Aggregation of Debt Data For Portfolio Term To Maturity

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CHAIRMONT
ADVISERS+IMPLEMENTERS

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1 EXECUTIVE SUMMARY

1.1 INTRODUCTION

In 2018 Chairmont created the Energy Infrastructure Credit Spread Index (EICSI). The EICSI is deliberately simple "it does not weight or adjust the raw data from the companies. The purpose is to produce a 'pure' unadjusted index without modelling adjustments to target a theoretical benchmark."[1]

It was recognised at that time that a simple unadjusted index was a basis to build upon for future analysis which is outlined in this report.

1.2 SCOPE OF WORK

The scope of work was to:

- Conduct a comparative analysis between portfolio level original Term to Maturity and AER's current 10-year benchmark. This is weighted by the face value of debt to ensure that the smaller providers do not overweigh the average;
- Calculate a simple average of the providers' Term to Maturity at issuance for each month;
- Update the EICSI analysis to include data unavailable in 2018; and
- Enhance the functionality of the existing debt aggregation model.

The Terms of Reference (TOR) are contained in Appendix A.

1.3 OUR APPROACH

Our approach to this exercise was to use Weighted Average Term to Maturity at Issuance (WATMI) as the basis for conducting the comparative analysis.

WATMI is defined as the average of Term to Maturity (TtM) from the issuance date and weighted by the face value of issued debt/bond. The TtM is the time between when the debt is issued and its maturity date.

WATMI was calculated using the weighted average of all debt issuances currently outstanding by all providers. As several networks are owned by the same parties, it was decided not to weight each network with the same weight, (i.e. not use a simple average) to avoid giving higher weightings to those smaller networks owned by the same operator. Applying weighted averages at both the provider level and the industry level ensures a consistent approach compared to using a simple average for one level combined with using a weighted average approach for the other level.

WATMI is a broadly used approach in calculating and describing the maturity profile of a portfolio. This principle was used for comparing WATMI at providers' portfolio level to the AER's 10-year benchmark.

