MONASH University

Determining the value of imputation credits: Sample Selection, and Standard Errors

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Report for

The Victorian Electricity Distributors

1 October 2010

Summary

The Victorian electricity distribution businesses are in the midst of a five-yearly price review process. As part of that review, the Australian Energy Regulator (AER) must determine an appropriate compensation for corporate income tax, which is a function of the valuation of dividend imputation credits, also referred to as gamma. Strictly speaking, gamma is defined as the product of the 'imputation credit payout ratio' (F-payout ratio) and the 'utilisation rate (θ-theta), as ackowledged by the AER (page 528 of the draft decision). However, this report concentrates only on theta, the utilisation rate. No consideration has been given to the value of the payout ratio.

The AER has taken account of a limited number of dividend drop-off studies to estimate theta, including Beggs and Skeels (2006) and a number of studies by SFG Consulting. Dividend drop-off studies are difficult because of the sensitivity of the final estimates to the inherent multicollinearity in the data, the appropriate filtering of the data, and the impact of a small number of influential observations.

The purpose of this report is to examine the impact of sample selection, and to look at the validity of the standard errors of the estimated parameters.

Declaration

We confirm that, in preparing this report, we have made all inquiries that we believe are desirable and appropriate and that no matters of significance that we regard as relevant have, to our knowledge, been witheld. We have been provided with a copy of the Federal Court's "Guidelines for Expert Witnesses in Proceedings in the Federal Court of Australia" and this report has been prepared in accordance with those Guidelines.

Contents

1 Introduction

In a recent decision the AER has most relied on the dividend drop-off study conducted by Beggs and Skeels (2006), who fit the model:

$$P_{c,j} - P_{x,j} = \gamma_0 + \sum_{j=1}^{7} \gamma_{1,j} d_{i,j} D_i + \sum_{j=1}^{7} \gamma_{2,j} d_{i,j} F_i + \varepsilon_i, i = 1, \ldots, n \tag{1}$$

where

$$\begin{aligned}
P_{c,i} &= \text{Cum-dividend share price of } i\text{th share} \\
P_{x,i} &= \text{Ex-dividend share price for } i\text{th share,} \\
& \text{(adjusted for aggregate return on the market)} \\
\gamma_{1,j} &= \text{Cash drop-off ratio for period } j \\
\gamma_{2,j} &= \text{Franking Credit drop off ratio for period } j \\
d_{i,j} &= \text{Dummy variable for } i\text{th share in period } j \\
D_i &= \text{Dividend for } i\text{th share} \\
F_i &= \text{Franking Credit for } i\text{th share} \\
\varepsilon_i &= \text{error}
\end{aligned}$$

with an auxiliary equation involving company size, gross dividend, and cum-dividend share price as predictor variables to account for the heteroscedasticity in the data. In this model $\gamma_{2,j}$ refers to the value of theta rather than gamma directly. Beggs and Skeels analysed data over seven tax regimes, but of major interest are the results for the last three periods. Table 1 gives dates of the seven tax regimes, adapted from Table 1 of Beggs and Skeels (2004).

Period No.	Period	Effect of tax change relative to previous regime
1	–30 Jun 88	
2	1 Jul 88–30 Jun 90	Superannuation funds can use franking credits
3	1 Jul 90–30 Jun 91	Provisions to stop dividend streaming
4	1 Jul 91–30 Jun 97	Limits to life assurance funds use of franking credits
5	1 Jul 97–30 Jun 99	Provisions limiting related payments, holding period and delta hedge
6	1 Jul 99–30 Jun 00	Capital gains tax reduced
7	1 Jul 00–30 Jun 04	Tax rebate for unused franking credits

Table 1: Summary of Tax Regime Changes, adapted from Table 1 of Beggs and Skeels (2006)

Period	Parameter	Estimate	Std. Error
1 Jul 97 - 30 Jun 99	$\gamma_{1,5}$	0.795	0.099
1 Jul 99 - 30 Jun 00	$\gamma_{1,6}$	1.168	0.099
1 Jul 00 - 30 Jun 04	$\gamma_{1,7}$	0.800	0.052
1 Jul 97 - 30 Jun 99	$\gamma_{2,5}$	0.418	0.186
1 Jul 99 - 30 Jun 00	$\gamma_{2,6}$	0.128	0.204
1 Jul 00 - 30 Jun 04	$\gamma_{2,7}$	0.572	0.121

Table 2: Beggs and Skeels results

Table 2 gives the results of Beggs and Skeels for the last three periods. The AER has used the $\hat{\gamma}_{2,7}$ figure of 0.572 in their determination of the appropriate value of theta and therfore gamma.

