

## 2018 Survey

Economic assumptions in  
accounting for pension and  
other post-retirement benefits

## Highlights of our annual survey results

Morneau Shepell is pleased to provide a survey of the assumptions used by approximately 100 Canadian public companies to account for the costs of their defined benefit plans. Information is collected from audited financial statements as at December 31, 2017. This is the eighteenth year the survey has been conducted.

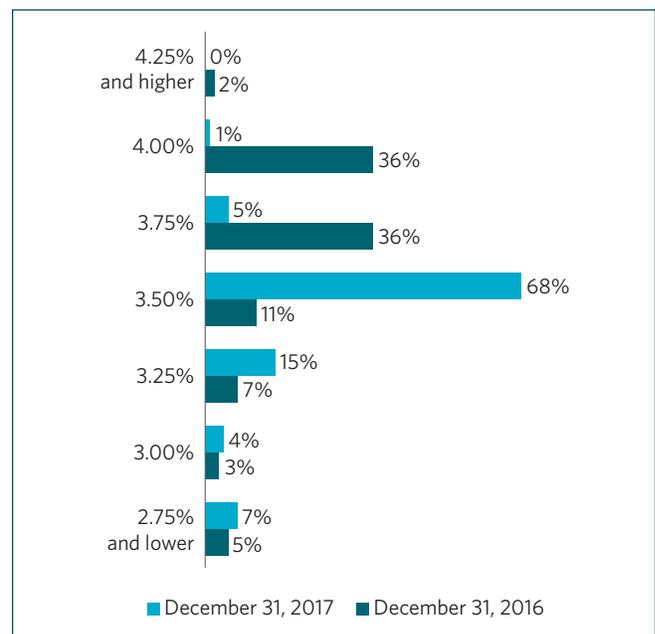
Accounting for publicly accountable enterprises has moved to International Financial Reporting Standards (“IFRS”) for fiscal years beginning on or after January 1, 2011. In June 2011, the International Accounting Standards Board (“IASB”) published the revised standard Employee benefits (“IAS 19”). This revised standard is effective for years beginning on or after January 1, 2013. As such, this survey reflects assumptions and figures in line with IAS 19.

### Discount rate for pension plans

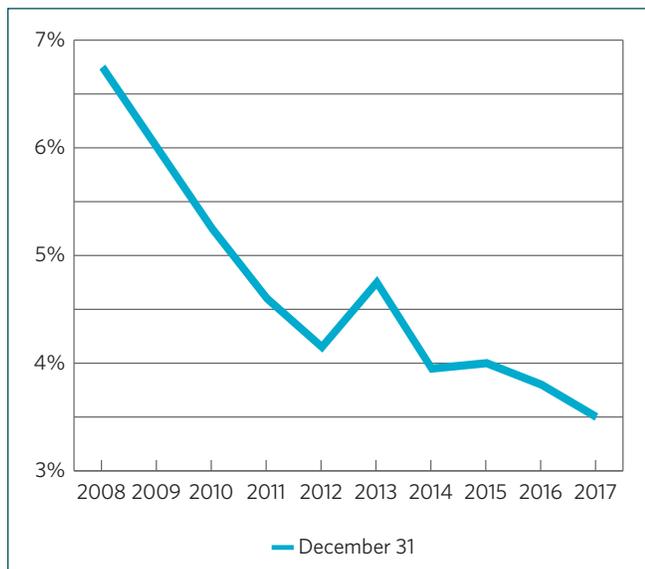
Discount rates at December 31, 2017 have decreased when compared to the prior year. The median discount rate was 3.50% as at December 31, 2017 compared to 3.80% a year earlier. Roughly 93% of companies surveyed decreased their discount rate in 2017.

The following charts summarize the discount rates used in the valuation of defined benefit pension plans as at December 31, 2017 (rounded to the nearest 0.25%), as well as the historical evolution of the median discount rate over the last 10 years, based on our past surveys.

