Matthew Potton
Shareholders Council of Local Government Funding
Agency of New Zealand
c/- Western Bay of Plenty District Council
Private Bag 12803
Tauranga 3143

Our ref   R009 NZLGFA Guarantee
(valuation methodology)
DRAFT.docx

3 February 2012

Draft

Dear Matthew

Development of valuation methodology for estimating the fair value of the LGFA Financial Guarantee

1   Background

The New Zealand Local Government Funding Agency Limited ("LGFA") was incorporated on 1 December 2011. Its shareholders are 18 regional, district and city councils throughout New Zealand and the New Zealand Government. The LGFA was established to facilitate the efficient, and cost effective, raising of debt funding for local government authorities.

The intention of the LFGA scheme is that the LGFA will borrow funds from wholesale domestic and international debt markets, which it will then on-lend to local authorities at lower interest margins than the respective local authorities are able to access by themselves on a stand-alone basis. LFGA has been assigned a AA+ credit rating by both Fitch and Standard & Poors. There is to be a security trust deed in place between LGFA and its creditors, under which each creditor is a beneficiary (hereafter "Guaranteed Creditor").

Each of the shareholder local authorities is party to a deed of Guarantee and Indemnity ("the Deed"), whereby the parties guarantee the obligations of the LGFA and the guarantee obligations of all other participating local authorities to LGFA, in the event of a default.

2   Scope of our work

The issuance of a guarantee under the Deed may give rise to a financial instrument, for financial reporting purposes, which may need to be reflected in the financial statements of the local authorities that are party to the Deed. We understand that, if these guarantees are accounted for as a financial instrument under NZ IAS 39, they will have to be measured at fair value when they are initially recognised. The decision as to whether the guarantees will be treated as a financial instrument under NZ IAS 39 is the subject of a separate accounting opinion.

You have requested that KPMG Corporate Finance ("KPMG CF") develop a methodology for assessing the fair value of the financial instruments (hereafter "Financial Instruments" or

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"Financial Guarantee" or "Guarantee"). This letter sets out the methodology for calculating the fair value of the Financial Guarantee and the input parameters that will need to be determined in order to undertake the fair value calculation. We also provide a hypothetical example of how the calculations would be implemented in practice.

Our advice does not extend to quantifying all of the calculation inputs, nor assessing the fair value of the Financial Guarantee to be recognised in the financial statements of the parties to the Deed. This would require further data analysis and discussion with LGFA members.

3 Summary of the LGFA structure

The diagram below summarises the LGFA structure. Investors in the LGFA are exposed to default in the event a borrowing or participating Local Authority Council (hereafter "Participating LAC") defaults on its loan obligations to the LGFA.
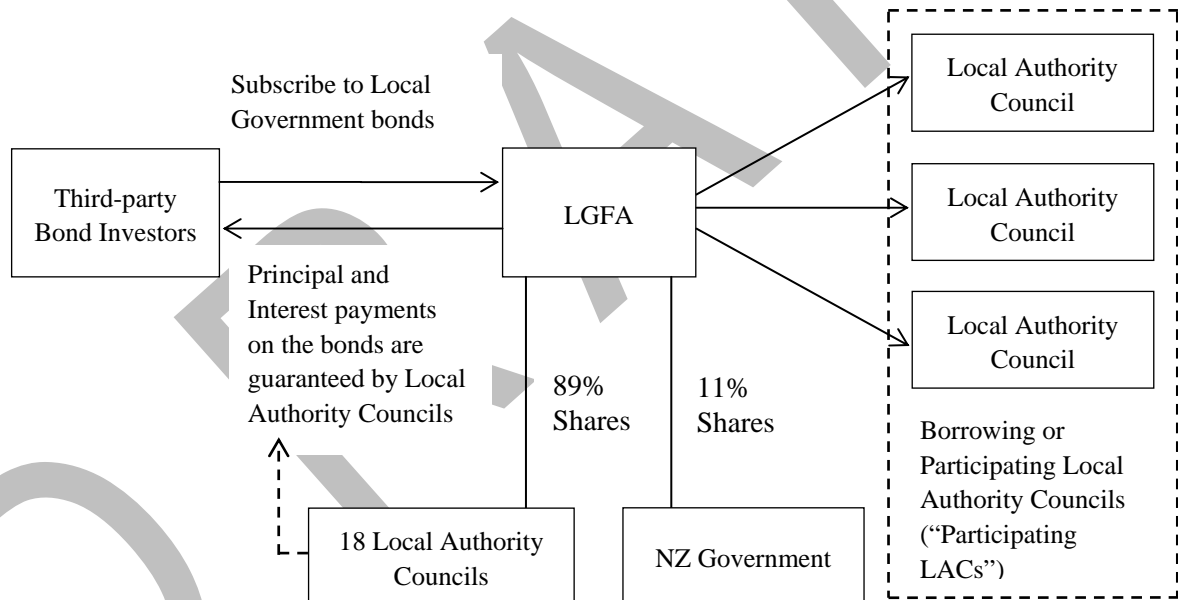
3.1 *Advantages to Guaranteeing Local Authority Councils*

The LGFA scheme is expected to provide a centralised vehicle that enables local authorities to pool their borrowing requirements and achieve:

- A credit rating arbitrage and therefore lower borrowing costs from reduced default risk;

- Economies of scale and by pooling the funding requirements of the local authority councils enable greater access to the public debt markets and provide investors with a high degree of liquidity. This will further reduce borrowing costs and also enable the local authority councils to reduce their reliance on bank and other forms of private sector debt for their funding requirements.

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- The LGFA is subject to different regulatory requirements compared to individual local authority councils and this will potentially enable easier access to a wider variety of debt markets, including offshore markets.