Unfortunately, the data set used by Beggs and Skeels is now not available and so it is impossible for us to verify their results. W have been supplied with the SAS Code used by SFG Consulting (2010) in their attempt to replicate and further extend the Beggs and Skeels study. We will focus on one of the regression analyses undertaken by SFG. In that analysis an ordinary least squares analysis is initially fitted to Equation 1 and the residuals and the auxiliary regression are used to provide weights for the weighted regression analysis that attempts to replicate the Beggs and Skeels study, although the dataset has been extended to 30 Sep 2006. We have called that analysis Fit1 in this report.

Table 3 gives a summary of Fit1, using the R Statistical Computing Environment (R Core Team, 2010). The results are identical to the results of SFG Consulting (2010, page 18, middle column). Note that the value of $\hat{\gamma}_{2,7}$ is appreciably smaller than that obtained by Beggs and Skeels (2006) and this also applies to the standard error.

Period	Parameter	Estimate	Std. Error
	γ_0	-0.0078	0.0023
1 Jul 97 - 30 Jun 99	$\gamma_{1,5}$	0.9419	0.0716
1 Jul 99 - 30 Jun 00	$\gamma_{1,6}$	0.8274	0.1096
1 Jul 00 - 30 Sep 06	$\gamma_{1,7}$	0.9856	0.0306
1 Jul 97 - 30 Jun 99	$\gamma_{2,5}$	0.2144	0.1654
1 Jul 99 - 30 Jun 00	$\gamma_{2,6}$	0.3601	0.2420
1 Jul 00 - 30 Sep 06	$\gamma_{2,7}$	0.2274	0.0822

Table 3: Fit1, produced by SFG

2 Sample Selection Issues

2.1 Leverage

Observations that are far from the bulk of the data in terms of the independent variables of a linear regression, taking into account the correlations of the independent variables, can have a greater influence on the estimated regression coefficients than other observations. Calculating the leverage, or hat values, are the most common way to study this feature of a regression analysis. The fitted value for the ith observation is a linear combination of the observed values

$$\hat{y}_j = \sum_{i=1}^{n} h_{ij} y_i$$

and the value h_{ij} represents how much observation i contributes to the fitted value of observation j. The leverage, or hat value, is given by

$$h_i = \sum_{j=1}^{n} h_{ij}^2$$

and shows how much influence observation i has on all the predictions.

The leverage values concern the independent variables. The residuals are the difference between the observed and fitted values[1]. Standardised residuals are the residuals divided by the estimated standard deviation, and for a well fitting regression we would expect the standardised residuals to be roughly normally distributed with a standard deviation of 1, and hence varying symmetrically between -3 and 3.

A summary measure of influence is the Cook's Distance, defined as (see, for example, Fox, 2002, p.197)

$$D_i = \frac{e_i^2}{s^2(k+1)} \times \frac{h_i}{1-h_i}$$

where e_i^2 is the square of the residual for the ith observation, s^2 is the variance of the residuals, k is the number of terms in the regression, and h_i is the leverage of the ith point. The first term represents how unusual the dependent variable is relative to the fitted value, and the second term represents the leverage of the ith observation. The Cook's Distance, D_i measures how much the regressiopn coefficients would change if the ith observation was removed.

[1] Fit1 is the result of a weighted least squares fit. The actual residual is, of course, weighted, but for the sake of simplicity that will be assumed to have been done in all cases.

