

# Risk Management Report

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## **Introduction – Macquarie's risk management framework in the global financial crisis.**

Recent turmoil in global financial markets has prompted widespread reflection on the principles and performance of risk management. Macquarie's risk management principles have remained stable over 30 years, however, current market conditions have prompted us to re-examine events to determine if they remain appropriate.

The key aspects of Macquarie's risk management approach are:

**Ownership of risk at the business level** - business heads are responsible for identifying risks within their businesses and ensuring that they are managed appropriately. Before taking decisions, clear analysis of the risks is sought to ensure risks taken are consistent with the risk appetite and strategy of Macquarie. Business ownership of risk is an essential element in understanding and controlling risk.

**Understanding worst case outcomes** - Macquarie's risk management approach is based on examining the consequences of worst case outcomes and determining whether risks can be tolerated. This approach is adopted for all material risk types and is often achieved by stress testing. In particular, Macquarie's market risk framework is based primarily on the application of stress tests, rather than statistical models. This approach has been tested over the past 18 months and the shocks observed in the markets were generally within Macquarie's stress scenarios, resulting in very few worst case loss scenarios being exceeded. Whilst Macquarie operates a number of sophisticated quantitative risk management processes, the foundation of its risk management approach is the informed consideration of both quantitative and qualitative inputs by highly experienced professionals.

**Requirement for an independent sign-off by risk management** - Macquarie places significant importance on having a strong independent Risk Management Group (RMG) which is charged with signing off all material risk acceptance decisions. It is essential RMG has the capability to do this effectively and hence RMG has invested in recruiting skilled professionals, many with previous trading or investment banking experience. For all material proposals, RMG's opinion is sought at an early stage in the decision making process and independent input from RMG on risk and return is included in the approval document submitted to senior management.

Macquarie's overall appetite for risk is expressed by setting a global risk limit designed to ensure that in a prolonged and severe downturn, losses will be covered by earnings and surplus capital. In difficult times, financial institutions and other companies expect to experience losses. A key question is whether the losses are greater than were expected in a downturn. The majority of the provisions made by Macquarie in FY09 represent unrealised write-downs in the value of Macquarie's funds management assets and other co-investments. These investments were made as part of a calculated business strategy to align the interests of Macquarie, as the manager of funds, with the interests of investors in the funds. At the time the investments were made, potential severe downturn impacts were assessed. The write-downs taken fall within the bounds suggested by this analysis and were able to be absorbed within Macquarie's earnings.

Macquarie's business model is based on providing services to clients. Consequently, our trading businesses do not take large proprietary positions and the limit framework reflects this. This has helped us avoid making large trading losses in recent times.

In line with the promotion of risk ownership at the business level, Macquarie's remuneration policy for senior management encourages a long-term view in decision making. Remuneration for senior management discourages excessive risk taking as incentives are aligned with the long-term profitability of the firm through retention of remuneration and equity participation.

Macquarie considers its risk management framework to be robust. RMG has reviewed it in light of the challenging market conditions experienced in recent times and subsequently implemented appropriate enhancements. Markets have been more volatile in recent times, beyond historic levels but not, generally, beyond levels we planned for. Few of Macquarie's stress tests have been exceeded, however, we have revised our assessment of correlations between markets as it has become clear that previously unconnected markets may move more closely together. The risk culture in Macquarie remains strong, and controls are well designed, well respected by staff and regularly audited and we remain confident that our risk culture and multiple controls are well able to support our business activity.

# Risk Management Report

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### Risk governance structure

Risk management is sponsored by the Board, and is a top priority for senior managers, starting with the Managing Director and Chief Executive Officer. The Head of RMG is a member of Macquarie Group Limited's (Macquarie) Executive Committee, reports directly to the Managing Director and Chief Executive Officer and presents on risk matters at each Board meeting.

The Board oversees the risk appetite and profile of Macquarie and ensures that business developments are consistent with the risk appetite and goals of Macquarie.

There are three board committees that assist the Board in ensuring appropriate focus is placed on the risk management framework.

- The **Board Risk Committee** (BRC) has responsibility for ensuring an appropriate risk management framework – including the establishment of policies for the control of risk – is in place. The BRC receives information on the risk profile of Macquarie, breaches of the policy framework and external developments which may have some impact on the effectiveness of the risk management framework. It also approves significant changes to risk management policies and framework.
- The **Board Audit and Compliance Committee** (BACC) has responsibility for monitoring compliance with the risk management framework approved by the BRC for internal control and compliance matters. In this role, the Board Audit and Compliance Committee monitors and review the effectiveness of the Internal Audit, Compliance and Credit Assurance functions.
- The **Board Corporate Governance Committee** (BCGC) has responsibility for governance matters.

Committees exist at the executive management level to ensure the necessary elements of expertise are focused on specific risk areas. **Executive Committees** and **Operation Review Committees** operate at both the Macquarie and the Bank level and focus on strategic issues, operational issues and review the performance of Macquarie on a monthly basis. Beneath this level, other committees exist where senior specialists focus on specific risks as appropriate (e.g. Market Risk Committee, Asset and Liability Committee).

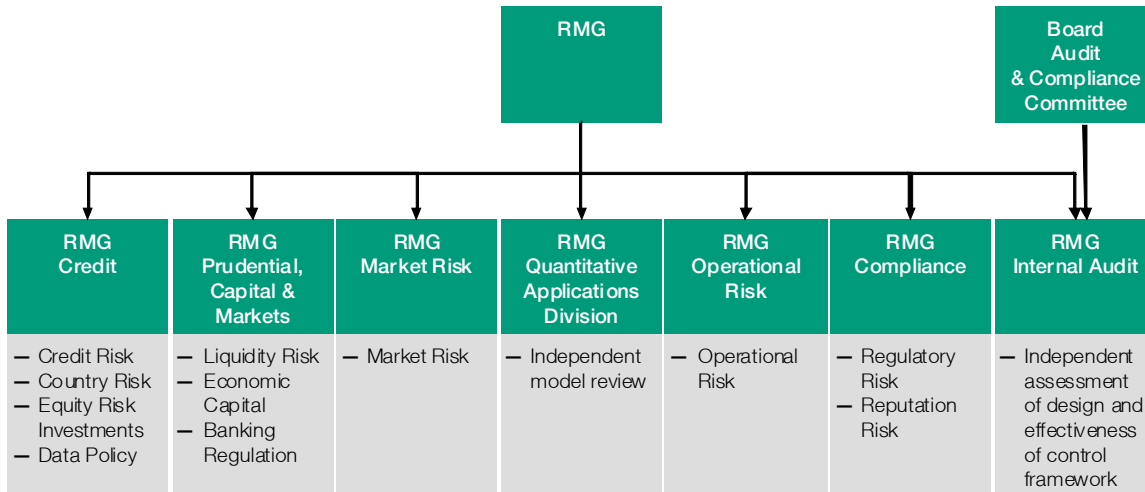
### Risk Management Group

RMG's independent oversight of risk is based on the following five principles:

- **Independence** – RMG, which is responsible for assessing and monitoring risks across Macquarie, is independent of the operating areas of Macquarie and the Head of RMG reports directly to the Managing Director and Chief Executive Officer. RMG authority is required for all material risk acceptance decisions;
- **Centralised Prudential Management** – RMG's responsibility covers the whole of Macquarie. Therefore, it can assess risks from a Macquarie-wide perspective and provide a consistent approach across all operating areas;
- **Approval of all new business activities** – Operating areas cannot undertake new businesses or activities, offer new products, or enter new markets without first consulting RMG. RMG reviews and assesses risk and sets prudential limits. Where appropriate, these limits are approved by the Executive Committee and the Board;
- **Continuous assessment** – RMG continually reviews risks to account for changes in market circumstances and Macquarie's operating areas; and
- **Frequent monitoring** – Centralised systems exist to allow RMG to monitor credit and market risks daily. RMG staff liaise closely with operating and support divisions.

## RMG structure and resourcing

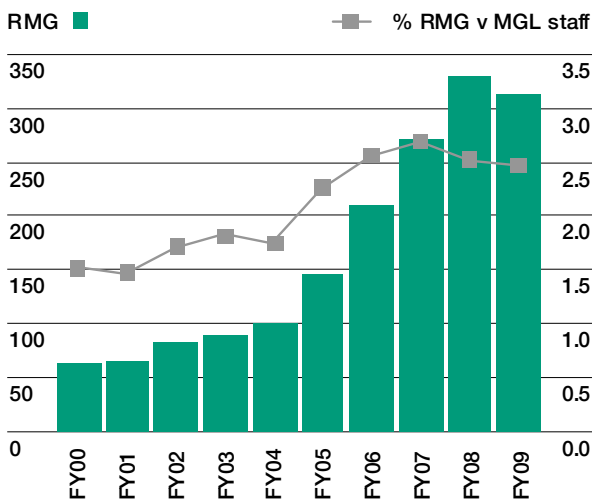
RMG is structured into specialised teams who deal with specific risks. The Divisional split of RMG is detailed below.



Effective risk management is not only a function of disciplined processes but also of imaginative analysis by talented individuals. RMG attracts high calibre candidates. RMG recruits experienced individuals both from within Macquarie and externally and is a source of talent for Macquarie's business units when recruiting.

Growth in RMG has been consistent with overall Macquarie Group growth over the past few years. Over the last year, RMG staff numbers fell approximately five per cent to 314 full-time equivalent staff whilst headcount Macquarie-wide fell approximately three per cent.

## Headcount of RMG



# Risk Management Report

## continued

Additionally 38 per cent of total RMG staff (as at March 2009) were based outside of Australia to ensure that, on a global basis, risks are managed in a controlled manner. Macquarie's international offices are subject to the same risk management controls that apply in Australia. Before an international office can be set up or undertake new activities, RMG analyses the proposed activities, infrastructure, resourcing and procedures to ensure appropriate risk management controls are in place. Australian based RMG staff monitor and routinely visit international offices to ensure compliance with prudential controls. Internationally based RMG staff include both experienced risk management staff from Australia as well as locally experienced staff.

Consistent with the concept of business units owning risk, specific day to day operations are more appropriately discharged and embedded within the business units. The majority of operational risk and compliance functions are discharged within the business units. Divisional compliance staff ensure that day to day legal and compliance obligations are discharged at the business level whilst Business Operational Risk Managers (BORMs) are appointed by the Group Heads to be their representative on operational risk management matters, and act as their delegate in ensuring that operational risk is addressed appropriately within their business units. As at the end of March 2009, there were approximately 420 staff performing such functions within the business units. RMG provides a risk oversight role in relation to these staff members, ensuring appropriate standards are adhered to. These divisional staff members have functional reporting lines to the RMG divisional heads for Operational Risk and Compliance.

### New business

The level of innovation across Macquarie tends to be high. Therefore, it is important that all elements of new business initiatives are well understood before commencement.

All new business initiatives must be signed off by RMG prior to commencement. The new business approval process is a formal process whereby all relevant risks (e.g. market, credit, legal, compliance, taxation, accounting, operational and systems issues) are reviewed, to ensure that the transaction or operation can be handled properly and will not create unknown or unwanted risks for Macquarie in the future. The approval of RMG, Finance Division, Taxation Division and other stakeholders within Macquarie is obtained prior to commencement.

For all material transactions, independent input from RMG on the risk and return of the transaction is included in the approval document submitted to senior management.

The Operational Risk function within RMG oversees the new product and business approval process and ensures the necessary approvals are obtained.

### Risk management and monitoring

The risk management framework incorporates active management and monitoring of market, credit, equity, liquidity, operational, compliance, legal and regulatory risks. It is designed to ensure policies and procedures are in place to manage the risks arising within each business unit. Application varies in detail from one part of Macquarie to another, however, the same risk management framework applies across all business activities without exception.

### Equity risk

Equity risk is the risk of loss arising from banking book equity-type exposures. These exposures include:

- holdings in specialised funds managed by Macquarie Capital
- principal exposures taken by Macquarie Capital, including direct investments in entities external to Macquarie and seed assets for funds
- property equity, including property trusts and direct property investments
- other equity, including lease residuals and investments in resource companies.

### Equity Risk Limit

All of the above positions are subject to an aggregate Equity Risk Limit (ERL). The ERL is set by the Board with reference to the Risk Appetite Test which is described further in the Economic Capital section. In setting the limit, consideration is also given to the level of earnings, capital and market conditions. The limit is reviewed on a semi-annual basis by RMG and the results of the review are reported to Executive Committee and the Board.

Concentrations within the equity portfolio are managed by a number of additional limits approved by the Executive Committee and/or the Board. These include limits on:

- property equity investments
- investments in the resources sector
- lease residuals (by type of leased asset)
- acquisition of seed assets by Macquarie Capital.