3.2 Disadvantages to Guaranteeing Local Authority Councils

In the event of any default on loans made by the LGFA to the participating LACs that renders the LGFA unable to meet its obligations to its bond investors, the 18 Local Authority Councils, who are guaranteeing shareholders in the LGFA, will be called under their guarantee to ensure investors receive 100% of their principal and interest payments outstanding.

An overview of this guarantee is summarised below.

4 Overview of guarantee

In this section we summarise those aspects of the Deed and the LGFA shareholder agreement that are particularly relevant to an assessment of the fair value of the Financial Guarantee.

4.1 Form of guarantee

The Deed provides that each guaranteeing local authority council ("Guarantor") will guarantee the due payment of any amounts owing from LGFA to its Guaranteed Creditors.

Clause 6.2 of the LGFA shareholder agreement states that all shareholders (with the exception of the New Zealand Government) must be Guarantors under the Deed.

4.2 Liability of Guarantors

In the event of default by LGFA, each Guarantor would be liable to pay a proportion of the amount owing ("Relevant Amount"). The proportion to be paid by each respective Guarantor ("Relevant Proportion") is to be calculated according to that Guarantor's rate income as a proportion of all Guarantors' rate income.

If any Guarantor defaults on this initial demand, a further demand will be made by LGFA on each of the other (non-defaulting) Guarantors to make up the shortfall. The proportion of the shortfall to be paid by each non-defaulting Guarantor is to be calculated according to that Guarantor's rate income as a proportion of all (non-defaulting) Guarantors' rate income. This process is repeated until the security trustee has been paid in full.

4.3 Indemnity

To the extent that any Guarantor pays an amount in excess of their Relevant Proportion, they are to be indemnified by the other Guarantors and can seek to recover that amount from the defaulting Guarantor.

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4.4   Ranking

Each Guarantor warrants that obligations under the security trust deed rank rateably, and at least equally in right and priority of payment with all other first ranking secured money under the Debenture Trust Deed.

4.5   Term of guarantee

Each Guarantor is liable for all debts of the LGFA at the time the Guarantor was a shareholder and remains liable for those debts until their maturity. That is, a Guarantor's liability under the Guarantee continues to apply even if the Guarantor subsequently ceases to be shareholder in LGFA.

5   Fair Value of the LGFA Financial Guarantee

5.1   Valuation Approaches

KPMG CF considers there are two primary approaches to valuing the LGFA Financial Guarantee.

In our first approach ("Method No 1") the fair value of the Financial Guarantee provided by the 18 Local Authority Councils for the debt obligations of the LGFA is calculated with reference to the expected loss attributable to credit or default risk on loans on-lent by the LFGA to the participating LACs *less* the value of any loss absorbing LGFA equity capital that may act as a buffer prior to any call under the Guarantee.[1] In our view Method No 1 will theoretically provide a lower bound for fair value of the Guarantee. A prospective beneficiary of the Guarantee may be willing to pay more than this amount (similar to an insurance policy whereby the insured party will pay a premium greater than the value of their statistically expected loss due to aversion to "tail risk" – refer section 9.2).

In our second approach ("Method No 2") the fair value of the Financial Guarantee is calculated with reference to the differential in borrowing costs or bond spreads (adjusted for liquidity and other non-credit default risk factors) arising from having the Guarantee in place. In theory Method No 2 would provide an upper bound for the fair value of the Guarantee, where an entity pricing only default risk, would be unwilling to pay more for the Guarantee than its potential savings in the default component of the credit spread.

Thus, the fair value of the Guarantee may be expected to lie between the lower and upper bounds derived under Method No 1 and Method No 2 respectively.

5.2   Method No 1: Default Probability and Loss Given Default Approach

Under this approach the expected loss on the portfolio of loans or advances made by the LGFA to the participating LACs would be determined by reference to:

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[1] This assumes the LGFA would make a call on unpaid capital prior to any call under the Guarantee.

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- The principal amount, coupon payment and term of the loan from the LGFA to each individual Participating LAC;

- The credit rating assigned to each individual Participating LAC. This is to enable an assessment of the probability that a Participating LAC may default in any one year.

- In the event of any default by a Participating LAC, the expected loss given default ("LGD") less the value of any loss absorbing LGFA equity capital that may act as a buffer prior to any call under the Guarantee.

The expected loss on a loan or advance from the LGFA to any one Participating LAC at time = t will then equal:

Expected Loss on loan from LGFA to the Participating LAC at time = t	=	LGD less the value of any loss absorbing LGFA equity capital that may act as a buffer prior to any call under the Guarantee at time = t	×	Probability of default at time = t

The expected credit default loss on loans to each Participating LAC would need to be assessed taking into account the term or maturity of the debt.

To derive the expected value of the credit default loss today at time $t = 0$, the value of any 'expected' future default losses at time t would also need to be discounted back to present value today at the Participating LAC's appropriate cost of capital.

Fair value of the Financial Guarantee under Method 1

The total 'fair' value of the Financial Guarantee provided by the 18 Local Authority Councils in respect of all the LGFA's loans to the Participating LACs would then be:

Fair Value of Financial Guarantee provided by the 18 Local Authority Councils	=	Sum of the Present Value of Expected Default Losses of all LGFA loans to Participating LACs

Fair value would need to be calculated in respect of each individual loan at the time that loan is drawn.

Advantages of this Method

The advantages of this method are:

- The method is conceptually sound as the focus is on credit default risk assumed by the 18 Local Authority Councils under their Guarantee of the LGFA's obligations to investors; and

- The method is reasonably easy to implement once the input parameters are determined.

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Disadvantages of this Method

The disadvantage of this method is that a number of the data input parameters are not observable in the market. In particular, determination of the likelihood of default and the LGD will likely require some degree of subjective judgement.