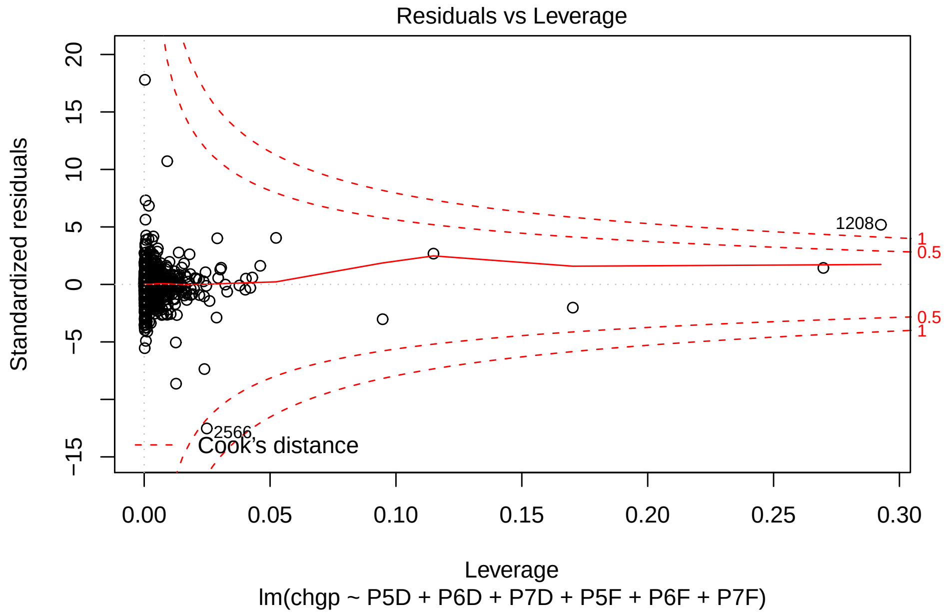

Figure 1: Residuals vs Leverage for Fit1. The plot shows tha some observations exert high leverage on the Fit. Observation 1208 and 2566 have the highest values of D_i, indicating that their removal would significantly change the estimates of the regression coefficients. The plot also shows that the residuals are relatively symmetric but very long-tailed

Figure 1 shows a plot of Leverage values versus standardised residuals for Fit1. In addition, the Cook's Distance, D_i, is also shown on the plot. Clearly there are some influential observations influencing the estimates in Fit1. A value of $D_i = 1$ means that if that observation was dropped, the parameter estimates would move onto the boundary of the 50% confidence region, and this is usually considered a large change. Figure 1 also shows that some points, while not influential, have large residuals. This has an effect on the estimate of the variability, and hence on standard errors and the width of confidence intervals.

avPlots(fit3)

SFG use the D_i statistic to remove the effect of outlying observations. Specifically in Fit2, they remove the observations that have top 1% of D_i values.

Figure 2 shows the effect of both, dropping and not dropping observations based on the D_i statistic. Note the sudden jumps in the graph whichonly settles down until about 10 observations have been removed. Figure 2 was produced using the same procedure as SFG, that is, based on the D_i statistic using the regression analysis on the complete data set. Figure 3 repeats this

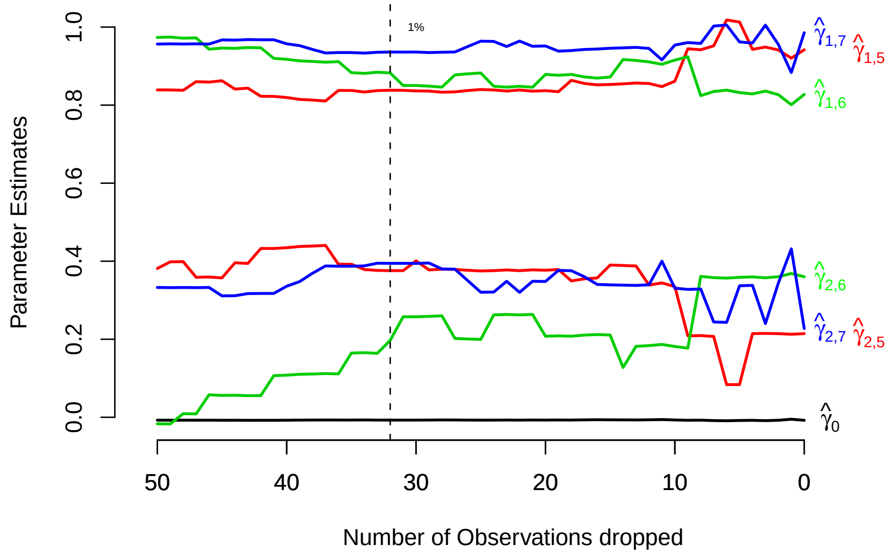

Figure 2: The effect of dropping observations based on the highest values of D_i with Fit1.

procedure, but recalculates D_i after each observation is removed. Again the regression estimates are quite erratic until about 10 observations are removed.

Table 7 gives the results for Fit2, produced by SFG[2].