[1] Chairmont, Aggregation of Return of Debt Data, 28 April 218, page 3

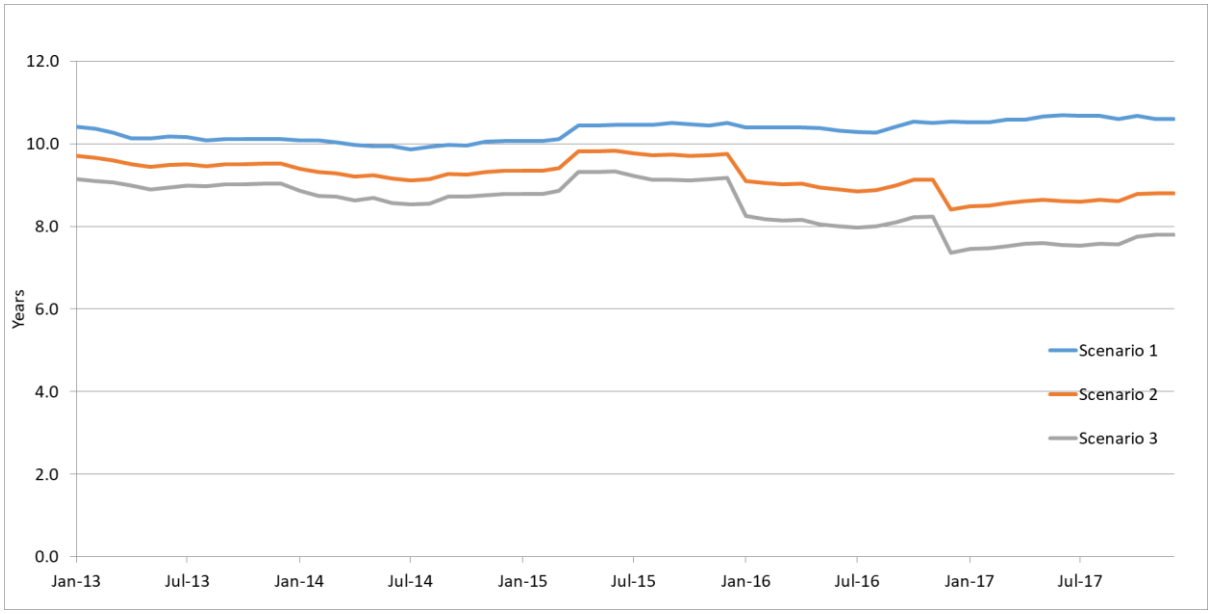
1.4 KEY OUTPUTS AND FINDINGS

Weighted Average Term to Maturity at Issuance Analysis

The key outputs of the analysis are:

- WATMI for the industry ranges from a minimum of 7.4 years to a maximum of 10.7 years across all scenarios;
- When compared against AER's 10-year benchmark, it is observed that WATMI is on par with the benchmark for most of 2013-2017. It is seen that WATMI begins to fall from December 2015 onwards which is attributed to the increase in the number of debt instruments on issue from December 2015 onwards; and
- Three scenarios were considered for WATMI analysis, each corresponding to a different drawdown sensitivity. The drawdown sensitivities have been applied only to bank debts. The different scenarios are:
  - Scenario 1: 0% Drawdown Sensitivity
  - Scenario 2: 50% Drawdown Sensitivity
  - Scenario 3: 100% Drawdown Sensitivity.

Graph 1 is a comparison of WATMI at different drawdown sensitivities on a month-to-month basis.



Graph 1: WATMI Drawdown Scenarios

It is observed that for varying drawdown sensitivities, WATMI follows an almost similar pattern for each scenario. This is discussed further in section 4.1.

Simple Average

The TOR included a requirement to conduct a simple average exercise which is different from the WATMI approach. A simple average sums each debt instrument and divides by the number of instruments. The major drawback of simple average method is that the average tends to skew towards the higher/lower values based on their frequency. This is shown is section 4.3.

Energy Infrastructure Credit Spread Index

Updating the Energy Infrastructure Credit Spread Index (EICSI) analysis to include data unavailable in 2018 results in some fine tuning of the observations. These are:

- EICSI average credit spread is now 141.3bps compared to 142.4bps in the previous exercise;
- EICSI range in Chairmont's report of 2018 was from 125.6bps to 158.2bps. The analysis now shows the highs and lows to be between 123.7bps and 158.2bps. This means that range increased from 32.6bps to 34.5bps. This outcome continues to be significantly lower than the AER's 10-year BBB bond margin range of 113bps;
- There is no change in the EICSI average credit rating score of 3.0 points, i.e. BBB+ rated;
- The change in the data sample has not had any significant change to the industry's TtM range of 6.8 years; and
- The stability of the EICSI can be largely explained by variations in the TtM of debt raised by the industry.

1.5 CONCLUSION

The key conclusions are:

1. The use of WATMI ensures that portfolio maturity is not over-weighed by small issuances.
2. The inclusion of additional data did not result in any significant changes to the results of the previous report.
3. The use of a longer EICSI data time series will:
   - reduce the margin of error;
   - improve confidence level of the model;
   - improve the stability of EISCI; and
   - provide further insight into the performance of the EICSI.

2 DESCRIPTION OF RESPONSE DATA

The sample includes data from privately owned service providers for calendar years 2013-17. The data requested included debt from any source, including bond issuance, syndicated loans, bilateral bank loans and inter-company financing provided by corporate group entities.

It is important to understand that while some debts are committed, it is not necessary for it to be fully drawn. Debt Drawdown is the gradual issuing of funds rather than issuing all at once. The data provided does not indicate how much has been drawn at a particular point. For this reason sensitivity analysis, i.e. scenario 1, 2 and 3 was undertaken.

Vanilla debt, similar in ranking to the market rate indices was used to create a debt cost index.