5.3 *Method No. 2: Differential Borrowing Costs attributable to Default Risk*

Under this approach the value of the Financial Guarantee would reflect an assessment of the difference in borrowing costs or bond spreads (adjusted for liquidity and other non-credit default risk factors) between:

(i) The current LGFA entity rated AA+ with the guarantees from the 18 Local Authority Council shareholders; and

(ii) A "notional equivalent" LGFA portfolio of loans to the Participating LACs with no shareholder guarantees. The "notional equivalent" LGFA would constitute a hypothetical LGFA with an identical portfolio of loans on-lent to Participating LACs with the same principal, coupon and debt maturity profile as the current LGFA.

We refer to this notional equivalent LGFA portfolio as a "*Replicating Portfolio*".

The credit enhancement from the Financial Guarantee provided by the 18 shareholder Local Authority Councils should enable the LGFA to borrow more cheaply than an equivalent LGFA with no guarantees or more cheaply than a Replicating Portfolio comprising each of the participating LACs on a stand-alone basis.

No adjustment for uncalled LGFA capital

In our view the difference in borrowing costs attributable to the default or credit component of the bond spreads between each Participating LAC and the LGFA will reflect the financial position of the LGFA, including uncalled capital available to be called up by the LGFA.

Thus, no adjustment to the value of the Financial Guarantee is required under this method for any loss absorbing LGFA uncalled capital.

What drives bond spreads?

The local authority council bond spread is the difference between the yield on a local authority council bond and a 'risk-free' government bond with the same coupon rate and term to maturity.

The bond spread should be positive. In the absence of market distortions other than credit risk, the bond spread would compensate the investor for the probability of default and the expected size of the ensuing loss.

In practice, however, bond spreads reflect:

- Expected default loss;

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- Differences in tax premiums – for example, where differential tax treatment applies to bonds issued by different issuers with different coupon rates;

- Differences in systematic rather than diversifiable risk[2]; and

- Differences in bond liquidity. Investors will typically incur higher trading or transaction costs to trade local authority bonds compared to more liquid Government bonds. Thus, investors will require compensation for these transaction costs and this will be reflected in a higher bond spread.

Studies in the US (e.g. Collin-Dufresne et al, 2001)[3] suggest that more than half the variation in US corporate bond spreads is unrelated to the credit or default risk of the issuing firm, but rather reflects compensation for liquidity and other factors that are also time varying. Longstaff et al. (2005)[4] report that while the credit default component accounts for the majority of the corporate spread across the credit ratings curve, a significant part of the bond spread is still due to illiquidity in addition to default risk. In calculating the spreads relative to US treasury bonds Longstaff et al. report the default component represents 51% of the spread for AAA/AA- rated corporate bonds, 56% for A-rated bonds, 71% for BBB- rated bonds, and 83% for BB- rated bonds.

The creation of the LGFA structure with guarantees from the 18 Local Authority Councils and the strong implied (but not contracted) Government support is expected to create a large pool of high quality debt that will be actively traded by investors in the market. Thus, we expect bonds issued by the LGFA to be more liquid in aggregate than equivalent bonds issued directly into the market by the Participating LACs on a stand-alone basis under the Replicating Portfolio model.

Thus, in KPMG CFs' view any difference in bond spreads for the LGFA and a Replicating Portfolio will need to also be adjusted for liquidity and factors other than default risk that may impact on bond spreads.

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[2] Academic evidence (e.g., Elton et al, 2001) suggests that corporate bonds have higher systematic risk than Government bonds and hence investors require a premium for higher risk. Elton, E.J., Gruber, M.J. , Argawal, D., Mann, C., 2001, Explaining the rate spread on corporate bonds, Journal of Finance 56, 1, 247-277.

[3] Collin-Dufresne, P., Goldstein, R., and Martin, S., 2001, The determinants of credit spread changes, Journal of Finance, 56, 2177-2207.

[4] Longstaff, F., Mithal, S., Neis, F., 2005, Corporate yield spreads: Default risk or liquidity? New evidence from the credit default swap market, Journal of Finance, 60, 2213–2253.

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Fair value of the Financial Guarantee under Method 2

Under this approach the fair value of the Financial Guarantee provided by the 18 Local Authority Councils would therefore be:[5]

Fair Value of Financial Guarantee provided by the 18 Local Authority Councils	=	Present Value of	Borrowing costs attributable to the credit or default spread component of the Participating LAC bond spreads in the Replicating Portfolio	-	Borrowing costs attributable to the credit or default spread component of the bond spread for the LGFA (rated AA+) with Local Authority Council guarantees

Our approach to determine the difference in borrowing costs attributable to the credit or default spread component in respect of each loan by the LGFA to the Participating LACs is as follows:

- For each stand-alone Participating LAC in the Replicating Portfolio determine:

  - The bond spread as a stand-alone borrower = A;

  - The credit default risk percentage component of this bond spread = B; and

  - The credit default component of the bond spread for the Participating LAC as a stand-alone borrower or $C = A \times B$.

- For the LGFA (rated AA+) determine:

  - The bond spread of the LGFA = D;

  - The credit default risk percentage component of the bond spread = E; and

  - The credit default component of the bond spread for the Participating LAC or $F = D \times E$.

- The difference in the value of C – F then represents the percentage annual savings in borrowing costs attributable to the reduction in credit default risk through borrowing under the LGFA structure as opposed to the default risk of borrowing on a stand-alone basis for each Participating LAC under the Replicating Portfolio.

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[5] To the extent that the Government's support will also lower the default risk of the LGFA and is a significant factor in the AA+ credit rating for the LGFA, this method will overstate the difference in the default spread component of the bond spread between:

- The LGFA with the 18 Local Authority Council shareholder guarantees but with no implicit Government support; and
- The notional LGFA Replicating Portfolio.

Thus, the fair value of the Financial Guarantee in the equation above may be biased upwards as it abstracts from any adjustment in the default risk for the current LGFA rated AA+ due to the implicit Government support.

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- This percentage annual savings is then calculated for each year over the term of each loan by the LGFA to the Participating LACs and then discounted back to the present value today at the Participating LAC's cost of capital.