Period	Parameter	Estimate	Std. Error
	γ_0	-0.0072	0.0021
1 Jul 97 - 30 Jun 99	$\gamma_{1,5}$	0.8364	0.0829
1 Jul 99 - 30 Jun 00	$\gamma_{1,6}$	0.8504	0.1086
1 Jul 00 - 30 Sep 06	$\gamma_{1,7}$	0.936	0.0366
1 Jul 97 - 30 Jun 99	$\gamma_{2,5}$	0.4009	0.1679
1 Jul 99 - 30 Jun 00	$\gamma_{2,6}$	0.2576	0.2302
1 Jul 00 - 30 Sep 06	$\gamma_{2,7}$	0.3945	0.0862

Table 4: Fit2, produced by SFG

2.2 Added-Variable Plots

Figure 6 gives added variable plots for Fit1. In an added variable plot the vertical axis represents the residual without the corresponding independent variable in the regression; while the

[2]The data set used by SFG in their analysis was slightly different, since some observations were subsequently corrected. We have used the data set used in Fit1 to reproduce what SFG would have got with the corrected observations

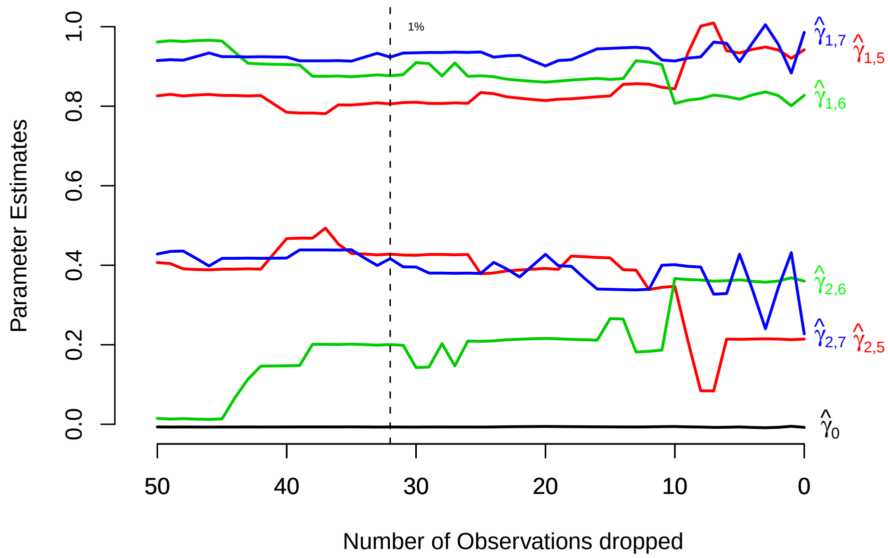

Figure 3: The effect of dropping observations based on the highest values of D_i, recalculated after each observation is dropped.

horizontal axis represents the residual when regressing the corresponding independent variable on all the other independent variables. There is one added variable plot for each independent variable.

An added variable plot has a number of interesting features:

1. The slope of the simple regression line on an added variable plot is identical to the regression coefficient of the corresponding explanatory variable in the full multiple regression.

2. The residuals from the simple linear regression line on an added variable plot are identical to the residuals in the full multiple regression.

3. The variation of the independent variable in the added variable plot is the conditional variation of the independent variable plot holding the other independent variables constant and the standard error of the slope in the simple linear regression is the same as the standard error of the regression coefficient in the full multiple regression.

The plots show that the Period 7 parameters seem to be well supported by the data. However both Period 5 and particularly Period 6 parameters are less well supported, with one outlier having a large effect on the Period 6 parameter estimates.

