FINANCIAL INSTITUTIONS

OVERVIEW

1. Islamic banking is not a negligible or merely transient phenomenon. Islamic financial institutions are here to stay and there are signs that they will continue to grow and expand. The number of Islamic financial institutions worldwide has risen from one in 1975 to over 300 today in more than 75 countries.

2. They are concentrated in the Middle East and Southeast Asia (with Bahrain and Malaysia the biggest hubs), but also appear in Europe and the United States. Total assets worldwide is estimated to exceed $250 billion, and are growing at an estimated 15 percent a year.

3. Interest-free and equity-based financing which is the hallmark of Islamic banking is based on the principles of Islamic economics. The aim of the latter is not only the elimination of interest based (riba) transactions and the introduction of zakah (contribution to the poor) system but also the establishment of a just social economic order (al-adl wal-ihsan), upholding the welfare of the society and its quality of life, the continued education of the masses, maximum employment generation and the pursuit of economic growth.

4. Against this backdrop, ECRL believes there is a role for ratings. The task at hand is to provide:

- Rigorous and consistent independent analysis of quantitative and qualitative factors
- Assessment of risk profiles (both institutions and product)
- Dissemination of information on our independent assessment to the public

5. Ratings will play a catalytic role in the future development of Islamic banking by differentiating an Institution offering Islamic Financial Services (IIFS) from its peers and overcoming misinformed perception/prejudice.

APPROACH TO RATING FINANCIAL STRENGTH…A MODIFIED METHODOLOGY

ECRL's rating methodology recognizes the uniqueness of Islamic banks' activities, and employs the CAMELS framework with modifications

- The basic principle underlying our FI rating methodology is to understand the business and operations of the FI in question (and the risks inherent to this business); the objectives of its management; the environment it operates in and the most likely future development of its business.

- The economy in which a FI operates has a significant bearing on its financial performance, and it is essential to take into account any economic risk that may affect its creditworthiness. Of relevance is GDP growth, inflation, growth in consumer lending, savings and investment, trends in unemployment, exchange rates, bond yield and national and/or regional property price indices.

- Our experience in rating FIs is largely limited to domestic FIs although there have been cases in which ECRL has had to assess FIs in other countries. The process for these FIs works through sovereign and macro-economic issues, banking sector outlook and regulatory trends, and eventually to the CAMELS rating components. ECRL believes that the same rating components are applicable to an IIFS…of course, with certain modifications.

- The application of theoretical aspects of Islamic banking systems differs from country to country under different economic conditions and social environments. Hence, for a rating of an IIFS or any FI for that matter, on an international basis, the rating approach has to be flexible but not so flexible as to lack any coherent methodology.

CAPITAL ADEQUACY…the functions of capital:

- Protects a bank against unanticipated losses
- Sustains a bank through poor economic times
- Gives creditors comfort that their debts will be repaid

Capital represents the shareholders' investment and their "stake put at risk". Adequacy of capital is a very important rating consideration as it is considered to be one of the pillars on which the soundness and stability of the banking system rests. Capital is viewed as a buffer or cushion for absorbing losses inherent in the normal conduct of an FI's business and to protect depositors and counterparties from the institutions' on and off-balance sheet risks. Capital Adequacy is evaluated in relation to:
- volume of risk assets

- volume of marginal/inferior assets
- contingents (off-balance sheet items)
- operational risk
- bank growth experience, plans and prospects
- strength of management in relation to the above
- dividend policy

Capital adequacy ratios indicate the robustness of an IIFS to shocks to its balance sheet. However, there are limitations to their use – they are lagged indicators Uniqueness of IIFS… warranting a modified rating approach:
- Inherent need to analyze the composition of the underlying asset portfolio
- Mudarabah:

- IIFS provides entire capital for financing a project and the entrepreneur, his expertise and effort. Profits
- and losses are shared on the basis of a certain fixed ratio.

- Financial losses are borne exclusively by the IIFS. No recognizable default on the part of the agent entrepreneur until Profit and Loss Sharing (PLS) contract expires barring proven negligence or mismanagement on the part of the entrepreneur.
- Musharakah:
- IIFS is not the sole provider of funds. Profits and losses are shared in proportion to capital contribution.
- All parties have management participation rights.