Advantages of this Method

The advantages of this method are:

- The method is conceptually sound as the focus is on default risk assumed by the 18 Local Authority Councils under their guarantee of the LGFA's obligations to investors;

- The method is reasonably easy to implement once the input parameters are determined.

Disadvantages of this Method

The disadvantages of this method are again that a number of the data input parameters are not observable in the market. In particular determination of the credit or default risk component of the bond spread will likely require some degree of subjective judgement.

6   Parameter Inputs and Data Sources for Each Method to Value the Financial Guarantee

The table below summarises the parameter inputs and possible data sources required to implement Methods No. 1 and 2 to value the Financial Guarantee.

As already noted, both methods proposed by KPMG CF to value the Financial Guarantee will likely require some degree of judgement in the estimation of the input parameters to implement the methodology.

6.1   Method 1: Default Probability and Loss Given Default Approach

Parameter Input	Data Sources
Terms of loan to each borrowing or Participating LAC	• Loan agreement terms between the LGFA and the Participating LAC each time a new loan is drawn down or on a regular periodic basis
Credit rating of each Participating LAC	• Assigned credit rating for rated Participating LACs • A calculated notional credit rating for those unrated Participating LACs based on Moody's analytical tool or other analysis.
Probability of default at time *t* and loss given default (LGD)	• Comparable default rates on local/ semi-government bond issuers with similar credit ratings • Assessment of likelihood and impact of a significant natural disaster in the region of each Participating LAC.
Cost of capital	• Independent analysis or other credible published evidence or analysis on discount rates for LACs
Uncalled Capital for each Participating LAC	• Details of share capital of Participating LAC

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6.2 Method 2: Differential Borrowing Costs attributable to Default Risk

Parameter Input	Data Sources
Terms of loan for each Participating LAC	• Loan agreement terms between the LGFA and the borrowing or Participating LAC each time a new loan is drawn down or on a regular periodic basis
Credit rating of each Participating LAC	• Assigned credit rating for rated Participating LACs • A calculated notional credit rating for those unrated Participating LACs based on Moody's analytical tool or other analysis.
Bond spread for the LGFA	• Observed bond spread or yield differential between LGFA issued bonds and matching Government stock bonds with a similar coupon rate and term to maturity
Bond spread for each Participating LAC	• Observed bond spread or yield differential (as determined above) for those borrowing or Participating LAC that have issued bonds on a stand-alone basis. • Observed bond spreads or yield differential for bonds issued with the same credit rating as the actual or the assigned notional credit rating of Participating LACs that have no stand-alone issued bonds.
Credit or default risk component of the bond spread	• Empirical, academic or other credible published evidence on the decomposition of the components of the bond spread.

7 Alternative Methods to Value the Financial Guarantee

We have also considered the following two alternative methods to value the Financial Guarantee.

7.1 Pricing based on Credit Default Swaps.

A credit default swap (CDS) is a credit derivative that is commonly used to swap credit risk. In a CDS, the protection seller assumes the default risk of the reference entity by compensating the protection buyer for the loss suffered in credit events triggered by default, bankruptcy, failure to pay or restructuring. In return, the protection seller receives a periodic fee (also known as the spread or premium) from the protection buyer.

Viewed in this way, CDS spreads reflect purely the default risk of the reference entity. Thus, conceptually CDS spreads may enable an accurate measure of the differences in default risk between the LGFA and our Replicating Portfolio.

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In New Zealand, however, as far as we are aware no CDS spreads are quoted on local authority council issued bonds. While CDS spread prices for US municipalities are available from Bloomberg we are cautious on applying these CDS spread prices to NZ local authority councils that have different risk profile characteristics and different regulatory rules in the event of any default.

It may be possible, however, to use US CDS quoted spread prices as a further robustness check to value the Financial Guarantee derived under our two preferred approaches presented in this report.

7.2 *Differential Borrowing Costs attributable to Default Risk using US data*

This method is similar to our Method No 2, except that we would determine the differential borrowing costs attributable to default or credit risk using US data.

The advantages of using US data is that Bloomberg has numerous yield curves for AAA to BBB rated bonds issued by US municipalities.

These spread differences could then be used to proxy for bond spread differences that might be observed in the NZ market. This may alleviate possible practical issues in the application of Method No. 2, where for some notional credit ratings and for bonds issued on a stand-alone basis by each Participating LAC the bond market is very thin and there may be significant price distortion due to liquidity and bid/ask bounce in prices.

Again it may be possible to use this method based on US yield curve differentials for different credit rated municipal bonds as a further robustness check to the fair value of the Financial Guarantee derived under the two approaches.

8 An Example to illustrate the Methodologies to Value the Financial Guarantee

We provide below an example to illustrate the application of our proposed Methods No. 1 and 2 to value the Financial Guarantee provided by the guaranteeing shareholder Local Council Authorities.

8.1 *Important Notice*

The parameter inputs that we assume in this example are for illustrative purposes only and should not be taken as indicative of the actual parameter input assumptions (or range of values for each parameter input) that KPMG CF might ultimately recommend or adopt to value the Financial Guarantee. The estimation of all the parameter inputs into both valuation methodologies will require more detailed work and analysis, including liaison with LGFA's shareholders. This additional work is beyond the current scope of our engagement.

For the purposes of the example calculations shown in section 8.2, we have, at your request, assumed a LGD as a percentage of the outstanding amount due on default of 10%. You have advised that this LGD is based on analysis undertaken by third party advisors on behalf of Local Government Funding Agency of New Zealand having regard to the potential for recovery given the rights and remedies provided for by existing legislation (including the Local Government

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Act 2002, the Receiverships Act (1993) and the Local Government (Rating) Act 2002). KPMG makes no representation as to the accuracy or appropriateness of this assumption. In Appendix 1 we include a timeline diagram summarising the recovery process (prepared by Cameron Partners and Asia Pacific Risk Management). In Appendix 2 we provide extracts from current legislation that would be relevant to the recovery process (as provided by Mr Matthew Potton of Shareholders Council of Local Government Funding Agency of New Zealand.

