunction with other inputs to inform rating assessments and other risk management decisions.

For wholesale business, obligor PD is estimated using a 22-grade Customer Risk Rating scale, of which 20 are non-default ratings representing varying degrees of strength of financial condition, and two are default ratings. Scores generated by models and/or scorecards for individual obligors are reviewed by credit approvers. The final approved Customer Risk Ratings are mapped to a PD value range of which the 'mid-point' is used in the regulatory capital calculation.

LGD/EAD estimation for wholesale business is subject to a Group framework of basic principles which permits flexibility in the application of parameters by HSBC's operating entities to suit conditions in their own jurisdictions. Group Credit Risk provides co-ordination, benchmark parameters and the sharing and promotion of best practice wherever possible. EAD is estimated to a 12-month horizon and is, broadly speaking, the sum of current exposure and, where applicable, an estimate for future increases in the exposure. LGD is expressed as a percentage of EAD.

For retail business, a wide range of behavioural and application model structures have been developed into increasingly sophisticated models to provide PD, EAD and LGD estimates. For reporting and management information purposes, retail portfolios are analysed according to local analytically-derived criteria into 29 expected loss bands, enabling 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 subsets where the customer relationship is managed on a global basis: sovereigns, banks, certain non-bank financial institutions and large corporate clients, typically operating internationally. Global management facilitates the consistent implementation and application by HSBC's worldwide operating entities of standards, policies, systems, approval procedures and other risk 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 Credit Risk Analytics Oversight Committee.

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

The Group's approach to LGD/EAD, as described above, is a hybrid of global and local models. The Group framework incorporates one LGD and one EAD model for each of sovereigns, banks, non-bank financial institutions and global large corporates. All local LGD and EAD models fall within the scope and principles of the Group LGD/EAD framework, subject to dispensation from Group Credit Risk.

The development, validation and monitoring of local models, to meet local requirements and using local data, is the responsibility of regional and/or local entities under their own governance, subject to overall Group risk rating systems governance policy. Such models are typically approved by national or regional regulators and need to be

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passed to the Credit Risk Analytics Oversight Committee at Group level only if they meet a prescribed monetary threshold or are otherwise deemed material.

Risk mitigation

Mitigation of credit risk is an important aspect of its effective management and, in a diversified financial services organisation such as HSBC, takes many forms. The Group's high-level policy is set out on page 200 of the *Annual Report and Accounts 2007*.

In terms of IRB parameters, 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, and second, those which affect estimated recoverability of obligations and require adjustment of LGD/EAD. The first includes, for example, full parental or third party guarantees; the second, collateral security of various kinds such as cash or mortgages over residential property.

For individually assessed exposures, LGD values are determined by reference to approved 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 expected loss band value summarising both customer delinquency and product or facility risk. Credit and risk mitigation data forms part of 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.

Use of internal estimates

While internal estimates derived from applying the IRB approach are employed in the calculation of risk-weighted exposure amounts for the purpose of determining regulatory capital requirements, they are also used in a multitude of contexts within risk management and business processes. Such uses continue to develop and become embedded as experience grows and the repository of quality data improves. They include:

- credit approval: authorities, including those for specific counterparty types and transactions, are delegated to HSBC's operating companies using a risk-based approach, tiered relative to obligor Customer Risk Rating;
- credit risk analytical tools: IRB models, scorecards and methodologies are essential 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 in subsidiaries' operating plans;
- portfolio management: regular reports to the Board, RMM and Group Audit Committee contain analyses of exposures employing IRB metrics;
- pricing: customer relationship managers apply a Risk Adjusted Return on Capital methodology in risk-weighted asset ('RWA') and profitability calculators; and
- economic capital: IRB measures provide customer risk components for the economic capital model that is being implemented across HSBC to improve the consistent analysis of economic returns, help determine which customers, business units and products add most value, and drive higher returns through effective economic capital allocation.

Application of the IRB approach for credit risk

The internal rating process for significant asset classes is summarised below:

Global models

Sovereigns

The global PD model for sovereigns is applied to sovereign governments, central monetary institutions and agencies guaranteed by a sovereign government. It is owned by and used centrally in Group Credit Risk, which is responsible for preparing credit reviews for all sovereigns and central monetary institutions. Inputs comprise both quantitative and qualitative data from a wide range of reference sources and agencies on economic, political, financial and social conditions, generating a country score which maps to a rating. Separate local currency and foreign currency obligor

ratings and associated PDs are derived and applied to exposures denominated in the respective currencies, in line with the approach used by external rating agencies.

Banks

The global PD model for banks is used for all bank exposures except central monetary institutions and captive finance companies, and is used in all locations of HSBC where bank credit reviews are prepared to arrive at a Customer Risk Rating and associated obligor PD. It combines financial statistics and trends with qualitative inputs by the relevant relationship manager. The resultant score is blended with internal country and operating environment risk scores, the combination of these inputs generating a borrower rating which maps to a Customer Risk Rating.

