

Memorandum

To: All Fellows, Affiliates, Associates and Correspondents of the Canadian Institute of Actuaries and Other Interested Parties

From: A. David Pelletier, Chairperson
Actuarial Standards Board

Date: January 5, 2011

Subject: **Final Standards of Practice for Capitalized Value of Pension Plan Benefits for a Marriage Breakdown (Section 4300)**

Document 211002

INTRODUCTION

The attached final Standards of Practice for section 4300 (the “final Standards”) were approved by the Actuarial Standards Board (ASB) on December 21, 2010, with an effective date of July 1, 2011. [**Secretariat’s note:** Subsequent to the publishing of this memo, the effective date of the standard was changed to **January 1, 2012**, following a decision made by the ASB on May 5, 2011 to defer the effective date pending a review of the standard by the Actuarial Standards Oversight Council (ASOC). The revised effective date of January 1, 2012 was announced to the membership on June 20, 2011.] Early implementation is not permitted. The final Standards replace the existing section 4300 of the ASB’s Standards of Practice.

The ASB’s Policy on Due Process for the Adoption of Standards of Practice was followed in the development of the final Standards.

There are no material differences between the recommended changes in the second revised exposure draft issued in June 2010 and the final Standards. The rationale for the recommended (now final) assumptions was included with the second revised exposure draft and is included as an appendix to this memorandum.

BACKGROUND

In 2008, the ASB established a Designated Group with responsibility for development of a revised Section 4300. The current members of the Designated Group are Robert Brown, Normand Gendron, Malcolm Hamilton, Charles McLeod (Chair) and David Short.

A notice of intent was issued in March 2008.

<http://www.actuaries.ca/members/publications/2008/208020e.pdf>

An exposure draft (the “original exposure draft”) was issued in June 2008.

<http://www.actuaries.ca/members/publications/2008/208043e.pdf> and

<http://www.actuaries.ca/members/publications/2008/208045e.pdf>)

A revised exposure draft (the “first revised exposure draft”) was issued in December 2009. (<http://www.actuaries.ca/members/publications/2009/209131e.pdf>)

A second revised exposure draft was issued on June 9, 2010. (<http://www.actuaries.ca/members/publications/2010/210036e.pdf>)

PRINCIPAL ASSUMPTIONS

The principal assumptions in the final Standards and those contained in the current Standards of Practice are:

Discount rate

Final Standards	First 20 years: Yield on long-term Government of Canada (GOC) bonds plus 0.50%	After 20 years: 5.50%
Current Standards	First 15 years: Yield on long-term Government of Canada (GOC) bonds plus 0.50%	After 15 years: 6.00%

Inflation rate (prices)

Final Standards	First 20 years: BEIR	After 20 years: 2.25%
Current Standards	First 15 years: BEIR plus 0.25%	After 15 years: 2.75%

(In the current Standards the assumed inflation rate is not stated explicitly, but it can be determined as the difference between the assumed discount rate for non-indexed pensions and the assumed discount rate used for pensions indexed to the CPI.)

BEIR is the Break-Even Inflation Rate—the difference between yields on non-indexed and real return long-term Government of Canada bonds.

A revised **mortality table**, the UP-94 table, projected to 2020 with scale AA, was promulgated by the ASB on September 22, 2009 with an effective date of January 1, 2010. (<http://www.actuaries.ca/members/publications/2009/209093e.pdf>)

The cover memo for the second revised exposure draft contained rationales for the assumed discount rate and inflation rate. For convenience these rationales are repeated in an appendix to this memorandum.

GENERAL COMMENTS

The revision of section 4300 of the Standards of Practice has been a controversial topic for many years. One of the reasons for this is that nowhere else in the Standards of Practice are there separate standards for two different practice areas that both relate to essentially the same type of work, i.e., placing a value on an individual’s pension and

members of the different practice areas have had different opinions on the assumptions to be used.

Some actuaries consider that the same standard should apply to both types of calculation. If an individual simultaneously terminates from his/her pension plan and his/her marriage breaks down, why should two calculations on the same day utilize different assumptions for mortality, investment return, and future inflation?