8.2 Method No. 1: Default Probability and Loss Given Default Approach

Assumptions

The key assumptions that we adopt in the application of Method No. 1 are set out in the table below. We assume three groups of Participating LACs with credit ratings of AA, A+ and Unrated respectively.

Each Participating LAC is assumed to borrow for a term of 5 years. The total borrowing by all Participating LACs is $2 billion. The probability of default and the loss given default (LGD) is a function of the Participating LAC's credit rating. The probability of default by a Participating LAC in any one year is assumed to be independent of any probability of a default by another Participating LAC.[6]

The LGD will also depend on the type of default. For example, a significant natural disaster may lead to a very significant loss on default. On the other hand a default due to a large budget deficit or unexpected investment losses may result in a smaller LGD.

For simplicity any default is assumed to occur at the end of any year over the next five years. In the event of default the outstanding amount due and payable includes one year's interest payment.

The LGFA uncalled capital available to absorb any losses incurred by the LGFA is $20 million. This is prior to any allowance that in the event of a default by a Participating LAC, the Participating LAC may also be unable to meet any call on its share of the unpaid capital in the LGFA.

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[6] It is possible, however, that a significant natural disaster may trigger a default by more than one Participating LAC.

![KPMG]

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Methodology No.1 Assumptions				
	Local Authority Credit Rating			
LGFA Advances	**AA**	**A+**	**Unrated**	**Total**
Principal amount ($m)	1,380	274	346	2,000
Coupon rate (paid annually in arrears)	5.00%	5.00%	5.00%	
Term to maturity (years)	5.0	5.0	5.0	
Probability of default in any one year	0.30%	0.40%	0.50%	
LGD (Loss Given Default)	10.00%	10.00%	10.00%	
Local Authority cost of capital	5.50%	6.00%	6.50%	
LGFA Uncalled Capital ($m)	20			
Note: Default (if any) is assumed to occur at year end - with one year's interest payments also outstanding				

Allowance for loss absorbing uncalled LGFA Capital

The table below calculates the allocated uncalled capital for each of the 'three" LAC groups. For simplicity we assume that the uncalled capital is allocated according to the debt advances to each of the "three" LAC groups.

Methodology No.1 Expected value of LGFA Uncalled Capital given an event of default			
Local Authority Council rating	**Principal amount ($m)**	**% debt**	**Allocation of Uncalled Capital**
AA	1,380	69.0%	13.80
A+	274	13.7%	2.74
Unrated	346	17.3%	3.46
	2,000	**100.0%**	**20.00**

Present Value of Expected Default Losses

The tables below calculate the present value of the expected credit default loss on loans made by the LGFA to each of the three groups of Participating LACs. The default and survival probabilities in years 2-5 reflect the probability of default in any of the prior years. For example, the default probability in year 3 for the Participating LACs rated AA is (Prob of survival)^2 × (Prob of default) = 0.9970 × 0.9970 × 0.0030 = 0.00298.

The expected default loss for each year is calculated as:

Expected Default Loss at time = t =   LGD *less* Loss Absorbing Capital at time = t ×   Probability of default at time = t

For example, as above, assume in year 3 the Participating LAC rated AA defaults. The probability of default is 0.00298. In the event of default the LGD is $145 million. This is reduced by the amount of uncalled capital for the Participating LACs rated A+ and Unrated = $2.74 million + $3.46 million = $6.20 million (see Table above). Thus, the expected default loss is 0.00298 × ($145 - $6.20) million = $0.41 million.

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Methodology No.1
Expected loss on loans to Local Authorities

Expected loss on loan to Local Authorities rated AA

Time (years)	Default probability	Survival probability	Principal & interest outstanding at default ($m)	Loss given default ($m)	Less loss aborbing capital	Expected default loss ($m)	Present value of default loss ($m)
1	0.00300	0.99700	1,449	145	6.20	0.42	0.39
2	0.00299	0.99401	1,449	145	6.20	0.41	0.37
3	0.00298	0.99103	1,449	145	6.20	0.41	0.35
4	0.00297	0.98805	1,449	145	6.20	0.41	0.33
5	0.00296	0.98509	1,449	145	6.20	0.41	0.31
						Total	1.77

Expected loss on loan to Local Authorities rated A+

Time (years)	Default probability	Survival probability	Principal & interest outstanding at default ($m)	Loss given default ($m)	Less loss aborbing capital	Expected default loss ($m)	Present value of default loss ($m)
1	0.00400	0.99600	288	29	17.26	0.05	0.04
2	0.00398	0.99202	288	29	17.26	0.05	0.04
3	0.00397	0.98805	288	29	17.26	0.05	0.04
4	0.00395	0.98410	288	29	17.26	0.05	0.04
5	0.00394	0.98016	288	29	17.26	0.05	0.03
						Total	0.19

Expected loss on loan to unrated Local Authorities

Time (years)	Default probability	Survival probability	Principal & interest outstanding at default ($m)	Loss given default ($m)	Less loss aborbing capital	Expected default loss ($m)	Present value of default loss ($m)
1	0.00500	0.99500	363	36	16.54	0.10	0.09
2	0.00498	0.99003	363	36	16.54	0.10	0.09
3	0.00495	0.98507	363	36	16.54	0.10	0.08
4	0.00493	0.98015	363	36	16.54	0.10	0.08
5	0.00490	0.97525	363	36	16.54	0.10	0.07
						Total	0.41

Source: KPMG Analysis

Fair Value of Financial Guarantee

The fair value of the expected default loss under the Financial Guarantee provided by the guaranteeing Local Authority Councils is presented in the table below.