### Transaction Review and Approval Process

The business unit executing the transaction is responsible for due diligence and risk analysis of each equity investment. For material deals, RMG undertakes a shadow due diligence and a comprehensive analysis of all risks and potential losses associated with the acquisition such as:

- market and credit risks
- regulatory, capital, liquidity and compliance requirements
- business, operational and reputation risks.

All material equity risk positions are subject to approval by RMG and by the Managing Director and Chief Executive Officer, Executive Committee and the Board, depending on the size and nature of the risk. RMG ensures that the transaction is correctly represented to the relevant approvers.

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## Credit risk

Credit risk is the risk of financial loss as a result of failure by a client or counterparty to meet its contractual obligations. Credit risk arises from both lending and trading activities. In the case of trading activity, credit risk reflects the possibility that the trading counterparty will not be in a position to complete the contract once the settlement becomes due. In that situation, the credit exposure is a function of the movement of prices over the period of the contract.

The credit team within RMG maintains a comprehensive and robust framework for the identification, analysis and monitoring of credit risks arising within each business. Key aspects of this framework include:

### Analysis and approval of exposures

The Macquarie and Macquarie Bank Boards are responsible for establishing the framework for approving credit exposures. The Boards delegate discretions to approve credit exposure to designated individuals within Macquarie whose capacity to exercise authority prudently has been adequately assessed.

Business units are assigned modest levels of credit discretions. Credit exposures above those levels are assessed independently by RMG and approved by senior Macquarie and RMG staff, the Managing Director and Chief Executive Officer and the Boards as required.

Macquarie enforces a strict 'no limit, no dealing' rule; all proposed transactions are analysed and approved by designated individuals before they can proceed.

All credit exposures are subject to annual review.

### Independent analysis

Specialist credit teams in RMG (e.g. geologists for mining transactions) provide independent analysis of credit risk exposures. The teams work closely with the business units to identify the risks inherent in Macquarie's businesses, and apply analysis appropriate to the level and nature of risks.

Credit risk analysis is focused on ensuring that risks have been fully identified and that the downside risk is properly understood so that a balanced assessment can be made of the worst case outcome against the expected rewards. Downside analysis includes stress testing and scenario analysis.

Macquarie does not rely on quantitative models to assess credit risk but uses fundamental credit analysis to make credit risk acceptance decisions.

## Macquarie group ratings

Macquarie relies on its own independent assessment of credit risk. Third party credit assessments are considered an input into the analysis but are not considered to be a sufficient basis for decision making.

Macquarie has established a proprietary internal credit rating framework to assess counterparty credit risk. Macquarie group (MG) ratings are used to estimate the likelihood of the rated entity defaulting on financial obligations. The MG ratings system ensures a consistent assessment of borrower and transaction characteristics across Macquarie and provides the mechanism for meaningful differentiation of credit risk. External ratings from rating agencies are used as supplementary analysis.

All customers' limits and exposures are allocated an MG rating on a 1–13 scale which broadly correspond with Standard & Poors (S&P) and Moody's Investor Services (Moody's) credit ratings. Each MG rating is assigned a Probability of Default (PD) estimate. Credit limits and exposures are also allocated a Loss Given Default (LGD) ratio reflecting the estimated economic loss in the event of default occurring.

Macquarie has an independent Credit Assurance Function within RMG to provide assurance over the effectiveness of credit risk management throughout Macquarie. The role of the Credit Assurance Function is to liaise closely with all business units to ensure credit risks are understood and properly managed, ensure credit discretions are being utilised appropriately and credit ratings are appropriately attributed.

### Measuring and monitoring exposures

Credit exposures for loans are evaluated as the full face value.

Credit exposures for derivatives are a function of potential market movements and are assessed by assuming that low probability (i.e. worst case) stressed market movements occur and that Macquarie has to go to the market to replace a defaulting deal at the worst possible time during the term of the transaction. The level of stress that is applied to individual markets is reviewed and approved by RMG at least every two years or when volatility or market conditions dictate.

Where trading gives rise to settlement risk, this exposure is assessed as the full face value of the settlement amount.

All credit exposures are monitored regularly against limits. Credit exposures which fluctuate through time are monitored daily. These include off-balance sheet exposures such as swaps, forward contracts and options, which are assessed using sophisticated valuation techniques.

To mitigate credit risk, Macquarie makes increasing use of margining and other forms of collateral or credit enhancement techniques (including guarantees and letters of credit) where appropriate.

# Risk Management Report

## continued

On and off-balance sheet exposures are considered together and treated identically for approval, monitoring and reporting purposes.

A review of the Credit Portfolio analysing credit concentrations by counterparty, country, risk type, industry and credit quality is carried out and reported to Macquarie's Executive Committee quarterly and Board semi-annually.

Macquarie's policies to control credit risk include avoidance of unacceptable concentrations of risk either to any economic sector or to an individual counterparty. Policies are in place to regulate large exposures to single counterparties or groups of counterparties.

### Loan impairment review

All loan assets are subject to recurring review and assessment for possible impairment. Provisions for loan losses are based on an incurred loss model, which recognises a provision where there is objective evidence of impairment at each balance date, and is calculated based on the discounted values of expected future cash flows.

Specific provisions are recognised where specific impairment is identified. The rest of the loans are placed into pools of assets with similar risk profiles and collectively assessed for losses that have been incurred but not yet identified.

Total impaired assets and specific provisions have increased substantially during the period, due mainly to the ongoing deterioration in US and UK real estate markets, and the effect of falling commodity prices on metals and energy counterparties. The weakening of the Australian Dollar also contributed to the increase in overall impaired asset and provision levels as the Australian Dollar equivalent of foreign denominated assets rose.

The majority of impairments and provisions relate to Macquarie businesses undertaking mezzanine lending activity. These businesses make advances above the level which would be considered senior debt. In these loans Macquarie recognises a notional split between the senior and junior portion of the loan. The junior portion generates a significantly higher return to compensate for the additional risk. The impairments relate to the junior portion and not the senior portion which is generally well secured, although both portions are recorded as being impaired for regulatory reporting purposes. Macquarie participates in these transactions in the real estate and metals and energy industries. These industries account for 67 per cent of impaired assets.

