

**SUBMISSION TO THE  
AUSTRALIAN FINANCIAL SYSTEM INQUIRY**

**ON**

**THE MEASUREMENT OF  
CAPITAL ADEQUACY FOR  
FINANCIAL PRODUCT PROVIDERS**

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**1) EXECUTIVE SUMMARY**

1.1 A provider of financial products must be able to maintain an adequate capital base so as to demonstrate a capacity to meet its obligations. This paper addresses the question “*How much capital is adequate?*” It briefly reviews recent relevant trends in the financial services industry and its regulation in Australia and draws a comparison, using relatively simple but realistic numerical examples, between the current capital adequacy requirements for banks and life insurance companies in particular. This comparison highlights significant inconsistencies and the potential for “regulatory arbitrage” which currently exists where a bank and a life insurer sell a similar capital guaranteed “deposit” type product as illustrated below:-

| <b>INDICATIVE CAPITAL ADEQUACY REQUIREMENTS</b> |                         |                     |
|---|-------------------------|---------------------|
| REGULATOR                                       | BIS/RBA<br>Requirements | ISC<br>Requirements |
| For a Typical Bank Asset Portfolio              | 5.8%                    | 2.5%                |
| For a Typical Life Insurer Asset Portfolio      | 6.6%                    | 11.6%               |

1.2 Potential regulatory arbitrage to this extent is clearly detrimental to the effective operation of regulation of financial product providers. Clearly, if the capital required to service a particular market is set “too high” by the regulator for a particular group of market participants, those not subject to that requirement will have a competitive advantage which will tend to undermine the regulator’s initial objective. The paper proposes a possible framework for addressing these issues and their related impact on merger and competition policy.

## 2) INTRODUCTION

- 2.1 The need for providers of financial products to demonstrate that they have adequate capital to support their obligations is central to their ability to maintain the confidence of both their present and future customers.
- 2.2 But employing capital has a cost, so financial product providers will generally seek to reduce the capital employed to the minimum required without jeopardising their ongoing capacity to operate and meet their obligations. For those concerned with the regulation of financial institutions, this leads to the need to address the question "*How much capital is needed to demonstrate ongoing operating capability given the risks inherent in the relevant business?*"
- 2.3 The traditional tool for testing this question has been an organisation's balance sheet. However, as many recent failures and debate over accounting and disclosure standards has shown, this approach leaves a lot to be desired because a traditional balance sheet does not disclose many of the risks that an entity is exposed to and hence cannot provide a reliable basis for analysing capital requirements.
- 2.4 What is needed to understand the true position is a forward looking analysis which examines a range of possible future outcomes and allows for the probability, or risk, attaching to those outcomes.
- 2.5 In the case of a financial product provider, these risks can be classified into three primary categories, being:
- a) liability risk, which arises from future movements in liability values (eg. deposits, unit trust investments, annuities, insurance cover)
  - b) asset risk, which arises from future movements in asset values (eg housing loans, leases, debt securities, equities), and
  - c) resilience risk, which arises from the interaction between the organisation's liabilities and assets (eg. resilience risk is low in a unit trust investing in liquid assets if the value of assets and liabilities is directly linked)
- 2.6 These three types of risks are clearly not independent of one another but nevertheless provide a framework upon which capital requirements can be assessed. This framework can operate independently of any considerations as to whether the institution concerned happens to be a bank, a life office, an insurer, a superannuation fund, a friendly society, a building society or a credit union.
- 2.7 It is the nature of the products sold and the assets and liabilities created by those products which is important to the assessment of capital adequacy in this context rather than the nature of the institution that has sold the product.

2.8 This paper seeks to develop and illustrate this proposition by examining recent trends in the market place in Australia for financial services and reviewing recent regulatory developments relevant to banks and life insurance companies in particular. The paper then compares, using a range of relatively simple illustrations the effect of differing capital adequacy requirements applicable to banks and life insurers at present highlighting the existing inconsistencies and the potential for "regulatory arbitrage" which currently exists.

### 3) RECENT MARKET TRENDS

3.1 During the last decade, there have been a number of clear trends in the market for financial services. These trends have tended to blur the distinction between the various types of financial institution, and particularly between banks and life insurance companies. We have also seen many well documented examples of the merger or attempted merger of banking and life insurance operations.