Non-bank financial institutions

For model development purposes, non-bank financial institutions fall into the following categories; securities houses, funds, fund managers, fund of funds, hedge funds, composite insurance, global insurance/reinsurance, global life insurance, US life insurance, global non-life insurance and US non-life insurance. Each model utilises a combination of financial and qualitative inputs to provide a credit risk score, which maps to a Customer Risk Rating.

Global large corporates

The global scorecard for large corporates combines financial analysis of company balance sheet ratios and trends with a series of qualitative questions to produce a score mapped to a corporate Customer Risk Rating scale.

Local models

Local models cover all other obligor types within the relevant asset classes, ranging from large corporate entities modelled regionally or by country to the various sub-categories of retail exposure. Within overall Group standards, rating processes vary considerably in accordance with local requirements.

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. It requires banks to use risk assessments prepared by External Credit Assessment Institutions or Export Credit Agencies to determine the risk weightings applied to rated counterparties.

External Credit Assessment Institutions 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;
- regional governments and local authorities;
- multilateral development banks;
- institutions; and
- corporates.

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

The process used to transfer credit assessment ratings to the banks' counterparties is for a monthly data file received from a specialist third party supplier containing ratings issued by numerous agencies to be loaded into the Group's centralised credit database, linking rating records for the three External Credit Assessment Institutions specified above with HSBC's customer records.

When calculating the risk-weighted value of any exposure under the standardised approach, risk systems identify the customer in question and look up in the central database the available ratings, according to the rating selection rules set out in BIPRU. The systems then apply the FSA's prescribed credit quality step mapping to derive from the rating the relevant risk weight.

Classes of exposure not listed above are assigned risk weightings as prescribed in the FSA's rulebook or an alternative, more conservative treatment.

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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, proprietary position-taking and other marked-to-market positions so designated. Non-trading portfolios primarily arise from the interest rate management of HSBC's retail and commercial banking assets and liabilities, financial investments classified as available for sale and held to maturity.

Objectives

The objectives of HSBC's market risk management are to manage and control market risk exposures in order to optimise return within the Group's risk appetite, as defined by GMB.

Organisation and responsibilities

The management of market risk is principally undertaken in Global Banking and Markets using risk limits approved by RMM. The market risk limits set by RMM dictate the level of the Group's market risk appetite, and cover sensitivity, value at risk and stress exposures.

Traded Credit and Market Risk, an independent unit within 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 Traded Credit and Market 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 and to transfer these risks to either its local Global Markets unit for management, or to separate books managed under the supervision of the local Asset and Liability Management Committee. The aim is to ensure that all market risks are consolidated within operations which have the necessary skills, tools, management and governance to manage such risks professionally. 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. These include sensitivity analysis, VAR and stress testing.

Sensitivity analysis

Sensitivity measures are used to monitor the market risk positions within each risk type, for example, for interest rate risk, the present value of a basis point movement in interest rates. Sensitivity limits are set for portfolios, products and risk types, with the depth of the market being one of the principal factors in determining the level of limits set. Sensitivity limits are used to ensure that there is sufficient diversification of risk both across and within asset classes.

VAR

VAR is a technique that estimates the potential losses that could occur on risk positions as a result of movements in market rates and prices over a specified time horizon and to a given level of confidence.

The VAR models used by HSBC are based predominantly on historical simulation. These models derive plausible future scenarios from past series of recorded market rates and prices, taking into account inter-relationships between different markets and rates such as interest rates and foreign exchange rates. The models also incorporate the effect of option features on the underlying exposures.

The historical simulation models used by HSBC incorporate the following features:

- potential market movements are calculated with reference to data from the past two years;

- historical market rates and prices are calculated with reference to foreign exchange rates and commodity prices, interest rates, equity prices and the associated volatilities;
- VAR is calculated to a 99 per cent confidence level and for a one-day holding period.

The nature of the VAR models mean that an increase in observed market volatility will lead to an increase in VAR without any changes in the underlying positions.

HSBC routinely validates the accuracy of its VAR models by back-testing the actual daily profit and loss results, adjusted to remove non-modelled items such as fees and commissions, against the corresponding VAR numbers. Statistically, HSBC would expect to see losses in excess of VAR only one per cent of the time over a one-year period. The actual number of excesses over this period can therefore be used to gauge how well the models are performing.