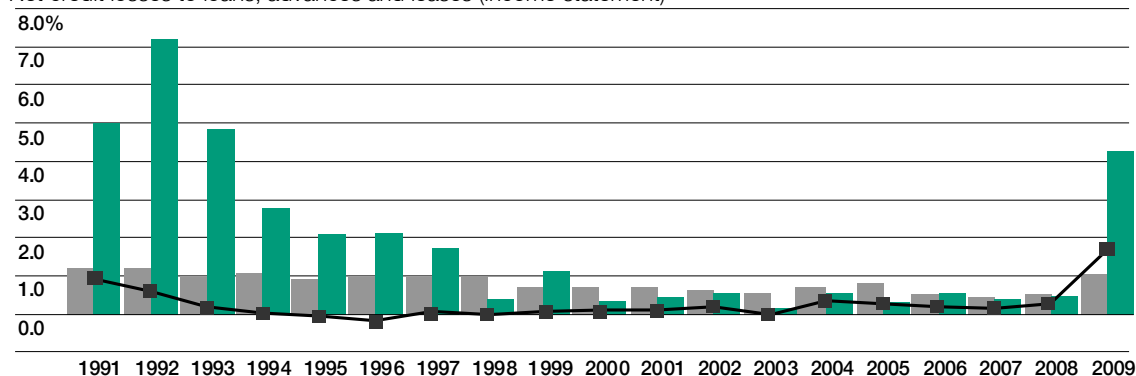
Other less significant areas of impairment include the residential mortgage sectors in the United States and Italy and South American agricultural and investor products impacted by falling volumes and prices, high input farming costs and difficulties raising funds in current markets.

### Country risk

Policies are in place to assist in the management of Macquarie's country risk. Countries are grouped into categories based on the country's risk profile. Before any exposure is taken in a country which is considered to be higher risk, a full review of the economic, political and operating environment is undertaken to determine the level of exposure that is considered to be acceptable.

### Ratio of Provisions and Impaired Assets to Loans, Advances and Leases

Collective provision to loans, advances and leases (Balance sheet) ■  
 Net impaired assets to loans, advances and leases (Balance sheet) ■  
 Net credit losses to loans, advances and leases (Income statement) ■



Note: Loan assets excludes securitisations, special purpose vehicles (including mortgage and lease securitisation vehicles) and segregated futures funds. Net impaired assets and net credit losses excludes investment securities. Please refer to note 13 of the Financial Report for further information on impaired assets

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## Operational Risk

Macquarie defines Operational Risk as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. Macquarie has established procedures and controls to manage market, credit, reputation and strategic risks. The potential for failure or inadequacy in these procedures and controls would be classified as an operational risk. Operational Risk failures could lead to reputation damage, financial loss or regulatory consequences.

RMG is responsible for ensuring an appropriate framework exists to identify, assess and manage operational risk, and that resources are available to support it. It is also responsible for Macquarie's operational risk capital measurement methodology.

In general, changes in Macquarie's operational risk profile is the net result of greater innovation and growth and this is offset by constant gradual adaptation and matching of the control environment to the new risks.

### Operational Risk Management Framework

Macquarie's Operational Risk Management Framework (ORMF) is designed to identify, assess and manage operational risks within the organisation. The key objectives of the framework are as follows:

- risk identification, analysis and acceptance
- execution and monitoring of risk management practices
- reporting and escalation of risk information on a routine and exception basis.

Businesses carry out elements of the ORMF in a manner that is tailored to their specific operational risk profile. However, to ensure consistency and minimum standards the framework includes the following mandatory elements:

- a robust change management process to ensure operational risks in new activities or products are identified, addressed and managed prior to implementation
- a semi annual operational risk self assessment (ORSA) process to identify operational risks at the business level, assess controls and develop action plans to address deficiencies
- recording of operational risk incidents into a centralised reporting system. Incidents are analysed to identify trends and establish lessons learnt on the effectiveness of controls
- allocation of operational risk capital to all Macquarie businesses as a tool to further encourage positive behaviour in Macquarie's day to day management of operational risk

- Macquarie-wide policies which require a consistent approach and minimum standards on specific operational risk matters
- embedded operational risk representatives in business units who act as delegates of the business manager. These representatives ensure operational risks are addressed appropriately and that the ORMF is executed within their area.

### Macquarie's Operational Risk Capital Framework

Macquarie's framework for operational risk capital has two main elements:

- an annual scenario approach for modelling operational risk losses and to determine operational risk capital
- a quarterly scorecard analysis which is used to update operational risk capital between scenario analyses and as a basis for updating the allocation of capital to businesses.

Operational risk scenarios identify key risks that, while very low in probability, may result in very high impact losses. In identifying the potential for such losses consideration is given to individual statistical distribution for each scenario, external loss data, internal loss data, risk and control factors determined by the operational risk self assessments, and the contribution of expert opinion from businesses. Results are then modelled to determine the operational risk component of regulatory capital required to be held by Macquarie at the 99.9th percentile level. Monte Carlo techniques are used to aggregate these individual distributions to determine a Macquarie-wide operational risk loss distribution.

Over time new business activity, business growth, and significant changes in activity are reflected in:

- new or revised loss scenarios; and/or
- revised loss probabilities.

Macquarie allocates capital to individual businesses. The capital allocation effectively rewards positive risk behaviour, and penalises increased risks. This is done using scorecards which measure changes in a number of key factors such as the size and complexity of the business, risk and control assessments, incident and exception management and governance. Quantitative statistics on detailed metrics are applied to predefined weightings and formulas to calculate a quarterly percentage change in that business's capital charge.

The quarterly change in the sum of divisional capital is also used as an estimate to update the Macquarie capital requirement between annual assessments.

# Risk Management Report

## continued

### Market risk

Market risk is the exposure to adverse changes in the value of Macquarie's trading portfolios as a result of changes in market prices or volatility. Macquarie is exposed to the following risks in each of the major markets in which it trades:

- **foreign exchange and bullion:** changes in spot and forward exchange rates and bullion prices and the volatility of exchange rates and bullion prices
- **interest rates and debt:** changes in the level, shape and volatility of yield curves, the basis between different debt securities and derivatives and credit margins
- **equities:** changes in the price and volatility of individual equities, equity baskets and equity indices, including the risks arising from equity underwriting activity
- **commodities and energy:** changes in the price and volatility of base metals, agricultural commodities and energy products

and to the correlation of market prices and rates within and across markets.

It is recognised that all trading activities contain calculated elements of risk taking. Macquarie is prepared to accept such risks provided they are independently and correctly identified, calculated and monitored by RMG, and reported to senior management on a daily basis.

### Trading market risk

RMG monitors positions within Macquarie according to a limit structure which sets limits for all exposures in all markets. Limits are applied at a granular level to individual trading desks and also, through increasing levels of aggregation to divisions and, ultimately, Macquarie. This approach removes the need for future correlations or scenarios to be precisely predicted as all risks are stressed to the extreme, and accounted for within the risk profile agreed for each business and Macquarie in aggregate.