Discount rate / Pension plans



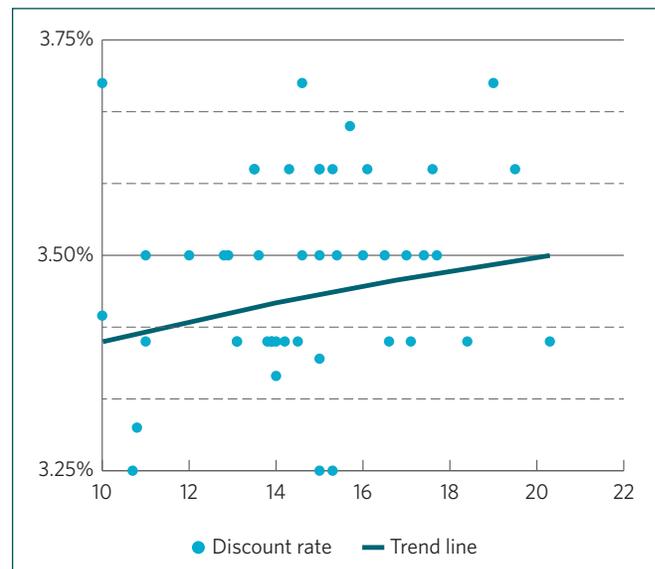
### Historical evolution of the median discount rate



The spread in discount rates has narrowed since last year. About 83% of companies used a discount rate between 3.25% and 3.50% (a spread of 0.25%), while 72% of companies used a discount rate between 3.75% and 4.00% (a spread of 0.25%) at the end of the preceding year.

As stated in the standard, the discount rate must reflect the estimated timing of benefit payments. In practice, companies often achieve this by applying a single weighted average discount rate that reflects the estimated timing and amount of benefit payments. Consequently, the discount rate used by one company will vary depending on the duration of the pension plan. Not all companies in the survey disclosed the duration in their financial reports. The following chart shows the discount rate and the associated duration of pension liabilities based on the information available.

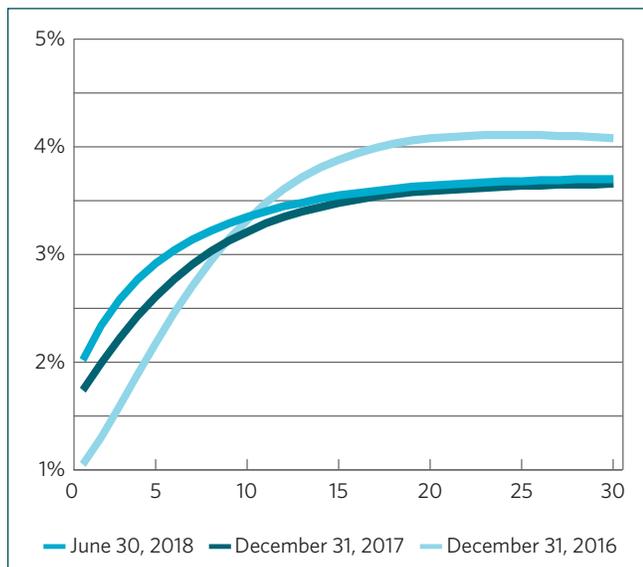
### Discount rate / Duration



Financial theory dictates that corporate bond yields increase with a bond’s term (although not linearly). This theory seems to be supported by the survey data, given the trend line shown in the chart above. It should be noted, however, that the flattening of the spot rate curve (rise in short-term and medium-term rates, decrease of long-term rates) over the last few years has narrowed the spread in discount rates and makes it more difficult to observe a significantly positive trend line. Moreover, the chart also reveals a few outliers. This can perhaps be explained by some companies disclosing a weighted discount rate that includes post-employment benefits while disclosing a duration that does not.