As stated previously, the view of the ASB is that the assumptions contained in section 4300 (the capitalized value of pension plan benefits for a marriage breakdown) should be the same as those in section 3800 (pension commuted values) unless there is a valid justification for a difference. This has been a very important consideration in the development of final Standards for section 4300.

The ASB has accepted that there is a valid justification for differences between standards in one particular respect, namely the use of a “replacement” value concept for marriage breakdown as opposed to an “economic” value concept for pension commuted values when establishing the economic assumptions. The ASB’s rationale in this regard was stated in the cover memorandum to the original exposure draft, as follows:

“As discussed earlier, the underlying philosophy of the pension Standard of Practice is that the commuted value should be the economic value of the obligations discharged by the pension plan by paying the commuted values to the beneficiaries. That is the best way to ensure that all members of the pension plan, both withdrawers and others, are treated consistently. In the vast majority of marriage breakdowns no cash leaves the pension plan, so there is no need to consider the equity to other plan members. The marriage breakdown practitioners argued strongly that the courts look to a replacement value when determining fairness in determining pension plan values (i.e., what would the spouse logically be able to invest in to replace the lost pension?). The ASB agreed that the replacement philosophy makes sense in a marriage breakdown situation.”

The table on the previous page shows that changes (from the current section 4300) to the discount rate and inflation rate (prices) are relatively small. The decrease in the long-term interest rate from 6% to 5.5% is considered reasonable in light of the general downturn in interest rates in recent years.

SUMMARY OF ISSUES RAISED ON SECOND REVISED EXPOSURE DRAFT

This memorandum considers only comments made on the second revised exposure draft. A summary of comments made on earlier exposure drafts can be found in the documents listed on page 1.

Ten comments were received on the second revised exposure draft. Most comments fell into two main categories—the process followed in developing the Standards and comments on the specific recommended changes to the Standards. One comment was very complimentary.

Comments on process

The majority of the comments received were in respect of the process followed. The major comments were:

1. There should be additional time spent in discussing section 4300 with actuaries practicing in the field of actuarial evidence, especially marriage breakdown.
2. There should be a two year moratorium.
3. Standards relating to a particular practice area should not be set by people who do not practice in that area.
4. Even if the base assumptions for the mortality table, interest and inflation are the same (or consistent) between the pension commuted value Standards (section 3800) and the marriage breakdown Standards (section 4300), there are still a number of places (e.g., sex distinct mortality vs. unisex mortality) where the assumptions are different.

ASB response to concerns on process

The revision of section 4300 has been under discussion for many years, starting before the formation of the Actuarial Standards Board. Since the publication of the notice of intent in March 2008, there have been numerous meetings between representatives of the ASB and representatives of actuaries practicing in actuarial evidence—so that the ASB could learn the views of actuarial evidence practitioners and to give actuarial evidence practitioners an opportunity to express their opinions to the ASB. Specifically the following has happened:

- Representatives of the ASB attended the CIA's Actuarial Evidence Seminars in 2008 and 2009 when this subject was discussed.
- After the publication of the notice of intent in March 2008, representatives of the actuarial evidence practitioners met with the full ASB to present their views.
- Following the publication of the original exposure draft in June 2008, and following a request from the Committee on Actuarial Evidence, the ASB agreed to defer consideration of any revisions to the current Marriage Breakdown Standard until it had received a proposal for the revision of the Standards from the Marriage Breakdown Working Group (the MBWG) representing the CIA's Committee on Actuarial Evidence.
- In March 2009, the MBWG submitted its report to the ASB. The MBWG report recommended assumptions for mortality, interest and inflation that were different from those that had been adopted for pension commuted values. There followed a number of discussions between representatives of the ASB and representatives of the MBWG. Eventually the ASB concluded that there was no valid justification for having different mortality assumptions for pension commuted values and for marriage breakdown calculations, but that there were valid justifications for some differences in the interest and inflation assumptions.
- The first revised exposure draft was published in December 2009.
- After receiving comments on the first revised exposure draft, the ASB made some revisions and decided, given the nature of the changes, to publish a second revised exposure draft and invite further comment rather than proceeding directly to a final Standard.

In brief, there have been many opportunities for actuarial evidence practitioners to express their views to the ASB, both verbally and in writing, in particular given that the process has involved the original exposure draft, a revised exposure draft, and a further revised exposure draft, as well as the proposal by the MBWG.

