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# **Determining the value of imputation credits: Multicollinearity and Reproducibility Issues**

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Report for

The Victorian Electricity Distributors

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## 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 ( $\theta$ -theta), as acknowledged 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 subject to debate 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 multicollinearity issue for the SFG study. Based on our analysis, we conclude that multicollinearity does not have a serious effect on the precision of the estimates of theta in the SFG study.

## 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 withheld. 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.

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# 1 Introduction

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

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

where

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

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 therefore 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. We 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
	$\gamma_0$	-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	0.242
1 Jul 00 - 30 Sep 06	$\gamma_{2,7}$	0.2274	0.0822

Table 3: Fit1, produced by SFG

## 2 Multicollinearity

Dividend drop off studies aim to separate the differential value of cash dividends and franking credits, and can suffer from multicollinearity. This issue appears to be one of the strongest criticisms of work commissioned by the Victorian businesses and their South Australian counterpart by the AER.

Beggs and Skeels (2006) considered the issue, but concluded (p.245):

...and so we do not believe that multicollinearity is a major concern for this dataset.

However, the AER (2009) stated

SFGs dividend drop off study is prone to the common problem of multicollinearity in the regression model.

SFG conducted studies on the issue and have advocated the use of joint confidence regions. They support the Beggs and Skeels (2006) position. However, McKenzie and Partington (2010) say

We believe that multicollinearity is a serious problem for dividend drop off studies and the results of SFG and Beggs and Skeels (2006) cannot be reliably interpreted in the presence of multicollinearity. Further, until serious consideration is given to this issue, reliable decomposition of the partial effect of cash dividends and franking credits will remain elusive

This section explores the effect of multicollinearity on the SFG study and provides further analysis using two complementary methods.

### 2.1 Variance Inflation Factors

The most direct method of quantifying any effect of multicollinearity is to calculate the Variance Inflation Factors (VIFs) of the regression coefficients. Following Fox (2008, p.308),

The sampling variance of a least squares slope coefficient  $B_j$  is

$$V(B_j) = \frac{1}{1 - R_j^2} \times \frac{\sigma_\epsilon^2}{(n - 1)S_j^2} \quad (2)$$

Period	Parameter	VIF	$\sqrt{\text{VIF}}$
1 Jul 97 - 30 Jun 99	$\gamma_{1,5}$	2.876	1.696
1 Jul 99 - 30 Jun 00	$\gamma_{1,6}$	3.299	1.816
1 Jul 00 - 30 Sep 06	$\gamma_{1,7}$	2.367	1.538
1 Jul 97 - 30 Jun 99	$\gamma_{2,5}$	2.797	1.673
1 Jul 99 - 30 Jun 00	$\gamma_{2,6}$	3.238	1.799
1 Jul 00 - 30 Sep 06	$\gamma_{2,7}$	2.276	1.509

Table 4: VIFs and square roots of the VIFs for the regression coefficients for Fit3

where  $R_j^2$  is the squared multiple correlation for the regression of  $X_j$  on the other  $X$ s, and  $S_j^2 = \sum(X_{ij} - \bar{X})^2 / (n - 1)$  is the variance of  $X_j$ . The term  $1/(1 - R_j^2)$  is called the variance inflation factor.

Equation (2) shows that the precision of a regression coefficient depends on four quantities:

- The variability of the errors around the regression line.
- The spread of the independent variable.
- The number of observations.
- The VIF.

The calculated VIFs for the SFG study are shown in Table 4. The VIF shows the increased variability due to any multicollinearity in the data, relative to orthogonal explanatory variables<sup>1</sup>. The usual criterion for concern is a VIF of 10 (see, for example, Bowerman and O'Connell, 1990, p.447), which suggests that multicollinearity is not a problem. None of the VIFs in the data set are close to this level. The square root of the VIF shows how much the confidence interval for a regression coefficient has increased because of any multicollinearity in the data. Note that the square roots of the VIFs for the most recent  $\gamma$  values are approximately 1.54 and 1.51, indicating only a 54% and 51% increase in the confidence interval widths, respectively. Without the multicollinearity, the standard error for  $\gamma_{1,7}$  would be reduced from 0.031 to 0.020, while the standard error for  $\gamma_{2,7}$  would be reduced from 0.082 to 0.054.

<sup>1</sup>If the regressors are orthogonal, then all the  $R_j^2$  would be zero, and the VIFs would be 1

## 2.2 Eigen-value Decomposition

To examine this further, the data was divided into two groups of observations. In the first group, consisting of 787 observations, none of the dividends were franked. This set supplies no information on the  $\gamma_2$ 's but estimates of the  $\gamma_1$ 's. Fit1a, summarised below, gives a summary of the regression estimates for this group.

Period	Parameter	Estimate	Std. Error
	$\gamma_0$	-0.0086	0.0046
1 Jul 97 - 30 Jun 99	$\gamma_{1,5}$	0.9227	0.1171
1 Jul 99 - 30 Jun 00	$\gamma_{1,6}$	0.7939	0.168
1 Jul 00 - 30 Sep 06	$\gamma_{1,7}$	0.9723	0.0475

Table 5: Fit1a, based on data without Franking Credits

Fit1b, summarised below, fits the model to the remaining 2414 partially or fully franked dividends. Note the high standard errors for the  $\gamma_2$ 's.