Over time, the yields on high-quality long-term corporate bonds may vary considerably. The discount rate should be expected to vary in a similar fashion. The graph below compares the spot rate curves as at December 31 for the years 2016, 2017, and more recently for June 30, 2018. Spot rate curves, provided by Morneau Shepell, conforms to the principles of the CIA Educational Note, revised in June 2018.

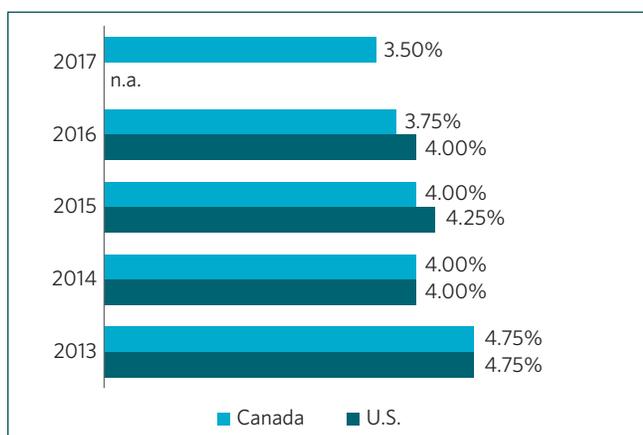
## High-quality corporate bonds



If the spot rate curve were to remain at June 2018 levels until the end of the year, the expected discount rates at December 31, 2018 would be approximately 5 to 14 bps higher than those used at December 31, 2017.

The following chart compares the median discount rates (rounded to the nearest 0.25%) in our survey to the average discount rates from a U.S. study<sup>1</sup>.

### Median discount rate by country



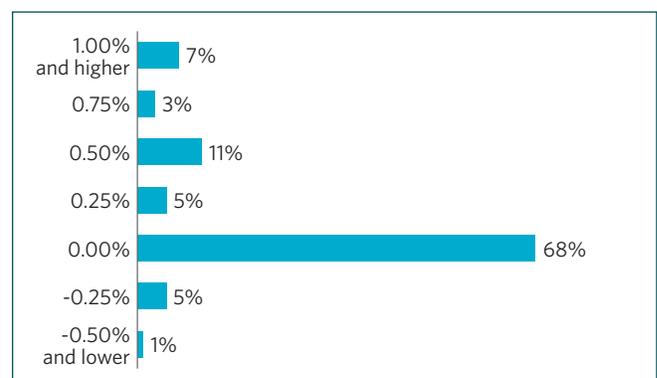
## Discount rate for non-pension benefits

The duration of non-pension post-employment benefits is often significantly different from that for pensions. For example, the duration of the defined benefit obligation (“DBO”) for a retiree medical plan is often longer than that for pension plans. As a result, the choice of discount rate for the valuation of post-employment benefits can be different than it is for pensions, in theory (see the Appendix on selecting the discount rate for more on this). While some companies use rates that differ by type of plan, many elect to use a single blended rate, or they simply use the rate for the most material plan.

The median rate used as at December 31, 2017, for non-pension benefits is 3.50%, a rate identical to the median rate used for pensions.

The following chart shows the difference between the discount rate used in the valuation of non-pension benefits and that used for pension plans, rounded to the nearest 25 bps (a positive value indicates a higher rate for non-pension benefits than for pensions and vice versa).

### Difference in discount rates (non-pension benefits vs. pensions)



<sup>1</sup> Source: 2018 Study of Economic Assumptions, by Deloitte & Touche Human Capital Advisory Services (U.S.). (At the time of preparing this survey, the 2018 U.S. study had not yet been published by Deloitte and the average discount rate at December 31, 2017 for U.S. companies was unavailable. This survey will be updated once the U.S. study is published.)

