



Memorandum

To: ENA

From: CEG – Asia Pacific

Date: 3 August 2016

Subject: **Industry debt statistics**

1 Introduction

1. The Commerce Commission has recently published a draft decision that sets out the results of its Input Methodologies review, including its current estimates and proposed estimation methodologies for various cost of capital parameters.¹
2. ENA members have individually provided CEG with confidential information on historical debt issues for the purpose of constructing industry debt statistics. This memorandum sets out the results of our analysis pertaining to:
 - The term of debt that was issued;
 - The credit rating of that debt;
 - The currency which that debt was assumed to be issued (e.g., USD vs NZD);
 - The transaction costs of debt issuance; and
 - The transaction costs of interest rate swaps.
3. Table 1-1 summarises the findings of our analysis for three different subsamples of the data, along with the Commission's estimates.

¹ Commerce Commission, Input methodologies review draft decisions – Topic paper 4: Cost of capital issues, June 2016.

Table 1-1: Summary of results

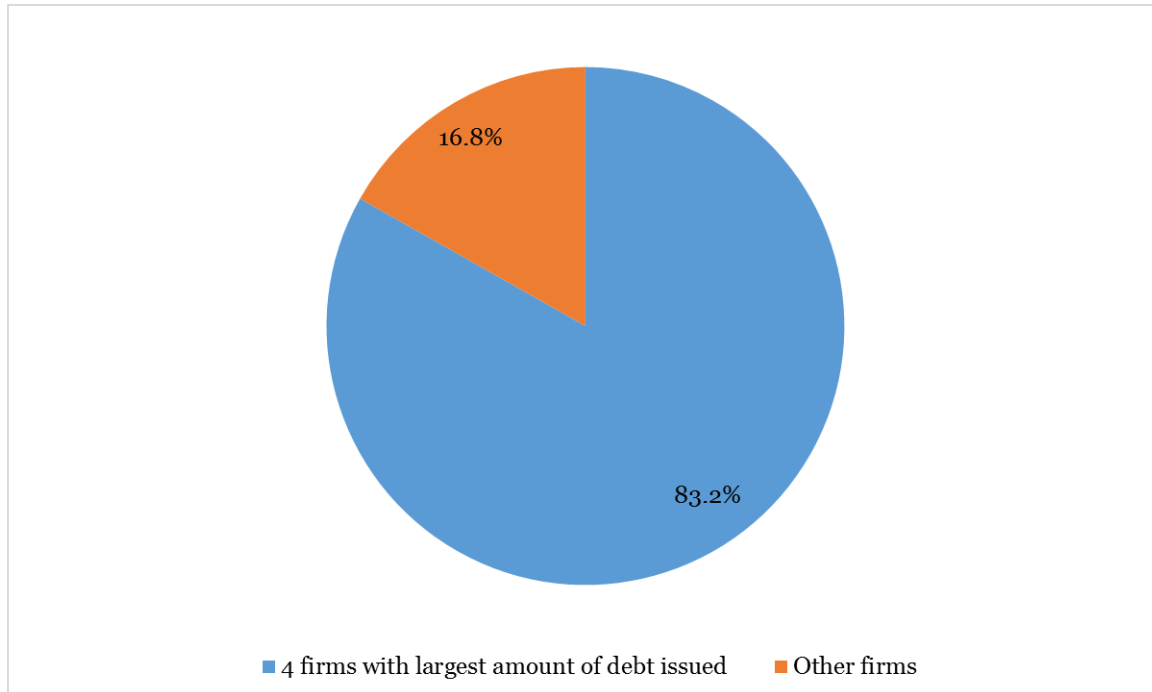
Parameter	Commission's estimate	Sample weighted average		
		All ENA members	Bond-issuing firms	Bonds only
Term of debt (yrs)	5	8.3	9.3	10.4
Credit rating	BBB+	76% BBB+, 24% BBB	-	-
Currency	NZD only	61% NZD, 26% USD, 13% others	55% NZD, 31% USD, 14% others	45% NZD, 38% USD, 17% others
Transaction cost of debt issuance (constant payments method)	6-7 bp	27 bp	27 bp	25 bp
Transaction cost of interest rate swaps	4 bp	-	7.10 bp	7.13 bp

Source: Bloomberg, ENA, RBA, RBNZ, CEG analysis; *Spread to swap estimates from the sample contain debt issued by government-owned firms, and are thus likely to underestimate the benchmark rate.

2 Data

4. Excluding Northpower, from which we have not received any data, ENA members had NZD 8.96 billion debt on issue as at 30 June 2015, and issued a further NZD 1.09 billion after 30 June 2015. One characteristic clearly seen in the data is that the amount of debt issued is not uniformly distributed across all ENA members. As shown in Figure 2-1, 83.2% of the total debt issued by ENA was issued by four firms, with other firms accounting for only 16.8% of total debt.