Despite historically high volatility and declining liquidity of global markets during the last twelve months, the shocks stipulated in market risk scenarios for price, volatility and business specific risks were typically greater than observed daily movements.

Limits are approved by senior management with appropriate authority for the size and nature of the risk, and remain the ultimate responsibility of the business. Macquarie adheres to a 'no limits, no dealing' policy. If a product or position has not been authorised by RMG, then it cannot be traded. Material breaches of the approved limit structure are communicated monthly to the Boards.

RMG sets three complementary limit structures:

- **Contingent Loss Limits:** Worst case scenarios that shock prices and volatilities by more than has occurred historically. Multiple scenarios are set for each market to capture the non-linearity and complexity of exposures arising from derivatives
- **Position Limits:** volume, maturity and open position limits are set on a large number of market instruments and securities in order to constrain concentration risk and to avoid the accumulation of risky, illiquid positions
- **Value at Risk (VaR) Limits:** statistical measure that determines the potential loss in trading value at both a business and aggregate level.

The risk of loss from incorrect or inappropriate pricing and hedging models is mitigated by the requirement for all new pricing models to be independently tested by the specialist Quantitative Applications Division within RMG.

### Aggregate measures of market risk

Aggregate market risk is constrained by two risk measures, VaR and the Macro-Economic-Linkages (MEL) stress scenarios. The VaR model predicts the maximum likely loss in Macquarie's trading portfolio due to adverse movements in global markets over holding periods of one and ten days. The MEL scenario utilises the contingent loss approach to capture simultaneous, worst case movements across all major markets. Whereas MEL focuses on extreme price movements, VaR focuses on unexceptional changes in price so that it does not account for losses that could occur beyond the 99 per cent level of confidence. For this reason, stress testing remains the predominant focus of RMG as it is viewed to be the most effective mechanism to reduce Macquarie's exposure to unexpected market events.



### Macro-Economic-Linkages

MEL calculates Macquarie's total market risk exposure to global market stress test scenarios extrapolated from historical crisis events and global market correlations. Each stress test scenario includes a primary shock to either equity, foreign exchange or interest rate markets as well as cross-market effects in corporate margins, metals and commodities. MEL is Macquarie's preferred internal measure of aggregate market risk because of the severity of the shocks applied and the ability for scenarios to develop with changing market dynamics. MEL is monitored and reported to senior management daily and regularly reviewed by RMG to ensure the measure remains appropriate for changing market conditions and the risks to which Macquarie is exposed.

The past 12 months have seen continued deteriorations across global markets as concerns over the longevity of financial institutions and fears of a global recession created significant volatility and reduced liquidity in all markets. The 'Market Contagion' scenario, typically the most conservative of the MEL stress test scenarios, effectively constrained these risks by measuring the impact of an equity market crash of 20 to 35 per cent as well as additional shocks to foreign exchange, metals, interest rate, energy, agricultural commodity and credit markets.

The "Market Contagion" scenario accounts for all the significant markets to which Macquarie is exposed. The assumptions in this scenario are considerably more severe than the conditions that have prevailed in the recent period of market volatility. Macquarie's exposure to the 'Market Contagion' stress test scenario remained low throughout the financial year. The average exposure to this stress test represents less than 2% of total equity.

### Value at Risk

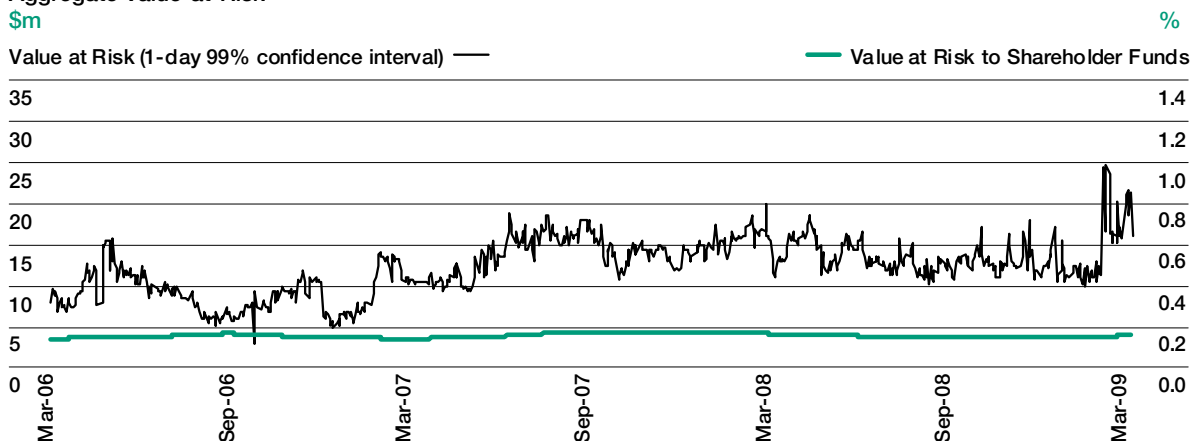
VaR provides a statistically based summary of overall market risk in Macquarie. It is affected by changes in market volatility and correlations and enhancements to the model. The integrity of the VaR model is tested regularly against daily profit and loss.

The VaR model uses a Monte Carlo simulation to generate normally distributed price and volatility paths for approximately 1400 benchmarks, using volatilities and correlations based on three to ten years of historical data. Emphasis is placed on more recent market movements to more accurately reflect current conditions. Each benchmark represents an asset at a specific maturity, for example one year crude oil futures or spot gold. The benchmarks provide a high level of granularity in assessing risk, covering a range of points on yield curves and forward price curves, and distinguishing between similar but distinct assets; for example crude oil as opposed to heating oil, or gas traded in different locations. Exposures to individual equities within a national market are captured by specific risk modelling incorporated directly into the VaR model.

Despite volatile market conditions, VaR generally decreased throughout the financial year as trading businesses deliberately reduced risk-taking positions. In early March 2009, VaR increased, largely due to increased activity in natural gas markets resulting from the acquisition of Constellation Energy, increased client activity in response to the current gold price and continued activity in a range of other markets.

Historically, market risk, as measured by VaR, has been modest in comparison to capital and earnings and stable as a percentage of capital. The graph below shows the daily VaR and the six month average VaR as a percentage of total equity.