Although a valuable guide to risk, VAR should always be viewed in the context of its limitations. For example,

- the use of historical data as a proxy for estimating future events may not encompass all potential events, particularly those which are extreme in nature;
- the use of a one-day holding period assumes that all positions can be liquidated or the risks offset in one day. This may not fully reflect the market risk arising at times of severe illiquidity, when a one-day holding period may be insufficient to liquidate or hedge all positions fully;
- the use of a 99 per cent confidence level, by definition, does not take into account losses that might occur beyond this level of confidence;
- VAR is calculated on the basis of exposures outstanding at the close of business and therefore does not necessarily reflect intra-day exposures; and
- VAR is unlikely to reflect loss potential on exposures that only arise under significant market moves.

Stress testing

In recognition of the limitations of VAR, HSBC augments VAR with stress testing to evaluate the potential impact on portfolio values of more extreme, although plausible, events or movements in a set of financial variables.

Stress testing is performed at a portfolio level, as well as on the consolidated positions of the Group, and covers the following scenarios:

- sensitivity scenarios, which consider the effect of market moves on any single risk factor or a set of factors. For example, the impact of a break of a currency peg that is unlikely to be captured within the VAR models;
- technical scenarios, which consider the largest move in each risk factor, without considering any underlying market correlation;
- hypothetical scenarios, which consider potential macro economic events; and
- historical scenarios, which incorporate historical observations of market moves during periods of stress which would not be captured within VAR. Stress testing is governed by the Stress Testing Review Group forum that coordinates the Group's stress testing scenarios in conjunction with the regional risk managers. Consideration is given to the actual market risk exposures, along with market events, in determining the stress scenarios.

Stress testing results are reported to senior management and provide them with an assessment of the financial impact such events would have on the profit of HSBC.

Interest rate risk

Interest rate risk arises within the trading portfolios and non-trading portfolios, principally from mismatches between the future yield on assets and their funding cost as a result of interest rate changes. HSBC aims, through its management of interest rate risk, to mitigate the effect of prospective interest rate movements which could reduce its future net interest income, while balancing the cost of such hedging activities on the current net revenue stream.

HSBC uses a range of tools to monitor and limit interest rate risk exposures. These include the present value of a basis point movement in interest rates, VAR, stress testing and sensitivity analysis.

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Foreign exchange risk

Foreign exchange risk arises as a result of movements in the relative value of currencies. The foreign exchange risk arising within the non-trading portfolios is transferred to the trading portfolios for management. As well as VAR and stress testing, HSBC controls the foreign exchange risk within the trading portfolio by limiting the open exposure to individual currencies, and on an aggregate basis.

HSBC is also subject to structural foreign exchange exposures that arise from net investments in subsidiaries, branches or associated undertakings, the functional currencies of which are currencies other than the US dollar.

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 individual banking subsidiaries are 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 denominated in that currency is broadly equal to the capital ratio of the subsidiary in question. HSBC hedges structural foreign exchange exposures only in limited circumstances.

Specific issuer risk

Specific issuer (credit spread) risk arises from a change in the value of debt instruments due to a perceived change in the credit quality of the issuer or underlying assets. As well as VAR and stress testing, HSBC manages the exposure to credit spread movements within the trading portfolios through the use of limits referenced to the sensitivity of the present value of a basis point movement in credit spreads.

Equity risk

Equity risk arises from the holding of open positions, either long or short, in equities or equity based instruments, which create exposure to a change in the market price of the equities or equity instruments. As well as VAR and stress testing, HSBC controls the equity risk within its trading portfolios by limiting the net open equity exposure.

Equity risk within the non-trading portfolios typically arises as a result of investments in private equity and strategic investments. Investments in private equity are primarily made through managed funds that are subject to limits on the total amount of investment. Potential new commitments are also subject to risk appraisal to ensure that industry and geographical concentrations remain within acceptable levels for the portfolio as a whole.

Operational risk

Operational risk is the risk of loss arising through fraud, unauthorised activities, error, omission, inefficiency, systems failure or from external events. It is inherent to every business organisation and covers a wide spectrum of issues. The terms 'error', 'omission' and 'inefficiency' include process failures, systems/machine failures and human error.

The Group has historically experienced operational risk losses in the following major categories:

- fraudulent and other external criminal activities;
- breakdowns in processes/procedures due to human error, misjudgement or malice;
- terrorist attacks;
- system failure or non-availability; and
- in certain parts of the world, vulnerability to natural disasters.

The Group remains alert to the possibility of incurring losses for a wide variety of reasons, including rare but extreme events.

Objectives

The objective of HSBC's operational risk management is to manage and control operational risk in a cost-effective manner within targeted levels of operational risk consistent with the Group's risk appetite, as defined by GMB.

Organisation and responsibilities

Operational risk management is primarily the responsibility of employees and business management. A global operational risk management function and the Group's operational risk management framework assist business management with discharging this responsibility.

A formal governance structure provides oversight over the management of operational risk within the Group's five geographical regions and across its global businesses.

A Global Operational Risk and Control Committee which reports to RMM and meets quarterly discusses key risk issues and reviews the effective implementation of the Group's operational risk management framework.