Figure 2-1: Debts issued by four largest firms compared to other firms



Source: ENA, CEG analysis

5. This heterogeneity suggests that it is more appropriate to use weighted average statistics as opposed to simple averages. Our subsequent analysis therefore focuses on weighted average statistics instead of simple averages.
6. Table 2-1 classifies the issued debt of ENA members into bonds and other instruments. In this context we note the Commission’s approach to assessing debt raising costs by focussing only on a subset of all debt – being 19 ‘vanilla’ \$NZ bond issues.² Only 6 of the bonds nominated by the Commission are issued by EDBs with the remainder issued by Airports.
7. In terms of debt amount, total bonds account for 69.7% of issued debt even though only 5 of the 17 members include bonds in their debt profiles.

² Commerce Commission, Input methodologies review draft decisions Topic paper 4: Cost of capital issues, June 2016, p. 57.

Table 2-1: Classification of bonds and other debt types in the sample

	Bonds	Other
Number of instruments	50	166*
Amount (NZD)	7.0b	3.0b

Source: ENA, CEG analysis *This count treats rollovers and additions on bank loans as separate debts. In cases where whole debts were replaced or restructured by newer debts after 30 June 2015, all subsequent analysis only includes the new debt instruments in order to avoid double counting. Our analysis also excludes seven instruments identified as interest rate swaps, since such instruments do not raise any finance.

- The Commission has recently disclosed that its sample for analysing debt raising costs has been updated to include only the 16 bonds shown in Table 2-2 below.

Table 2-2: Commission's bond sample for estimating debt raising costs

Issuer	Issue date	Original tenor (years)	Original interest rate (yield on issue of security) (% p.a.)
Auckland International Airport	7/11/2005	10	7.25
Auckland International Airport	10/08/2009	7	8
Auckland International Airport	17/10/2011	6	5.47
Auckland International Airport	13/12/2012	7	4.73
Auckland International Airport	11/04/2014	3	Floating
Auckland International Airport	28/05/2014	7	5.52
Auckland International Airport	28/10/2008	8.05	8
Auckland International Airport	1/10/2015	3	Floating
Christchurch International Airport	6/12/2012	7	5.15
Christchurch International Airport	4/10/2013	8	6.25
Powerco	20/12/2011	7	6.31
Powerco	20/12/2011	7	Floating
Transpower	15/02/2010	7	6.6
Transpower	30/11/2011	7	5.14
Transpower	4/12/2015	6.6	4.3
Vector	15/06/2012	5	7

Source: ComCom

- We have compared the Commission's sample against the data provided by the ENA members. Leaving aside the bonds issued by airports, for which we do not possess data, we are unable to determine how the Commission has arrived at its sample.
- Specifically, Powerco, Transpower and Vector have issued several bonds in addition to the ones identified above. The Commission has not provided a clear explanation for its omission of other bonds, many of which have similar properties to the ones listed above. For example, Transpower's response to the information request included 13 NZD bonds and only two of these were nominated as having floating

interest costs and one was nominated as having any optionality. Therefore, even if the Commission were to restrict its analysis to fixed rates NZD bonds with no optionality one would expect to see 10 Transpower bonds in the sample (not three).

3 Term of debt

11. The Commission has argued that it is appropriate to restrict analysis of debt raising costs to bonds with similar characteristics as the benchmark bond it assumes is issued:³

Our current approach to estimating the debt premium involves a degree of judgement. When estimating the debt premium, we consider yields to maturity for a pool of corporate bonds issued by companies that have similar characteristics to a notional benchmark supplier that we specify. This approach often results in upper and lower bounds, within which judgement is required to determine a point estimate of the debt premium.

12. Following the same logic, analysis of the tenor of debt issues should also be restricted to these bonds, or, at least, to companies that use the bond market. On this basis, this section reports average tenor of debt issues for:
 - all ENA issuers and for all instruments (average tenor is 8.3 years). (This is provided for completeness – we do not consider that the benchmark tenor should be informed by small entities that do not issue any bonds).
 - all bond issues only (average tenor = 10.3 years);
 - all debt instruments issued by entities that issue bonds (average tenor = 10.4 years).