Period	Parameter	Estimate	Std. Error
	$\gamma_0$	-0.0063	0.0027
1 Jul 97 - 30 Jun 99	$\gamma_{1,5}$	0.9992	0.1093
1 Jul 99 - 30 Jun 00	$\gamma_{1,6}$	0.9181	0.1775
1 Jul 00 - 30 Sep 06	$\gamma_{1,7}$	1.0506	0.0567
1 Jul 97 - 30 Jun 99	$\gamma_{2,5}$	0.0804	0.2328
1 Jul 99 - 30 Jun 00	$\gamma_{2,6}$	0.1678	0.3543
1 Jul 00 - 30 Sep 06	$\gamma_{2,7}$	0.0509	0.1411

Table 6: Fit1b, based on data with Franking Credits

Consider the estimates of  $\gamma_{1,7}$  and  $\gamma_{2,7}$ . Variances and covariances of estimates of any linear combination of  $\gamma_{1,7}$  and  $\gamma_{2,7}$  can be calculated from the variance-covariance matrix for the parameters of Fit1b; the relevant entries are:

$$V = \begin{pmatrix} 0.0032 & -0.0073 \\ -0.0073 & 0.0200 \end{pmatrix}$$

An eigen-value decomposition<sup>2</sup> of the matrix  $V$  was conducted, and is in Table 7.

This decomposition suggests that multicollinearity is not a serious problem for the SFG study.

<sup>2</sup>An eigen-value decomposition gives, in the  $2 \times 2$  case, the linear combination with the least variance, and the orthogonal linear combination with the greatest variance. The variances of the two linear combinations are given by the respective eigen-values.



	$\sqrt{e_1}$	$\sqrt{e_2}$
	0.1505	0.0218
Parameter	$v_1$	$v_2$
$\gamma_{1,7}$	0.3512	0.9363
$\gamma_{2,7}$	-0.9363	0.3512

Table 7: Eigen-value decomposition of the variance-covariance matrix for Fit1b

In particular, the eigen-value decomposition shows that for  $\gamma_{1,7}$  and  $\gamma_{2,7}$

- From the (fully or partially) franked data:
  - The linear combination  $0.9363\gamma_{1,7} + 0.3512\gamma_{2,7}$  is estimated very well by  $A = 0.9363\hat{\gamma}_{1,7} + 0.3512\hat{\gamma}_{2,7}$ , with a standard error of 0.0218.
  - The linear combination  $0.3512\gamma_{1,7} - 0.9363\gamma_{2,7}$  is estimated much less precisely by  $B = 0.3512\hat{\gamma}_{1,7} - 0.9363\hat{\gamma}_{2,7}$ , with a standard error of 0.1505.
  - Combining the two estimates of the above linear combinations, results in estimates of  $\gamma_{1,7}$  and  $\gamma_{2,7}$  with standard errors of 0.057 and 0.141 respectively:

$$\begin{aligned}\hat{\gamma}_{1,7} &= (0.9363 \times A) + (0.3512 \times B) \\ sd(\hat{\gamma}_{1,7}) &= \sqrt{(0.9363^2 \times 0.0218^2) + (0.3512^2 \times 0.1505^2)} = 0.057 \\ \hat{\gamma}_{2,7} &= (0.3512 \times A) - (0.9363 \times B) \\ sd(\hat{\gamma}_{2,7}) &= \sqrt{(0.3512^2 \times 0.0218^2) + (0.9363^2 \times 0.1505^2)} = 0.141\end{aligned}$$

- Adding the non-franked data<sup>3</sup>:
  - The estimates of  $\gamma_{1,7}$  and  $\gamma_{2,7}$  are substantially improved, with standard errors of 0.031 and 0.083 respectively.

A similar analysis could be done for the  $\gamma$  parameters for the other two periods. The existence of the non-franked data plays a very important role in allowing good estimates of the  $\gamma_2$  parameters.

## 2.3 Conclusions

Our conclusions are that multicollinearity does not seem to be a significant problem in the dataset used by SFG. The standard errors of the parameter estimates for the cash dividend and

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<sup>3</sup>Using weighted least squares, since there are three estimates of varying precision but two unknowns.

for the franking credit, over the most recent time period (from 1st July 2000 to 30th September 2006) are only marginally higher than they would be in the absence of multi-collinearity. The variance inflation factors for the same parameter estimates (2.435 for the estimated coefficient on the cash dividend, and 2.338 for the estimated coefficient on the franking credit) are significantly below 10, the value which would ordinarily signal a level of serious concern. The existence of the non-franked data provides an independent estimate of the  $\gamma_1$  parameters, which when combined with the estimates of the linear combinations of the  $\gamma_1$  and  $\gamma_2$  parameter from the fully and partially franked data, gives a relatively good estimate of the  $\gamma_2$  parameter.

### 3 A Comment on Reproducibility

SFG (2009) was asked by the Joint Industry Association to:

- apply the Beggs and Skeels (2006) methodology to the Beggs and Skeels sub-sample of data post July 2000 and confirm that this process replicated the parameter estimates reported by Beggs and Skeels
- extend the sample to include more recent data, but replicate the Beggs and Skeels methodology, and report the relevant parameter estimates

SFG states that it attempted to match the sample employed by Beggs and Skeels, however noted that

Beggs and Skeels (2006) do not list the observations for which they were unable to obtain all the required data items, so it is impossible to know exactly what sample they use. Having used the same size filter and same time period, I have matched their sample data as closely as is possible.

Beggs and Skeels is published in the *Economic Record*. The Editorial Policy<sup>4</sup> includes the following statement:

It is a policy of the *Economic Record* to foster the replicability of empirical results by other researchers. Accordingly, the *Economic Record* normally publishes papers only where the data used in the analysis are clearly and precisely documented, are available to others to enable replication of results, and where details of the compu-

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<sup>4</sup><http://www.wiley.com/bw/policy.asp?ref=0013-0249&site=1>

tations sufficient for replication are provided. If the data are not available or the above requirements cannot be met, the Editor should be informed at the time of submission.

Despite the unavailability of the dataset, the AER has given much greater weight to the Beggs and Skeels (2006) study than to the studies conducted by SFG. We think the impossibility of exactly replicating the findings of Beggs and Skeels (2006), is a significant limitation.