3 USE OF SURVEY DATA & MODEL

The TOR refers to the comparison of portfolio level original term against AER's current 10-year benchmark embodied in data from the RBA, Bloomberg, Thompson Reuters and Standard & Poor's.

The current analysis uses earlier Chairmont work[2] as the basis to calculate Weighted Average Maturity for each term, where debt has the ability to be drawn down to different levels. The scenarios being 0%, 50% and 100% sensitivity.

The current model deviates from previous work by adopting a month-to-month calculation of term to maturity at issuance for the duration of the debt, rather than a 12-month rolling analysis that was adopted for the EICSI Model. The month-to-month analysis acts as a sanity check on the previous model.

The TOR requires the WATMI analysis and EICSI Index to be updated to include additional data not available in April 2018.

When examining debt-raising patterns of service providers, it is important to keep in mind the decision process that corporates undertake to instigate new debt. It is the credit spread in AUD, which is the key variable driving debt raising decisions. Therefore, the greatest value of the data provided by the networks is their company-specific credit spreads. Consequently, credit spread provides the foundation for the model.

4 RESULTS

4.1 WEIGHTED AVERAGE TERM TO MATURITY AT ISSUANCE - FACTORS

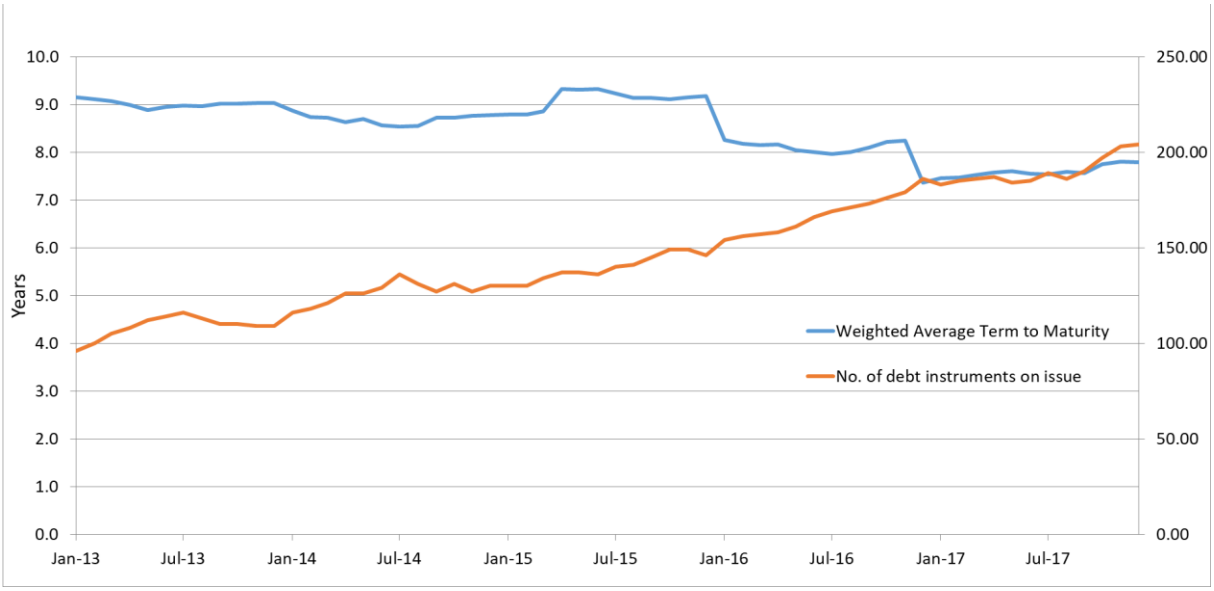
WATMI is dependent on the three parameters, namely:

- Term to Maturity;
- Face Value (i.e. the dollar amount of the debt) of issuance; and
- Number of debt issuances.