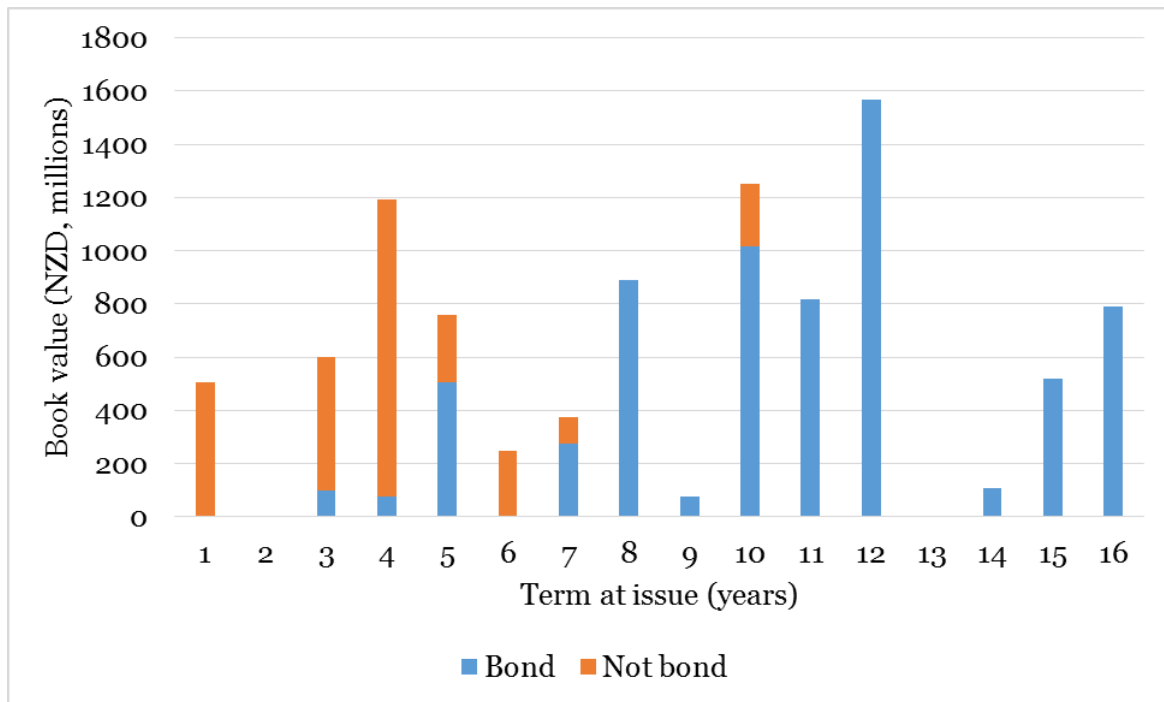
3.1 All instruments

13. Figure 3-1 shows the debt term at issuance across the ENA member firms, distinguished into bonds and non-bonds, while Figure 3-2 shows the year of maturity for these debts. We note that these figures exclude perpetual debts and debts with unreported maturity dates.
14. As seen in Figure 3-1, majority of the book value of short term debt with terms between 0 and 6 years take the form of non-bond instruments, while bonds constitute the majority of debt issued with terms exceeding 6 years. The weighted average debt term across all debts is 8.3 years, excluding perpetual bonds.

³ Commerce Commission, Input methodologies review draft decisions Topic paper 4: Cost of capital issues, June 2016, p. 42 at [160].

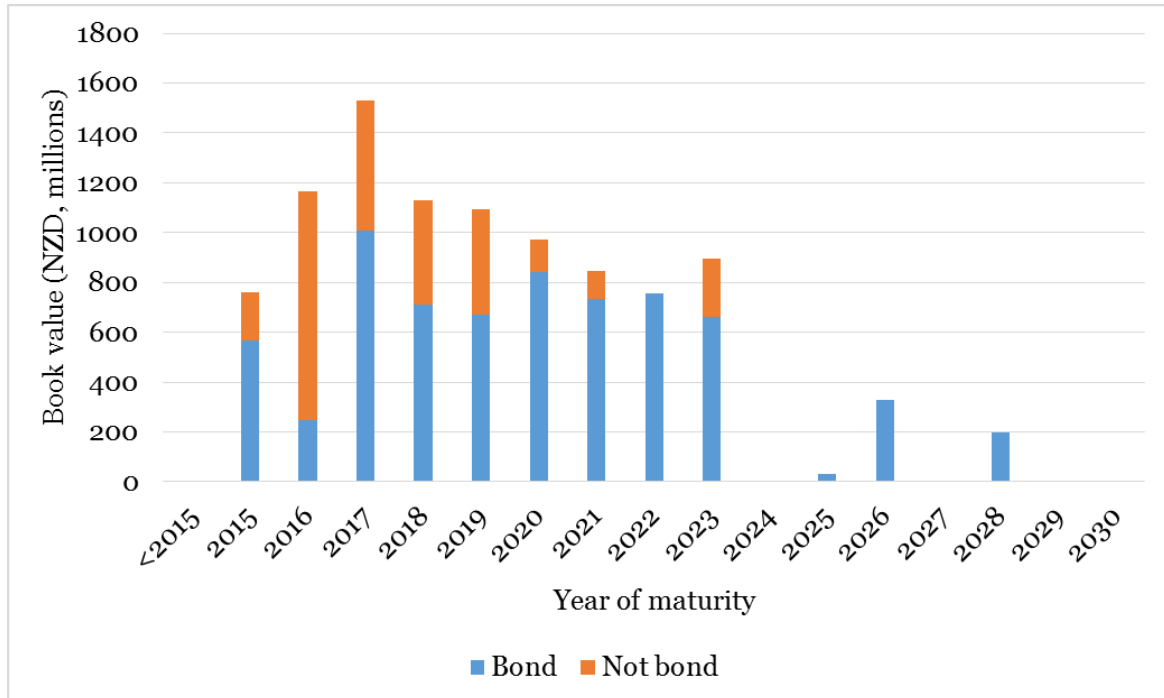
15. A broadly similar pattern can be seen in Figure 3-2, which shows the maturity profile of debts issued by ENA members. Bonds form a small proportion of debt maturing in the next few years, but this proportion increases in later years, whereby all debt falling due after 2023 is exclusively in the form of bonds. Such an observation is consistent with Figure 3-1.

Figure 3-1: Debt terms at issue across ENA members



Source: ENA, CEG analysis; Perpetual debts and debts with unreported maturity dates are excluded.

