



Australian Government
Australian Government Actuary

Memorandum

Ref No.:

30 March, 2012

To:

From:

Subject: DIVIDEND PAYMENT FROM THE TERRORISM POOL

You have asked me to consolidate the advice (both formal and informal) that I have provided to you on this issue over the past several months.

Two issues are involved:

- an indication of the 'value' of the Commonwealth support that has been provided to the terrorism scheme, managed by the ARPC; and
- the impact on ARPC's claim paying ability of a stream of four annual dividend payments, each of \$100m.

You indicated that you are considering a possible recommendation to Government that a dividend be paid from the ARPC pool. However, you also indicated that you would not wish to recommend a payment that was in excess of any reasonable measure of the value of the Commonwealth support that has been provided. I provided brief advice on the second issue (relating to the stream of dividend payments) after you had considered my initial advice on the first issue. This current advice consolidates both of those earlier notes.

1. The 'value' of Commonwealth support

Brief background

Under the scheme, the ARPC provides terrorism reinsurance to the commercial property insurance market.

A pool of funds has been accumulated from insurer contributions. That pool sits at more than \$600m today and is managed by ARPC. Each year since 2009, ARPC has purchased more than \$2bn of commercial reinsurance cover. On top of that, the Commonwealth provides cover of up to \$10bn.

It is helpful to think of the Commonwealth's participation as a form of excess of loss reinsurance. Thus, Commonwealth money would not be forthcoming until the claims cost of a Declared Terrorist Incident exceeded the amount in the pool plus the cover provided by commercial reinsurance.

Currently, therefore, the Commonwealth guarantee would not be triggered unless a terrorist event (or a series of events within a year) resulted in insured losses of at least around \$3bn.

Of course, early on during the scheme's life, the Commonwealth's exposure would have been triggered at a much lower level than today. For example, at the end of 2003-04, the pool of funds was less than \$20m and there was no commercial reinsurance.

Scheme design – compensation

One of the principles intended to underpin the scheme is that the Commonwealth should be compensated for underwriting the terrorism risk to which it is now formally exposed.

To date, no compensation payments have been made to the Commonwealth.

It is important not to confuse contributions made to the pool with compensation to the Commonwealth for taking on the terrorism risk. Proper compensation would require money to be paid to the Commonwealth which it was free to use for any purpose. Contributions to the pool are quarantined for a particular purpose.

However, a dividend payment from the pool to the Commonwealth would represent a form of compensation. The terrorism legislation contemplates dividends being paid from the pool.

Accordingly, you have asked for my views on the 'value' of the support that the Commonwealth has so far provided to the terrorism scheme.

Approach

Ideally, it would be desirable to be able to identify a 'market value' for the support. However, Commonwealth involvement in the scheme commenced precisely because there was no market for this risk. Following the events of September 11, insurers withdrew globally from the terrorism insurance market.

As noted above, since 2009, ARPC has been able to purchase reinsurance commercially. The pricing of that cover can be used to provide a starting point for the current purpose.

Firstly, high level points to note include:

- Each year since 2009, ARPC has purchased less than \$3bn in cover at a price of around \$80m pa.

- The cover is purchased in 'layers'. Each layer is purchased at a different price. Low layers are more expensive than high layers. For example, this means that the 'first' few hundred million dollars of cover is more expensive than the 'last' few hundred million dollars of cover.
- The cover 'attaches' at around \$300-\$400m. This means that the reinsurance will not be triggered unless there is an event which leads to reinsurance claims on ARPC totalling more than \$300-\$400m. There are two reasons for structuring the reinsurance program this way:
 - Firstly, there is a pool of cash available and so it would not be sensible for ARPC to purchase reinsurance from the 'ground up'.
 - Secondly, the price of 'ground up' reinsurance would be significantly higher and so would be more difficult to justify on value for money grounds, in any event.

The table below summarises ARPC's reinsurance program for 2011, with a total price of \$83.7m.

Attachment point	Layer	Rate on line	Price (rate x layer)
s47			
\$400m	\$600m XS \$400m	5.2%	\$31.2m
\$1,000m	\$1,700m XS \$1,000m	2.4%	\$40.8m
s47			

For example, the third layer is for \$1,700m in cover. This layer will only be triggered if accumulated losses exceed \$1,000m. Accordingly, it is referred to as \$1,700m XS \$1,000m. The price is $2.4\% \times \$1,700m = \$40.8m$.

The chart below very approximately models the annual cost of reinsurance as the attachment point increases. It is based on ARPC's 2011 program.

s47

The model equation used is:

s47

The table below illustrates the performance of the model compared with the actual prices charged in 2011 and shows the fit is broadly reasonable.

Attachment point	Layer	Rate on line	Price (rate x layer)	Modelled price	Error
s47					
\$400m	\$600m XS \$400m	5.2%	\$31.2m	\$28.2m	-9%
\$1,000m	\$1,700m XS \$1,000m	2.4%	\$40.8m	\$44.0m	+8%
s47					
Total			\$83.7m	\$83.2m	-1%

The table below sets out very approximate estimates of the value of the Commonwealth guarantee for each year since 2003/04, using the model described above. These estimates assume, in effect, that the appropriate basis for valuation is a market basis and that the scheme operates on an annually renewing basis. This last point is discussed further below.

