

State Bank NSW

Group Treasurer

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DC Cleary

19th April, 1988

Mr. John O'Neill
Managing Director
State Bank of New South Wales
52 Martin Place
Sydney NSW 2000



Dear Mr. O'Neill,

State Building Society -
Dealing Activities

Following your request, and with the concurrence of the Society's management, I have reviewed the Treasury dealing activities of the Society during March 1988.

The approach adopted was primarily to focus on the aggregate and net open position at the end of each business day, and to estimate the potential or likely capital risk (in dollars) associated with adverse movements in interest rates.

In this respect, the methodology applied was similar to that presented recently to the Bank's Asset, Liability and Trading Committee ("ALTCO") and draws on the statistical research of interest rate movements which was undertaken by Mr. Graeme Chambers of the Economic Research Unit. (Further details of the methodology are given in Attachment A).

With the exception of turnover in so-called forward contracts and options, I did not examine intra-day trading activity, only end-of-day positions. Following discussion, the methodology proposed by the Society and subsequently adopted involved re-creating the various option positions (including details of strike prices and exercise dates) and is agreed by both parties to represent a realistic measure of the attendant risk.

Preliminary Observations

The review requires the following qualifications or general comments:-

- . Documentary evidence confirms that on 23 March 1988, the General Manager approved interim dealing limits. I have been advised that interim limits were actually approved on 3 March 1988, though this cannot be either verified or disputed. No analysis was undertaken of limit compliance prior to 23 March 1988.
- . The interim limits distinguish between the investment and trading portfolios but no such distinction is made in the maintenance of portfolio records. The Society argues that the physical portfolios are investment portfolios (and should be set aside for the purpose of a trading risk review), but I am unable to confirm from an analytical point of view whether the physical portfolios are indeed investment portfolios, particularly as active trading took place on the portfolios during the period under review. Attachment B summarises the end-of-day physical portfolio positions.

Risk Analysis

The key results are summarised in Attachment C which uses a refined analysis under the following interest rate scenarios:-

Bonds - 0.30% p.a. overnight move)
Bills - 0.75% p.a. overnight move) "typical" move

It is also observed that, according to our research, the "worst" moves during 1987 were as follows (and, in fact, occurred on about four days during that year):-

Bonds - 0.60% p.a. overnight move)
Bills - 1.50% p.a. overnight move) "dramatic" move

Whilst we have not undertaken a formal analysis of the potential trading risk in this latter case, we know that the risk will be at least twice that shown in Attachment C (due to the accelerating delta ratios on options positions).

Based on this analysis, it is noted that the Society's overnight capital risk during the period 4-8 March (which included a weekend) was in the order of \$10.0 million and would have been at least \$20.0 million had rates moved by the same magnitude as the "worst" day of 1987.

For the period till 23 March, the average overnight risk was \$5.0 million.

It is noted that the interim limits if utilised, would accommodate overnight risk of about \$8.5 million based on a 0.30% p.a. movement in bond rates.

Hedging Activities

By comparing the daily risk on physicals with the daily total risk position (by deduction, the difference reflects trading in non-physical instruments), we can examine the extent to which non-physical trading was used to either hedge (offset) or leverage risk.

Apart from four days, for both bill and bond trading, non-physical trading was used to leverage the trading risk of the Society.

It is noted that intra-day trading in "forward" bonds was high. For the period 1-30 March, a total of 24,647 contracts were traded representing 3.8% of total market turnover.

The level of intra-day trading in bond options was especially high. For the same period, a total of 16,958 contracts were traded, or 10.7% of total market turnover.

Counterparty Risk

All bond forwards and ETO-type options have been transacted with Bain & Company as principal. This introduces a direct counterparty risk in the converse case of a favourable move in rates, but default by Bain. Using the same interest rate scenario, the overnight counterparty risk was estimated at upto \$6.5 million.

It is noted that the Bank has not been prepared to extend an unsecured dealing limit to Bain, whilst the Society has now indicated that it proposes to formally implement an appropriate limit on dealing with Bain.

General Comments

In attempting to form a view on the prudence or otherwise of the Society's trading activities, it must be recognised that the question of what constitutes acceptable risk remains a subjective judgement and is clearly influenced by considerations of risk capital, underlying earnings streams, management controls, and personnel expertise.