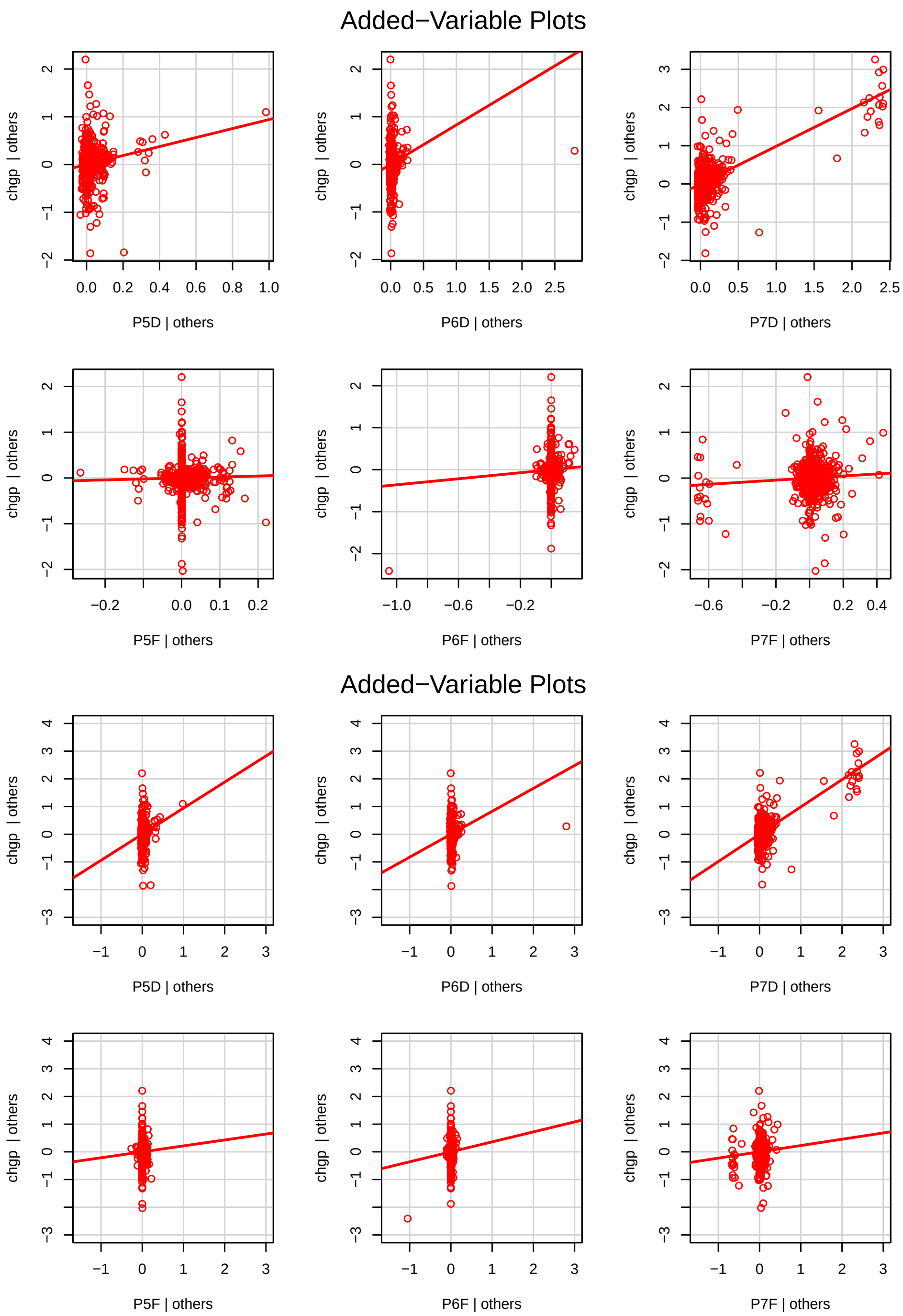

Figure 4: Added Variable Plots for Fit1. The vertical axis represents the residual without the corresponding independent variable; while the horizontal axis represents the residual when regressing the corresponding independent variable on all the other independent variables. P5D, P6D, and P7D are dummy variables for the Cash Dividends in periods 5, 6, and 7; while P5F, P6F, P7F are dummy variables for Imputation Credits in periods 5, 6, and 7. The top six plots are on different scales; while the bottom six plots are the same plots but on a common scale.

2.3 Robust Regression

Least squares regression is optimal if the error distribution follows a normal distribution. However, as Figure 1 shows, the errors have very long tails, and it is known that least squares regression performs poorly in this case (see, for example, Fox, 2008, p.530). An alternative is to use a robust and resistant method. Table 5 gives the results of applying MM regression (Yohai, Stahel, and Zamar, 1991; see also Venables and Ripley, 2004, p.161), a bounded influence method, to the original data set. The method used was as follows:

1. Equation 1 was fitted to the data using MM regression.

2. The auxilary regression was fitted to the data using MM regression, with the log of squared residuals from step 1 as the dependent variable.

3. Eqaution 1 was fitted to the data using MM regression, with the weights given by the inverse of the exponential of the fitted values from step 2.

Note that no influential points have been deleted, since the method automatically downweights outlying observations. By default MM regression is tuned to give 95% efficiency for normally distributed data, but is resistant to unusual observations. By contrast, least squares has 100% efficiency at the Normal but performs very poorly when this assumption does not hold, as in this case.