Year	Reserve (\$m)	R/I (\$m)	Attachment point (\$'m)	modelled price (\$'m)
2004/05	65	0	100	\$ 191
2005/06	166	0	166	\$ 183
2006/07	276	0	276	\$ 174
2007/08	394	0	394	\$ 166
2008/09	504	2300	2804	\$ 111
2009/10	578	2600	3178	\$ 107
2010/11	635	2750	3385	\$ 105

By way of example, for 2007/08, the value of \$10bn cover in excess of \$394m is estimated at \$166m.

As noted above, these estimates assume that the scheme operates on an annually renewing basis. In other words, that the Commonwealth exposure would be \$10bn each year, regardless of whether or not any terrorist incidents had occurred previously.

You have indicated that the legislation limits the Commonwealth's exposure to \$10bn over the life of the scheme. Accordingly, it would be wrong to conclude that a reasonable estimate of the value provided so far can be found by simply adding the estimates for individual years. Some allowance has to be made for the fact that, in the event of an incident in any particular year, the Commonwealth's exposure in subsequent years will be reduced.

The table below attempts to do this. The approach has been to reduce the Commonwealth's nominal exposure in each year after the first by an amount equal to the 'expected claims costs since the start of the scheme'. This latter amount is taken to be the annual price of reinsurance. This is admittedly crude, but is both conservative (the actual expected claims cost should be less than this, in principle) and not inconsistent with the market pricing approach.

Year	Reserve (\$m)	R/I (\$m)	Attachment point (\$'m)	modelled price (\$'m)
2004/05	65	0	100	\$ 191
2005/06	166	0	166	\$ 182
2006/07	276	0	276	\$ 171
2007/08	394	0	394	\$ 162
2008/09	504	2300	2804	\$ 106
2009/10	578	2600	3178	\$ 101
2010/11	635	2750	3385	\$ 98

This suggests a total value of about \$1bn, ignoring inflation.

This represents a 'prospective' estimate of the amount that ARPC would have had to pay in total for the seven years to 30 June 2011 in order to secure reinsurance for an amount equal to the Commonwealth's guarantee, on the assumption that the commercial reinsurance market would have provided this much capacity and that the price it would have charged is in line with the prices actually charged for the 2011 program.

Tail

Care is needed when interpreting the analysis above. Specifically, the approach taken has been based on applying a model that fits reasonably well for cover levels up to around \$3-4bn to cover levels up to more than \$10bn. There is quite a lot of uncertainty involved in extrapolating in this way.

In order to be cautious, I have also considered a very simple model which sees the applicable rate-on-line decreasing somewhat more quickly as the cover level increases than is implied by the power curve above. This analysis highlights the difficulty involved in assessing a reasonable 'tail price'.

The chart below illustrates the model. Essentially, this model assumes that reinsurance for claims in excess of about \$10bn is free. This is obviously an extreme but the approach does help to provide a degree of comfort around the estimates.

s47

The table below is based on this adjusted model. It uses the market price model described above for cover levels up to almost \$4bn and then produces a tail price of about \$50m for any cover in excess of \$4bn, as well as again adjusting approximately for the multi-year nature of the arrangement.

Year	Reserve (\$m)	R/I (\$m)	Attachment point (\$'m)	modelled price (\$'m)
2004/05	65	0	100	\$ 169
2005/06	166	0	166	\$ 161
2006/07	276	0	276	\$ 150
2007/08	394	0	394	\$ 142
2008/09	504	2300	2804	\$ 67
2009/10	578	2600	3178	\$ 60
2010/11	635	2750	3385	\$ 57

This model results in a lower overall estimate of value of around \$800m, again ignoring inflation. There is an argument for using this more cautious estimate of the value.

Conclusion

Based on the methodology and assumptions set out above, a dividend payment from ARPC to the Commonwealth which was less than, say, \$800m could be described as being less than an estimate of the 'market value' of the Government support provided to ARPC since inception of the scheme.

2. The impact on claims paying ability of a stream of dividend payments

Subsequent to considering my initial advice, you asked me about the impact of a dividend payment on the capacity of the ARPC and more generally, the Terrorism Insurance Scheme, to pay claims.

Specifically, you are considering the impact of a stream of 4 annual dividend payments, each of \$100m.

The Scheme can fund claims from a combination of:

- cash reserves (more than \$660m today)
- reinsurance (around \$2.75bn today, excess of \$350m)
- Government guarantee (\$10bn)

The capacity of the Scheme is therefore around \$13.4bn altogether (\$0.35bn retention + \$2.75bn reinsurance + \$0.3bn additional cash reserves + \$10bn Government guarantee). This is more than was envisaged when the Scheme was established. At that time, the broad idea was for a cash pool of around \$300m and a Government guarantee of \$10bn.

The payment of \$400m in dividends would not materially weaken the capacity of the Scheme to pay claims. The reduction in capacity would be of the order of 3 per cent, and that is before allowing for any new money (premiums and interest net of expenses and reinsurance premiums). That is, the capacity of the Scheme would fall from around \$13.4bn to \$13bn, again before allowing for any new money (and assuming no claims).

It is difficult to know with confidence the size of a possible claim on the Scheme following a Declared Terrorist Incident (DTI). However, the likelihood of one or more DTIs which led to claims on the Scheme of between \$13bn and \$13.4bn is small. Thus the payment of a stream of 4 annual dividend amounts, each of \$100m, would not materially reduce the likelihood that the Scheme would be able to fully meet the cost of claims that might arise from one or more DTIs.

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