## 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.

Bowerman, B.L. and O’Connell, R.T., (1990). *Linear Statistical Models: An Applied Approach*, 2nd. Ed., Duxbury:CA.

Fox, J. (2008). *Applied Regression Analysis and Generalized Linear Models*, 2nd. Ed., Sage Publications:CA.

McKenzie, M. and Partington, G. (2010), Evidence and Submission on Gamma. Report to AER.

R Development Core Team, (2006), *R: A Language and Environment for Statistical Computing*, R Foundation for Statistical Computing, Vienna, Austria, ISBN: 3-900051-07-0, <http://www.R-project.org>

Strategic Finance Group Consulting (2009), “The Value of Imputation Credits as Implied by the Methodology of Beggs and Skeels (2006).

Strategic Finance Group: SFG Consulting (2010). “Further Analysis in response to AER Draft Determination in relation to gamma: Report prepared for ETSA Utilities,” February.

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## Career History

- 1977-78 Statistician, ICI Explosives Factory, Deer Park
- 1979-86 Research Officer, Research Scientist, Senior Research Scientist And Statistics and Computing Team Leader, ICI Central Research Laboratories, Ascot Vale
- 1987-1989 Lecturer, Department of Mathematics, Computing and Operations Research, Footscray Institute of Technology
- (1989) Visiting Scientist, Center for Quality and Productivity Improvement, University of Wisconsin-Madison, USA.
- 1990-2003 Senior Lecturer, Department of Computer and Mathematical Sciences, Victoria University of Technology
- (1995) Visiting Fellow, Center for Quality and Productivity Improvement, University of Wisconsin-Madison, USA.
- 2003-2004 Senior Statistician, Insureware
- 2004-2006 Senior Lecturer and Deputy Director of Consulting, Department of Econometrics and Business Statistics, Monash University.
- 2007- Senior Lecturer and Director of Consulting, Department of Econometrics and Business Statistics, Monash University.

## Teaching Experience

- Monash University**
- Business Statistics (First Year), Marketing Research Analysis (Second Year), Survey Data Analysis (Third Year-Clayton and Caulfield).
  - Expert Stats Seminars on Software Packages for Statistics, Questionnaire Design, Analysis of Survey Data, and Multivariate Statistics.
  - Introduction to Statistics for Pharmacy-five session course:
    - Data handling, exploration, and graphical summaries
    - An overview of basic statistical methods

- Regression Analysis and extensions
- Designing experiments and power analysis
- An overview of more advanced statistical methods

**Victoria University of Technology** • Applied Statistics (First Year), Linear Statistical Models, Sampling and Data Analysis (Second Year), Experimental Design (Third Year).

- Statistics for Engineers, Statistics for Nurses, Statistics for Occupational Health.
- Forecasting (Graduate Diploma in Business Science)

**Sessional Teaching** • Monash University (1996-2003) Design of Experiments for Masters Students of the Australian Pulp and Paper Institute.

- RMIT (1991, 1996-2002) Design of Experiments for Masters in Quality Management.
- AGSM (1993-1997): Total Quality Management for Graduate Management Qualification.
- Various other: The University of Melbourne, Enterprise Australia, Swinburne Institute of Technology.

## Supervision

### Principal Supervisor

**Gregory Simmons** (1994-1997). M.Sc. completed. “Properties of some minimum run resolution IV designs.”

**Tony Sahama** (1995-2003). Ph.D. completed. “Some practical issues in the design and analysis of computer experiments.”

**Ewa Sztendur** (1999-2005). Ph.D. completed. “Precision of the path of steepest ascent in response surface methodology.” [As a result of this thesis, Ewa was awarded the 2006 Victoria University Vice-Chancellor’s Peak Award for Research and Research Training-Research Degree Graduate.]

## Co-supervisor

**Keith Hart** (1996-1997). M.Sc. completed. “Mean reversion in asset prices and asset allocations in funds management.”

**Jyoti Behera** (1999-2000). M.Eng. completed. “Simulation of container terminals.”

**Ray Summit** (2001-2004). Ph.D. completed. “Analysis of warranty data for automobile data.”

**Rob Moore** (2001-2007). Ph.D. completed. “Computer recognition of musical instruments.”

## M.Sc. Minor Theses

**Milena Shtifelman** (1999). Completed. (Monash University Accident Research Centre). “Modelling interactions of factors influencing road trauma trends in Victoria.”

**Rohan Weliwita** (2002). Completed. “Modelling road accident trauma data.”

## Theses Examination

One M.Sc. major thesis (University of Melbourne) and one M.Sc minor thesis (Victoria University).

## Industry Projects

Over 30 projects for the following companies and organisations:

Gas and Fuel Corporation	Ford Australia
Mobil Australia	Fibre-makers
ICI Australia	Western General Hospital
Data Sciences	Keilor City Council
AMCOR	Composite Buyers
Davids	Email Westinghouse
Craft Coverings	Australian Wheat Board
CSL	Holding Rubber
Viplas Olympic	Melbourne Water
Federal Airports Corporation	

## Research and Consulting Experience

- Ten years with ICI Australia as an industrial statistician initially with the Explosives group and eventually with the research group.
- A Ph.D. from the University of Melbourne entitled “Two-factor interactions in non-regular foldover designs.”
- Two six month periods at the Center for Quality and Productivity Improvement at the University of Wisconsin-Madison.
- Extensive consulting and training on behalf of the Centre for Applied Computing and Decision Analysis based at VUT for the following companies:

Data Sciences	Initiating Explosives Systems
Analytical Science Consultants	Saftec
Glaxo Australia	Datacraft Australia
Enterprise Australia	ICI Australia
The LEK partnership	Kaolin Australia
BP Australia	AMCOR
Melbourne Water	Kinhill Group
Australian Pulp and Paper Institute	