3.2 **Convergence** is occurring with many of the financial products offered by banks and insurers being essentially similar products. Many financial institutions which wanted to operate in markets denied to them by virtue of their institutional status (as either banks or insurers), have established subsidiaries with the necessary licences to operate in those other areas of business. Both banks and insurers have established funds management subsidiaries. Some insurers have established banking subsidiaries and vice versa. This has been necessary for these institutions because of the current system of regulation, rather than for any intrinsic economic or business reason. This blurring of boundaries will continue with the introduction of Retirement Savings Accounts ("RSAs")

3.3 There has also been a trend toward **securitisation** whereby product providers, including banks, can "package" normally illiquid and unmarketable financial assets into a form that can be sold into the market, thereby removing the asset and liability from the provider's balance sheet. Assets involved include residential mortgage, and consumer credit receivables. Such programmes are commonly given various forms of credit support by financial institutions other than banks. This is changing the nature of the capital needs of banks and other product providers.

3.4 There has also been a related trend toward **disintermediation**. This process eliminates the bank as the intermediary between borrowers and lenders. Larger corporate borrowers are now able to approach the market directly and issue securities in their own name instead of having to borrow funds from banks. This is reducing the margins that banks can earn from this type of business and further changing their capital needs.

3.5 A vast and growing array of new financial products is also now available in the form of financial **derivatives**. Some of these products allow a financial institution to change its risk profile from one form to another and to potentially circumvent regulation and control. Innovation in this area has tended to outstrip the capacity of regulators and others to "stay ahead of the game," with several well publicised financial disasters having occurred internationally.

3.6 The other trend of significance is that of **consumerism**. Consumers of financial products, both individuals and organisations, are far more aware of the benefits and pitfalls of various financial products than used to be the case. The market is much more competitive than it used to be.

#### 4) REGULATORY TRENDS

4.1 In the Banking Industry, since the late 1980's there has been a trend toward standardising the regulation of banks' capital adequacy throughout Western industrialised countries. Moves in this direction include:

- a) The Bank of International Settlements (BIS) **Basle Capital Accord 1988**. This was the first attempt by regulators to get an international standard aimed at addressing risk. It focused on credit risk and required banks to set aside a certain amount of capital to cover losses associated with a given counterparty, based on the notional amount of the investment or exposure.
- b) The European Union (EU) **Capital Adequacy Directive (CAD)** developed over the period 1989 to 1993. This was an attempt by the BIS to standardise the capital requirements for banks across Europe. This was also the first attempt to incorporate market risk within the regulatory framework.
- c) There have been various amendments to the **Basle Capital Accord** in 1993, 1995, and 1996, following feedback from industry. These extended the scope of the accord to cover "securities firms" (stock brokers, investment banks and fund managers) as well as banks. These amendments also allowed banks to use their own proprietary risk models for setting the amount of capital required to cover market risk. This is a significant development, and the Reserve Bank of Australia (RBA) is expected to adopt these standards.

4.2 In the Life Insurance Industry we have just seen a complete overhaul of the regulatory standards, with the new Life Insurance Act 1995 updating the older (1945) version of the Act. The new Life Insurance Act has established new standards for solvency and capital adequacy for this industry in Australia. The prudential regulation of superannuation funds has also been transformed by the introduction of the SIS legislation.

#### 5) BANK CAPITAL ADEQUACY

5.1 Banks in Australia are subject to two measures used to control liquidity and capital adequacy. These are the Prime Assets Ratio (PAR) and the BIS capital adequacy ratio of 8% of risk weighted assets. The more recent (1995 and 1996) BIS rules regarding capital for Market Risk are yet to be formally implemented.

5.2 The **Prime Assets Ratio** requires banks to hold a fixed minimum percentage of their liabilities (excluding shareholders funds) in Australia in "prime assets". Prime Assets include Australian notes and coins, cash with the RBA, Treasury notes and other Commonwealth Government Securities. PAR ensures that banks maintain a sufficient level of liquidity. It is not really intended to be a solvency or capital adequacy measure.