[2] Chairmont, 'Aggregation of Debt Data', April 2018

4.2 WEIGHTED AVERAGE TERM TO MATURITY AT ISSUANCE - SCENARIOS

Graph 2 shows a graphical representation of WATMI for the period 2013-2017. To obtain the industry WATMI, the drawdown sensitivity is taken as 100%. Graph 2 is a monthly representation of the industry WATMI, weighted by face value. It also shows the number of debt instruments on issue for each month for the same period.



Graph 2: WATMI v Number of Debt Instruments on Issue

The lowest value (7.4 years) for monthly WATMI was during December 2016, while it recorded its highest value (9.3 years) in the month of April 2015. For different drawdown sensitivities, e.g. 0%, 50% and 100%, WATMI follows an almost similar pattern with the industry average varying between 7.4 to 10.7 years.

When compared against AER's 10-year benchmark, it is seen that WATMI is initially above the benchmark 10-year value and gradually falls below the benchmark after December 2015. It is observed that as the number of debt instruments on issue increased, the WATMI decreased. WATMI is dependent on three parameters, namely:

- Term to Maturity;
- Face value of Issuance; and
- Number of debt instruments on issue.

As observed from the above graph, January 2013 has the fewest number of debt instruments on issue, which corresponds to high WATMI at issuance value observed during 2013-2017. Similarly, December 2017 has the highest number of debt instruments of issue which corresponds to a low WATMI value of 7.8 years.

While the impact on number of debt instrument issues on WATMI is visible, it is also important to consider the impact of Face Value of Issuance and the WATMI at which they are issued. From a mathematical perspective, as WATMI of the issued debt increases, the WATMI will increase. Similarly, as the Face Value of the issuances increase, the WATMI will increase.

Following are the different scenarios used for WATMI analysis:

- Scenario 1: 0% drawdown sensitivity
- Scenario 2: 50% drawdown sensitivity
- Scenario 3: 100% drawdown sensitivity.

Scenario 1: 0% Drawdown Sensitivity

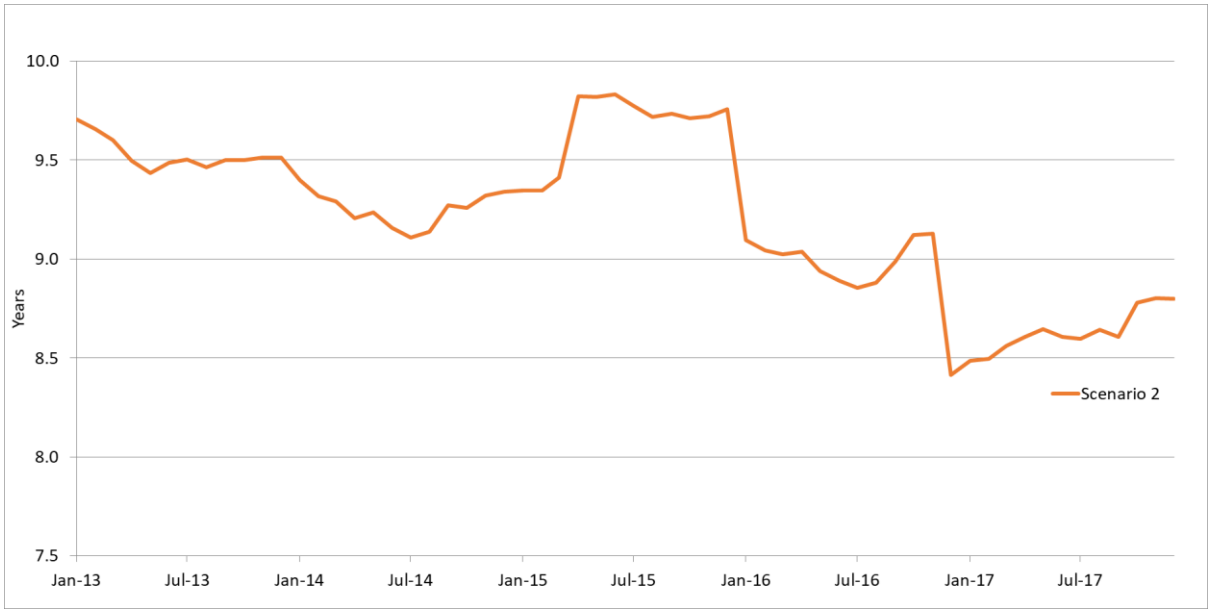
At 0% drawdown, the industry average for monthly WATMI ranges from 9.9 to 10.7 years. It is observed that July 2014 has the lowest month-to-month WATMI of 9.9 years, while June, July and October 2017 has the highest month-to-month WATMI of 10.7 years.