- Operated the Statistical Consulting Service at Victoria University of Technology from 1992-2002.
- From 2002-2004 worked as a Senior Statistician with Insureware on the analysis of long-tailed liability data.
- From December 2004 to December 2006 Deputy Director of Consulting of Monash University Statistical Consulting Service based in the Department of Econometrics and Business Statistics.
- From January 2007 Director of Consulting of Monash University Statistical Consulting Service based in the Department of Econometrics and Business Statistics.
- Extensive consulting and training on behalf of the Monash University Statistical Consulting Service for the following companies and organisations:



Australian Tax Office	Department of Human Services
J D McDonald	IMI Research
Port of Melbourne Corporation	Incitec Pivot
Agricola, Wunderlich & Associates	Parks Victoria
Australian College of Consultant Physicians	ANZ
Department of Justice	CRF(Colac Otway)

## Journal Articles

1. Diamond, N.T., (1991). "Two visits to Wisconsin," *Quality Australia*, **7**, 30-31.
2. Diamond, N.T., (1991). "The use of a class of foldover designs as search designs," *Austral. J. Statist*, **33**, 159-166.
3. Diamond, N.T., (1995). "Some properties of a foldover design," *Austral. J. Statist*, **37**, 345-352.
4. Watson, D.E.R., Hallett, R.F., and Diamond, N.T., (1995). "Promoting a collegial approach in a multidisciplinary environment for a total quality improvement process in higher education," *Assessment & Evaluation in Higher Education*, **20**, 77-88.
5. Van Matre, J. and Diamond, N.T., (1996). "Team work and design of experiments," *Quality Engineering*, **9**, 343-348.
6. Diamond, N.T., (1999). "Overlap probabilities and delay detonators," *Teaching Statistics*, **21**, 52-53. Also published in "Getting the Best from Teaching Statistics", one of the best 50 articles from volumes 15 to 21 of *Teaching Statistics*.

- 7 Cerone, P. and Diamond, N.T., (2000). "On summing permutations and some statistical properties," *The International Journal of Mathematical Education in Science and Technology*, **32**, 477-485.
  - 8 Behera, J.M., Diamond, N.T., Bhuta, C.J. and Thorpe, G.R.,(2000). "The impact of job assignment rules for straddle carriers on the throughput of container terminal detectors," *Journal of Advanced Transportation*, **34**, 415-454.
  - 9 Sahama, T. and Diamond, N.T., (2001). "Sample size considerations and augmentation of computer experiments," *The Journal of Statistical Computation and Simulation*, **68**, 307-319.
  - 10 Paul, W. and Diamond, N.T., (2001). "Designing a monitoring program for environmental regulation: Part 1-The operating characteristic curve," *Water: Journal of Australian Water Association*, October 2001, 50-54.
  - 11 Sztendur, E.M. and Diamond, N.T., (2002). "Extension to confidence region calculations for the path of steepest ascent," *Journal of Quality Technology*, **34**, 288-295.
  - 12 Paul, W. and Diamond, N.T., (2002). "Designing a monitoring program for environmental regulation: Part 2-Melbourne Water case study," *Water: Journal of Australian Water Association*, February 2002, 33-36.
  - 13 Steart, D.C., Greenwood, D.R., Boon, P.I. and Diamond, N.T., (2002) "Transport of leaf litter in upland streams of Eucalyptus and Nothofagus forests in South Eastern Australia," *Archiv Für Hydrobiologie*, **156**, 43-61.
  - 14 Peachey, T. C., Diamond, N. T., Abramson, D. A., Sudholt, W., Michailova, A., and Amirriazi, S. (2008). "Fractional factorial design for parameter sweep experiments using Nimrod/E," *Sci. Program.*, **16**(2-3), 217-230.
  - 15 Sahama, T.R. and Diamond, N.T. (2009) "Computer Experiment-A case study for modelling and simulation of Manufacturing Systems," *Australian Journal of Mechanical Engineering*, **7**(1), 1-8.
- Diamond, N.T. and Sztendur, E.M. (2010) "Using Fractional Factorial Designs for Variable Importance in Random Forest Models", submitted to *Statistical Analysis and Data Mining*.

## Refereed Conference Papers

1. Behera, J., Diamond, N.T., Bhuta, C. and Thorpe, G., (1999). "Simulation: a decision support tool for improving the efficiency of the operation of road vehicles in container terminals," 9th ASIM Dedicated Conference, Berlin, February 2000, 75-86.
2. Jutrisa, I., Diamond, N.T. and Cerone. P., (1999). "Frame size effects on throughput and return traffic in reliable satellite broadcast transmission, " 16th International Teletraffic Congress, Edinburgh, Scotland.
3. Sztendur, E.M. and Diamond, N.T.\* (2001). "Inequalities for the precision of the path of steepest ascent in response surface methodology," in Cho, Y.J, Kim, J.K., and Dragomir, S.S. (eds.) *Inequality Theory and Applications*, **1**, *The Proceedings of the Sixth International Conference 2000 on Nonlinear Functional Analysis and Applications*, Chinju and Masan, South Korea, 295-301.
4. Diamond, N.T. and Sztendur, E.M. (2002). "The use of consulting problems in introductory statistics classes", *Proceedings of the 6th International Conference on the Teaching of Statistics*.
5. Summitt, R.A., Cerone. P., and Diamond, N.T. (2002). "Simulation Reliability Estimation from Early Failure Data, *Proceedings of the Fourth International Conference on Modelling and Simulation*, 368-390.
6. Summitt, R.A., Cerone. P., and Diamond, N.T. (2002). "Simulation Reliability Estimation from Early Failure Data II, *Proceedings of the Fourth International Conference on Modelling and Simulation*, 391-396.
7. Sahama, T. And Diamond, N.T. (2008). "Computer Experiment-A case study for modelling and simulation of Manufacturing Systems," 9th Global Conference on Manufacturing and Management.