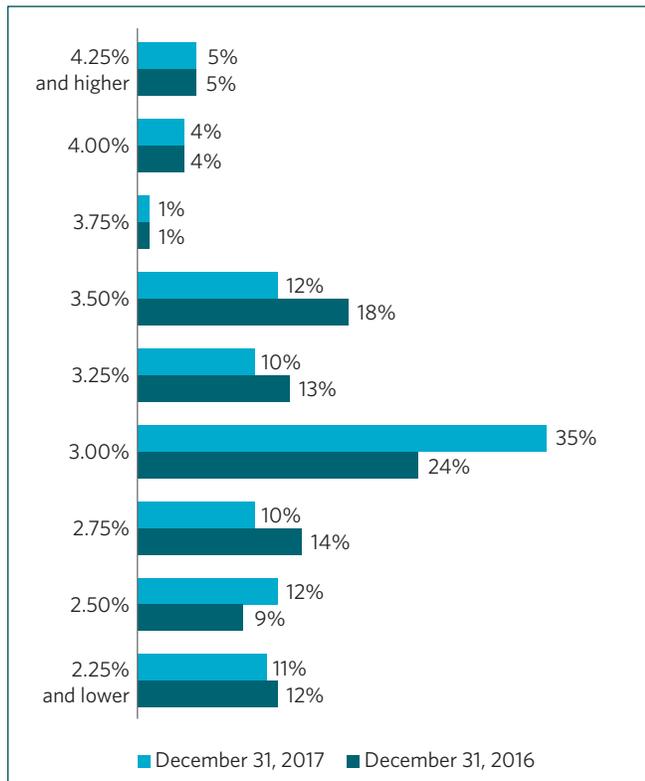
In 2017, 68 % of the companies surveyed used similar discount rates for pensions and non-pension benefits, while 32% of companies used a significantly different discount rate for non-pension benefits (compared to 45% in our previous survey).

### Rate of compensation increase

Plans that provide pay-related benefits are required to make an assumption about the rate of compensation increases. IAS 19 indicates that it should reflect “inflation, seniority, promotion and other relevant factors, such as supply and demand in the employment market”.

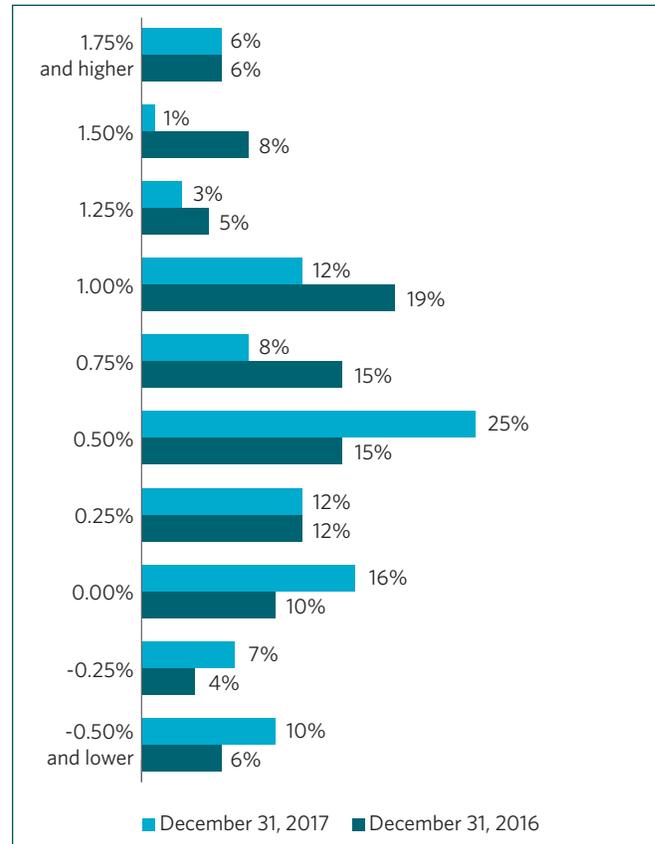
The median compensation increase assumption as at December 31, 2017 was 3.00%, which is identical to last year’s median. We found 79% of companies using rates between 2.50% and 3.50%. In some cases, however, this assumption is much lower than the median, leading one to question whether some companies are properly reflecting the impact of individual job progression in their disclosed assumption.