Some people suggested further discussions, or a moratorium (e.g., two years) on revisions to section 4300. The ASB considered this but concluded that, given the extensive discussions and correspondence that have been taking place for many years, it was time to bring closure to this subject.

Some people expressed concern over the fact that Standards for section 4300 were being set by people who do not practice in this area. As was written in the ASB's memorandum accompanying the second revised exposure draft:

1. "The desire for consistency with the pension commuted value standards has been a key principle followed by the ASB. Although sections 3800 and 4300 apply to different types of work, both cover essentially the same thing – the value of a pension.
2. The selection of assumptions for mortality, interest rates and inflation transcends specific practice areas.
3. The revision of section 4300 has a long and controversial history. Both before and after the ASB's formation, there have been many discussions with actuarial evidence practitioners to listen to and take into account their opinions.
4. Although the ASB should listen and has listened to comments made, the (ultimate) responsibility for the adoption of Standards of Practice is that of the Actuarial Standards Board. Members of the ASB should only adopt Standards that they consider to be in the public interest, and that have been developed in accordance with the ASB's policy on due process (for the adoption of Standards of Practice)."

As pointed out by one of the commentators, the final Standards will still differ from those used for pension commuted values. In some places this is because the assumptions for marriage breakdown are mandated by legislation. In other places, there are differences due to the use of a replacement theory approach. However the final Standards do provide greater consistency than at present between those for pension commuted values and those for marriage breakdown.

Comments on specific assumptions

Most of the comments about the specific assumptions recommended by the ASB in the second revised exposure draft were received from one person (although they received endorsement in whole or in part from some of the other commentators). As a result, the ASB's response to comments about the assumptions focuses mainly on comments made by that person.

Discount rate—select period

In the second revised exposure draft, the ASB recommended the use of the yield on long term GOC bonds plus 0.50% for the first 20 years (and 5.5% thereafter).

The basis in the current Standards of Practice is the yield on GOC bonds plus 0.50% for the first 15 years (and 6% thereafter).

One commentator wrote: “This [the ASB recommendation—see above] is inappropriate since it has no reflection of the shape of the current yield curve. For a member under age 40, where the pension is not likely to commence for 20 years, this has no effect. For an older member however, particularly a member close to retirement or already retired, where pension payments are imminent, the current yield curve could have material implications in the value, particularly when the investment strategy is exact cash matching via purchases of strip bonds.” The ASB considered this but concluded that the additional complexity required to address this was not warranted, recognizing that the values produced for older and retired members are less sensitive to the discount rate than in the case of younger members. The ASB also concluded that, on balance, the use of a long-term discount rate for 20 years was fairer than the current Standard which use a long-term discount rate for 15 years.

The ASB’s reasons for its recommendation (see above) are contained in the Appendix (pages 11 and 12) and are not repeated here. The ASB considered the additional comments received but concluded that, overall, for the reasons enumerated in the Appendix, the basis recommended in the second revised exposure draft is appropriate.

Discount rate—ultimate period

The MBWG recommended a long term rate of 6.25%. The development of this assumption, compared to the ASB’s recommended 5.5% (in the second revised exposure draft), is as follows:

	ASB	MBWG
Long term inflation	2.0%	2.5%
Real return on GOC bonds	3.0%	3.65%
Adjustments (invest in other than GOC bonds, expenses, other)	<u>0.5%</u>	<u>0.10%</u>
Total	5.5%	6.25%

The principal commentator on the second revised exposure draft focused his comments on the second assumption—the difference between the yield on long term GOC bonds and expected inflation—as well as the first—the long-term rate of inflation, which is dealt with below in the sections on the inflation assumption.