5.3 The **BIS Capital Adequacy Ratio** of 8% of risk weighted assets applies to both balance sheet items and off balance sheet items. The purpose of this rule is to provide capital to cover credit risk. Off balance sheet items are converted to a balance sheet equivalent. Assets are classified into five general categories of risk as follows:-

| <b>Risk Weight</b> | <b>Asset Types</b>  |
|--------------------|---|
| 0%                 | Currency, gold, deposits with RBA and Commonwealth Government Securities with less than twelve months to maturity |
| 10%                | Commonwealth Government securities with more than twelve months to maturity                                       |
| 20%                | Claims on other banks   |
| 50%                | Residential Property Mortgage loans   |
| 100%               | Corporate loans and other assets  |

5.4 These guidelines also define what types of capital are allowed and in what proportions. Core capital consists of paid up ordinary share capital, and retained earnings, non cumulative irredeemable preference shares, general reserves and non repayable share premium account. Secondary capital includes perpetual subordinated debt, cumulative redeemable preference shares, some term subordinated debt and various other items. Core capital must be at least half of the 8% risk weighted capital requirement.

5.5 The purpose of the 1996 amendment to the BIS capital accord is to make banks set aside capital to cover market risk (in addition to credit risk). For these purposes, banks segregate their assets into two parts: the “banking book” and the “trading book”. The capital required in respect of an asset or instrument depends on whether it is in the banking book or the trading book.

5.6 The **banking book** comprises traditional bank loan type products such as loans to business, lease finance, consumer credit and residential mortgages. These types of assets are generally difficult to sell on to a third party, and suffer from lack of marketability and liquidity. Banks are increasingly using the technique of securitisation to convert these assets into a more marketable form, so they can be sold off to other parties and removed from the balance sheet. The assets in the banking book are captured by the 8% risk weighted capital requirement.

5.7 The **trading book** comprises assets and financial instruments that the bank can usually dispose of quickly and where it is rarely the intention to hold the instrument to maturity. These instruments are (usually) highly liquid and marketable. Examples include foreign exchange positions, short term debt instruments, bonds, swaps, futures, etc.

5.8 For assets in the trading book, there are separate capital charges for “specific risk” and “general market risk”. Assets are classified into the following four broad groups - debt instruments, foreign exchange, equities (including property) and commodities.

5.9 Specific risk includes default risk and other risks specific to a particular security or issuer (eg a down grading by a rating agency). The capital charges for specific risk are prescribed by the RBA according to the classification set out in paragraph 5.8.

- 5.10 The capital charge for general market risk can be calculated according to one of several methods. The RBA has not yet formally adopted one or more of the BIS/Basle Capital Accord approaches in this area. Broadly speaking, there are maturity and duration methods and the newer “internal models” method.
- 5.11 The maturity and duration methods specify the capital charge for financial instruments according to their term to maturity or their duration respectively and also according to their type.
- 5.12 The internal models approach is quite different. This approach allows banks to use their own risk management models (Value at Risk models) to quantify the amount of risk capital needed to cover market risk, subject the models meeting specified criteria, and regulatory approval.
- 5.13 In particular, the models must use
- a) at least a one year period of historical data,
  - b) a minimum ten day time frame
  - c) a 99% confidence level
- 5.14 This means the capital should be sufficient to cover the change in value of the portfolio over a ten day time frame at least 99% of the time.
- 5.15 Banks are also required to use a **stress testing** approach to setting the capital required, in addition to their internal models. This means looking at various plausible scenarios for what might happen to the assets and liabilities and avoids relying entirely on a “black box” or purely mathematical approach to assessing risk and the capital required.
- 5.16 A bank’s overall minimum capital requirement will be the sum of :
- a) The credit risk requirements, excluding debt and equity instruments in the trading book but including credit counterparty risk on over the counter (OTC) derivatives in either the banking or the trading book.
  - b) The capital charges for specific risk for instruments held in the trading book
  - c) The capital charges for general market risk for instruments held in the trading book obtained from either:
    - i) the “standard method” (maturity or duration method) applied and summed across the four general classes of asset, or
    - ii) the internal models method which deals with the whole trading book as a single portfolio

## 6) LIFE INSURANCE CAPITAL ADEQUACY AND SOLVENCY STANDARDS

6.1 The recently introduced Life Insurance Act 1995 established a two tier capital requirement on the statutory funds of a life company with each tier considering the capital requirements in a different set of circumstances. The first tier - a minimum capital requirement - is intended to ensure the solvency of the company. The second tier demonstrating capital adequacy is intended to secure the financial position of the company as a going concern.