### Aggregate Value-at-Risk



# Risk Management Report

## continued

### Value-at-Risk figures for year ended 31 March

	2009 Average \$m	2009 Maximum \$m	2009 Minimum \$m	2008 Average \$m	2008 Maximum \$m	2008 Minimum \$m
Equities	5.79	16.41	3.27	7.45	15.30	4.37
Interest rates	5.25	10.04	2.52	3.22	5.51	2.12
Foreign exchange and bullion	5.00	14.97	1.49	3.15	7.77	1.25
Commodities and energy	9.03	17.04	0.20	10.80	17.70	3.73
Aggregate	13.01	24.17	9.28	13.55	19.54	8.69

### Trading Revenue

The effectiveness of Macquarie's risk management methodology can be measured by Macquarie's daily trading results. Particularly during periods of highly volatile market activity, as witnessed throughout the past year; the small quantity and magnitude of daily losses incurred by Macquarie is indicative both of an effective risk management framework and business operations focused on servicing client needs.

Macquarie's market risk trading activities are based on earning income from spreads, franchise businesses and client flows. The client franchise activities necessarily involve principal position taking although income from outright proprietary trading activity is minor.

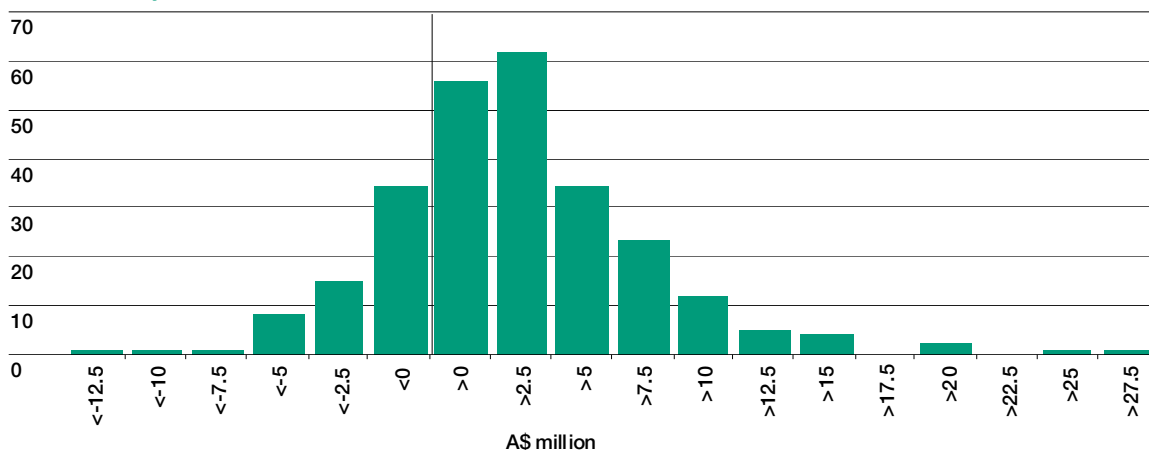
The focus on customer flow has shown consistent profits and low volatility in trading results whilst allowing growth in those markets where significant gains can be realised. This is evident in the histogram below which shows that Macquarie made profit on 200 out of the 260 trading days.

### Non-Trading market risk

Macquarie also has exposure to non-traded interest rate risk, generated by banking products such as loans and deposits. Interest rate exposures, where possible, are transferred into the trading books of Group Treasury and managed under market risk limits. However, some residual interest rate risks remain in the banking book due to factors outside the interest rate market, or due to timing differences in accumulating exposures large enough to hedge. These residual risks in the banking book are not material but are nevertheless monitored and controlled by RMG and reported to senior management regularly.

### Daily trading profit and loss

#### Number of days



### Economic capital

Macquarie has developed an economic capital model that is used to quantify Macquarie's aggregate level of risk.

The economic capital framework complements the management of specific risk types such as equity, credit, market and operational risk by providing an aggregate view of the risk profile of Macquarie.

The economic capital model is used to support business decision-making, and has three main applications:

- capital adequacy assessment
- risk appetite setting
- risk-adjusted performance measurement.

### Capital adequacy assessment

Macquarie assesses capital adequacy for both Macquarie Group Limited and Macquarie Bank Limited. In each case, capital adequacy is assessed on a regulatory basis and on an economic basis, with capital requirements assessed as follows:

	Economic	Regulatory
Macquarie Bank Limited	Internal model, covering just exposures of the Banking Group	Capital to cover risk-weighted assets and regulatory deductions, according to APRA's banking prudential standards
Macquarie Group Limited	Internal model, covering all exposures of Macquarie	Bank regulatory capital requirement as above plus economic capital requirement of the Non-Banking entities

Economic capital adequacy means an internal assessment of capital adequacy, designed to ensure Macquarie has sufficient capital to absorb all but the most extreme losses, thereby providing creditors with the required degree of protection.

Potential losses are quantified using the Economic Capital Adequacy Model (ECAM). These potential losses are compared to the capital resources available to absorb loss, consisting of book equity and eligible hybrid equity. Earnings are also available to absorb losses, however only a fraction of potential earnings is recognised as a buffer against losses.

The ECAM quantifies the following types of risk:

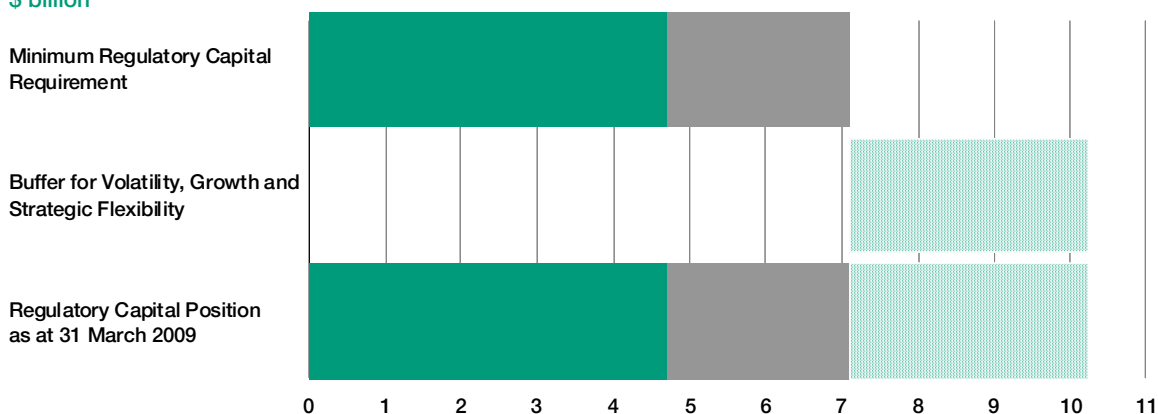
- equity risk
- credit risk
- operational risk
- traded market risk

It also measures the risk of decline in value of assets held as part of business operations, e.g. fixed assets, goodwill, capitalised expenses and certain minority stakes in associated companies or stakes in joint ventures as well as non-trading interest rate risks.