Methodology No.1
Present value of total expected loss on LGFA loan portfolio

Local Authority Council rating	$m
AA	1.77
A+	0.19
Unrated	0.41
Fair value of the Financial Guarantee	**2.37**

Based on the assumptions that we have adopted in this hypothetical example the fair value of the Financial Guarantee under Method No. 1 is $2.37 million.

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8.3 Method 2: Differential Borrowing Costs attributable to Default Risk

Assumptions

The key assumptions that we adopt in the application of Method No. 2 are set out in the table below. We again assume three groups of Participating LACs with credit ratings of AA, A+ and Unrated respectively.

Each Participating LAC borrows for a term of 5 years. The total borrowing by all Participating LACs is $2 billion.

For each Participating LAC credit rated group, we assume a bond spread over 5 year Government bonds. We then decompose this bond spread into the default or credit risk component of the spread.

The same procedure is undertaken for the LGFA rated AA+. This enables us to calculate the assumed difference in borrowing costs attributable to the default component of the bond spread between the Participating LACs if they were to borrow on a stand-alone basis (i.e., the Replicating Portfolio) compared to borrowing under the LGFA structure.

We adopt the credit default component of the bond spread reported for rated US corporate bonds by Longstaff et al. (2005).[7] In the case of unrated bonds we assume a credit default component percentage of the bond spread equal to 61.0%. This ensures that both the absolute value of the credit and liquidity component increases as the bond rating of the issuer decreases.

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[7] Longstaff, F., Mithal, S., Neis, F., 2005, Corporate yield spreads: Default risk or liquidity? New evidence from the credit default swap market, Journal of Finance, 60, 2213–2253.

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Methodology No.2 Assumptions			
	Local Authority Credit Rating		
LGFA Advances	**AA**	**A+**	**Unrated**
Principal amount ($m)	1,380	274	346
Term to maturity (years)	5.0	5.0	5.0
Traded Bond Yield if issued bonds as a stand-alone borrower	4.40%	4.55%	4.80%
Yield on Government bonds (or corresponding coupon and term to maturity)	3.40%	3.40%	3.40%
Bond spread as a stand-alone borrower	**1.00%**	**1.15%**	**1.40%**
Credit default component percentage of Bond Spread (as stand-alone borrower)	51.00%	56.00%	61.00%
Credit default component of Bond Spread (as stand-alone borrower)	**0.51%**	**0.64%**	**0.85%**
Traded yield on issued bonds with same maturity under the LGFA (rated AA+)	4.10%	4.10%	4.10%
Yield on Government bonds (or corresponding coupon and term to maturity)	3.40%	3.40%	3.40%
Bond spread for the LGFA (rated AA+)	**0.70%**	**0.70%**	**0.70%**
Credit default component percentage of the Bond Spread for the LGFA	51.00%	51.00%	51.00%
Credit default component of the Bond Spread for the LGFA	**0.36%**	**0.36%**	**0.36%**
Total debt margin savings from borrowing through the LGFA vehicle	0.30%	0.45%	0.70%
Difference in the credit default component of the Bond Spread between the stand-alone borrower or participating LAC and the LGFA (rated AA+)	**0.15%**	**0.29%**	**0.50%**
Local Authority cost of capital	5.50%	6.00%	6.50%

Present Value of expected differential borrowing costs attributable to default risk

The present value of the expected differential borrowing costs attributable to the default or
credit component of the spread over the term of the loans for each Participating LAC group is
calculated in the table below. The discount rate applied is the assumed Participating LAC cost
of capital.

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Methodology No.2				
Differential borrowing costs for default risk				
Local Authority Rated AA				
Time (years)	**Principal amount of debt ($m)**	**% difference in interest costs due to the default risk component of the bond spread**	**$ value savings in interest costs due to the default risk component of the bond spread**	**Present value of interest cost savings attributable to default risk**
1	1,380	0.15%	2.11	2.00
2	1,380	0.15%	2.11	1.90
3	1,380	0.15%	2.11	1.80
4	1,380	0.15%	2.11	1.70
5	1,380	0.15%	2.11	1.62
			Total	**9.02**
Differential Borrowing Costs for Default Risk: Local Authority Rated A+				
Time (years)	**Principal amount of debt ($m)**	**% difference in interest costs due to the default risk component of the bond spread**	**$ value savings in interest costs due to the default risk component of the bond spread**	**Present value of interest cost savings attributable to default risk**
1	274	0.29%	0.79	0.74
2	274	0.29%	0.79	0.70
3	274	0.29%	0.79	0.66
4	274	0.29%	0.79	0.62
5	274	0.29%	0.79	0.59
			Total	**3.31**
Differential Borrowing Costs for Default Risk: Unrated Local Authority				
Time (years)	**Principal amount of debt ($m)**	**% difference in interest costs due to the default risk component of the bond spread**	**$ value savings in interest costs due to the default risk component of the bond spread**	**Present value of interest cost savings attributable to default risk**
1	346	0.50%	1.72	1.61
2	346	0.50%	1.72	1.51
3	346	0.50%	1.72	1.42
4	346	0.50%	1.72	1.34
5	346	0.50%	1.72	1.25
			Total	**7.14**

Source: KPMG Analysis

Fair Value of Financial Guarantee

The fair value of the Financial Guarantee under Method No. 2 is summarised in the table below.

Methodology No.2	
Present value of interest cost savings attributable to default risk	
Local Authority Council rating	**$m**
AA	9.02
A+	3.31
Unrated	7.14
Total (= Fair value of the Financial Guarantee)	**19.47**

Based on the assumptions that we have adopted in this hypothetical example, the fair value of
the Financial Guarantee under Method No. 2 is $19.47 million. This represents the likely upper
bound for fair value.

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9 Summary of the Fair Value of the Financial Guarantee derived under Methods No. 1 and 2 in the example

9.1 Valuation summary

The table below summarises the fair values of the Financial Guarantee derived under Methods No. 1 and 2 in the illustrative example.