6.2 The stated purpose of the capital adequacy standard in the Act is:-

*“to ensure, as far as practicable, that there are sufficient assets in each statutory fund of a life company to provide adequate capital for the conduct of the business of the fund in accordance with this Act and in the interests of the owners of policies referable to the fund”*

6.3 The Life Insurance Solvency and Capital Adequacy Standards are both built upon the basis that a forward looking assessment of the company’s financial position is developed using the Best Estimates available for critical assumptions which determine the Best Estimate values of liabilities and assets. Specified prudential margins are then added to these Best Estimate Assumptions to create revised liability and asset value estimates which incorporate a “margin of error” compared to the liability and asset values calculated using Best Estimate Assumptions used to report the company’s earnings and financial position in its accounts. The specified prudential margins added to calculate the Capital Adequacy requirement are larger than those required to calculate the Solvency requirements so that generally, the capital required for a company to demonstrate Capital Adequacy is larger than that required to demonstrate Solvency.

6.4 The life insurance Solvency and Capital Adequacy Standards also place reliance on the professionalism of the company’s Appointed Actuary to ensure that the standards are correctly interpreted and appropriately applied to that company in accordance with the principles of the Standards. The consequences of a life insurer failing to demonstrate that it is Solvent and Capital Adequate are onerous. Broadly speaking, failure to demonstrate Solvency is likely to result in the appointment of a judicial manager by the ISC and possible winding up. Failure to demonstrate Capital Adequacy is likely to prevent payment of dividends to shareholders and may possibly prevent payment of interest on sub-ordinated loans.

6.5 In brief, the Solvency Standard deals with capital needs in a wind-up (or “run-off”) situation, assumes the fund is closed to new business and aims to provide for obligations to policy holders and creditors to be met while the fund withstands adverse operating experience at specified levels.

6.6 The components of the Solvency requirement are:

a) **Solvency liability:** this is the aggregate of policy holder liabilities valued on a prescribed basis that is more conservative than the “best estimate basis” using the prudential margins in assumptions

b) **Other liabilities:** liabilities to other creditors

c) **Expense reserve:** a provision for the incurring of fixed acquisition expenses in a closed fund



d) **Resilience reserve:** this provides for the risk arising from mismatching of Asset and Liability exposures. This mismatching creates a need for a reserve to cover adverse movements in the investment markets to the extent they are not matched by a corresponding movement in the liabilities.

e) **Inadmissible assets reserve:** this is a reserve to cover risks from

- assets whose value is dependant on the continuation of the business
- holdings in related companies
- concentrated asset exposures

6.7 The Capital Adequacy Standard deals with the capital needed to support a viable ongoing concern, assumes the fund is open to new business and aims to provide for the reasonable expectations of policyholders and creditors while the fund withstands worse adverse operating experience than is assumed for the Solvency Standard.

6.8 The components of the Capital Solvency requirement are:

a) **Capital Adequacy liability:** the aggregate policy holder liabilities - valued on a more conservative basis than that used for solvency (using larger prudential margins)

b) **Other liabilities:** liabilities to other creditors

c) **Resilience reserve:** this provides for the risk arising from mismatching of Asset and Liability exposures. This mismatching creates a need for a reserve to cover adverse movements in the investment markets to the extent they are not matched by a corresponding movement in the liabilities. The resilience reserve for Capital Adequacy is more stringent than that for Solvency.

d) **Inadmissible assets reserve:** this is a reserve to cover risks from

- holdings in related companies
- concentrated asset exposures

e) **New business reserve:** the purpose of this is to provide working capital for future business development.

6.9 In both the Solvency Standard and the Capital Adequacy Standard, the **resilience reserve** explicitly takes account of the risk arising from the mismatch of assets and liabilities, ie the “interaction” between the assets and the liabilities. The resilience reserve explicitly allows for the beneficial impact on asset risk of diversification in the asset portfolio.