- Direct investments
- Assets represented by PLS transactions are higher risk than those represented by non PLS transactions

Uniqueness of IIFS… treatment of PSIAs

Treatment of Profit Sharing Investment Accounts (PSIAs) – Not liabilities in the conventional sense

▪ Islamic Financial Services Board's (IFSB) ED2

▪ deducts risk weighted assets funded by PSIA from the denominator of the CAR ratio or

▪ provides for a percentage of the risk-weighted assets of the PSIAs to be included in the denominator of the CAR at the discretion of the supervisory authority to cater for fiduciary and displaced commercial risks.

▪ Exposure to risk of losses arising from mismanagement and negligence (fiduciary risks), which may lead to legal liability, and to the risk of transfers from shareholders' funds for the purpose of the "smoothing" of investors' returns (displaced commercial risk) AAOIFI upholds that unrestricted investment accounts, the largest funding source for the IIFS, are part of the financial position (balance sheet) of an IIFS to be classified between a liability and equity capital. It is maintained that these investment accounts are not a liability for an IIFS because an IIFS is not obligated, in case of loss, to return the original amount of funds received from the account holders unless the loss is due to negligence or breach of contract. As investment deposits are not treated equivalent to conventional bank deposits, the risk to the IIFS as an institution, is considerably reduced.

Consequently, shareholders' capital has to absorb only that part of losses which arise as the share of IIFS' own funds in lending and investing. In current practice, however, deposits including investment accounts are either explicitly or implicitly guaranteed in most jurisdictions. In Malaysia, investment accounts are disclosed as part of 'Deposits from customers' along with non-Mudarabah savings and demand deposits.

ASSET QUALITY…an evaluation

Asset Quality is evaluated in relation to:

o level, distribution and severity of non-performing assets and reduced rate assets (assets represented by
PLS transactions that deliver lower than expected/no profit)

o adequacy of provisioning practices and reserves

o demonstrated ability to administer & collect problem credits

o credit origination process & monitoring of risk factors

o policies concerning maturity, risk spectrum and concentration of financing & investment activities.

Assessing asset quality is important since risks to the solvency of FIs are often derived from the impairment of assets. Inferior asset quality can predispose a FI to capital erosion. Asset quality is driven by the quality of internal credit evaluation, monitoring and collection within the FI. Risk mitigating measures may take the form of collateralizing loans, having adequate provisions against potential losses, or avoiding financing or investment concentrations in any specific geographical or economic sectors. It is particularly important to monitor whether the increase in the indebtedness in the economy is concentrated in sectors that are vulnerable to shifts in economic activity, for e.g. real estate. For an IIFS that maintains significant presence in both retail and corporate lending, monitoring the level of household and corporate indebtedness in the economy is a must.

Profit Loss Sharing… a marginal feature in the current landscape of Islamic Banking and Finance

- In practice, PLS modes feature marginally in Islamic banking and finance
- Inherently vulnerable to agency problems (particularly in Mudarabah financing where there is an absence
of financier control rights)
- Exposure to risks normally borne by equity investors
- Non-PLS/Secondary (Debt-based) modes of financing dominate
- In most non-PLS modes, IIFS features in the middle of a tri-partite relationship linking the ultimate user/buyer & the producer /seller
- Market & counterparty risks exist alongside credit risk
- Higher risk of delinquencies as late payments cannot be penalized as in the case of interest-based conventional financing
- Implications: Most IIFS' loan portfolios exhibit dominance by shorter term non-PLS trade financing modes.

Lack of diversification may increase risks and destabilize the asset portfolios

Almost all theoretical models of Islamic banking are either based on Mudarabah (trustee finance contract) or Musharakah (equity participation contract) or both. Musharakah transactions under Shariah are normally for partnerships in trading transactions that could be for the acquisition and sale of commodities and real estate. However, in practice, PLS modes feature marginally in Islamic banking and finance. With equity-based investment banking, monitoring and control, especially in lending to small businesses are important considerations particularly as the IIFS is exposed to greater risk of economic loss with PLS transactions.

Bankruptcy initiation and financial restructuring of parties to PLS transactions make losses less straightforward for the IIFs than is the case with conventional bank lending. Also, the IIFS faces an additional risk related to the nature of the commodity which is the subject matter of the Mudarabah contract, and necessitates the setting of different risk weights for different commodities.