Before stating my view on this, it is recorded that the Society has expressed the following in support of the prudence of its activities:-

- . That the history of its investment and trading activities is such that the investment portfolio has always been considered as being for "running yield" and should, therefore, be excluded from the analysis of trading risk. Whilst I cannot concur with the philosophy (ie since, in my view, any losses sustained are real losses and it is immaterial how they are designated), I have some sympathy with the view which has been expressed, as many organisations adopted a similar approach through the 1970's and early 80's. However, the inference that all physical portfolios were "investment" cannot be substantiated by the record-keeping and is inconsistent with the high turnover of physicals during the period. For this reason, the physical portfolio has nonetheless been included within the analysis, but the point is arguable. In the event that all physicals are excluded, the overnight trading risk is assessed at upto \$6.6 million during 4-8 March.

- . The Society believes that a 0.20% p.a. rate movement on bonds is a more-realistic risk measure than the 0.30% p.a. which was used, and believe that the remote possibility of a dramatic movement of upto 0.60% is Not irrelevant in view of the circumstances prevailing at the time.

- . In view of the significant number of occasions on which such bond rate movements occurred in 1987 (ie movements in excess of 0.30% p.a. occurred on six separate occasions), and the continued nervousness and uncertainty following the events of last October, I am unable to concur on this point. The actual movements in rates on which our research is based is given as Attachment D.

- . My observations and discussion with the Society's management lead to me to conclude the following:-
 - . There is considerable evidence that Management was fully informed of the positions held (ie Treasury fully-disclosed its activities) and, in general, the quality of records and portfolio details was good with most records correctly filed and retained.

 - . The Society had attempted to protect its position by instructing the Internal Auditor (Mr. Tony Page) some months ago, to become fully familiar with the activities and records of the Treasury. Additionally, the appointment of Mr. Greg Bates (effective 11/4/88) as AGM (Finance & Administration) was an attempt to ensure independent control and policy advice on the Treasury.

However, the fundamental point on which the final view must rest is:-

- (i) whether the potential risk was generally prudent given the Society's level of capital and profitability; and
- (ii) whether the Society was adequately aware of those risks and could accurately measure these on a timely basis.

With respect to (i), it is my considered view that the risks were excessive. It is conceded that this remains a subjective matter, and the final view must necessarily be left for the consideration of the Bank's representatives on the Society's Board.

With respect to (ii), I am unable to come to any view (notwithstanding the attempt to monitor the risk) other than that the Society was not fully cognisant of the risk attached. Whilst the Management did estimate the risk per basis point (ie \$1.5 million on .06%), a fundamental point is that the Bank holds the view that a realistic measure of the potential market movement is .30% not .06%.

More importantly, it is now clear that the Society was only able to accurately estimate the risk of its options positions on an ex-post basis. In the absence of a well-developed and installed options pricing and hedging model, it is difficult to justify the substantial positions and turnover in bond options which took place. As a fundamental principle, it is difficult to see how such trading could be justified without an ability to accurately calculate, on-line, the "fair value" of listed options, the delta ratio and, more importantly, the potential exposure to changes in market volatility (ie the "vega" ratio).

To put the matter into perspective, proposed new limits for the Bank are for a maximum exposure across all markets (ie domestic interest rates, foreign exchange rates, foreign interest rates, and equities) of \$20 million of which no more than \$10 million would be incurred against a particular market (eg domestic interest rates).

Recommendations


The following recommendations are made, for the consideration of the Society's Board:-

- 1/. There is no evidence of Treasury Staff dealing outside limits. Whilst the trading and positions were substantial, these were undertaken with the express approval of Management. ✓

Whilst I have high regard for the apparent market expertise of the Treasurer, it is strongly recommended that policy recommendations, and limit compliance, should both be under the independent responsibility of the AGM (Finance & Administration). This has been implemented by the Society on its own initiative and is endorsed.

- 2/. The Board needs to formally discuss the alternate approaches to the treatment of the investment portfolio for the purpose of defining and measuring trading risks. There is a strong view within the Society that "opportunity losses" on the investment portfolio are more readily acceptable than losses on a trading portfolio and it is suggested that final limit recommendations should address this point in detail.
- 3/. The determination of final trading limits requires resolution with urgency. In the meanwhile, it is held that the interim limits approved by Management are generous, and the Board should seek to confirm or vary these as it deems appropriate.
- 4/. That should the Society continue to trade in off-market futures and options, such trading be restricted to those with Banks as counterparty until both legal issues and formal counterparty limits have been suitably resolved. ✓
- 5/. Unless directly supported by a commercial loan facility, it is recommended that the Society withdraw from trading in caps, floors or similar instruments in view of the known high risk and hedging difficulties associated with such instruments. ✓

Finally, I record that the General Manager and all of the Society staff were most helpful, open and co-operative in my review of the above issues.


Phil Gray
Group Treasurer