6.10 The resilience reserve allows explicitly for **market risk** and is determined by reference to the effect of the assets and the liabilities of a prescribed scenario of changes to the economic environment which are measured by prescribed changes in yields (except for FX exposures). The amount of the resilience reserve is the amount that enables the fund to be able to meet the policyholder and other liabilities after the happening of the prescribed scenario.

6.11 For the Solvency Standard, the prescribed changes used are:

|                  |                                |
|------------------|--------------------------------|
| Equities         | - increase yield by 1.25%p.a.  |
| Property         | - increase yield by 1.25%p.a.  |
| Interest Bearing | - increase yield by 1.75%p.a.  |
| Indexed Bonds    | - increase yield by 0.60%p.a.  |
| FX Exposure      | - decrease value by 10.00%p.a. |

6.12 For the Capital Adequacy Standard, the prescribed changes used are:

|                  |   |
|------------------|---|
| Equities         | - increase yield by $0.50\% + (0.4 \times \text{Yield})\%$ p.a. |
| Property         | - increase yield by 2.50%p.a.                                   |
| Interest Bearing | - increase yield by $1.00\% + (0.2 \times \text{Yield})\%$ p.a. |
| Indexed Bonds    | - increase yield by 1.00% p.a.                                  |
| FX Exposure      | - decrease value by 15.00%                                      |

## 7) COMPARISON OF BANKS AND INSURERS

7.1 Traditionally, the liabilities of banks were straightforward and easy to value. This is less true today than it used to be, with the advent of financial derivative contracts, which can be liabilities or assets. Such instruments, depending upon their complexity, can be quite a challenge to value. Capital requirements for banks have concentrated on the development of specific valuation techniques for the assets and credit risks associated with them.

7.2 In contrast, the liabilities of insurers are complex contingent liabilities which require specialist (actuarial) techniques to value them. Historically, capital requirements imposed on insurers were concentrated on the liabilities until the introduction of the revised Life Insurance Act 1995.

7.3 In summary, in the past there has been more emphasis on the asset side of the balance sheet for banks whereas for life insurers, there has been more emphasis on the liability side of the balance sheet.

7.4 Both banks and life insurers are active participants in financial markets, intentionally exposing their portfolios to mismatch positions for the benefit of obtaining higher returns for their stakeholders. Life companies, generally, have higher exposure to property and equity markets than banks and lower exposure to debt, foreign exchange and commodity markets.

7.5 The BIS Capital Adequacy requirement for banks differ substantially from the life insurance resilience reserving requirement in that the banks use a much shorter time frame than the insurers (ten days vs one year) and have considerable discretion in constructing their internal models whereas the life insurers must use specified scenarios for yield changes.

## 8) COMPARISON OF CAPITAL ADEQUACY REGIMES FOR A CAPITAL GUARANTEED DEPOSIT PRODUCT

8.1 We now consider the application of the banking and the life insurance capital adequacy rules applied to a bank and a life insurer both offering a capital guaranteed deposit account product. This example illustrates the different treatment afforded to the same product and the same assets under the two different regulatory regimes.

- 8.2 There are seven asset classes considered:
- “cash”, being a 30 day government debt security
  - government bonds with a duration of 3 years
  - a portfolio of variable rate home loans
  - a portfolio of variable rate credit foncier business loans
  - a well diversified equity portfolio (eg.the ASX ordinaries index)
  - a well diversified property portfolio (eg. the ASX property trusts index)
  - overseas assets : a holding of US currency
- 8.3 For the bank, we have assumed that the home loans and commercial loans are held in the banking book. We have assumed all other assets are held in the trading book. We have used the standard approach to quantifying general market risk for the assets in the trading book. We have also assumed that the property portfolio has the same risk characteristics as the equity portfolio.
- 8.4 For the insurance company, we have assumed that the dividend yield on the share portfolio is 4.0%, and that the rental yield on the property portfolio is 6.0%. The solvency and capital adequacy standards for life insurers specify the capital required for the resilience reserve in terms of the effect on the asset value of a change in the yield. The standards specify what the changes in yield are, but do allow for the benefits of asset diversification (see Appendix 2).
- 8.5 For the variable rate loans, this means the change in the yield prescribed in the life insurance solvency and capital adequacy standards has no effect on the value, and hence there is no capital charge in respect of these assets for a life insurer. For a bank, home loans are subject to a 4% capital charge (where the Loan to Valuation Ratio is less than 80%) and business loans are subject to an 8% capital charge.
- 8.6 Equity and property assets are subject to much higher capital charges in the insurance standards than in the bank standard. This is apparent in Table 1 which shows the capital charges applicable to each type of asset before taking account of the asset diversification allowance for life insurers.
- 8.7 The capital required for the overseas asset is much higher under the insurance standards than under the banking rules.
- 8.8 The overall results for the assumed asset portfolio are set out in Table 1.