## Reports

A number of confidential reports for ICI Australia from 1977-1987.

**Victoria University**

VU1. Diamond, N.T (1990). "Professional Experience Program at the Center for Quality and Productivity Improvement," Footscray Institute of Technology.

VU2. Bisgaard, S. and Diamond, N.T (1991). "A discussion of Taguchi's methods of confirmatory trials," Report No. 60. Center for Quality and Productivity Improvement, University of Wisconsin-Madison.

VU3. Diamond, N.T (1996). "Outside Studies Program at the Center for Quality and Productivity Improvement," Victoria University of Technology.

VU4. Diamond, N.T (1996). "Statistical Analysis of EPA compliance of the western treatment plant," prepared for Melbourne Water on behalf of Kinhill Engineers.

VU5. Diamond, N.T (1996). "Statistical Analysis of EPA compliance of the western treatment plant," prepared for Melbourne Water on behalf of Kinhill Engineers.

VU6. Diamond, N.T (1998). "Statistical Analysis of BOD and SS compliance rates and license limits at ETP and WTP," prepared for Melbourne Water.

VU7. Diamond, N.T (1998). "Fate of pollutants at WTP-method for determining safety margins," prepared for Egis consulting group.

VU8. Bromley, M. and Diamond, N.T (2002). "The manufacture of Laboratory coreboard using various chip furnishes," prepared for Orica adhesives and resins.

**Monash University**

M1. Hyndman, R.J, Diamond, N.T. and de Silva, A. (2004). "A review of the methodology for identifying potential risky agents," prepared for the Australian Tax Office.

M2. Diamond, N.T. and Hyndman, R.J. (2005). "Sample Size for Maternal and Child Health Service Evaluation," prepared for the Department of Human Services.

M3. Diamond, N.T. (2005). "Analysis of Customer Satisfaction Survey 2005," prepared for JD Macdonald.

M4. Diamond, N.T. (2005). "Analysis of 2005 Orientation Survey," prepared for Monash Orientation.

- M5. Diamond, N.T. (2005). "Analysis of Before and After and Sequential Monadic Concept Consumer Surveys," prepared for IMI-Research.
- M6. Diamond, N.T. and Hyndman, R.J. (2005). "The Monash Experience Questionnaire 2003: First Year Students," prepared for CHEQ, Monash University.
- M7. Diamond, N.T. and Hyndman, R.J. (2005). "The Monash Experience Questionnaire 2003: The Best and Worst, " prepared for CHEQ, Monash University.
- M8. Diamond, N.T. and Hyndman, R.J. (2005). "The Monash Experience Questionnaire 2003: The Best and Worst for First Year Students," prepared for CHEQ, Monash University.
- M9. Diamond, N.T. (2005). "Technical Document for DUKC Uncertainty Study," prepared for Port of Melbourne Corporation.
- M10. Diamond, N.T. (2005). "DUKC Uncertainty Study-Summary of Results," prepared for Port of Melbourne Corporation.
- M11. Diamond, N.T. (2005). "Number of Ship trials for DUKC Uncertainty Study," prepared for Port of Melbourne Corporation.
- M12. Diamond, N.T. (2005). "Threshold Criteria for Touch Bottom Probabilities," prepared for Port of Melbourne Corporation.
- M13. Diamond, N.T. and Hyndman, R.J. (2006). "The Monash Experience Questionnaire 2005: The Best and Worst," prepared for CHEQ, Monash University.
- M14. Diamond, N.T. and Hyndman, R.J. (2006). "The Monash Experience Questionnaire 2005: The Best and Worst for First Year Students," prepared for CHEQ, Monash University.
- M15. Diamond, N.T. and Hyndman, R.J. (2006). "The Monash Experience Questionnaire 2005: A Statistical Analysis," prepared for CHEQ, Monash University.
- M16. Diamond, N.T. and Hyndman, R.J. (2006). "The Monash Experience Questionnaire 2005: 2005 vs. Pre-2005 Students," prepared for CHEQ, Monash University.
- M17. Diamond, N.T. (2006). "Agreement of 110/116 and 111/117 items by Consultant Physicians," prepared for the Australian College of Consultant Physicians.
- M18. Diamond, N.T. (2006). "Analysis of Statistical Issues regarding Cornish v Municipal Electoral Tribunal, " prepared for Agricola, Wunderlich & Associates.

- M19. Diamond, N.T. (2006). "Analysis of Parks Victoria Staff Allocation," prepared for Parks Victoria.
- M20. Diamond, N.T. and Hyndman, R.J. (2006). "Summary of Results of IPL Sales Forecasting Improvement Project," prepared for Incitec Pivot.
- M21. Sztendur, E.M. and Diamond, N.T. (2007) "A model for student retention at Monash University", prepared for University retention committee.
- M22. Sztendur, E.M. and Diamond, N.T. (2007) "An extension to a model for student retention at Monash University", prepared for University review of coursework committee.
- M23. Sztendur, E.M. and Diamond, N.T. (2007) "A model for student academic performance at Monash University", prepared for University review of coursework committee.
- M24. Diamond, N.T. (2007). "Analysis of IB student 1st year results at Monash University 2003-2005", prepared for VTAC.
- M25. Diamond, N.T. (2008). "Effect of smoking bans on numbers of clients utilising problem gambling counselling and problem gambling financial counselling", prepared for Department of Justice
- M26. Diamond, N.T. (2008). "Development of Indices Based Approach for Forecasting Gambling Expenditure at a Local Government Area Level", prepared for Department of Justice
- M27. Diamond, N.T. (2008). "Orientation 2007- Analysis of Quantitative results", prepared for University Orientation committee.
- M28. Diamond, N.T. (2008). "Orientation 2007- Analysis of Qualitative results, prepared for University Orientation committee.
- M29. Diamond, N.T. (2008). "Analysis of Clients presenting to Problem Gambling Counselling Services-2002/03 to 2005/06", prepared for the Department of Justice.
- M30. Diamond, N.T. (2008). "Analysis of Clients presenting to Problem Gambling Financial Counselling Services-2001/02 to 2005/06", prepared for the Department of Justice.
- M31. Diamond, N.T. (2008). "Analysis of Clients presenting to Problem Gambling Counselling and Problem Gambling Financial Counselling Services-2006/07", prepared for the Department of Justice.

