Response to PUB IRs on Simpson Report on DCAT and RSR

PUB/CAC 1 Reference: Page 7-8, MCT

a) Given the concern that selection of a percentage of MCT would be arbitrary for establishing an RSR range, what if any benefit can be derived from using the MCT for a Crown Corporation.

b) Why is it your opinion that "*any target for the MCT, whether 100% or 50% or some other number, remains arbitrary*"?

Response:

As I understand the application of MCT targets, they are primarily used in the private sector as part of a test for solvency of an operation that must compete with other firms in the industry and has no financial backing other than its own resources in the event of adverse conditions. Even then, it is not clear to me what an "optimal MCT" would be, i.e. to optimize what? More importantly, these conditions of a competitive private firm without additional financial backing do not apply to MPI, which is a monopoly crown corporation in terms of basic insurance. My sense is that the MCT for a monopoly crown corporation should be lower than for a competitive private firm but that gives little guidance as to what the appropriate MCT for MPI should be.

PUB/CAC 2 Reference: Page 9, Claims Forecast Base Scenario

a) Please provide a further description of a time series analysis and how it would impact the determination of claims, including tools and/or analysis that MPI should be undertaking.

Response:

Time series analysis is a standard tool for analyzing and predicting the movements in time series data. There are a number of methods, including moving average, autoregressive, distributed lag, and simple regression models, as in a standard textbook reference such as James Stock and Mark Watson, *Introduction to Econometrics*, second edition, 2007, chapters 14 and 15. The point of these methods, and the departure from the method used by MPI in forecasting claims, is that they estimate the parameters of the model that best fits the data using standard statistical criteria such as minimum least squares or maximum likelihood. In

the case of the analysis of claims, it is possible but very unlikely that a 5-year moving average model (MA(5) model) would provide the best fit to the data and therefore the best available forecast of future claims. MPI does not provide any statistical basis for the use of a 5-year moving average model to forecast claims.

b) Given the observation that the methodology used to forecast claims (i.e., the 5 year moving average) may not be the most appropriate, and may somewhat distort the forecast, what mechanisms do you believe should be in place within MPI to review and assess the methodologies used in this and other areas of forecasting to avoid similar distortions?

Response:

At a minimum, MPI should use standard time series analysis methods involving regression that would choose the model that best fits past data. It would be worthwhile for MPI to seek expert opinion on their methods of forecasting claims and other time series. Such expert opinion is likely available in the Statistics and Economics departments of the Universities of Manitoba and Winnipeg.

PUB/CAC 3 Reference: Page 10, RSR Recovery factors

Should the RSR rebuilding fee (or rebate) be considered on a 4 year cycle rather than annually if the RSR balance falls outside the RSR range, much like the example in the second paragraph of page 10 or the report (i.e., can the RSR be below the minimum in the range in Year 1 if overall, it remains within the range over a 4 year period)?

Response:

Yes. My sense is that any rigid adherence to an RSR target on an annual basis is destabilizing and that the appropriate range should be looked at from a multi-year horizon.

PUB/CAC 4 Reference: Page 14, Section 5.2.2 Interest Rate Decline Scenario

a) Please explain how MPI should adjust interest decline assumptions to address the stagflation period.

Response:

At a minimum, the stagflation period should be ignored as irrelevant to today's circumstances. More fundamentally, however, the interest rate decline scenario should reflect assumptions

that are consistent with other periods when interest rates were lower than the historical average. (Please also see my response to (c) below.)

b) Please explain whether it is industry (private or public) common practice to include the "stagflation" period data when preparing DCAT adverse scenarios despite the fact that it may distort the results? If not, what is the common practice?

Response:
Industry practice is not my area of expertise as an economist.

c) Given the current low interest rate environment, please describe what you believe to be a plausible scenario for interest rate decline and indicate how this change would likely impact the RSR target.

Response:
This is a difficult question because I lack access to the financial model used to analyze the DCAT scenarios. We can, however, re-examine the data without the periods of high interest rates. In the table below, the stagflation period from 1976-85 when the mean interest rate on long bonds was 11.5% is excluded in the second row of results (ex 76-85) and the periods from 1966-75 and 1986-95 when interest rates were also relatively high at 7.4% and 9.4%, respectively, are also excluded in the third row (ex 66-95). This leaves the relatively low interest rate periods from 1956-65 (4.8%) and 1996-05 (5.7%) to compare with the recent period from 2006-14 (3.6%). From the figures below, we can see that the interest rate declines are much lower without the stagflation period and lower still during the three low-interest-rate periods. Using scenarios based on the figures in the bottom column would, in my view, be more credible given today's economic circumstances, although interest rates would still reach the floor of 1.68% in the fourth year using the evidence from the three low-interest-rate periods (ex 66-95). My unease about this scenario might be summarized as follows: Would the consensus forecasters of interest rates believe in the current economic environment that there was a 1-in-40 chance that interest rates would fall to 1.68% and stay there for a period of one to four years? I think the consensus answer to this question would be no.

2.5% Rate by Return Period and Time Period				
Return pe	1 yr	2 yrs	3 yrs	4 yrs
56-14	-2.30%	-3.24%	-3.65%	-4.23%
ex 76-85	-1.50%	-2.40%	-2.26%	-2.44%
ex 66-95	-0.93%	-1.32%	-1.45%	-1.62%
Source: CansimII series v122487				

PUB/CAC 5 Reference: Recommendation 7

a) Please describe how MPI should use the DCAT exercise to establish an appropriate RSR target range.

Response:
This is a difficult question to answer from the current DCAT analysis because the financial model, as I understand it in the limited way it is presented, is deterministic and not stochastic, i.e. it does not produce a distribution of outcomes for the base scenario, only a single value that might correspond to the midpoint (or expected value) of that distribution. Perhaps, however, this is a feature of the DCAT approach that defies construction of an RSR range, since the approach determines base and adverse scenarios and simply compares them in a nonstochastic environment (other than establishing the adverse scenarios themselves) to see whether the RSR is sufficient with and without management action. I cannot see how to establish a meaningful range for the RSR in a nonstochastic environment.

b) Should the RSR target range be set using Kopstein Approach and DCAT? If so, please explain how the two approaches should interrelate for rate setting purposes.

Response:
I cannot see any formula for integrating the Kopstein and DCAT approaches, even if the DCAT analysis were designed to produce a target range rather than a target level. The DCAT approach is valuable in identifying any important changes in risk facing MPI, however, which might cause an adjustment to the Kopstein approach, either upward if risk is increasing or downward if risk is declining.