**Table 1: Capital charges applying to various asset types under the RBA and ISC approaches**

| <b>Asset Class</b>      | <b>RBA / BIS<br/>Credit risk<br/>weighting</b> | <b>RBA / BIS<br/>Credit risk<br/>capital %</b> | <b>RBA / BIS<br/>specific<br/>risk %</b> | <b>RBA / BIS<br/>general<br/>risk %</b> | <b>RBA / BIS<br/>total capital<br/>%</b> | <b>ISC<br/>approach:<br/>Solvency</b> | <b>ISC approach:<br/>Capital<br/>Adequacy</b> |
|-------------------------|--|--|--|---|--|---------------------------------------|---|
| 30 day Govt Securities  | 0.00%  | 0.0%   | 0.0%                                     | 0.000%                                  | 0.000%                                   | 0.143%                                | 0.196%  |
| 3 year Govt Bond        | 10.00%   | 0.8%   | 0.0%                                     | 2.250%                                  | 3.050%                                   | 4.966%                                | 7.115%  |
| Home Loan (A)           | 50.00%   | 4.0%   | 0.0%                                     | 0.000%                                  | 4.000%                                   | 0.000%                                | 0.000%  |
| Commercial Loan (A)     | 100.00%  | 8.0%   | 0.0%                                     | 0.000%                                  | 8.000%                                   | 0.000%                                | 0.000%  |
| Equities                | 0.00%  | 0.0%   | 4.0%                                     | 8.000%                                  | 12.000%                                  | 31.250%                               | 52.500%                                       |
| Property                | 0.00%  | 0.0%   | 8.0%                                     | 8.000%                                  | 16.000%                                  | 20.833%                               | 41.667%                                       |
| \$US deposit            | 0.00%  | 0.0%   | 0.0%                                     | 8.000%                                  | 8.000%                                   | 11.111%                               | 17.647%                                       |
| (A) Variable Rate Loans |  |  |  |   |  |                                       |   |

8.9 Table 2 below sets out two typical assumed asset portfolios for a bank and a life insurer which both offer a similar capital guaranteed deposit account to the investing public. Using these assumed asset portfolio, we calculate the capital required under different regimes: the BIS/RBA rules for banks, the ISC Solvency rules, and the ISC Capital Adequacy rules. In doing this we have allowed for the “asset diversification factor” built in to the ISC approach. This reduces the yield change required for the resilience reserve due to diversification in the asset portfolio. The effect of this is to reduce the capital charge from what it otherwise would be.

**TABLE 2: A HYPOTHETICAL ASSET PORTFOLIOS**

| <b>Asset Class</b>                                   | <b>BANK</b>     | <b>LIFE INSURER</b> |
|--|-----------------|---------------------|
|  | <b>Weight %</b> | <b>Weight %</b>     |
| 30 day Govt Securities                               | 5.00%           | 10.00%              |
| Govt 3 year bond                                     | 15.00%          | 25.00%              |
| Home Loan (A)  | 30.00%          | 3.00%               |
| Commercial Loan (A)                                  | 40.00%          | 7.00%               |
| Equities   | 3.00%           | 40.00%              |
| Property   | 2.00%           | 10.00%              |
| \$US deposit   | 5.00%           | 5.00%               |
| (A) Variable Rate Loans                              |                 |                     |
| <b>Total</b>   | <b>100.00%</b>  | <b>100.00%</b>      |
| <b>ISC Diversification Factor - Solvency</b>         | <b>60.42%</b>   | <b>80.52%</b>       |
| <b>ISC Diversification Factor - Capital Adequacy</b> | <b>59.90%</b>   | <b>79.82%</b>       |