Following receipt of the latest comments, the ASB reviewed this area again, including in particular the most recent data available. As was noted in the ASB’s commentary on the second revised exposure draft, the assumed real return on GOC bonds was the most difficult element to quantify as it has varied considerably depending upon the time period studied. Between 1991 and 2000, real interest rates were high and yields on real return GOC bonds were between 4% and 5%. Since 2000, the yields on real return GOC bonds have fallen to near 1%. The ASB continues to believe that its selection of 3%, being close to the midpoint of the range of approximately 1% to 5%, is appropriate. The principal commentator (and the MBWG) recommended 3.65% based on observations of the monthly relationships between nominal bond yields and current year over year inflation. The ASB thought that this inappropriately compared long-term yields with current rates of inflation (while the real return on GOC bonds is indicative of long-term expected rates of inflation) and in any event gave too much weight to the early 1990’s—a period when

the Bank of Canada was using very high real interest rates to pull inflation expectations (and inflation rates) down from 5% to 2%. Inflation rates (and expectations) have now been around 2% for some time, and the ASB concluded that the last 5 or 10 years provided a better idea of what to expect going forward than did the early years of the inflation targeting era. Given, however, the large movements in the real return on GOC bonds over the last 20 years, the Designated Group has recommended that the ASB review the ultimate period discount rate of 5.5% from time to time as long-term perspectives on economic conditions change, and adjust it as necessary.

The ASB also thought that once one moves away from an economic value approach (as was used in the pensions commuted value Standard), there is no single right answer for the long term discount rate. The approach that was recommended in the second revised exposure draft, i.e., yields on GOC bonds plus 0.50% for 20 years and 5.5% thereafter, is simple (it avoids the complexity of an age-dependent discount rate as proposed earlier), and it reflects the availability to the individual investor of fixed income instruments for periods up to 20 years.

Finally, a long term rate of 5.5% appears reasonable compared to the long term discount rate of 6% in the current section 4300, in light of the general downtrend in interest rates in recent years. The increase to 6.25% recommended by the MBWG seems harder to justify.

Inflation rate—select period

In the second revised exposure draft, the ASB recommended the use of the Break-Even Inflation Rate (BEIR) for the first 20 years (and a fixed rate of 2.25% thereafter). The Break-Even Inflation Rate is defined as the difference between yields on non-indexed (CANSIM V122544) and real-return (CANSIM V122553) long-term GOC bonds.

The (implicit) basis in the current Standards is the BEIR plus 0.25% for the first 15 years (and a fixed rate of 2.75% thereafter).

The principal commentator argued for a select period of 5 years or possibly even less and was opposed to the use of the BEIR as an estimate for future inflation rates in the select period.

The ASB considered the comments received but concluded that the approach recommended in the second revised exposure draft for the select period continued to be appropriate for the reasons stated in the Appendix, namely:

- “This is consistent with what was adopted for the Standards of Practice—Pension Plans, section 3800. (Incidentally, the Designated Group read again the comments made when section 3800 was being reviewed/revised in 2008 and could find only two comments that objected to the use of the BEIR in connection with section 3800.)
- The BEIR represents the market’s long-term view of the value of inflation protection.
- The current section 4300 bases the inflation assumption on the BEIR.
- Expected pension payments (reflecting expected mortality and expected inflation) are independent of the investment strategy adopted.”

The ASB acknowledges that the use of the BEIR as a measure of the value of inflation protection is not universally accepted, and, as the principal commentator pointed out, the BEIR may not be a good indicator of inflation in the short-term. However, the ASB believes that it is the view of inflation in the longer term (i.e., over the 20-year select period) that is relevant, and believes that using this market-derived value (i.e., BEIR), rather than some other assumption without a market basis, is the most appropriate starting point in arriving at the estimated rate of inflation over the next 20 years. The appendix to the second revised exposure draft contained additional reasons why the ASB considered the use of the BEIR to be valid.

The assumption to be made about inflation over the next several years (like the assumption for mortality) is unaffected by whether or not an economic value or a replacement value approach is being used. Therefore, consistency with the pension commuted value Standard of Practice is appropriate.

Inflation rate—ultimate period

In the second revised exposure draft, the ASB recommended a fixed rate of 2.25% (after 20 years). This was selected as the sum of a fixed rate of 2% (the mid-point of the current Bank of Canada target rate of 1% to 3%) and an additional amount of 0.25% (to reflect the fact that the individual not receiving the pension will not have the protection against inflation that the person who does receive the pension will have).

The assumption in the current Standard is a fixed rate of 2.75% (after 15 years).

The MBWG recommended a fixed rate of 2.5% (after 5 years).