Graph 3 is a graphical representation of month-to-month WATMI.

Graph 3: Weighted Average Term to Maturity (0% drawdown)

Scenario 2: 50% Drawdown Sensitivity

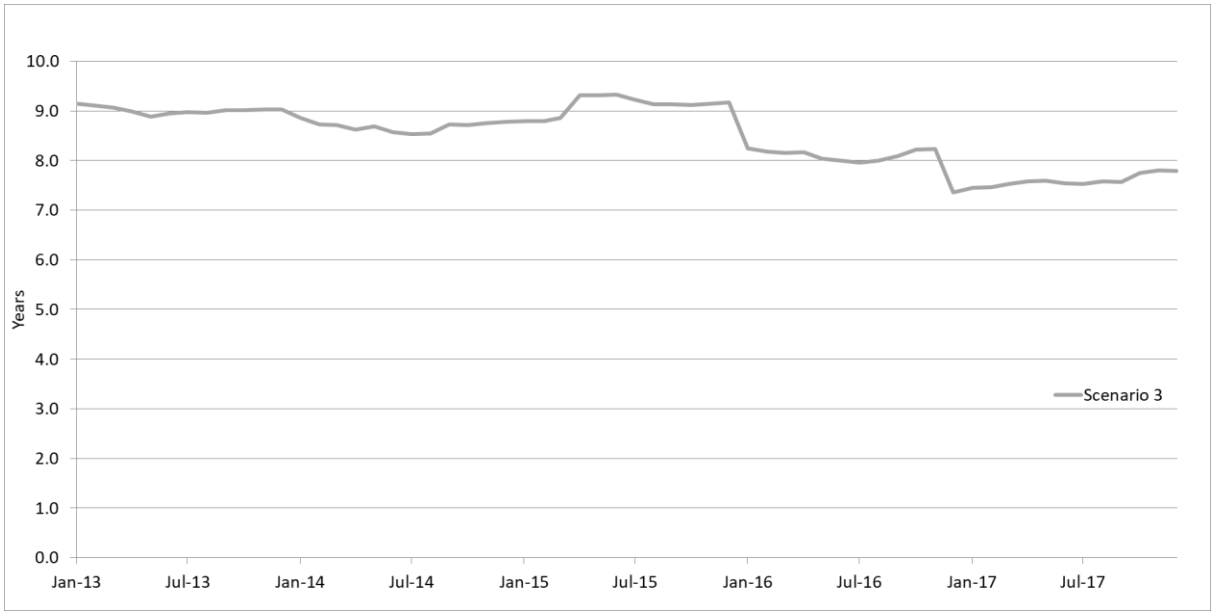
At 50% drawdown, the industry average ranges from 8.4 years to 9.8 years. Month-to-month average WATMI is lowest for December 2016 at 8.4 years and highest for April 2013 at 9.8 years. This is shown in graph 4.