8.10 Tables 3(a) and 3(b) show the impact of the RBA rules on these asset portfolios, while Tables 4(a) and 4(b) show the corresponding information about the ISC solvency and capital adequacy rules on these asset portfolios. The results show that a bank would be subject to a lower capital requirement than a life insurer for a typical life insurer portfolio, while the opposite is true for a life insurer which adopts a typical bank’s asset portfolio. This is very largely due to the fact that banks have to reserve for credit risk for the variable rate loans while insurers do not have to. It is also due to larger market risk reserves required for equities held by life insurers compared to equities held by banks. This example ignores, for the purposes of simplicity of comparison, the need for a life insurer to also have capital to cover liabilities, inadmissible assets, and expenses. Banks are not subject to the same requirements in this regard. This simple example demonstrates the growing potential for “regulatory arbitrage” in the present system. Other examples are not difficult to envisage.

**TABLE 3(A) \$1M BANK ASSET PORTFOLIO BIS/RBA CAPITAL ADEQUACY REQUIREMENTS**

| Asset Class             | Weight % | RBA / BIS Credit Risk Weighting % | RBA / BIS Credit Risk Capital % | RBA / BIS Risk Capital \$ | RBA / BIS Specific Risk % | RBA / BIS General Risk % | RBA / BIS Total Market Risk Capital \$ | RBA / BIS Total Capital \$ |
|-------------------------|----------|-----------------------------------|---------------------------------|---------------------------|---------------------------|--------------------------|--|----------------------------|
| 30 day Govt Securities  | 5.00     | 0.00                              | 0.0                             | -                         | 0.0                       | 0.000                    | -                                      | -                          |
| 3 year Govt Bond        | 15.00    | 10.00                             | 0.8                             | -                         | 0.0                       | 2.250                    | 3,375                                  | 3,375                      |
| Home Loan (A)           | 30.00    | 50.00                             | 4.0                             | 12,000                    | 0.0                       | 0.000                    | -                                      | 12,000                     |
| Commercial Loan (A)     | 40.00    | 100.00                            | 8.0                             | 32,000                    | 0.0                       | 0.000                    | -                                      | 32,000                     |
| Equities                | 3.00     | 0.00                              | 0.0                             | -                         | 4.0                       | 8.000                    | 3,600                                  | 3,600                      |
| Property                | 2.00     | 0.00                              | 0.0                             | -                         | 8.0                       | 8.000                    | 3,200                                  | 3,200                      |
| \$US deposit            | 5.00     | 0.00                              | 0.0                             | -                         | 0.0                       | 8.000                    | 4,000                                  | 4,000                      |
| (A) Variable Rate Loans | 100.00   |                                   |                                 | 44,000                    |                           |                          | 14,175                                 | 58,175                     |