Period	Parameter	Estimate	Std. Error
	γ_0	-0.0069	0.0015
1 Jul 97 - 30 Jun 99	$\gamma_{1,5}$	0.9781	0.0436
1 Jul 99 - 30 Jun 00	$\gamma_{1,6}$	0.9039	0.075
1 Jul 00 - 30 Sep 00	$\gamma_{1,7}$	0.9763	0.0184
1 Jul 97 - 30 Jun 99	$\gamma_{2,5}$	0.1818	0.1034
1 Jul 99 - 30 Jun 00	$\gamma_{2,6}$	0.1509	0.1646
1 Jul 00 - 30 Sep 00	$\gamma_{2,7}$	0.3507	0.0523

Table 5: Summary of Robust Fit

Note that the value of $\hat{\gamma}_{2,7}$ is considerably less than the the Beggs and Skeels estimate, but higher than the estimate given in Fit1.

3 Standard Errors

3.1 White's Correction for Heteroscedasticity

Fit1 is a feasible generalised least Squares regression fit since the weights are estimated from the data. A feasible generalised least squares regression can be written as an ordinary least squares regression by multiplying the dependent variable and all the independent variables by the square root of the weights. The standard errors are based on the assumption of homogeneity, once this transformation is applied.

Another method is to used "Heteroscedasticity-consistent standard errors" introduced by White (1980)[3]

The heretoscedastic consistent standard errors are given in Table 10. Columns 3, 4, and 5 give the Ordinary Least Squares estimate of Equation 1, together with the standard errors and correced standard errors. The corrected standard errors for period 7 are over three times the uncorrected standard errors.

Similarly, columns 6, 7, and 8 give the estimated coefficients of Fit1, uncorrected standard errors and corrected standard errors. The corrected standard error for $\gamma_{2,7}$ is over three times the uncorrected standard error. The results show that the standard errors for Fit1 are probably optimistic.

Period	Parameter	OLS	Std. Error	Std. Error Corrected	Fit1	Std. Error	Std. Error Corrected
	γ_0	-0.0075	0.0036	0.0054	-0.0078	0.0023	0.0041
1 Jul 97 - 30 Jun 99	$\gamma_{1,5}$	0.9992	0.1008	0.1356	0.9419	0.0716	0.1260
1 Jul 99 - 30 Jun 00	$\gamma_{1,6}$	0.1968	0.0563	0.7983	0.8274	0.1096	0.1386
1 Jul 00 - 30 Sep 06	$\gamma_{1,7}$	0.9401	0.0174	0.0581	0.9856	0.0306	0.1363
1 Jul 97 - 30 Jun 99	$\gamma_{2,5}$	-0.1257	0.2003	0.3105	0.2144	0.1654	0.2379
1 Jul 99 - 30 Jun 00	$\gamma_{2,6}$	1.7070	0.1547	1.4862	0.3601	0.2420	0.2682
1 Jul 00 - 30 Sep 06	$\gamma_{2,7}$	0.3700	0.0556	0.1751	0.2274	0.0822	0.2664

Table 6: White's Correction for Heteroscedasticity

[3]White estimated the covariance matrix of the regression coefficients by $(X^TX)^{-1}X^T\hat{\Sigma}X(X^TX)^{-1}$ where $\hat{\Sigma} = \text{diag}(e_i^2)$ with e_i being the residual for the ith case.

3.2 Bootstrap Standard Errors

The results of the previous section suggest that the standard errors of Fit1 might be optimistic. In addition, the standard errors are based on the assumptions that the weights are known, not estimated from the data.

To provide a further check on the standard errors, Bootstrap methods (see, for example, Fox , 2004, pp.587–606). In the bootstrap[4], a large number (we used 100) of replicate datasets are obtained from the original dataset by sampling with replacement. For each replicate dataset, Equation 1 was fitted using the same procedure to produce Fit1, that is OLS, followed by fitting the auxiliary equation to the log of squared residuals from the OLS fit, giving weights for the weighted least squares regression. The standard deviation of the regression coefficients is an estimate of the standard error, which does not rely on distributional assumptions or asymptotic results.

The results of the Bootstrap calculation are given in Table 7. They show, again, that the standard errors of Fit1 are likely to be optimistic.

Period	Parameter	Estimate	Std. Error	Std. Error (Bootstrap)
	γ_0	-0.0078	0.0023	0.0041
1 Jul 97 - 30 Jun 99	$\gamma_{1,5}$	0.9419	0.0716	0.1259
1 Jul 99 - 30 Jun 00	$\gamma_{1,6}$	0.8274	0.1096	0.1628
1 Jul 00 - 30 Sep 06	$\gamma_{1,7}$	0.9856	0.0306	0.1257
1 Jul 97 - 30 Jun 99	$\gamma_{2,5}$	0.2144	0.1654	0.2363
1 Jul 99 - 30 Jun 00	$\gamma_{2,6}$	0.3601	0.2420	0.317
1 Jul 00 - 30 Sep 06	$\gamma_{2,7}$	0.2274	0.0822	0.2384

Table 7: Fit1, produced by SFG, with bootstrap standard errors

We also applied the Bootstrap to the Robust Regression. The results are given in Table 8. Here the bootstrap standard errors are also higher than the ones given in Table 5, which are based on asmptotic results. However the bootstrap standard errors in Table 7 are much higher than those Table 8, and is another reason that the robust fit is preferred.