M32. Diamond, N.T. (2008). “The effect of changes to Electronic Gaming Machine numbers on gambling expenditure”, prepared for the Department of Justice.

M33. Diamond, N.T. (2009). “Adjustment of Mark Distributions”, prepared for the Faculty of Law.

M34. Diamond, N.T. (2009). “Summary of Results for Dyno Nobel Sales Forecasting Improvement Project,” prepared for Incitec Pivot.

## R Packages

R1. Diamond, N.T. (2010), VizCompX

## Professional Service

- President, Victorian Branch, Statistical Society of Australia, 2001-2002.
  - Terms as Council Member, Vice-President, and Past President.
- Referee: *Australian and New Zealand Journal of Statistics*, *Biometrika*

**Short CV**

Professor Robert Brooks  
Associate Dean (Undergraduate)  
Faculty of Business and Economics  
Monash University

**Qualifications:** B.Ec. (Hons.), PhD (Monash)

**Employment History****Current**

Associate Dean (Undergraduate), Faculty of Business and Economics, Monash University, February 2009 to present

Course Director, Bachelor of Business and Commerce, Faculty of Business and Economics, Monash University, February 2008 to present

Professor, Department of Econometrics and Business Statistics, Monash University, February 2005 to present

**Previous**

Associate Dean (Research Quality), Faculty of Business and Economics, Monash University, May 2006 to January 2008

Head of Faculty (Berwick and Peninsula campuses), Faculty of Business and Economics, Monash University, July 2006 to January 2008

Acting Deputy Dean (Research), Faculty of Business and Economics, Monash University, January 2006 to May 2006

Deputy Head, Department of Econometrics and Business Statistics, Monash University, June 2005 to December 2005

Acting PVC (Design and Social Context), RMIT, July 2004 to August 2004

Dean (Research & Innovation), RMIT Business, March 2004 to June 2004, January 2005

Associate Dean, RMIT Business, August 2003 to December 2003

Acting PVC (Business), RMIT, April 2003 to August 2003, September 2004 to December 2004

Associate Dean (Research), RMIT Business, August 2000 to April 2003 and January 2004 to March 2004



Professor of Financial Econometrics, RMIT Business, January 1999 to January 2005

Head, Research Development Unit, RMIT Business, August 1998 to August 2000

Director, Postgraduate Programs, Economics and Finance, RMIT, August 1998 to August 2000

Associate Professor, Economics and Finance, RMIT, June 1997 to December 1998

Senior Lecturer, Economics and Finance, RMIT, January 1995 to June 1997

Lecturer, Economics and Finance, RMIT, December 1991 to December 1994

Tutor, Economics, Monash University, July 1989 to November 1991

Research Assistant, Economics, Monash University, November 1987 to June 1989

**PUBLICATIONS (as at September 2008):****Books**

Brooks, R. and Fausten, D. (1998), *Macroeconomics In the Open Economy*, Longman.

Brooks, R., Morley, C., Kam, B., Stewart, M., Diggle, J. and Gangemi, M. (2003), *Benefits of Road Investment to Assist Tourism*, Austroads Publication AP-R225/03, Austroads Incorporated.

McKenzie, M. and Brooks, R. (1999), *Research Design Issues In Time Series Modelling of Financial Market Volatility*, McGraw - Hill Series in Advanced Finance, Vol. 2, McGraw - Hill.

**Book Chapters**

Bissoondoyal-Bheenick, E. and Brooks, R. (2009), *Volatility Asymmetry and Leverage: Some US Evidence*, in C.Hoppe, G.Gregoriou and C.Wehn (eds.), *Handbook of Model Risk*, McGraw-Hill.

Boucher, C. and Brooks, R. (2005), *Changing Times, Changing Research, Changing Degrees: Supervising and Managing the First PhD by Project Undertaken in a Business Faculty*, in P.Green (ed.), *Supervising Postgraduate Research: Contexts and Processes, Theories and Practices*, RMIT University Press.

Brooks, R. and Merlot, L. (2005), *Changing candidature approval processes: A review of the RMIT Business panel review of candidature process*, in P.Green (ed.), *Supervising Postgraduate Research: Contexts and Processes, Theories and Practices*, RMIT University Press.

Brooks, R. and Sayers, R. (2002), *Trends in Printed Matter Exports*, in B.Cope and C.Ziguras (eds.), *The International Publishing Services Market: Emerging markets for books, from creator to consumer*, Common Ground Publishing.

Iqbal, J., Brooks, R. and Galagedera, D. (2009), *Asset Pricing with Higher Order Moments and Alternative Factor Models: The Case of an Emerging Market*, in G.Gregoriou (ed.), *Financial Innovations in Emerging Markets*, Chapman-Hall/CRC/Taylor and Francis, London, UK.

Iqbal, J., Brooks, R. and Galagedera, D. (2009), *Testing the Lower Partial Moment Asset Pricing Model in Emerging Markets*, in G.Gregoriou and R.Pascalau (eds.), *Handbook of Financial Econometrics*, Chapman-Hall/Taylor and Francis, London, UK.