#### Rate of compensation increase



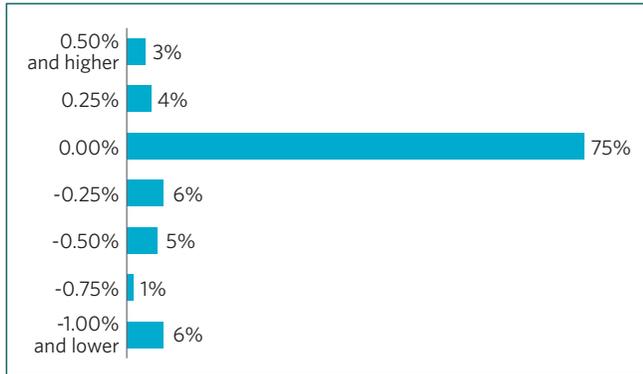
The following graph shows the spread between the discount rate and the rate of compensation increase. The spread can have a significant impact on the DBO for defined benefit pension plans. The median spread is 0.50% as at December 31, 2017, which is 25 bps lower than last year. A decrease in the spread results in a higher DBO.

#### Spread: discount rate / compensation



Our survey shows that about 25% of companies changed the rate of compensation increase assumption by approximately 25 bps or more (down or up) at December 31, 2017. There is some debate over how frequently this assumption should be changed. IAS 19 states that financial assumptions should be based on market expectations at the end of the reporting period.

### Change in compensation increase assumption (2017 vs. 2016)

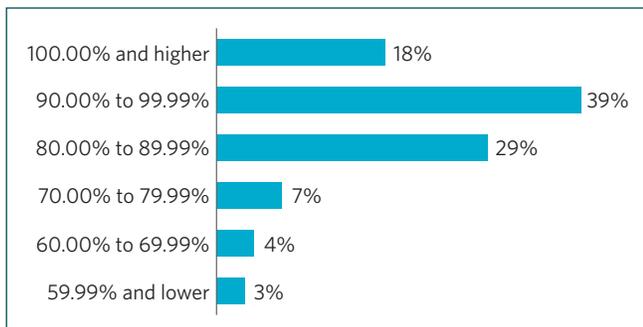


## Pension plan financial situation and financial assumptions

The companies in our survey show a 95% overall ratio of pension assets to DBO for accounting purposes.

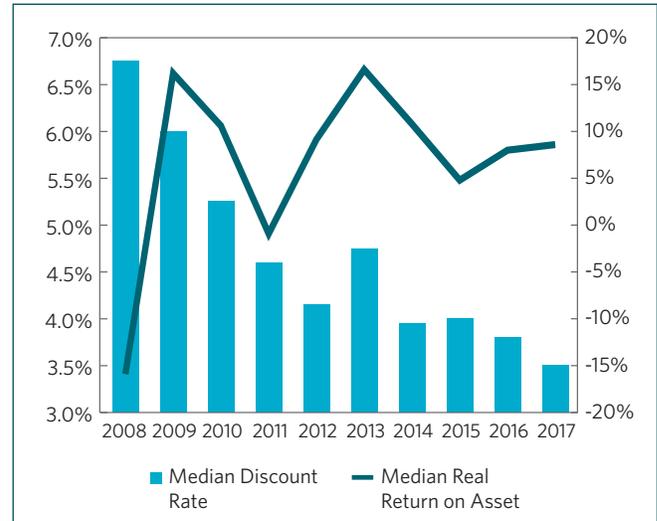
This result may be slightly understated since it includes some non-registered plans for which no funding is legally enforced under the Canadian regulatory environment. The ratio is highly influenced by the actual return on plan assets, the discount rate assumption and special contributions made to cover pension plan deficits. The distribution of companies based on their overall ratio at December 31, 2017 is shown in the following chart.