Graph 4: Weighted Average Term to Maturity (50% drawdown)

Scenario 3: 100% Drawdown Sensitivity

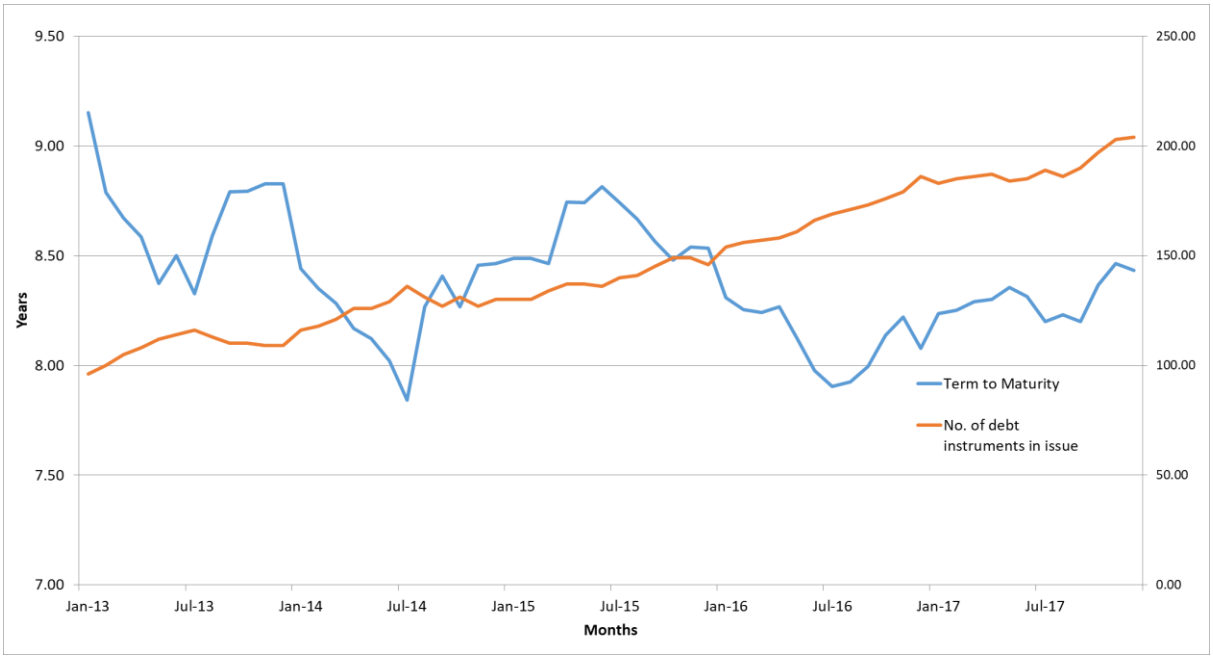
At 100% drawdown, the industry average ranges from 7.4 to 9.3 years. Month-to-month WATMI is lowest for December 2016 at 7.4 years and highest for April 2015 at 9.3 years. This is shown in graph 5.



Graph 5: Weighted Average Term to Maturity (100% drawdown)

4.3 SIMPLE AVERAGE TERM TO MATURITY

Graph 6 shows simple average of the industry's TtM. It is a month-to-month breakdown of the industry's simple average TtM.



Graph 6: Month-to-Month Industry Simple Average

As observed from the graph January 2013 saw the highest value for average TtM at 9.2 years while the lowest value was observed for the month of July 2014 at 7.8 years. The high value of TtM for January 2013 could be attributed to lower number of debt instruments on issue and because the TtM on those instruments during this period was considerably higher. Similarly, at the other end of the spectrum in December 2017, as number of debt instruments on issue reached its peak value, the value of average TtM falls to 8.4 years. It could be argued that majority of the debt issued during that month and already in the market during this period was considerably lower than the equivalent filters for January 2013.

As observed, while some providers did not issue any debt for the majority of 2013-2017, it was not reflected in the average since other providers had debt outstanding, some with very low TtM during the aforementioned period.

The above points are major drawbacks associated with the simple average, as it tends to skew towards the higher/lower values. Therefore, it is important to compare the performance of each provider against the industry average to have a better understanding of TtMs' impact on industry performance.