Summary: Methodologies for assessing fair value of Financial Guarantee		
Valuation methodology	Fair value of Guarantee ($m)	% of total borrowings ($2bn)
Method 1: Expected default loss	2.37	0.12%
Method 2: Differential borrowing cost	19.47	0.97%

The range of the value of the Financial Guarantee is small relative to the total value of the borrowing of $2 billion assumed by the LGFA.

However, in undertaking sensitivity analysis on our assumptions, the point estimate range or difference in the values between Method No.1 and No.2 may be relatively high in absolute dollar value terms. This reflects the degree of judgement that will likely be required in the estimation of some of the parameter inputs.

As noted, Method No. 2 may also provide a small upward bias of the estimate of the fair value of the Financial Guarantee in the event the implicit Government support of the LGFA also results in lower default risk. This is in addition to lower default risk from the credit risk enhancement provided by the guaranteeing Local Authority Councils.

9.2 Tail Risk

The value of the Financial Guarantee that we derive under our valuation methodologies reflects the *expected* value of the loss due to credit default risk on the LGFA's loans to Participating LACs.

The range of potential loss outcomes under the Financial Guarantee may, however, be very wide due to "Black Swan" type events. For instance, a very large and significant earthquake in Wellington or significant damage from a volcanic eruption in the greater Auckland region (both events with a low probability of occurrence) could potentially result in a significant loss to the remaining guaranteeing shareholder Local Authority Councils in the LGFA and also an increase in the likelihood of a subsequent default by more than one Local Authority Council.

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10 Allocation of the Fair Value of the Financial Guarantee to individual Local Authority Councils

The methodologies and examples provided in this report determine the aggregate fair value of the Financial Guarantee borne by all guaranteeing Local Authority Councils.

We understand that the Local Authority Councils are receiving separate advice from KPMG on the accounting issues and presentation of the fair value of the Financial Guarantee in each Local Authority Council's financial statements.

Subject to confirmation as to the correct accounting treatment and presentation, a pro-rata allocation, according to each Participating LAC's proportional share of total rate income, may be a practical expedient to providing a reasonable approximation of each Participating LAC's expected loss or fair value of its obligation under the Financial Guarantee. Each Participating LAC should consider their own materiality in conjunction with their auditors in making this judgment.

At a theoretical level, however, each individual Local Authority Council's expected loss or obligation under the Guarantee would need to reflect the joint and several nature of the guarantee and therefore the possibility that other Local Authority Councils may potentially default on their obligations under the Guarantee. This may be of particular relevance in the event that one of the larger Local Authority Councils defaults, resulting in significant losses which render other Participating LACs unable to meet 100% of their obligations under the Guarantee. That is; the probabilities of default of the respective Participating LACs are not necessarily independent and in the unlikely event of a large default, there may be a "cascade effect" of subsequent defaults.

Further, more complex and detailed, analysis would be required if it was deemed necessary for each individual Participating LAC to more accurately assess the full range of potential outcomes and the "expected" value of loss under the Financial Guarantee (having regard to audit materiality thresholds and the low probability of multiple defaults).

11 Conclusion

This report sets out two proposed methodologies to value the Financial Guarantee assumed by the guaranteeing Local Authority Councils, who are also shareholders in the LGFA.

The two main potential approaches that we propose to value the LGFA Financial Guarantee are:

- Method No. 1: Default Probability and Loss Given Default Approach; and

- Method No. 2: Differential Borrowing Costs attributable to credit default risk (i.e., borrowing costs adjusted for liquidity and other non-default risk factors).

In assessing fair value for the purposes of reflecting the Financial Instruments in their financial statements, the local authorities that are party to the Deed will need to form their best estimate as to where fair value lies within this range.

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Both methods will require assumptions with respect to a number of parameter inputs. Some degree of judgement will also likely be required in the estimation of these parameter inputs. The examples that we provide in this report do not extend to quantifying all of the calculation inputs. This would require further data analysis and discussion with LGFA members.

This letter also does also not provide accounting advice on the presentation of the fair value of the Financial Guarantee in the financial statements of each shareholder Local Authority Council. This advice is subject to a separate engagement and report produced by KPMG.
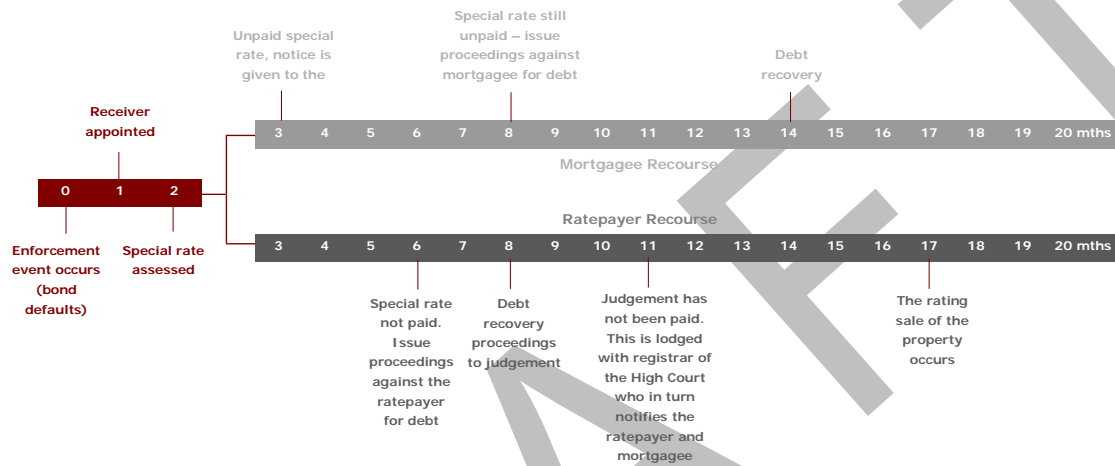
Please do not hesitate to contact us if you have any queries.