Figure 3-2: Maturity profile of debts issued by ENA members

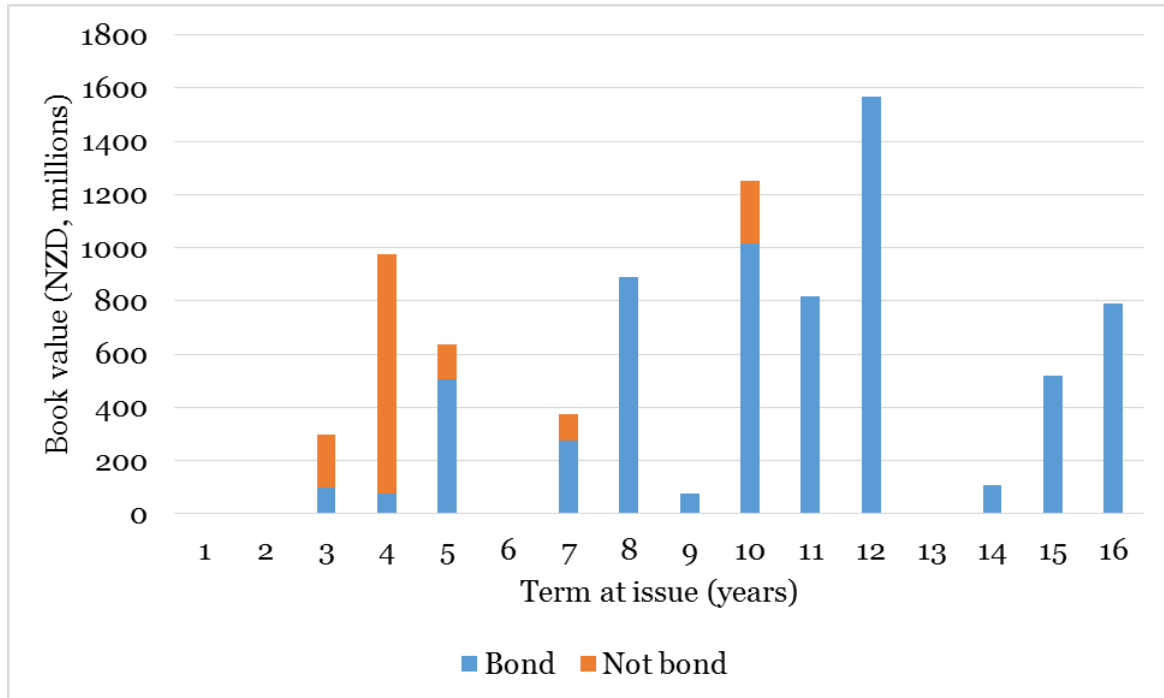


Source: ENA, CEG analysis; Perpetual debts and debts with unreported maturity dates are excluded.

3.2 Debts issued by bond-issuing firms

16. Figure 3-3 shows the debt term at issuance for the 50 bonds and 20 non-bond instruments issued by the five bond-issuing firms. Consistent with Figure 3-1, we observe from Figure 3-3 that non-bond instruments typically have shorter tenors compared to bonds.
17. The weighted average debt term of the 70 instruments (50 bonds and 20 non-bonds) is 9.3 years.