Asset Quality… considerations:

- Non-performing financing (NPF) ratio
- An ex-post measure of asset quality
- Tends to be a lagging indicator
- Charge-offs to gross loans
- {NPF – loss reserves}/capital
- Gives the scale of additional provisions that may need to be absorbed by capital
- Financing concentration by sector/total financing
- Detects increased risk when banking sector as a whole has a concentrated exposure to a sector
- Level of reduced rate (PLS) assets.

▪ Investment policy -diversification, liquidity, quality, FX exposure and minimum required risk adjusted returns.

• Even with the non-PLS modes, the risk faced by the IIFS extends beyond credit risk.

o The Salam and Parallel Salam contract involves three distinct stages: cash disbursement of finance to the customer, delivery of the commodity by the customer in settlement of the finance and lastly, realization of the commodity into cash by the IIFS - justifying multiple risk weights depending on the stage. In between the second and third stages, exposure to commodity risk and counterparty risk are present.

o With Ijarah Muntahia Bitamlik (hire purchase) lease; assets are carried on the balance sheet of the IIFS. Under Shariah law, substantial risks and rewards of ownership cannot be transferred to the lessee during the term of the lease
– only usufructuary rights. Hence, risk of ownership of assets lies with the IIFS along with counterparty (lessee) risk.

o Murabahah transactions in which the IIFS acquires an asset for sale to its customers can be non-binding or binding – with the former, there is exposure to market risk. Under a non-binding promise, the customer may refuse to purchase the asset. The IIFS may have to sell the asset to a third party, possibly at a loss.

o Under an Istisna' contract, the IIFS pays a contractor or a manufacturer on the basis of percentage of completion and bills its ultimate customer also on the basis of percentage completed. If the amounts paid to the contract or manufacturer exceed the amount billed, the IIFS would have an exposure on the asset being manufactured or constructed as well as on its ultimate customer.

• IIFS take on off-balance sheet commitments, and it is important to analyse the risks involved. Such commitments include guarantees and letters of credit as well as derivatives, such as profit rate swaps.

MANAGEMENT AND STRATEGY…identifying potential inadequacies

▪ Management is evaluated in relation to:
▪ quality and character of management, encompassing:
o their knowledge, experience, and technical competence; leadership, organizational, and administrative
skills; planning skills and adaptability; and honesty and integrity technical competence;
▪ compliance with banking regulations and statutes
▪ adequacy and compliance with internal policies
▪ management depth & succession planning
▪ corporate governance
▪ presence of internal controls to reduce mismanagement risk & reduce moral hazard

• Evaluating management necessitates consideration of many factors and a number of different information sources; the IIFS' financial statements being one source. Declines in financial performance and unfavorable comparison with peer IIFS may be indicators of management inadequacies. However, financial performance cannot be taken as the sole measure of management performance.

• Bad management practices can be masked by such things as a strong economy or a strong competitive position. Once conditions reverse or competition strengthens, poor practices are revealed.

• ECRL goes beneath the numbers to the organizational and operational matters that produced the bank's operating results to understand why the IIFS performs as it does and to determine if that performance is sustainable.

EARNINGS PERFORMANCE

Earnings are evaluated in relation to:

- historical trend of an IIFS' earnings performance, the stability and quality of its earnings and its capacity to generate profits;
- earnings composition and susceptibility to economic developments;
- net financing income, including the rate of return on the IIFS' investments, trends in financing volumes and rate of return risks in respect of investment accounts;
- fees and commissions (guarantee, underwriting, service charges);
- overhead expenses, breaking down personnel and other expenses, and comparing the expense level not only with total income but also where possible with earning assets, to the number of branches (in the case of retail banking) and to the number of employees;
- allowances for losses in financing; and
- exceptional income and expenditure items.

• The elimination of interest in Islamic Banking does not mean zero-return on capital. Rather, an IIFS participates in the yield resulting from the use of funds.

• PSIA holders also share in the profits according to predetermined ratio, and are rewarded with profit returns for assuming risk.

• The recent trends of financial liberalization and deregulation as well as ensuing integration of global financial markets creates new realities for an IIFS by putting IIFSs in direct competition with conventional FIs. To compete in local and global deposit markets, an IIFS has to offer competitive rates of return at acceptable risk levels.