### Pension plan ratio of asset value to accounting DBO (distribution of companies)



As mentioned, the ratio is highly influenced by return on assets and discount rate, for which we have summarized historical data in the next chart.

### Discount rate and actual return on assets



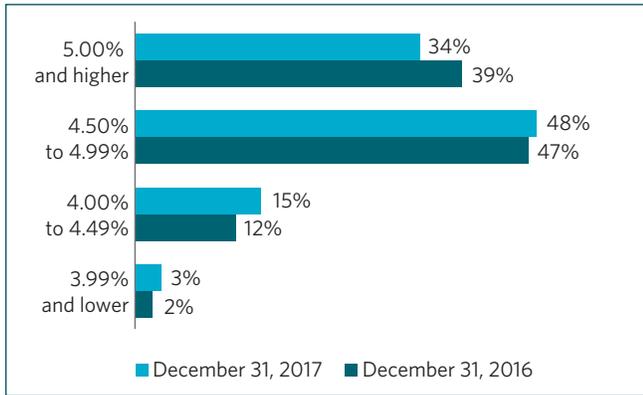
## Medical cost trend

When retiree medical coverage is offered, a key assumption in the valuation of the DBO is the rate of future medical cost increases. IAS 19 provides guidance on factors that companies should consider in selecting this assumption.

Often, medical costs are assumed to increase at a higher rate in the short term, declining in steps to an ultimate rate over a period of several years.

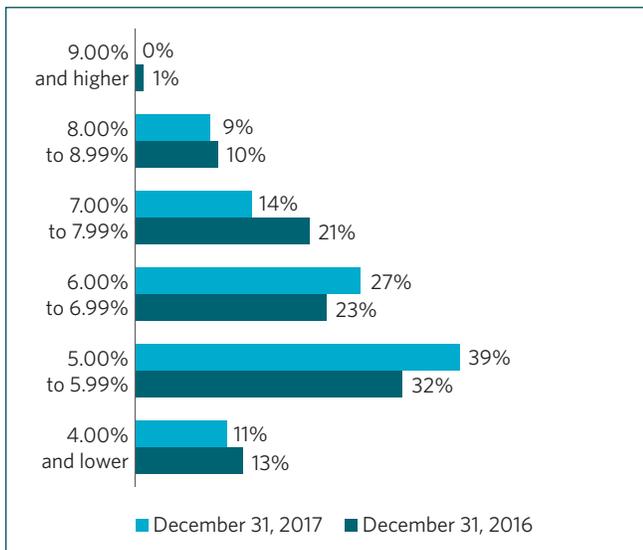
The following charts show the December 31, 2017 medical cost trend assumption compared to December 31, 2016. About 82% of the companies surveyed that are offering a retiree medical coverage used an ultimate trend rate between 4.50% and 5.25%. The median rate as at December 31, 2017 is 4.50%, which is identical to last year.

### Ultimate medical cost trend



The median assumption for the short-term medical cost trend rate was 5.90% at December 31, 2017, which is 30 bps lower than last year's median rate. A total of 77% of companies used an assumption of less than 7.0% (68% in 2016).

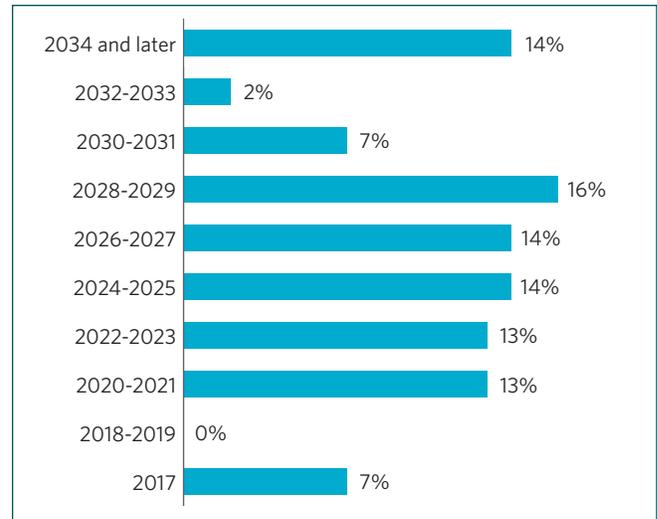
### Short-term medical cost trend



The medical cost increase rate reaches its ultimate level in 2026 (median), which is 2 years later than the median year of last year's survey (2024) and 6 years later than the median year of the 2010 study (2018). This confirms the current practice of