Lim, K. and Brooks, R. (2009), Are Emerging Stock Markets Less Efficient: A Survey of Empirical Literature, in G.Gregoriou (ed.), *Financial Innovations in Emerging Markets*, Chapman-Hall/CRC/Taylor and Francis, London, UK.

Woodward, G. and Brooks, R. (2009), The Market Timing Ability of Australian Superannuation Funds: Nonlinearities and Smooth Transition Models, in C.Hoppe, G.Gregoriou and C.Wehn (eds.), *Handbook of Model Risk*, McGraw-Hill.

**Conference Papers**

Brooks, R. (2003), Time Varying Betas on China's A and B Share Indices, paper presented to the 15<sup>th</sup> Annual ACESA Conference, Melbourne 2003.

Brooks, R. (2004), Benchmarking University Research Performance Using RRTMR Data, paper presented to the 2004 Quality in Postgraduate Research Conference, Adelaide.

Dimovski, W. and Brooks, R. (2006), Stakeholder and Gender Characteristics of Mining and Energy IPO Boards of Directors, Enhancing Corporate Accountability Prospects and Challenges Conference Proceedings.

Leeprechanon, N., Moorthy, S., Brooks, R. and David, A.K. (2000), A Review of Major Factors in Restructuring Power Markets in Developing Countries, 5<sup>th</sup> International Conference on Advances in Power System Control, Operation and Management.

Leeprechanon, N., David, A.K., Moorthy, S., Brooks, R. and Liu, F.B. (2001), Restructuring of Electricity Supply Industry in Developing Countries: Lessons from Thailand, Portland International Conference on Management of Engineering and Technology.

Leeprechanon, N., Moorthy, S., Brooks, R., David, A.K. and Wen, F. (2001), Transmission Planning in Deregulated Systems: A Model for Developing Countries, IEEE Porto Power Tech Conference.

Leeprechanon, N., Moorthy, S., Brooks, R., Ellis, M. and Sappakitkamjorn, J. (2002), A Systems Decision Modelling Approach to Electrical Generation Capacity Planning, 12<sup>th</sup> Annual Symposium International Council on Systems Engineering (INCOSE2002).

Leeprechanon, N., David, A.K., Moorthy, S., Brooks, R. and Nealand, J. (2002), Market Power in Developing Countries, International Conference on Power System Technology (Powercon2002).

Lin, D.Z. and Brooks, R. (2003), Teamwork Model and its Applications to Transaction Cost Economy with a Consideration of Human Behaviour, paper presented to The Management Conference: The Third International Conference on Culture and Change in Organisations.

Russell, R., Brooks, R. and Nair, A. (2006), Evaluating a Financial Literacy Program: The Case of the Australian Moneyminded Program, Proceedings of the Financial Literacy, Banking and Identity Conference.

Unnithan, C., Swatman, P. and Brooks, R. (2002), Do Dot.coms Add Value: A Preliminary Study of the Market Capitalisation of Australian and Indian Telecoms and Banking Sectors, Proceedings of the Thirteenth Australasian Conference on Information Systems, Enabling Organisations and Society through Information Systems, Volume 2.

## Major Industry Research Reports

Russell, R., Brooks, R., Nair, A. and Fredline, L. (2005), Saver Plus: Improving Financial Literacy Through Encouraging Savings,

<http://www.anz.com/aus/about/saver/Evaluation.asp>

Russell, R., Brooks, R. and Nair, A. (2005), Evaluation of Moneyminded: An Adult Financial Education Program,

<http://www.anz.com/aus/values/moneyminded/evaluation.asp>

Russell, R., Brooks, R. and Nair, A. (2006), Saver Plus – Improving Financial Literacy and Establishing Long Term Saving Habits,

<http://www.anz.com/aus/about/saver/Evaluation.asp>

Russell, R., Mihajilo, S., Nair, A. and Brooks, R. (2006), Saver Plus –Encouraging Savings and Increasing Financial Capabilities Among Low-Income Families,

<http://www.anz.com/aus/about/saver/Evaluation.asp>

Russell, R., Brooks, R. and Nair, A. (2006), Evaluation of the Youth Financial Literacy Trial Program,

<http://www.anz.com/aus/values/moneyminded/evaluation.asp>

Russell, R., Brooks, R. and Nair, A. (2006), Evaluation of MoneyMinded: Reach and Impact

<http://www.anz.com/aus/values/moneyminded/evaluation.asp>

Russell, R., Mihajilo, S. and Brooks, R. (2007), Saver Plus–Encouraging Savings and Increasing Financial Capabilities Among Low-Income Families

<http://www.anz.com/aus/about/saver/Evaluation.asp>

Russell, R., Brooks, R., Cabraal, A. and Grahlmann, L. (2007), Evaluation of MoneyMinded: An Adult Financial Education Program

<http://www.anz.com/aus/values/moneyminded/evaluation.asp>

Russell, R., Doan, M., Harlim, J. And Brooks, R. (2008), Saver Plus Interim Report (Phase III)

Russell, R. Harlim, J. And Brooks, R. (2008), Saver Plus 2008 Follow Up Survey Results

## Journal Papers

### 1991:1(1)

Brooks, R. (1991), A Social Loss Approach to Testing The Efficiency of Australian Financial Futures, *Australian Economic Papers* 30, 192-201.

### 1992:1(2)

Brooks, R., Faff, R.W. and Lee, J. (1992), The Form of Time Variation of Systematic Risk: Some Australian Evidence, *Applied Financial Economics* 2, 191-198.

### 1993:2(4)

Brooks, R. (1993) Alternative Point Optimal Tests for Regression Coefficient Stability, *Journal of Econometrics* 57, 365-376.

Fry, T., Brooks, R., Comley, B. and Zhang, J. (1993) Economic Motivations for Limited Dependent and Qualitative Variable Models, *Economic Record* 69, 193-205.