• The management of an IIFS must consider the interactions between different performance measures in order to maximise the value of the IIFS. In common with conventional FIs, earnings signal the capability of an IIFS to cover losses in financing and provide adequate capital growth.

• ECRL considers both the external and internal determinants of IIFS' net margins and profitability. Among the external factors studied are the macroeconomic, regulatory and financial market environments. External competitiveness is best measured by the IIFS' market share, regulatory compliance and public confidence. Internal characteristics include size of the IIFS, leverage, character of financing and investment activities, funding and overhead.

PLS…a deviation from original principles

▪ PLS principle is not strictly applied in respect of PSIAs 'displaced commercial risk'. Loss on investment portfolio may not be passed down to investment account holders.
▪ Reserves to smooth returns (Investment Risk Reserve and Profit Equalization Reserve) mitigates displaced commercial risk.
▪ IIFS' performance is more akin to an asset manager in respect of PSIAs.

• An IIFS is likely to find itself under pressure to pay a rate of return to its PSIA holders, which is sufficient to induce such investors to maintain their funds with the IIFS.

• If this 'required rate of return' is higher than that which would normally be payable under the normal terms of the investment contract, the IIFS may forgo some of its share of profits, which would normally have been distributed to shareholders to avert withdrawals of funds by investors.

• Thus, part of the commercial risk attached to the returns attributable to PSIAs is, in effect, transferred to the IIFS' own capital, resulting in 'displaced commercial risk'.

LIQUIDITY AND FUNDING

▪ Liquidity Risk is concerned with funding at appropriate maturities and rates and liquidating assets in time at reasonable prices.
▪ Determination of the adequacy of an IIFS' liquidity position depends upon an analysis of:
▪ the current liquidity position (liquidity and dependency ratios),
▪ present and anticipated asset quality,
▪ present and future earnings capacity,
▪ historical and anticipated future funding requirements, and
▪ options for reducing funding needs or attracting additional funds.
▪ May be more of a concern in an IIFS due to:
▪ lack of liquidity management auxiliary institutions;
▪ fewer participants;
▪ an underdeveloped inter-bank and active secondary market
▪ limited tradable Islamic instruments
▪ absence of 'Lender of Last Resort' for IIFS in some jurisdictions

• As far as liquidity is concerned, we analyze both the IIFS' internal sources of liquidity (marketable securities, maturing loans, etc.) and external sources (such as access to capital markets, compensating balances with FIs and the LOLR 'lender of last resort' facilities). ECRL considers the IIFS' strategy for liquidity risk management, the effectiveness of board and senior management oversight, and processes for measuring, monitoring and controlling liquidity risk.

• The formality and sophistication of the liquidity management process should be appropriate for the overall level of risk incurred by the bank. As an insurance policy against being unable to cover a shortage of cash flow, most IIFS hold a portfolio of marketable securities and other assets, which can be sold quickly for cash in case of need.

• It is, however, important to assess the availability of assets readily convertible into cash. Finally, the IIFS should have a clear contingency plan in case it runs into difficulties, specifying who is responsible for the management of liquidity in a crisis, what action is to be taken and at what point, and what arrangements exist with "last resort" lenders.

Uniqueness of IIFS:

▪ All profit sharing deposits could be deemed variable profit rate liabilities. Accordingly, a significant portion of pooled funds should be deployed in variable profit rate assets. Assets, on the other hand, are not re price-able, making ALM a challenge
▪ The liquid nature of FIs' liabilities, related to the predominance of deposits of shortterm maturities predisposes IIFS to hold substantial liquid assets and excess reserves;
▪ Absence of well-organized, liquid Islamic interbank markets—that can accept IIFS' overnight deposits and offer them lending to cover short-term financial needs underpin IIFS' tendencies to concentrate on short-term assets.

Macro level liquidity issues:

▪ The markets for Islamic instruments and government securities remain shallow
▪ Slow development in Islamic financial instruments.
▪ Absence of Lender of Last Resort (LOLR) facilities in many jurisdictions.

• Excess liquidity implies underutilization of financial resources, lower income and loss of competitiveness. Liquidity risk emanates from the nature of banking business, from the macro factors that are exogenous to the IIFS, as well as from the financing and operational policies/ ALM infrastructure that are internal to the IIFS.

• Unanticipated outflows in respect of contingent items can impinge on liquidity much in the same way that differences in the realized and assumed availability of funding, marketability of assets or their use may impinge liquidity.