adjusting the calendar year in which the health care cost trend assumption will reach the ultimate rate, for the sole purpose of maintaining the same projection period. The median projection period has remained reasonably stable since 2010 (9 years). We will continue to closely monitor to this assumption in future surveys.

### Ultimate medical cost trend (year in which ultimate rate is attained)

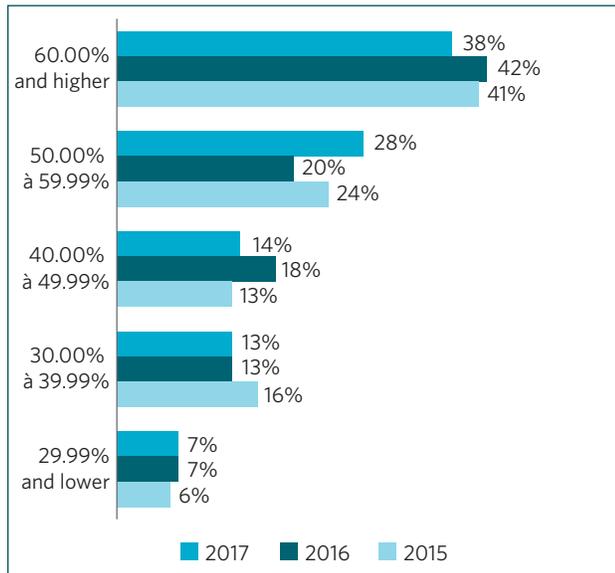


### Pension plan asset allocation

Under IAS 19, the allocation of pension fund assets between equities, fixed income and other assets must be disclosed. Additional categories may be added to facilitate the readers' understanding of the investment risks faced by the fund.

The average asset allocation as at December 31, 2017, was 43% in equities, 46% in fixed income and 11% in other assets (compared to 45% in equities, 46% in fixed income and 9% in other assets as at December 31, 2016). The following chart shows the distribution of the proportion of funds invested in equities and in other assets (excluding fixed income).

Company distribution by combined pension plan equity and other assets weighting

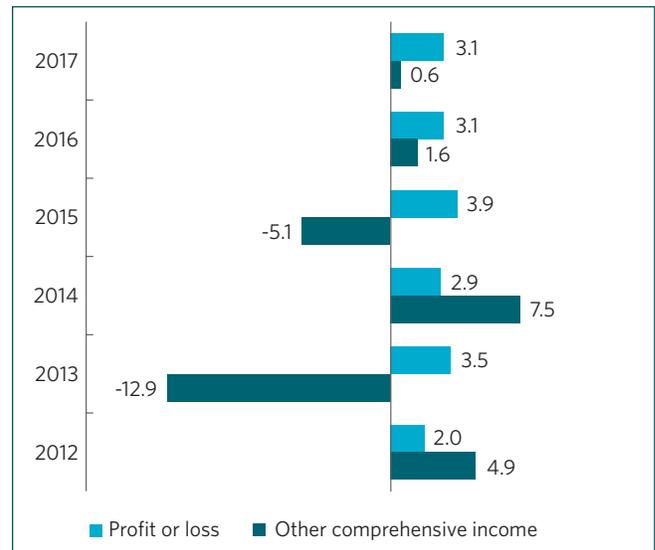


### Defined benefit cost - IAS 19

With respect to pension plans, the following graph shows the aggregate amount recognized in profit or loss (sum of the service cost and the net interest on the net defined benefit liability) and the aggregate amount recognized in other comprehensive income (remeasurements of the net defined benefit liability).