Figure 3-3: Debt terms at issue for bond-issuing firms

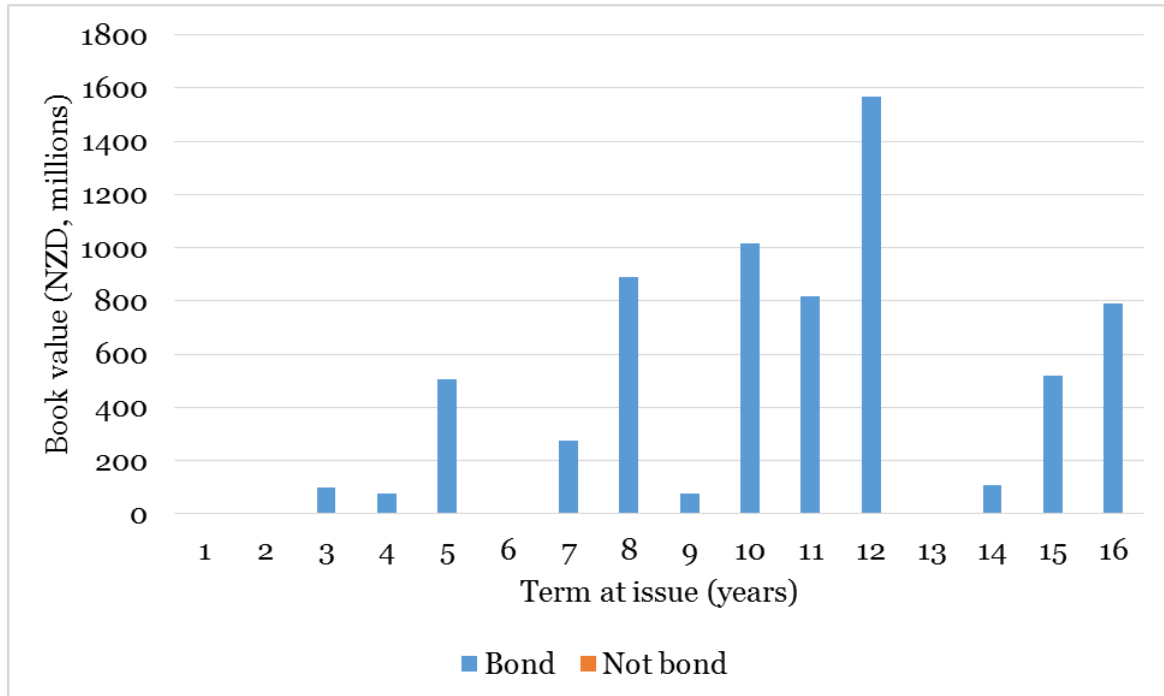


Source: ENA, CEG analysis

3.3 Bonds only

18. When the sample is restricted only to the 50 bonds in the full ENA sample, the average debt term increases considerably.
19. Figure 3-4 shows the debt term at issuance for the 50 bonds in the sample. This is equivalent to Figure 3-1 with the non-bond instruments removed. When the sample is restricted only to bonds, the distribution of the debt term generally shifts to the right and has a longer debt term compared to the sample with all debt instruments included.
20. The weighted average debt term for these 50 bonds is 10.4 years.

Figure 3-4: Debt term at issuance for bonds



Source: ENA, CEG analysis

3.4 Summary

21. A comparison of the weighted average and simple average debt term for the different samples analysed in sections 3.1 to 3.3 is shown in Table 3-1.
22. Compared to the full ENA sample containing all debt instruments, restricting the sample to only instruments issued by bond-issuing firms results in an increase in the average debt term. Further restricting the sample to only bonds results in another increase in the average debt term.
23. It can be seen that if the analysis of tenor is restricted to bonds, as the Commission’s analysis of debt raising costs was, then the weighted average tenor of the industry is above 10 years. If the analysis is restricted to entities issuing bonds then the weighted average tenor is 9.3 years.

Table 3-1: Average debt terms for different samples

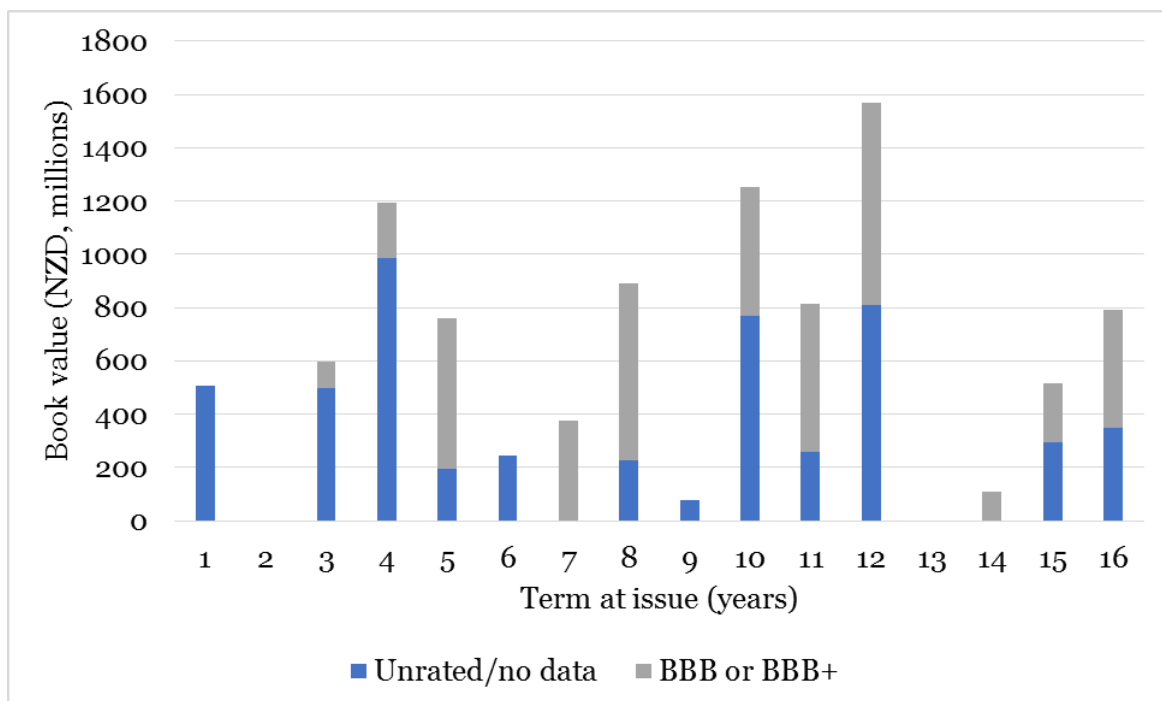
	Weighted average debt term
All instruments	8.3
Only bond-issuing firms	9.3
Bonds only	10.4

Source: ENA, CEG analysis

4 Credit rating

24. All of the credit-rated debt in the data provided to us were rated either BBB+ (76.3%) or BBB (23.7%), and account for 44.6% of all debt issued.
25. Figure 4-1 shows the term of debt at issuance across all ENA firms, broken down according to their credit ratings. It is notable that credit-rated debt tend to be issued with longer tenors, while unrated debt appear to have fairly evenly distributed debt terms.