One commentator on the second revised exposure draft said:

- “In my personal view, the assumption of 2.25% is also acceptable.”
- “... the ultimate rate of 2.25% however, should be applicable after the 5 year select period, not a 20-year select period. It is not acceptable to only reach this assumed inflation rate after 20 years.”
- “... although the assumption of an ultimate inflation rate of 2.25% is acceptable, the ASB’s justification for such a rate is not acceptable.” This commentator considers that if the average target level of inflation is 2% (midway in the range of 1% to 3%), the actual average level of inflation will exceed 2%, reflecting an asymmetrical distribution.

Another commentator wrote: “I can accept an ultimate inflation rate of 2% v 2.5% based on the Bank of Canada’s ability to manage inflation in the last c. 20 years. This is a technical debate which, while not unimportant, has points to be made on both sides.” However the same commentator questioned the addition of the 0.25%.

The ASB continues to favor a select period of 20 years for inflation, not a shorter period. This is because the BEIR (the basis for the first 20 years) reflects the market’s view of expected long term (20 years or more) inflation.

The ASB considers that the derivation of an ultimate rate of 2.25% (an assumption of inflation of 2% plus an additional 0.25% to reflect the fact that the individual not receiving the pension will not have the protection against inflation that the person who does receive the pension will have) is appropriate.

With respect to the assumed inflation rate, the mid-point (2%) of the Bank of Canada's target range of 1% to 3% is felt more appropriate than, say 2.25% or 2.5%, given that actual rates of inflation over the last two decades have actually averaged below the midpoint of the target range during that time, not above the mid-point.

Regarding the additional 0.25%, from studies of the relationship between inflation rates, inflation expectations and the BEIR, it is generally believed that the BEIR incorporates an inflation risk premium that effectively requires the purchasers of real return bonds to pay not just for the expected inflation adjustments but also for the elimination of the inflation risk. These elements have been incorporated by using the full BEIR for the first 20 years. To get the ultimate assumption, the ultimate inflation expectation (2% as long as the current inflation targets are in place) is added to the ultimate estimated inflation risk premium (0.25% until a better estimate becomes available).

One commentator pointed out that it was inappropriate to increase the inflation rate assumption by 0.25% if inflation protection was not guaranteed. The Standards (both current and final) distinguish between the assumptions to be used for (a) pensions that are indexed to the CPI and (b) pensions that are indexed ad hoc.

Other comments

One commentator suggested that "... the ASB has simply chosen a select period for the inflation rate assumption to coincide with the select period it has chosen for the discount rate assumption (i.e., 20 years). ... There is no reason the two select periods should be the same and the ASB appears to have simply made them the same for convenience."

This was not the reason for the ASB's choices. The ASB chose the select periods for the discount rate and inflation assumptions for the reasons given in the appendix. The ASB observed that the inflation-linked bonds issued by the Government of Canada (that are used to calculate the BEIR) are currently available with maturities ranging from 2021 to 2044.

Another commentator questioned whether, consistent with the addition of 0.25% to the assumed inflation rate (after 20 years) to reflect the fact that the individual not receiving the pension will not have the protection against inflation that the person who does receive the pension will have, there should also be recognition of the fact that the non-member also does not have the protection from reinvestment risk and longevity risk that the plan member has.

The ASB has developed the final Standards based on the concept of reversion to the mean with respect to future investment returns, and as a result the reinvestment risk is not considered. With respect to longevity risk, the understanding of the ASB is that while certain aspects of future events are accepted by the courts, some are not, and longevity improvements are to some extent linked to future medical advances or breakthroughs which the courts in certain provinces could disallow.

One commentator suggested that if consistency, for example between section 3800 (pensions) and 4300 (marriage breakdown) was important, "why doesn't the ASB require the same common mortality, inflation or discount rate assumptions when determining ... actuarially equivalent values for optional pension forms?" This is an interesting suggestion, but it is beyond the scope of the revision of section 4300.

OTHER

Where changes are being made they are the same as those recommended in the second revised exposure draft.

Change in average wage index

Paragraph 4330.14 of the current Standards requires the assumption that the rate of change in a wage index be 1% higher than the rate determined for Consumer Price Index (CPI) indexing.