For 2017, these amounts are \$3.1 billion and \$0.6 billion respectively. The amount recognized in profit or loss is the same as 2016 (\$3.1 billion). The remeasurements of \$0.6 billion consist mainly of actuarial losses on the defined benefit obligation resulting from the revision of the discount rate assumption as at December 31, 2017, despite higher returns on plan assets higher in 2017 (compared to the interest generated by using the discount rate).

Historical amounts recognized in profit or loss and remeasurements recognized in other comprehensive income (\$ billion)



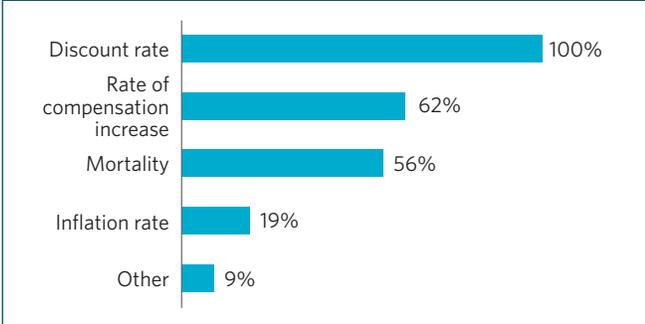
In IAS 19, remeasurements may be transferred to any other component in equity. Alternatively, they may be left in accumulated other comprehensive income (“AOCI”). About 70% of the companies in our survey are transferring the remeasurements immediately to retained earnings, while the others (30%) are recognizing the amounts in AOCI.

### Additional disclosures - IAS 19

In IAS 19, some information with respect to the level of risk inherent in an entity’s defined benefit plans have to be disclosed. However, some parts of the standard may be subject to interpretation and require professional judgment. Consequently, the level of detail in the disclosures may vary from one company to another. For example, 93% of the companies surveyed disclosed a sensitivity analysis of the defined benefit obligation, as required by IAS 19, while 7% did not disclose any.

The following chart shows which actuarial assumptions were used for those companies that disclosed a sensitivity analysis.

Actuarial assumptions used in the sensitivity analysis



### For more information

This survey is intended to provide information regarding the assumptions disclosed by a wide range of companies and, as such, can provide an indication of trends. The assumptions used for your own employee benefit plans will depend on a number of factors. For more information, please speak to your Morneau Shepell consultant.

## Appendix – Selecting the discount rate

In general, the DBO for defined benefit plans is highly sensitive to the discount rate assumption. For example, a 25 bps decrease in the discount rate can increase the DBO by as much as 5%.

IAS 19 provides general guidance for the selection of the discount rate assumption. The discount rate should be determined by reference to market yield on high-quality corporate bonds. In countries where there is no deep market in such bonds, the market yield on government bonds should be used. The discount rate should reflect the estimated timing of benefit payment, but it is common practice to apply a single weighted average rate. However, the precise methodology for computing this rate is not prescribed.

The Canadian Institute of Actuaries (CIA) published an Educational Note in September 2011 (subsequently revised in June 2018), which offers advice to pension actuaries who are engaged by an entity to provide guidance on the discount rate to

use for accounting purposes. The Educational Note describes a methodology to extrapolate the long end of the high-quality corporate yield curve that the Task Force believes would be appropriate in the current economic environment. This methodology uses high-quality corporate and provincial (adjusted) bonds. It is possible that some entities may not have applied the proposed methodology set forth by the CIA in establishing the discount rate as at December 31, 2017, instead using an alternative model that still conforms to the principles of the Educational Note. This could result in different discount rates for similar pension plans, given current conditions in financial markets.

Information on high quality Canadian corporate and provincial bonds (rated AA or higher) is generally available from independent sources, and can serve as a starting point in the determination of the discount rate.

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