4.4 EICSI UPDATE

Including the information unavailable in 2018 changed the EICSI as follows:

- EICSI average credit spread is now 141.3bps compared to 142.4bps in the previous exercise;
- EICSI range in Chairmont's report of 2018 was from 125.6bps to 158.2bps. The analysis now shows the highs and lows to be between 123.7bps and 158.2bps. This means that range increased from 32.6bps to 34.5bps. This outcome continues to be significantly lower than the AER's 10-year BBB bond margin range of 113bps;
- There is no change in the EICSI average credit rating score of 3.0 points, i.e. BBB+ rated;
- The change in the data sample has not had any significant change to the industry's TtM range of 6.8 years; and
- The stability of the EICSI can be largely explained by variations in the TtM of debt raised by the industry.

APPENDIX A: TERMS OF REFERENCE

Aggregation of debt data for portfolio term to maturity

Requirements

The AER determines the amount of revenue that electricity and gas network businesses can recover from customers for the use of their networks. A key component of this allowed revenue is the 'rate of return'. This is a forecast of the cost of funds a network business requires to attract investment in its network.

It enables network businesses to obtain necessary funds from capital markets to fund capital investments and service the debt they incur in borrowing the funds. The return on capital makes up approximately 50 per cent of a network business' allowed revenue. It therefore is a key driver of the amount of network charges that consumers pay.

The AER completed a review of the rate of return guideline in 2018. As part of this process, we received actual cost of debt data from regulated service providers. Chairmont assisted us in requesting appropriate data and in aggregating this data to assist with sector-level comparisons against our current approach. In particular, we developed a representative annual series (the aggregated series) of the costs of issuing debt faced by the responders to the request, as well as an average issuance maturity for each month. This analysis allowed us to test whether, after adjusting for an issuance's maturity, our benchmark provided a reasonable estimate.

We aim to now further this analysis by comparing 'portfolio' level original term with our current 10 year benchmark. That is, using the same data, take a snapshot of the term to maturity at issuance of the debt of each firm. This would be:

- Weighted by the face value of the debt to ensure that small issuances don't overweight the aggregate. For instances of where the debt has the ability to be drawn down, a sensitivity of 0 per cent, 50 per cent and 100 per cent draw dawn would be assumed and then compared.
- Calculated for each month in the sample to create a time series for the 2013 to 2017 time period
- Use the same exclusion criteria as the previously calculated aggregated return on debt series to ensure consistency. This would need to be extended to include the debt issued prior to 2013 but had still not matured by 2013.
- For each month's series, include debt that still had not matured by the end of that month.
- Use term to maturity of the debt *at issuance.* This will enable a direct comparison to our current benchmark term to maturity which is 10 years at issuance.

We would also require a simple average of the firms' term to maturity at issuance time series for each month to allow us get an industry perspective. A value weighted average may also be provided for comparative purposes.

The above would be provided to the ACCC\AER in Excel format to enable us to update the series annually. This will allow us to track how the term to maturity benchmark is performing.

Additionally, we would require the Consultant to undertake the term to maturity work detailed above and the adjusted quarterly spread calculation for data not available at the time of the 2018 review. Some data arrived too late for it to be included in last year's process but would be useful for our ongoing analysis.

Services required

The advice required, without in any manner directing the Consultant, should expand Chairmont's 2018 report for the AER by:

1. On receipt of the data, developing (to the extent achievable) an aggregated series of the term to maturity at issuance of debt still on issue by responders for each month. The aggregated series should be publishable. No individual responders' information should be identifiable from the series and it should use the same exclusion criteria as in the previous analysis.
2. To accompany the aggregated series, developing a short document setting out relevant assumptions and/or adjustments made to the response data to aggregate the series. This document should be publishable. No individual responders' information should be identifiable in the document.
3. Providing an Excel spreadsheet which calculates the underlying data series so that the ACCC\AER can use it in further analysis.
4. Performing the data cleaning and series aggregation (for the term to maturity work detailed above and for the adjusted quarterly spread calculation) for a small amount of data that was previously provided too late for the review.