No change to this is being made (in the final Standards the corresponding requirement is in paragraph 4330.12). A similar requirement is contained in the Standards of Practice – Pension Plans, section 3800.

Rounding

Paragraph 4330.10 of the current Standards requires that the interest rates determined in accordance with subsection 4330 be rounded to the nearest multiple of 0.25%. In the final Standards (see paragraph 4330.18) rounding is to be done to the nearest multiple of 0.10%.

This change is more accurate than the current rounding to the nearest 0.25%. It is consistent with what was adopted in the final Standards of Practice—Pension Plans, section 3800.

Only the interest rate (not the inflation assumption) should be rounded.

Time lag

Paragraph 4330.10 of the current Standards requires that the yields on Government of Canada bonds that are used to determine the discount rate be based on the CANSIM rates in the second calendar month preceding the month in which the calculation date falls.

In the final Standards the time lag is reduced to one month (see paragraph 4330.08 of the final Standards) for consistency with the Standards of Practice—Pension Plans, section 3800.

Other changes

A new paragraph (4310.05) has been added that states:

“The standards in this section 4300 do not apply when applicable legislation mandates a different basis for the calculation of the value of family property at the breakdown of the marriage of a plan member.”

The last sentence of paragraph 4330.13 that appeared in the first revised exposure draft (which read: “In so doing the actuary would take account of long term historical averages and not give undue weight to recent experience”) has been deleted. The ASB concluded that specific guidance on this paragraph should be provided by Educational Notes.

APPENDIX

RATIONALE FOR DISCOUNT RATE AND INFLATION ASSUMPTIONS

The following was contained in the second revised exposure draft (<http://www.actuaries.ca/members/publications/2010/210036e.pdf>). It is repeated here for convenience.

Discount rate

In the case of the discount rate assumption, the ASB accepted that a “replacement theory” approach made sense for the Marriage Breakdown Standard (as opposed to the “economic value” approach that was a major consideration in setting the discount rate assumption for the Standards of Practice – Pension Plans, section 3800).

A replacement theory approach is considered to be an investment strategy that allows for the replacement, as far as possible, of the expected pension payments. (The expected pension payments, which are independent of the actual or assumed investment strategy, would be determined reflecting expected mortality and, for an indexed pension, expected inflation.). The use of a replacement theory approach requires a great deal of judgment about the kinds of things that a reasonably well-informed, diligent investor would do to replace a pension. The reality is that most non-members’ spouses will receive assets in lieu of their share of the member spouse’s pension. These assets will often be real estate, e.g., the principal residence or a share thereof. The non-member spouse may have no interest in replicating or replacing the foregone pension. So the replacement method concept is not well-defined and it requires judgments about what people might reasonably do, not what they often do in practice.

The MBWG report (implicitly) assumed that the non-member spouse would choose to invest his/her money in a long-term bond fund managed through an exchange traded fund (ETF), and developed a model to reproduce the effects of doing so. ETF’s are managed to track a bond index, not to replace expected pension payments. The ETF underlying the MBWG recommendation is the \$70 million iShares Canadian Long Bond Index Fund (XLB).

There are a number of other investment strategies that an individual might follow. One investment strategy that would replace the expected pension payments is the purchase of strip bonds whose maturity dates and amounts match the timing and amounts of the expected pension payments. Such a strategy protects an individual from market volatility, and from the risk of having to reinvest funds when interest rates are lower than today – except beyond the term where strip bonds are not widely available. Strip bonds of different maturities (for terms of at least 20 years) are available in sufficient quantities for individual investors, and expenses are lower than on an ETF. In addition, there is no reinvestment risk until the maturity of the strip bonds.

The recommended assumption (for the first 20 years) of the yield on long-term Government of Canada bonds plus 50 bp can be achieved by investing in provincial strip bonds. Following research and enquiries with some institutions offering self directed registered retirement savings plan (RRSP’s), the Designated Group concluded that strip provincial bonds, yielding on average about 50 bp more than Government of Canada strip bonds after expenses, are available in sufficient quantities for individual investors. More specifically, during the period 1948 to 2006, in years when the Consumer Price Index

(CPI) was between 0% and 4%, provincial bonds have yielded an average of 55 bp more than Government of Canada bonds. With the investment in long strip bonds, there is also a small additional yield pick-up (assumed to be about 5 bp) since, under a normal yield curve, yields on stripped bonds or coupons at later durations are greater than the average yield over the whole term of the bond of the principal and all coupons.