Figure 4-1: Debt term at issuance for credit rated and unrated debts



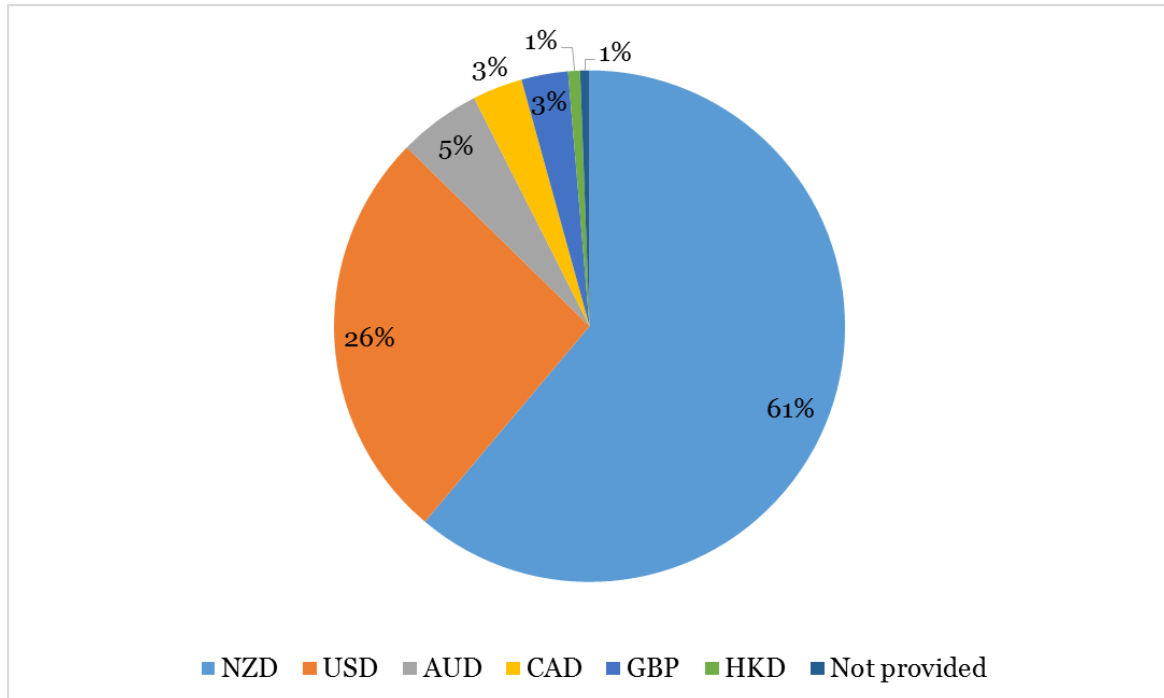
Source: ENA, CEG analysis; Perpetual debts and debts with unreported maturity dates are excluded.

5 Debt market/currency

5.1 All instruments

26. Figure 5-1 shows the currency breakdown of debts issued by ENA firms. 61% of debt is issued in NZD, 26% in USD, and 5% in AUD, while the remaining currencies each make up 3% or less of the total debt issued.

Figure 5-1: Issued debt by currency (full sample)