Liquidity Management Avenues:

▪ Deposit Management
▪ Choice of Mode of Financing and Investment (determines asset liquidity)
▪ Maturity Matching and Gap Analysis
▪ Funding Diversification
▪ Reserves and Provisions (in relation to averting withdrawal risk)
▪ Deposit Insurance
▪ Compensating balances with FIs/Central Bank
▪ Sukuk investments (invest in tradable instruments to park excess liquidity)

SENSITIVITY TO MARKET RISK

▪ Degree to which changes in interest rates, FX rates, commodity prices or equity prices can affect the IIFS' earnings or economic capital.
▪ Market risk exists in the banking book unlike conventional FI.
▪ Interest rate risk affects earnings and asset values
▪ FX risk
▪ The open positions may be either trading positions or simply, exposures caused by the IIFS' overall assets and liabilities.
▪ Equity risk
▪ via taking positions in equities for trading purposes whether directly or through a fund manager based on Mudarabah contracts.

- Commodity risk
- via Salam contracts and Musharakah contracts for purchase and sale of commodities.

• The issue of market risk is equally important if not more so, for IIFS as for conventional ones. Although both types of FIs could be exposed to foreign exchange risk, the various hedging techniques available to conventional banks cannot be used by Islamic ones. The open positions may be either trading positions or simply, exposures caused by the IIFS' overall assets and liabilities.

• Market risk in the banking book arises from Murabahah, Ijarah, Salam (non-PLS) modes as well as PLS modes of Mudarabah and Musharakah. The IIFS may also be taking positions in equities for the purpose of trading and thus would be exposed to equity risk. The IIFS may take the trading position directly or through a fund manager based on Mudarabah contracts. ECRL considers the diversification impact present in the Mudarabah portfolio.

• IIFS may have positions in commodities, which could also be subject to market risk through Salam contracts and/or Musharakah contracts for purchase and sale of commodities. While Basel methodology allows computation of commodity risk based on a maturity ladder approach or a simplified approach, in the case of Salam and Parallel Salam contracts, the simplified approach may yield a 'zero' net impact. Notwithstanding, if a Salam contract fails, the IIFS would have to honor the Parallel Salam contract by purchasing the commodity on the open market.

• ECRL assesses how market risk is being identified, measured, monitored and controlled in a manner appropriate to the IIFS' market risk exposure.

- For all Market Risks (Interest, Equity, FX), ECRL reviews:
- limits for value and earnings at risk
- risk taking guidelines and stress testing parameters
- reported exposures vs. limits and stress test results
- Risk Mitigation
- FX risk: Hedging techniques available to conventional FIs cannot be used by IIFS. Use of exchange of deposit arrangements or Reverse Murabahah to hedge FX risk.
- Interest rate risk: Profit rate swaps as hedging mechanism.
- Equity risk: Risk mitigation via option (Khiyar al-shart) in contract.

• "Khiyar al-shart is an option that is in the nature of a condition stipulated in the contract. It provides a right to either of the parties, or both, or even to a third party to confirm or to cancel the contract within a stipulated time period.

• In essence, this implies that the concerned party gets some time period for reassessment of the benefits and costs involved, before giving final accent or ratification to the contract. Such option is also termed as Khiyar al-tarwih (option of reflection) by some scholars.

• There is a consensus among jurists belonging to all the major schools regarding the permissibility of Khiyar al-shart." (Reference : Dr Mohammed Obaidullah, Islamic Financial Options).

OPERATIONAL RISK

- This covers risk other than market, credit and liquidity risks. Islamic banking products tend to be more complex, resulting in increased operational risk.
- The risk is more to operational risk than Shariah compliance and the need to provide Shariah compliant products. Extends to discharge of fiduciary obligations to all fund providers.
- Rating factors:
- operational risk losses;
- the quality of its organizational structure
- operational risk culture;
- the development of its approach to the identification and assessment of key risks,
- data collection efforts;
- and overall approach to operational risk quantification and mitigation.

• Operational risk has historically been defined as risk other than market, credit and liquidity risks. Basel II puts forward a narrower definition of operational risk: "the risk of loss resulting from inadequate or failed internal processes, people and systems or external events".