Expenses of about 10 bp were assumed (following a survey of some brokerage firms), resulting in an addition of about 50 bp (55 bp plus 5 bp less 10 bp) to the yield on long-term Government of Canada bonds.

As noted above, the MBWG recommended an interest rate, net of expenses, equal to the yield on long-term Canada bonds. The ASB thought that a non-member spouse interested in replacing a pension should be able to get something closer to the yield on long-term provincial bonds.

Other factors influencing the ASB's recommendation were:

- The recommendation should be fair to both parties – the individual receiving the pension and the individual receiving the capitalized value. We believe that the ASB's recommended basis (i.e., the long-term Government of Canada bond yield plus 50 bp) is fairer to both parties than the MBWG's recommendation of long-term Government of Canada bond yield with no addition. We say this not merely for the reasons given above, but also because we see an issue of fairness if the non-member spouse receives a risk free value (Government of Canada plus zero) while the spouse remaining in the pension plan does not have an iron clad guarantee in respect of his/her pension.
- The ASB noted that the proposed discount rate (i.e., long-term Government of Canada bond yield plus 50 bp) is the same as that in the current section 4300 – which the ASB was advised in May 2008 was well accepted in the courts (see Background *(to Second Revised Exposure Draft)* on page 5).
- The current Pension Commuted Value Standard uses yields based on Government of Canada bonds plus 90 bp. The ASB considered the 40 bp difference between the 90 bp adjustment for the Pension Commuted Value Standards and the 50 bp adjustment for marriage breakdown to be justifiable in light of the different approaches used, namely an economic value approach for Standards of Practice – Pension Plans, section 3800 and a replacement theory approach for marriage breakdown calculations.

In practice, a very large number of investment strategies are possible and may be followed, but with less certainty of their replacing the expected pension payments. For example, an individual could decide to invest in equities. The expected returns would likely be higher, but there would be greater risk.

Discount rate basis after 20 years

A financial economics approach would use a long-term yield (based on current yields) as long as they are reasonably available but, for the average individual, investment opportunities for very long terms are limited. For this reason, and since a replacement theory approach is being followed, a fixed rate of 5.5% is recommended after 20 years.

The fixed rate of 5.5% was derived as the sum of the following three components:

the long-term inflation assumption of 2% (see below), plus

an expected difference of 3.0% between the yield on long-term Government of Canada bonds and expected inflation, plus

50 bp, reflecting additional yields, net of expenses, through investing in provincial bonds.

Of these three components, the second was the most difficult to quantify. Looking backward, the differences have varied considerably depending on the time period studied. Consequently, the Designated Group recommends that the ASB review the rate of 5.5% from time to time and adjust it whenever there is a significant change in the economic conditions. For example, as described later, the long-term inflation assumption of 2% assumes that the Bank of Canada maintains its current target rate for inflation of a range from 1% to 3%.

Once one moves away from a financial economics approach, there is no single right answer for the long term discount rate. In the First Revised Exposure draft, the ASB attempted to narrow differences with the MBWG recommendations by adopting some of the recommendations of the MBWG report. Some of the comments received suggested that it was inappropriate to use parts but not all of the MBWG's recommendations. The approach recommended in this Second Revised Exposure Draft, i.e., GOC plus 50 bp for 20 years and 5.5% thereafter is simpler (it avoids the complexity of an age-dependent discount rate), it reflects the availability to the individual investor of fixed income instruments for periods up to 20 years, and the financial effect of the change, compared to the First Revised Exposure Draft, is very small.

Finally the recommended long term rate of 5.5% appears reasonable compared to the long term discount rate of 6% in the current section 4300, in light of the general downtrend in interest rates in recent years. The increase to 6.25% recommended by the MBWG seems harder to justify.