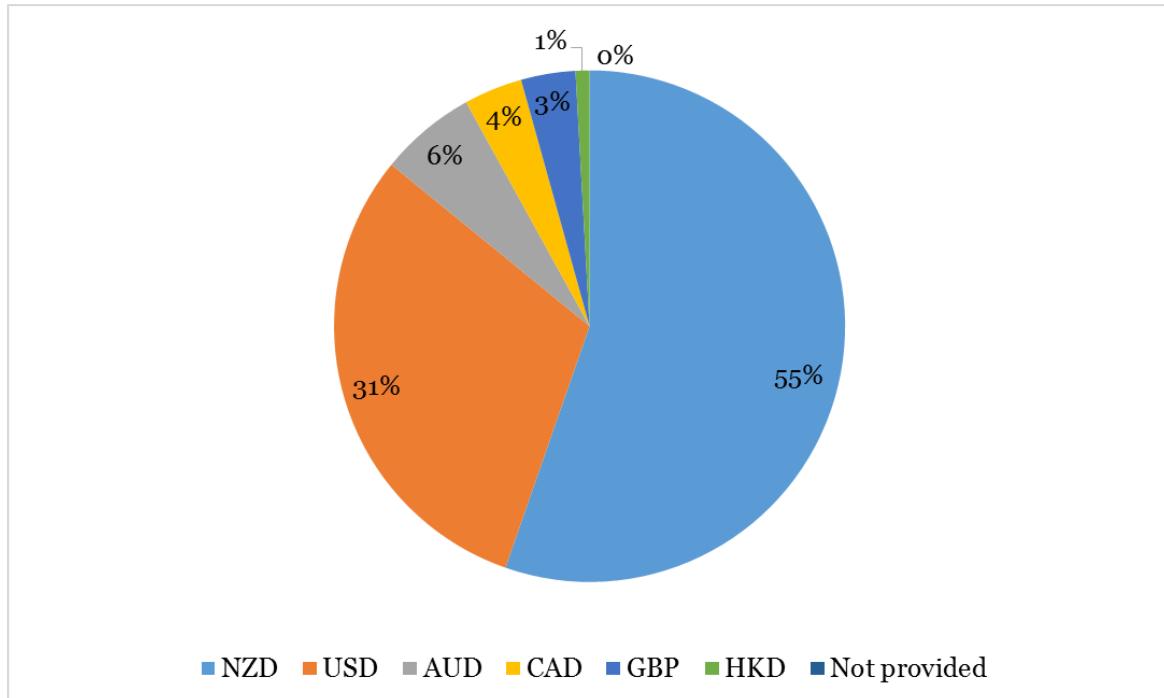


Source: ENA, CEG analysis; Perpetual debts and debts with unreported maturity dates are excluded. One firm did not provide credit ratings for some of its debt instruments.

5.2 Debts issued by bond-issuing firms

27. Figure 5-2 shows the proportion of debt issued in different currencies when the sample is restricted only to instruments issued by the five bond-issuing firms. Compared to Figure 5-1, the proportion of debt issued in NZD has decreased from 61% to 55%, while the proportion of debt issued in USD has increased by almost the same percentage from 26% to 31%.

Figure 5-2: Issued debt by currency (bond-issuing firms)

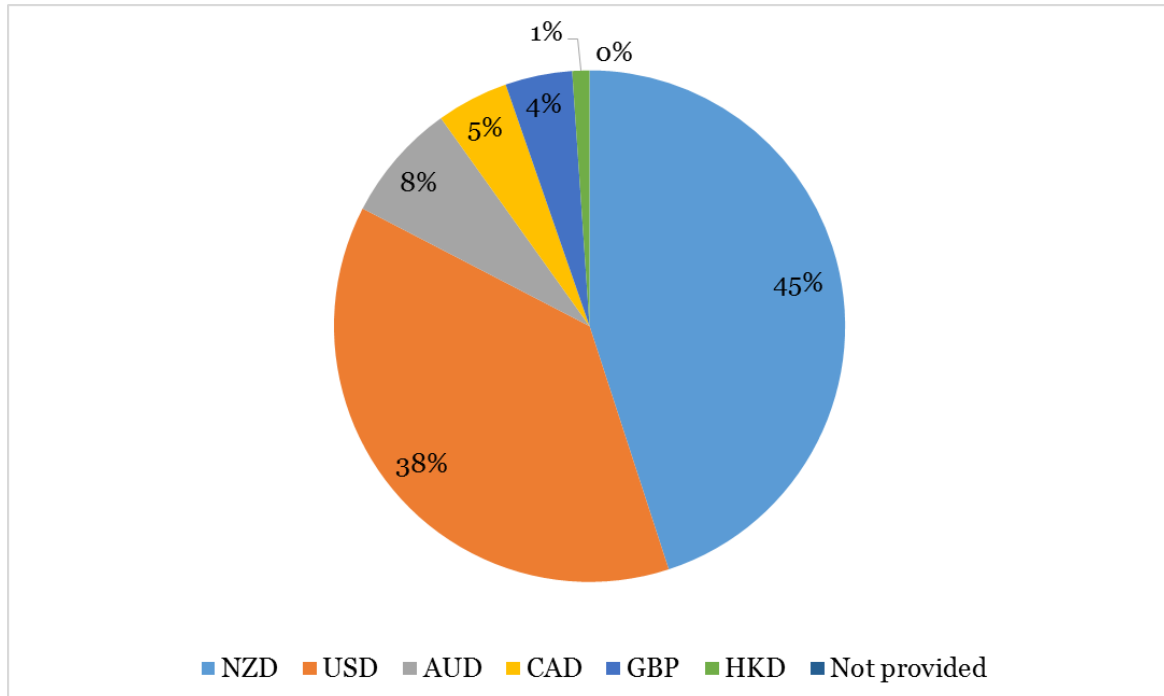


Source: ENA, CEG analysis

5.3 Bonds only

28. Figure 5-3 shows the proportion of debt issued in different currencies when the sample is restricted only to the 50 bonds in the sample. Compared to Figure 5-2 and Figure 5-1, the proportion of debt issued in NZD falls even further to 45%, while the proportion of debt denominated in USD further increases to 38%.

Figure 5-3: Issued debt by currency (bonds only)



Source: ENA, CEG analysis

5.4 Summary

29. A comparison of the currency denominations for the different samples analysed in sections 5.1 to 5.3 is shown in Table 3-1.
30. Compared to the full ENA sample containing all debt instruments, restricting the sample to only instruments issued by bond-issuing firms results in a decrease in the proportion of NZD issue amounts. Further restricting the sample to only bonds results in another increase in NZD issue amounts.
31. In contrast, the proportion of USD issue amounts increases greatly with each additional restriction to the sample. The proportion of debt issued in currencies other than NZD and USD also increases, but does so at a smaller increase compared to USD issue amounts.
32. Our analysis suggests that it is inappropriate and unnecessarily restrictive for the Commission's analysis to focus only on vanilla bonds issued in NZD, which only represents a minority of the bonds in the ENA sample.