**Total Capital Requirement :** \$ 58,175

**TABLE 3(B) \$1M LIFE INSURER ASSET PORTFOLIO BIS/RBA CAPITAL ADEQUACY REQUIREMENTS**

| Asset Class             | Weight % | RBA / BIS Credit Risk Weighting % | RBA / BIS Credit Risk Capital % | RBA / BIS Credit Risk Capital \$ | RBA / BIS Specific Risk % | RBA / BIS General Risk % | RBA / BIS Total Market Risk Capital \$ | RBA / BIS Total Capital \$ |
|-------------------------|----------|-----------------------------------|---------------------------------|----------------------------------|---------------------------|--------------------------|--|----------------------------|
| 30 day Govt Securities  | 10.00    | 0.00                              | 0.0                             | -                                | 0.0                       | 0.000                    | -                                      | -                          |
| 3 year Govt Bond        | 40.00    | 10.00                             | 0.8                             | -                                | 0.0                       | 2.250                    | 9,000                                  | 9,000                      |
| Home Loan (A)           | 3.00     | 50.00                             | 4.0                             | 1,200                            | 0.0                       | 0.000                    | -                                      | 1,200                      |
| Commercial Loan (A)     | 7.00     | 100.00                            | 8.0                             | 5,600                            | 0.0                       | 0.000                    | -                                      | 5,600                      |
| Equities                | 25.00    | 0.00                              | 0.0                             | -                                | 4.0                       | 8.000                    | 30,000                                 | 30,000                     |
| Property                | 10.00    | 0.00                              | 0.0                             | -                                | 8.0                       | 8.000                    | 16,000                                 | 16,000                     |
| US deposit              | 5.00     | 0.00                              | 0.0                             | -                                | 0.0                       | 8.000                    | 4,000                                  | 4,000                      |
| (A) Variable Rate Loans | 100.00   |                                   |                                 | 6,800                            |                           |                          | 59,000                                 | 65,800                     |

**Total Capital Requirement :** \$ 65,800



## 9) CONCLUSION

- 9.1 This paper has demonstrated the potential significance of regulatory arbitrage inherent in the present system of measurement of capital adequacy. As the trends towards product convergence, securitisation, disintermediation, the use of derivatives, consumerism and the impact of electronic trading and payment systems continue, it will be necessary to develop a consistent global framework for the measurement of capital adequacy for financial institutions. This will clearly not be an easy task and will probably need to be accomplished in a series of steps over a number of years. This could ultimately be achieved by building upon (and adapting for Australian conditions) the work already developed by the BIS in the Basle Capital Accords. This would probably require the introduction (at least in Australia) of consistent capital adequacy measures across all institutions, rather than allowing individual institutions to use proprietary (or “internal”) models for some aspects of capital adequacy measurement. Development of this financial framework would need to be product based rather than institution based and could adapt most of the existing conceptual framework used by the ISC for assessing capital adequacy for liability risk and resilience risk for life insurers. However, the ISC parameters used would need to change for consistency with emerging BIS Basle Capital Accord measures.

## Appendix 1: BIS Specific Risk Capital Requirements:

1. Debt is classified into three categories: Government, Qualifying and Other.
  - (a) “Government “ includes all forms of government paper including bonds, treasury bills and other short term paper.
  - (b) “Qualifying” includes securities issued by other public sector entities, banks and other private sector securities which are rated investment grade.
  - (c) The “Other” category is all other debt. These are subject to the same specific risk charge as private sector lending under the credit risk requirements : ie 8%.
2. The specific risk capital charges are:
  - (a) Government Debt: 0%
  - (b) Qualifying Debt: 0.25% for instruments with a term to maturity of 6 months or less  
1.00% for instruments with maturity between 6 and 24 months  
1.60% for instruments with maturity beyond 24 months
  - (c) Other Debt: 8.00%
3. Equities:
  - (a) The capital charge for specific risk is 8% unless the portfolio is both liquid and well diversified, in which case it is 4%
  - (b) The capital charge for general market risk is under the standard approach is 8%.



## Appendix 2: Note on the ISC Diversification Factor

The ISC solvency and capital adequacy standards specify the changes to the economic environment which must be assumed in the calculation of the resilience reserve. These are listed in Section 6 of this paper. However, these standards recognise that there is a benefit to be gained from diversification in a asset portfolio. To allow for this diversification benefit, the prescribed yield changes may be adjusted by multiplying them by the “diversification factor”. This diversification factor is applied by recalculating the yield change for each asset class as follows:

$$\text{Adjusted Yield} = \text{Current Yield} + \text{DF} \times \text{Prescribed Yield Change}$$

where

DF = the diversification factor, is equal to:

$$\{\sqrt{(E^2 + P^2 + F^2 + I^2)}\} / (E + P + F + I)$$

E,P the proportionate holding of assets in the asset sectors Equities and Property respectively each multiplied by the factor for that sector:  
(Yield Change/Current Yield)

F,I the proportionate holding of assets in the asset sectors Interest Bearing and Indexed Bonds respectively each multiplied by the factor for that sector:  
((Asset Value at Current Yield/Asset Value at Yield after prescribed change) - 1)

Note In determining F, cash is included in interest bearing sector.