• While the full range of operational risks is contemplated here, ECRL believes that the most critical of operational risks in an IIFS relates to Shariah compliance and observance of fiduciary principles.
Notwithstanding, the FI's rating remains essentially an opinion of an IIFS' inherent financial strength, soundness and risk profile with a focus on financial strength.

• It is not our objective to evaluate the degree of Shariah compliance and performance of fiduciary obligations. ECRL has a separate rating product for that. Suffice to say, minor violations of Shariah compliance and fiduciary obligations will not conceivably detract from the institution's financial strength.

• A higher degree of operational risks may arise from PLS modes of financing and investment and negligence in Shariah compliance. Administration of PLS contracts/equity based investment banking is more complex compared to conventional financing. Transactions violating the Shariah, on the other hand, may lead to non-recognition of income from investment accounts that may mutate into liabilities.

• To mitigate operational risks, trained banking staff skilled in investment and Islamic banking practices, appropriate policies and extensive documentation in respect of Islamic transactions must be in place.

FIDUCIARY RATING...A unique approach in rating IIFS

Need to evaluate fiduciary activities of an IIFS on a uniform basis. ECRL's fiduciary rating has the following components:

- Management in relation to its capability and performance of fiduciary activities;
- Risk Management Infrastructure (Facilities/Staff/Records/Accounting/Audit)
- Adequacy of Processes, Practices and Procedures for Shariah Compliance as well as Compliance with laws and regulations.
- Portfolio/Asset Management (including Performance Monitoring and Administering Problem Credits) and

▪ Adequacy of Earnings within the context of delivering value to investors (and in relation to losses, business risks)

Management

Rating considerations here include:

▪ level and quality of oversight provided by board of directors & management incl. relevant committees;
▪ ability to respond to risks and to changing business conditions and introduction of new products;
▪ accuracy, timeliness, effectiveness of MIS and risk monitoring systems given the size, complexity & fiduciary risk profile of the IIFS;
▪ compliance with law, regulations & sound fiduciary principles;
▪ level of experience, competence, integrity and accountability of management;
▪ process for identifying/resolving fiduciary related complaints, litigation, etc; and
▪ quality of legal counsel.

Risk Management Infrastructure

Rating considerations here include:
▪ staffing (training levels & skill sets);
▪ adequacy of records, accounting and data processing systems;
▪ extent to which significant risks are consistently, effectively identified, measured, monitored and controlled;
▪ system of segregation of duties
▪ nature of firewalls to avoid risk transmission between investment deposits and other deposits;
▪ reporting and tracking of exceptions;
▪ disaster recovery programmes/contingency plans for system failures and disasters; and
▪ independence, frequency and scope of internal and external audit functions.

Compliance
The focus is compliance with the Shariah framework, laws, regulations, and accepted fiduciary standards, noting the implications for reputation risk and legal exposure. Rating considerations include:

▪ provision of Islamically acceptable financing modes and products;
▪ avoidance of economic activities involving speculation and/or financing of goods & services which contradict the Islamic values;
▪ adequacy of overall policies, practices and standard operating procedures governing compliance;
▪ adequacy of policies and procedures addressing conflicts of interest, incl. transactions with related parties, commingling of funds; and violations (frequency, nature and severity)

Portfolio/Asset Management

This rating component focuses on the decision making process, policies and practices in relation to selection, retention & preservation of assets. Coverage here extends to:

- policies concerning maturity, risk, spectrum of financing and investment activity;
- quality of credit assessment & investment research supporting financing & investment decisions;
- extent and adequacy of periodic reviews of investment performance; adequacy of tracking of risk exposures and marginal assets;
- level, composition and nature of defaulted contracts, assets receiving special administrative attention; and
- demonstrated ability to administer marginal assets

Earnings Adequacy

ECRL assesses the IIFS' demonstrated ability to safeguard funds and to invest them at reasonable rates of return in relation to risks assumed. Rating considerations include:

- rates of return on the IIFS' non-PLS financing and investments, and their consistency;
- rate of return accruing to PSIA holders, both level and consistency;
- expenditure and income allocation in relation to PSIAs;
- risks associated with the realization of financing & investment returns (Are returns adequate in relation to charge-offs and business risks?);
- quality of reporting of earnings information (incl. transparency);
- use & adequacy of budgets, earning projections by product lines and customers; and
- methods and tools used to monitor and evaluate earnings adequacy.