Operational risk is managed as an independent risk discipline within Group Risk. The Group Operational Risk function reports to the Group Chief Risk Officer and supports the Global Operational Risk and Control Committee. It is responsible for establishing and maintaining the operational risk framework, monitoring the Group's operational risk profile and the collation and validation of operational risk reporting at Group level. It is also responsible for the preparation and reporting of operational risk data for consideration by RMM and Group Audit Committee.

Within each of HSBC's subsidiaries, an Operational Risk Management Group draws its membership from key relevant areas and is supported by an overall entity-level Operational Risk Co-ordinator. This officer oversees the work of Operational Risk Business Co-ordinators, who are appointed for each key business unit and function within the entity.

Measurement and monitoring

HSBC has codified its operational risk management framework in a high level standard, supplemented by detailed policies. The detailed policies explain HSBC's approach to identifying, assessing, monitoring and controlling operational risk and give guidance on mitigating action to be taken when weaknesses are identified.

In each of HSBC's subsidiaries business managers are responsible for maintaining an acceptable level of internal control, commensurate with the scale and nature of operations. They are responsible for identifying and assessing risks, designing controls and monitoring the effectiveness of these controls. The operational risk management framework helps managers to fulfil these responsibilities by defining a standard risk assessment methodology and providing a tool for the systematic reporting of operational loss data.

Operational risk assessment approach

Operational risk self assessments are performed by individual business units and functions. The risk assessment process is designed to support the management rather than the total avoidance of risk. Consistent with the Group's strategic operational risk objectives, management attention is therefore focused on those risks where additional work is likely to provide the greatest economic benefit from reducing losses or exposure.

Each business and function carries out the full risk identification and assessment process at least annually and also when external or internal changes significantly affect the risk profile. Where high level risks are identified, business management either proposes a cost-effective action plan to mitigate the risk or provide a rationale for why the risk is acceptable at the current level based on the Group's risk appetite.

All appropriate means of mitigation and controls are considered. These include:

- making specific changes to strengthen the internal control environment;
- investigating whether cost-effective insurance cover is available to mitigate the risk; and
- other means of protecting the Group from loss.

Recording

HSBC has constructed a centralised database ('the Group Operational Risk database') to record the results of its operational risk management processes. Operational risk self-assessments as described above, comprising the identified risks, related scoring, action plans and proposed implementation dates, are input and maintained by the business unit in the Group Operational Risk database. This ensures that risk assessments and action plans are consistently recorded. Business management and Operational Risk Business Co-ordinators monitor and follow up the progress of documented action plans.

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Operational risk loss reporting

To ensure that operational risk losses are consistently reported and monitored at a Group level all Group companies are required to report individual losses when the net loss is expected to exceed US\$10,000 and aggregate all other operational risk losses under US\$10,000. Losses are entered into the Group Operational Risk database and are reported to the Group Operational Risk function on a quarterly basis.

Capital

Internal assessment of capital adequacy

HSBC defines capital as 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 and related policies define the Internal Capital Adequacy Assessment Process by which GMB examines the Group's risk profile from both regulatory and economic capital viewpoints and ensures that the level of capital supply:

- 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 day-to-day management of risk. The economic capital assessment is the more risk-sensitive risk 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 degree of confidence. HSBC's approach to capital management is aligned to the Group's corporate structure, business model and strategic direction. The Group's strong discipline on 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 282 of the *Annual Report and Accounts 2007*.

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 and monitored by HSBC's Board and GMB.

HSBC identifies and manages the risks it faces through defined internal control procedures and stress testing. It assesses and manages certain of these risks via the capital planning process. Risks assessed via capital and those that are not, are compared in the table below:

Risks assessed via capital

Credit risk
Market risk
Operational risk
Interest rate risk in the banking book
Insurance risk
Pension fund risk
Residual risk

Risks not explicitly assessed via capital

Liquidity risk
Business risk
Reputational risk
Sustainability risk

Scenario analysis and stress testing

Group Risk regularly assesses regulatory capital supply against demand under a range of stress scenarios, including a projected '1 in 25 years' global economic downturn. Qualitative and quantitative techniques are used to estimate the impact on capital requirements of HSBC, in order to inform the management actions required to ensure that the Group remains adequately capitalised.

Transferability of capital within the Group

HSBC Holdings is primarily a provider of equity capital to its subsidiaries. Each subsidiary manages its own capital required to support planned business growth and meet local regulatory requirements, within the context of the approved annual Group capital plan. As part of HSBC's capital management framework, capital generated in excess of planned requirements is returned to HSBC Holdings, normally by way of dividends. During 2007 and the first half of 2008, none of the Group's subsidiaries experienced any significant restrictions on the flow or repatriation of capital within the Group.

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