Yours sincerely

DRAFT

Justin Ensor
Partner

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Appendix 1: Recourse under Debenture Trust Security Deed

Source: Analysis undertaken by Cameron Partners and Asia Pacific Risk Management on behalf of Local Government Funding Agency of New Zealand

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Appendix 2: Relevant extracts from legislation

Local Government Act 2002

s115 Rates as security
- (1) This section applies if—
    - (a) a local authority has charged a rate or rates revenue as security for any loan or the performance of any obligations under an incidental arrangement; and
    - **(b) a receiver has been appointed under section 40A or section 40B of the Receiverships Act 1993 in respect of that loan or arrangement.**

  (2) The receiver may, without further authority than this section, assess and collect in each financial year a rate under this section to recover sufficient funds to meet—
    - **(a) the payment of the local authority's commitments in respect of the loan or incidental arrangement during that year; and**
    - **(b) the reasonable costs of administering, assessing, and collecting the rate.**

  (3) A rate under this section must be assessed as a uniform rate in the dollar on the rateable value of property—
    - (a) in the district; or
    - (b) if the local authority resolved, at the time when the loan was being raised or the incidental arrangement was being entered into, that it was for the benefit of only a specified part of the district or region, that part.

  (4) For the purposes of this section, **rateable value**, in relation to any property, means its rateable value under the valuation system used by the local authority for its general rate.

  (5) A rate under this section may not be assessed and collected on rateable property in respect of which an election under section 65 or section 77 of the Rating Powers Act 1988 has been exercised in respect of any repayment loan or the works for which any loan was borrowed.

Receiverships Act (1993)
40B Power of court to appoint receiver
- (1) Subject to sections 40D and 40E and to subsections (2) and (3), the High Court may, on the application of any creditor of the local authority, **appoint a receiver of any asset of a local authority or appoint a receiver for the purposes of section 115 of the Local Government Act 2002**.

  (2) An appointment under subsection (1) must be for such period, with such rights, powers, and duties, and on such terms and conditions, including as to security and remuneration, as the court considers appropriate in all the circumstances.

  (3) When considering, in accordance with subsection (2), the terms and conditions upon which a receiver can be appointed by a court pursuant to subsection (1), the court must—
    - (a) take account of the interests of both the secured and non-secured creditors of the local authority, as against—

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- ▪ (i) the interests of the local authority itself; and
- ▪ (ii) the requirement of the local authority to provide those services that are essential for the maintenance of public health and safety; and
- ▪ (iii) the interests of the ratepayers with property within the area of the local authority; and
- ▪ (iv) the interests of the general public living within the area of the local authority; and
  - o (b) take account of the interests of secured creditors as against the interests of non-secured creditors of the local authority.

Local Government (Rating) Act 2002
23 Procedure for setting rates
- (1) Rates must be set by a resolution of the local authority.
  (2) Rates set by a local authority must—
  - o (a) relate to a financial year or part of a financial year; and
  - o (b) be set in accordance with the relevant provisions of the local authority's long-term plan and funding impact statement for that financial year.

  (3) A local authority may set a rate that is not provided for in its long-term plan and funding impact statement only if—
  - o **(a) the local authority is satisfied that the rate is required to meet an unforeseen and urgent need for revenue that cannot reasonably be met by any other means, having regard to the manner in which it has, in its long-term plan and funding impact statement allocated the costs of the activities or groups of activities to which the need for revenue relates; and**
  - o **(b) the local authority has given at least 14 days' public notice of its intention to set the rate.**

  (4) Notice under subsection (3)(b) must include—
  - o (a) the information in relation to the rate that would otherwise have been required to be included in the local authority's funding impact statement; and
  - o (b) a statement of the nature of the unforeseen and urgent need for revenue and the reasons why that need cannot reasonably be met by any other means, having regard to the manner in which the local authority has, in its long-term plan, allocated the costs of the activities or groups of activities to which the need for revenue relates.

  (5) The local authority must, within 20 working days after making a resolution, send a copy of it to the Secretary of Local Government

62 Recovery of rates if owner in default
- (1) If an owner defaults in paying the rates, the local authority may—
  - o **(a) notify persons with an interest in the rating unit for which the rates are payable (including an interest as first mortgagee) of—**
    - ▪ (i) the fact of the default; and
    - ▪ (ii) the provisions of this section; and
  - o (b) accept payment of the rates from the persons referred to in paragraph (a); or

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- o (c) recover, as a debt from the first mortgagee of a rating unit, the rates payable in respect of the rating unit that remain unpaid on a date that is—
  - (i) not less than 3 months after notice has been given to that person under paragraph (a); and
  - (ii) not earlier than 1 November in the financial year following the year in which the rates were first assessed.

(2) A person (other than a mortgagee) who pays the unpaid rates under subsection (1) may—
- o (a) recover that amount from the owner as a debt; or
- o (b) retain that amount from any money that that person pays to the owner in respect of a debt other than that relating to unpaid rates.

(3) If a mortgagee pays the unpaid rates under subsection (1), the amount paid must be treated as part of the money secured by the mortgage until it is repaid to the mortgagee, and the provisions of the mortgage apply to that amount.

63 Legal proceedings to recover rates

- (1) A local authority may commence proceedings in a court of competent jurisdiction to recover as a debt rates unpaid for 4 months after the due date for payment.

  (2) In any proceedings under subsection (1), the local authority may recover any other unpaid rates in respect of the same rating unit if the rates became due not earlier than 1 month before the proceedings were commenced.

  (3) A court constituted under the District Courts Act 1947 has jurisdiction to hear and determine proceedings under this Act for the recovery of rates, whatever the amount of the debt involved.

Source: Matthew Potton, Shareholders Council of Local Government Funding Agency of New Zealand