The overall regulatory capital requirement of the non-banking entities within Macquarie agreed with the Australian Prudential Regulation Authority (APRA) is determined by the ECAM, as noted in the preceding table. The regulatory capital adequacy of Macquarie as at March 2009 is set out below.

### Macquarie Group Limited – Regulatory capital position 31 March 2009

Banking Group ■ Non-Banking Group ■ Capital Surplus ■  
\$ billion



# Risk Management Report

## continued

Macquarie is currently well capitalised – a substantial regulatory capital surplus exists. An element of this surplus is set aside as a buffer against volatility in the drivers of capital adequacy. The remaining surplus is available to support growth and provide strategic flexibility. Capital raisings in 2006, 2007 and 2008, significant retained earnings and the contributions of dividend reinvestment plans and other schemes have contributed to the strong capital position.

The Tier 1 and total capital ratios for the Banking Group as at 31 March 2009 were 11.4 per cent and 14.4 per cent respectively.

The capital adequacy results are reported to Board and senior management on a regular basis, together with projections of capital adequacy under a range of scenarios.

### Risk appetite setting

Macquarie's risk appetite is expressed through the risk limit framework. This consists of the specific risk limits given to various businesses and products or industry sectors and also a Global Risk Limit which constrains the aggregate level of risk. The Global Risk Limit is set to protect earnings and ensure we emerge from a downturn with sufficient capital to operate.

Aggregate risk is broken down into two categories:

- *Business risk*, meaning decline in earnings through deterioration in volumes and margins due to market conditions
- *Potential losses*, meaning potential credit losses, write-downs of equity investments, operational risk losses and losses on trading positions.

Potential losses are quantified using a version of the economic capital model.

Business risk is captured via a Macquarie-wide scenario analysis process that produces an assessment of earnings capacity in a severe downturn scenario.

In the Risk Appetite Test, potential losses are compared to the underlying earnings. Macquarie is likely to generate even in a severe downturn plus surplus regulatory capital.

A principal use of the risk appetite test is in setting the Equity Risk Limit (ERL). This limit constrains Macquarie's aggregate level of risk arising from principal equity positions, managed fund holdings, property equity investments, lease residuals and other equity investments. Any increases in the ERL are sized to ensure that even under full utilisation of this limit, and allowing for growth in other risk types, the requirements of the Risk Appetite Test will be met.

### Risk-adjusted performance measurement

At Macquarie, proposals for all significant new deals, products and businesses must contain an analysis of risk-adjusted returns, using methodology set out by RMG. These returns are considered together with other relevant factors by the Executive Committee and Board in assessing these proposals and thus are one element of discipline in the risk acceptance process.

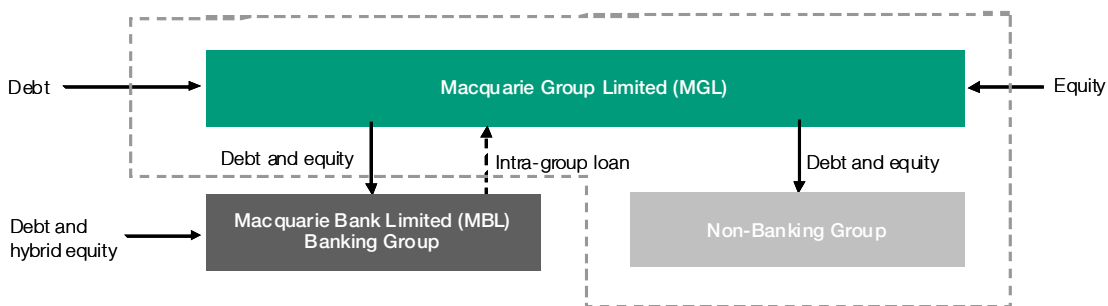
Risk-adjusted performance metrics for each business unit are prepared on a regular basis and distributed to Operations Review Committee and the Board as well as to business units. Risk-adjusted performance metrics for each business unit are a significant input into performance based remuneration.

## Liquidity Risk

### Liquidity management

The two primary external funding vehicles for Macquarie are Macquarie Group Limited (MGL) and Macquarie Bank Limited (MBL). MGL provides funding principally to the Non-Banking Group and limited funding to some MBL Group subsidiaries. MBL provides funding to the Banking Group and as part of Macquarie's restructure provides an intra-group loan to MGL.

The high level funding relationships of Macquarie are shown below:



Macquarie's liquidity risk management framework ensures that both MGL and MBL are able to meet their funding requirements as they fall due under a range of market conditions.

Liquidity management is performed centrally by Group Treasury, with oversight from the Asset and Liability Committee, the MGL and MBL Board and RMG. MGL Group and MBL Group's liquidity policies are approved by their respective Board after endorsement by the Asset and Liability Committee.

The Asset and Liability Committee includes the Chief Executive Officer, the Chief Financial Officer, Head of RMG, Treasurer and Business Group Heads.

RMG provides independent prudential oversight of liquidity risk management, including the independent validation of liquidity scenario assumptions, liquidity policies, and the required funding maturity profile.

### Liquidity Policy and Principles

MGL provides funding predominantly to the Non-Banking Group. As such, the MGL liquidity policy outlines the liquidity requirements for the Non-Banking Group. The key requirement of the policy is that MGL is able to meet all of its repayment obligations for the next 12 months with no access to funding markets.

Reflecting the longer term nature of the Non-Banking Group asset profile, MGL is funded predominantly with a mixture of capital and long term wholesale funding. MGL has no short term wholesale funding.

The MBL liquidity policy outlines the liquidity requirements for the Banking Group. The key requirement of the policy is that MBL is able to meet all of its repayment obligations for the next 12 months through a period of constrained access to wholesale funding markets.

MBL is funded mainly by capital, long term liabilities and deposits.

The liquidity management principles apply to both MGL and MBL and include the following:

#### *Liquidity and Funding Management*

- All liquidity requirements are managed centrally by Group Treasury
- Liquidity risk is managed through setting limits on the maturity profile of assets and liabilities
- A Liquidity Contingency Plan is approved by the Board and reviewed periodically
- A funding plan is prepared annually and the funding position is monitored throughout the year
- Diversity and stability of funding sources is a key priority.