[4]This is a case based bootstrap calculation.

Period	Parameter	Estimate	Std. Error	Std. Error (Bootstrap)
	γ_0	-0.0069	0.0015	0.0017
1 Jul 97 - 30 Jun 99	$\gamma_{1,5}$	0.9781	0.0436	0.1068
1 Jul 99 - 30 Jun 00	$\gamma_{1,6}$	0.9039	0.075	0.1192
1 Jul 00 - 30 Sep 00	$\gamma_{1,7}$	0.9763	0.0184	0.0551
1 Jul 97 - 30 Jun 99	$\gamma_{2,5}$	0.1818	0.1034	0.1877
1 Jul 99 - 30 Jun 00	$\gamma_{2,6}$	0.1509	0.1646	0.2325
1 Jul 00 - 30 Sep 00	$\gamma_{2,7}$	0.3507	0.0523	0.1291

Table 8: Summary of Robust Fit, with Bootstrap Standard Errors.

References

Australian Energy Regulator (2009), Final Decision-Electricity transmission and network service providers: Review of the weighted average cost of capital (WACC) parameters.

Beggs, D.J. and Skeels, C.L., (2006), "Market arbitrage of cash dividends and franking credits," *Economic Record*, **82** (258), 239–252.

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6th August 2010

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By email: Neil.Diamond@buseco.monash.edu.au

Dr Neil Diamond
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Dear Dr Diamond,

Expert report on the value of imputation credits

The Australian Energy Regulator (**AER**) is currently conducting its five-yearly review of pricing proposals submitted by the five Victorian electricity distribution businesses, United Energy, Citipower, Powercor, Jemena and SP Ausnet. As part of the review process, the AER must determine an appropriate return on capital, which is a function of the valuation of dividend imputation credits, also referred to as gamma. The AER has taken account of a number of dividend drop-off studies in its consideration of the value of gamma, including:

- A 2006 study by Beggs and Skeels;[1] and
- A February 2010 study by SFG Consulting[2]

One of the concerns raised by the AER with the more recent SFG study is multicollinearity. This is one of the reasons for the AER's rejection of the SFG findings and reliance on the Beggs and Skeels study.

In this context, we request a report setting out your expert opinion on the following matters:

1. Whether you consider multicollinearity to significantly impact on the findings of the SFG study.
2. Whether you consider the Beggs and Skeels study should be relied upon by the AER, given that the dataset has not been made available by the authors and the results cannot be reproduced.

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1 Beggs, D. J. and Skeels, C.L., (2006), 'Market arbitrage of cash dividends and franking credits', *Economic Record*, 82 (258), 239 – 252.

Guidelines in preparing your report

Attached are Expert Witness Guidelines issued by the Federal Court of Australia. Although this brief is not in the context of litigation, the Victorian electricity distribution businesses are seeking a rigorously prepared independent view for use in the context of regulatory decision making and you are requested to follow the Guidelines to the extent reasonably possible in the context.

In particular, please:

Identify your relevant area of expertise and provide a curriculum vitae setting out the details of that expertise:

1.1.1. only address matters that are within your expertise;

1.1.2. where you have used factual or data inputs please identify those inputs and the sources;

1.1.3. if you make assumptions, please identify them as such and confirm that they are in your opinion reasonable assumptions to make;

1.1.4. if you undertake empirical work, please identify and explain the methods used by you in a manner that is accessible to a person not expert in your field;

1.1.5. confirm that you have made all the inquiries that you believe are desirable and appropriate and that no matters of significance that you regard as relevant have, to your knowledge, been withheld from your report; and

1.1.6. please do not provide legal advocacy or argument and please do not use an argumentative tone.

Yours sincerely,

Jeremy T. Rothfield.