As noted above, the MBWG recommended a long term rate of 6.25%. The development of this assumption, compared to the ASB's recommended 5.5% is as follows:

	ASB	MBWG
Long term inflation	2.0%	2.5%
Real return on GOC bonds	3.0%	3.65%
Adjustments (invest in other than GOC bonds, expenses, other)	<u>0.5%</u>	<u>0.10%</u>
Total	5.5%	6.25%

The difference in the long term inflation assumption is discussed later. The difference in adjustments is caused mainly by the MBWG assuming higher expenses through investing in an exchange traded bond fund (ETF) – see above. The MBWG adjustments also included 10 bp to allow for the effect of compounding the long term inflation rate and the real return on GOC bonds.

The MBWG report (page 13) recommended a 3.65% assumption for the real return on GOC bonds as a result of using the following steps:

- Over the period 1948 to 2006, the average real rate of return for federal long term bonds was 3.14%.

- “The real return is inversely correlated to the level of inflation (i.e., the lower the rate of increase in Consumer Price Index (CPI), the higher the real rate of return). In periods when inflation is bracketing the 2% target inflation rate (0% to 4%), the average real rate of return on bond yields is approximately 4%.”
- Allowing for shocks in CPI rates, an assumed real rate of return of 3.65% was developed.

As noted above, the real return on GOC bonds has varied considerably depending upon the time period studied. The MBWG report looked at the average over the period 1948 to 2006. The ASB focused on the period since 1991 because that was when the Bank of Canada adopted its current inflation-targeting framework. Even in the period since 1991, real returns have ranged from a low of about 1.5% to a high of about 5%. The ASB selected 3% as the midpoint of this range. (In the main text of this memorandum the previous sentence has been modified)

Inflation rate

The ASB recommends that the inflation rate for the first 20 years be based on the BEIR.

- This is consistent with what was adopted for the Standards of Practice – Pension Plans, section 3800. (Incidentally, the Designated Group read again the comments made when section 3800 was being reviewed/ revised in 2008 and could find only two comments that objected to the use of the BEIR in connection with section 3800.)
- The BEIR represents the market’s long term view of the value of inflation protection.
- The current section 4300 bases the inflation assumption on the BEIR.
- Expected pension payments (reflecting expected mortality and expected inflation) are independent of the investment strategy adopted.

The comments in the appendix (response to criticisms of the use of BEIR) expand upon why the ASB considers that the use of the BEIR is valid. *(The appendix referred to is the appendix to the cover memo to the Second Revised Exposure Draft.)*

Consideration was given to applying a reduction to the BEIR. This is because the BEIR includes a premium paid to guarantee protection against inflation. The ASB concluded that no reduction was appropriate. The individual receiving the pension will have protection against inflation so, to be consistent and fair, the individual not receiving the inflation protection should receive something of equivalent value, i.e., no reduction to the BEIR.

The fixed rate of 2.25% after 20 years was selected as the sum of two components:

A fixed inflation rate of 2% which is the mid-point of the current Bank of Canada target range of 1% to 3%. In addition, as noted in the appendix, in the 18 year period from 1992 (the year following the adoption of a target range of 1% to 3% by the Bank of Canada) to 2009 inclusive, inflation averaged 1.83%, slightly below the midpoint of the range, plus

An additional 0.25%. As noted above, for the first 20 years, no adjustment was made to the BEIR to reflect the fact that it includes a premium paid to guarantee protection against inflation – assumed to be about 0.25%. Since the individual not

receiving a pension will not have the protection against inflation that the person who does receive the pension will have, the former should have something of equivalent value, i.e., no reduction to the BEIR in the first 20 years and an increase of 0.25% in the assumed inflation rate of 2% after 20 years.

The Designated Group recommended that the ASB review the fixed rate of 2.25% from time to time, and adjust it whenever there is a significant change in the Bank of Canada target rate.

The recommended fixed rate of 2.25% compares with a fixed rate of 2.75% in the current Standard. Although the reduction is relatively large, the ASB still considers a long term fixed rate of 2.25% reasonable for the reasons given above. The current rate of 2.75% was set when inflation targeting by the Bank of Canada had been in place for only a short time and followed a period when Canada had been experiencing higher inflation rates.

The latest recommendations are slightly different from those of the First Revised Exposure Draft. The changes have been made partly to reflect comments by members (in particular that the inflation assumption should not be based on the age of the member) and partly to be consistent with the changes made to the discount rate assumption (see above).