Table 5-1: Issued debt by currency for different samples

	NZD (%)	USD (%)	Other (%)
All instruments	61	26	13
Only bond-issuing firms	55	31	14
Bonds only	45	38	17

Source: ENA, CEG analysis

6 Transaction costs of debt issuance

33. Some ENA members provided separate estimates of one-off transaction costs and/or ongoing annual costs, while others did not list any transaction costs. We utilise what is, in all likelihood a very conservative approach, and treat these missing observations as zeroes, and assume that the relevant debt instruments did not incur any such costs.
34. Members also submitted different units of transaction costs, with some providing costs in single dollar terms, some in thousands of dollars, others in basis points, and others in percentages. We have attempted to interpret the transaction costs according to their individual contexts. In cases where the units of the costs cannot be clarified from context, we generally adjust the entries based on the assumption that the costs will be between 0.01% and 1.00%. For example, if the ongoing annual cost of an instrument is listed as “17”, we ignore the column title that stipulates that entries are in percentages, and assume that the annual cost is 17 bppa.
35. We first convert the one-off transaction cost to an annual cost using one of two methods before adding it to the ongoing annual cost to obtain the transaction cost of debt issuance. The straight line method (which is the Commission’s method) divides the one-off cost by the product of book value and debt term, while the annuity method divides the one-off cost by book value and then uses Excel’s `PMT()` function to convert the cost to an annual cost that takes the debt interest rate into account. Here, we use the effective NZD interest rate as the interest rate input into the function. This latter method is the correct method because it accounts for the time value of money when spreading upfront transaction costs across the life of the bond.
36. The above analysis is carried out for the three subsamples containing: all debts; debts issued by bond-issuing firms; and bonds only. The weighted average transaction costs for the three subsamples are 27 bp, 27bp, and 25 bp respectively.
37. We also carry out the same analysis using the two Powerco and three Transpower bonds in the Commission’s sample, as indicated in Table 2-2. We have excluded the bonds issued by airports since we do not have access to their confidential data. We also exclude the bond issued by Vector because the bond characteristics set out by the Commission contradict the data provided to us by Vector. Specifically, the bond in

question is a perpetual bond not a five years bond as stated by the Commission.⁴ The weighted average transaction cost for these five bonds is 31 bp.

Table 6-1: Weighted average transaction costs for various samples

	Weighted average
All instruments	0.27%
Only bond-issuing firms	0.27%
Bonds only	0.25%
Powerco and Transpower bonds in Commission's sample	0.31%

Source: ENA, CEG analysis

7 Swap transaction costs

38. Only seven firms provided information on the execution costs of interest rate swaps, including four of the five bond-issuing firms identified in previous sections. Of the remaining three firms that did not issue bonds, one submitted an implausibly large estimate exceeding 1%.
39. Since the data on swap transaction costs among the firms that did not issue bonds is somewhat sparse, we therefore carry out our analysis only on the subsample of debt instruments issued by the bond-issuing firms and on the subsample containing only bonds. We also omit blanks, zeroes, and NA estimates, which we consider implausible.
40. The weighted average swap transaction cost is 7.10 bp for debts issued by bond-issuing firms. We also note that swap transactions are negotiated over the counter with banks.
41. It is likely that banks recover transaction costs both directly in specific charges and indirectly in higher rates. For example, a firm entering into a pay fixed (receive floating) interest rate swap with a bank may not pay any formal charge but instead may simply pay a higher fixed rate than the going market rate (where the going market rate reflects the price paid by a large volume low counterparty risk issuer). Therefore, our estimate of direct transaction costs is likely to be an underestimate of actual transaction costs (in excess of the market rates quoted on Bloomberg) paid by EDBs. Consistent with this we note that one respondent states that swap transaction costs are “embedded into swap rates”.

⁴ We understand the bond referred to is a “Perpetual Subordinated Capital Bond” that also contains 50% equity credits and is Rated BB+ by Standard and Poors. The bond was originally issued in 2002 was reset in 2012 and has a rate and term reset due in June 2017. The rate reset period can be from 1 to 10 years.

42. Similarly, our estimates include Transpower which 100% government owned and is rates AA-. This reduces counterparty risk for banks contracting with Transpower which is one of the costs that Banks must recover when entering into a swap contract (including lower capital that must be held against the swap contract). Consequently, the transaction costs paid by Transpower will be lower than for a BBB+ issuer. If we remove Transpower the average cost increases to 13.2bp.
43. Our calculations includes the cost of cross currency swaps where they have been identified separately (as is the case for one supplier). The true average swap transaction costs of managing bond portfolios would be higher than this given that most businesses have not supplied the costs of cross currency swaps but nonetheless do issue debt internationally and therefore can be expected to incur these costs.
44. Removing cross currency swap costs from the calculation for the supplier who provided them would reduce the estimate to 4.7/6.1 bp including/excluding Transpower. This is, for the reasons already stated, an underestimate of the actual transaction costs of interest rate swaps. In any event, in our view such an amendment is not appropriate in our view because it will cause the efficient costs of managing an efficient portfolio of debt (including long term debt issued in foreign currency) to be underestimated.