#### *Liquidity Limits*

- Term assets must be funded by term liabilities
- Cash and liquid assets are sufficient to cover a twelve month stress scenario
- Cash and liquid assets held to meet stress scenarios must be unencumbered, high quality liquid assets and cash
- Short term assets exceed short term wholesale liabilities.

### Scenario Analysis

Scenario analysis is central to Macquarie's liquidity risk management framework. Group Treasury models a number of liquidity scenarios covering both market-wide crises and firm-specific crises. The objective of this modelling is to ensure MGL and MBL's ability to meet all repayment obligations under each scenario and determine the capacity for asset growth. The modelling includes 12 month liquidity scenarios significantly more severe than the conditions that have been experienced since August 2007.

Scenarios are run over a number of timeframes and a range of conservative assumptions are used with regard to access to capital markets, deposit outflows, contingent funding requirements and asset sales.

# Risk Management Report

## continued

### Liquid asset holdings

Group Treasury maintains a portfolio of highly liquid unencumbered assets in both MGL and MBL to ensure adequate liquidity is available in all funding environments, including worst case conditions. The minimum liquid asset requirement is calculated from scenario projections and also complies with regulatory minimum requirements.

To determine the minimum level of liquid assets, reference is made to the expected minimum cash requirement during a combined market-wide and firm-specific crisis scenario over a twelve month timeframe. This scenario assumes no access to new funding sources, a significant loss of deposits and contingent funding outflows resulting from undrawn commitments, market moves on derivatives and other margined positions. The size of the liquid asset portfolio must always exceed the minimum cash requirement as calculated in this model.

The liquid asset portfolio contains only unencumbered assets that can be relied on to maintain their liquidity in a crisis scenario. At least 90% of the liquid assets portfolio must be repo eligible with a central bank. The remaining 10% must be approved by Group Treasury and RMG before inclusion in the liquid asset portfolio. As at 31 March 2009, 97% of the liquid asset portfolio was eligible for repurchase with central banks.

The liquid asset portfolio typically includes unencumbered cash and central bank repo eligible Government, Semi-Government, Supranational, government guaranteed bank and unguaranteed bank securities and AAA rated Australian residential mortgage backed securities. In addition, the portfolio

includes other very short dated, high quality liquid assets such as A-1+ rated Australian residential mortgage backed commercial paper.

The liquid asset portfolio is largely denominated and held in Australian dollars and to a lesser extent in US dollars or other currencies where appropriate.

### Liquidity contingency plan

Group Treasury maintains a liquidity contingency plan. The liquidity contingency plan defines roles and responsibilities and actions to be taken in a liquidity event. This includes identification of key information requirements and appropriate communication plans with both internal and external parties.

Specifically, the plan details factors that may constitute a crisis, the officer responsible for enacting the contingency management, a committee of senior executives who would be responsible for managing a crisis, the information required to effectively manage a crisis, a public relations strategy, a high level check list of actions to be taken, and contact lists to facilitate prompt communication with all key internal and external stakeholders. The liquidity contingency plan is subject to regular review (at least annually) by both Group Treasury and RMG and is submitted to the Board for approval.

### Funding transfer pricing

An internal funding transfer pricing system is in place which aims to align businesses with the overall funding strategy of Macquarie. Under this system the costs of long- and short-term funding are charged out, and credits are made to Business Units that provide long-term stable funding.

### Credit ratings

Credit ratings at 31 March 2009 are detailed below.

	Macquarie Group Limited			Macquarie Bank Limited		
	Short-term rating	Long-term rating	Long-term rating outlook	Short-term rating	Long-term rating	Long-term rating outlook
Fitch Ratings	F-1	A	Stable	F-1	A+	Stable
Moody's Investors Services	P-1	A2	Negative	P-1	A1	Negative
Standard and Poor's	A-2	A-	Negative	A-1	A	Negative

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## Legal and compliance risk

Macquarie actively manages legal and compliance risks to its businesses. Legal and compliance risks include the risk of breaches of applicable laws and regulatory requirements, actual or perceived breaches of obligations to clients and counterparties, unenforceability of counterparty obligations and the inappropriate documentation of contractual relationships.

Each of Macquarie's businesses is responsible for developing and implementing its own legal risk management and compliance procedures. RMG assesses compliance risk from a Macquarie-wide perspective and works closely with legal, compliance and prudential teams throughout Macquarie to ensure compliance risks are identified and appropriate standards are applied consistently to manage these compliance risks. The development of new businesses and regulatory changes, domestically and internationally, are key areas of focus within this role.

RMG performs an oversight role to the divisional compliance staff to ensure appropriate standards are adhered to.

## Reputational risk

All activities have elements of reputation risk embedded. Managing reputation risk is an essential role of senior management as it has the potential to impact earnings and access to capital. Macquarie seeks to manage and minimise reputation risk through its corporate governance structure and risk management framework.

Macquarie operates under a strong corporate governance structure consistent with the regulatory requirements of various regulators including the Australian Securities & Investments Commission (ASIC) and APRA. Goals and Values incorporating a clear code of ethics are communicated to all staff and Integrity Officers are in place to deal with potential issues of integrity.

Business units take ownership of risk, including reputation risk. In addition, a robust, independent risk management framework incorporates active management and monitoring of risks arising within Macquarie. The implementation of this framework by RMG is a major mitigant to reputation risk.

The various policies, procedures and practices in place aim to minimise reputation risk and regular reporting to the Executive Committees and Boards includes detail on reputational risk issues as appropriate.

The direct losses arising from reputational risk (such as loss of mandates and regulatory fines) are taken into account in the operational risk capital model.

## Internal Audit

Internal Audit provides independent assurance to senior management and the Board on the adequacy and effectiveness of Macquarie's financial and risk management framework. Internal Audit forms an independent and objective assessment as to whether risks have been adequately identified, adequate internal controls are in place to manage those risks and those controls are working effectively. Internal Audit is independent of both business management and of the activities it reviews. The Head of Internal Audit is jointly accountable to the BACC and the Head of RMG and has free access at all times to the BACC.

## Basel II

Macquarie Bank is accredited under the Foundation Internal Ratings Based Approach ('FIRB') for credit risk, the Advanced Measurement Approach ('AMA') for operational risk, the internal model approach for market risk<sup>1</sup> and the internal model approach for interest rate risk in the banking book.

These advanced approaches place a higher reliance on a bank's internal capital measures and therefore require a more sophisticated level of risk management and risk measurement practices.

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<sup>1</sup> Standard approach applied for specific risk on debt securities