Jeremy Rothfield
Regulatory Economist

2 SFG, *Further analysis in response to the AER Draft Determination in relation to gamma: Prepared for ETSA Utilities*, 4 February 2010

FEDERAL COURT OF AUSTRALIA

Practice Note CM 7

EXPERT WITNESSES IN PROCEEDINGS IN THE FEDERAL COURT OF AUSTRALIA

1. Practitioners should give a copy of the following guidelines to any witness they propose to retain for the purpose of preparing a report or giving evidence in a proceeding as to an opinion held by the witness that is wholly or substantially based on the specialised knowledge of the witness (see **Part 3.3 - Opinion** of the *Evidence Act 1995* (Cth)).

2. The guidelines are not intended to address all aspects of an expert witness's duties, but are intended to facilitate the admission of opinion evidence[1], and to assist experts to understand in general terms what the Court expects of them. Additionally, it is hoped that the guidelines will assist individual expert witnesses to avoid the criticism that is sometimes made (whether rightly or wrongly) that expert witnesses lack objectivity, or have coloured their evidence in favour of the party calling them.

<u>Guidelines</u>

1. General Duty to the Court[2]

1.1 An expert witness has an overriding duty to assist the Court on matters relevant to the expert's area of expertise.

1.2 An expert witness is not an advocate for a party even when giving testimony that is necessarily evaluative rather than inferential[3].

1.3 An expert witness's paramount duty is to the Court and not to the person retaining the expert.

2. The Form of the Expert Evidence[4]

2.1 An expert's written report must give details of the expert's qualifications and of the literature or other material used in making the report.

2.2 All assumptions of fact made by the expert should be clearly and fully stated.

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[1] As to the distinction between expert opinion evidence and expert assistance see *Evans Deakin Pty Ltd v Sebel Furniture Ltd* [2003] FCA 171 per Allsop J at [676].

[2] See rule 35.3 Civil Procedure Rules (UK); see also Lord Woolf "Medics, Lawyers and the Courts" [1997] 16 CJQ 302 at 313.

[3] See *Sampi v State of Western Australia* [2005] FCA 777 at [792]-[793], and *ACCC v Liquorland and Woolworths* [2006] FCA 826 at [836]-[842]

[4] See rule 35.10 Civil Procedure Rules (UK) and Practice Direction 35 – Experts and Assessors (UK); *HG v the Queen* (1999) 197 CLR 414 per Gleeson CJ at [39]-[43]; *Ocean Marine Mutual Insurance Association (Europe) OV v Jetopay Pty Ltd* [2000] FCA 1463 (FC) at [17]-[23]

2.3 The report should identify and state the qualifications of each person who carried out any tests or experiments upon which the expert relied in compiling the report.

2.4 Where several opinions are provided in the report, the expert should summarise them.

2.5 The expert should give the reasons for each opinion.

2.6 At the end of the report the expert should declare that "[the expert] has *made all the inquiries that* [the expert] *believes are desirable and appropriate and that no matters of significance that* [the expert] *regards as relevant have, to* [the expert's] *knowledge, been withheld from the Court*."

2.7 There should be included in or attached to the report: (i) a statement of the questions or issues that the expert was asked to address; (ii) the factual premises upon which the report proceeds; and (iii) the documents and other materials that the expert has been instructed to consider.

2.8 If, after exchange of reports or at any other stage, an expert witness changes a material opinion, having read another expert's report or for any other reason, the change should be communicated in a timely manner (through legal representatives) to each party to whom the expert witness's report has been provided and, when appropriate, to the Court[5].

2.9 If an expert's opinion is not fully researched because the expert considers that insufficient data are available, or for any other reason, this must be stated with an indication that the opinion is no more than a provisional one. Where an expert witness who has prepared a report believes that it may be incomplete or inaccurate without some qualification, that qualification must be stated in the report (see footnote 5).

2.10 The expert should make it clear when a particular question or issue falls outside the relevant field of expertise.

2.11 Where an expert's report refers to photographs, plans, calculations, analyses, measurements, survey reports or other extrinsic matter, these must be provided to the opposite party at the same time as the exchange of reports[6].

3. Experts' Conference

3.1 If experts retained by the parties meet at the direction of the Court, it would be improper for an expert to be given, or to accept, instructions not to reach agreement. If, at a meeting directed by the Court, the experts cannot reach agreement about matters of expert opinion, they should specify their reasons for being unable to do so.

M E J BLACK
Chief Justice
25 September 2009

[5] The *"Ikarian Reefer"* [1993] 20 FSR 563 at 565
[6] The *"Ikarian Reefer"* [1993] 20 FSR 563 at 565-566. See also Ormrod *"Scientific Evidence in Court"* [1968] Crim LR 240