### 1994:4(8)

Brooks, R. (1994), The Unbiased Prediction Hypothesis in Futures Markets: A Varying Coefficient Approach, *Accounting Research Journal* 7, 33-41.

Brooks, R., Faff, R.W. and Lee, J. (1994) Beta Stability and Portfolio Formation, *Pacific-Basin Finance Journal* 2, 463-479.

Brooks, R. and King, M.L. (1994), Testing Hildreth-Houck Against Return to Normalcy Random Regression Coefficients, *Journal of Quantitative Economics* 10, 33-52.

Brooks, R. and King, M.L. (1994) Hypothesis Testing of Varying Coefficient Regression Models: Procedures and Applications, *Pakistan Journal of Statistics* 10, 301-357.

### 1995:3(11)

Brooks, R. (1995) The Robustness of Point Optimal Testing for Rosenberg Random Regression Coefficients, *Econometric Reviews* 14, 35-53.

Brooks, R., and Faff, R.W. (1995) Financial Market Deregulation and Bank Risk: Testing for Beta Instability, *Australian Economic Papers* 34, 180-199.

Brooks, R. and Michaelides, P. (1995), Autocorrelations, Returns and Australian Financial Futures, *Applied Economics Letters*, 2, 323-326.

**1996:3(14)**

Brooks, R., Faff, R.W. and Ariff, M., (1996) The Nature and Extent of Beta Instability in the Kuala Lumpur Stock Market, *Capital Markets Review* 4, 1-14.

Brooks, R. and Sheehan, M. (1996) Forecast Error and Social Loss Approaches to Testing the Efficiency of Australian Financial Futures, *Australian Economic Papers* 35, 132-140.

Fausten, D. and Brooks, R. (1996) The Balancing Item in Australia's Balance of Payments Accounts: An Impressionistic View, *Applied Economics* 28, 1303-1311.

**1997:14(28)**

Brooks, R. (1997) Using a Sequence of Point Optimal Tests to Select a Varying Coefficient Model, *Communications in Statistics* 26, 671-685.

Brooks, R., Davidson, S. and Faff, R.W. (1997) An Evaluation of the Effects of Major Political Change on Stock Volatility: The South African Experience, *Journal of International Financial Markets, Institutions and Money* 7, 255-275.

Brooks, R. and Faff, R.W., (1997) A Note on Beta Forecasting, *Applied Economics Letters* 4, 77-78.

Brooks, R. and Faff, R.W., (1997) Beta Forecasting in Malaysia: A Note, *Malaysian Management Review* 32, 48-50.

Brooks, R., and Faff, R.W., (1997) Financial Deregulation and Relative Risk of Australian Industry, *Australian Economic Papers* 36, 308-320.

Brooks, R., Faff, R.W., Gangemi, M., and Lee, J., (1997) A Further Examination of the Effect of Diversification on the Stability of Portfolio Betas, *Applied Financial Economics* 7, 9-14.

Brooks, R., Faff, R. and Ho. Y.K., (1997), A New Test of the Relationship between Regulatory Change in Financial Markets and the Stability of Beta Risk of Depository Institutions, *Journal of Banking and Finance* 21, 197-219.

Brooks, R., Faff, R.W. and Josev, T., (1997) Beta Stability and Monthly Seasonal Effects: Evidence from the Australian Capital Market, *Applied Economics Letters* 4, 563-566.

Brooks, R., Faff, R.W. and McKenzie, M. (1997) Bivariate GARCH Estimation of Beta Risk in the Australian Banking Industry, *Accountability and Performance* 3, 81-102.



Brooks, R., Faff, R.W. and Slade, P. (1997), An Investigation of the Level and Stability of Beta Risk Across New Zealand Industries, *Pacific Accounting Review* 9, 37-58.

Brooks, R., Fry, T. and Harris, M. (1997) The Size and Power Properties of Combining Choice Set Partition Tests for the IIA property in the Logit Model, *Journal of Quantitative Economics* 13, 45-61.

Brooks, R. and Lee, J. (1997) The Stability of ARCH Models Across Australian Financial Futures Markets, *Applied Financial Economics* 7, 347-359.

Faff, R.W. and Brooks, R.D., (1997) Further Evidence on the Relationship between Beta Stability and the Length of Estimation Period, *Advances in Investment Analysis and Portfolio Management* 4, 97-113.

McKenzie, M. and Brooks, R. (1997) The Impact of Exchange Rate Volatility on US-German Trade Flows, *Journal of International Financial Markets, Institutions and Money* 7, 73-87.

**1998:9(37)**

Brooks, R., Berman, G. and Davidson, S. (1998), The Nature and Extent of Revisions to Australian Macroeconomic Data, *Applied Economics Letters* 5, 169-174.

Brooks, R., Berman, G., Davidson, S. and Tan, T.Y. (1998), Is There a Common Response in Australian Bilateral Exchange Rates Following Current Account Announcements, *Applied Economics Letters* 5, 645-648.

Brooks, R. and Faff, R.W. (1998), A Test of a Two-factor APT Based on the Quadratic Market Model: International Evidence, *Studies in Economics and Econometrics* 22, 65-76.

Brooks, R., Faff, R.W. and Ariff, M., (1998) An Investigation into the Extent of Beta Instability in the Singapore Stock Market, *Pacific-Basin Finance Journal* 6, 87-101.

Brooks, R., Faff, R.W. and Mckenzie, M. (1998) Time Varying Beta Risk of Australian Industry Portfolios: A comparison of modelling techniques, *Australian Journal of Management* 23, 1-22.

Brooks, R., Fry, T. and Harris, M. (1998), Combining Choice Set Partition Tests for IIA: Size Properties in the Four Alternative Settings, *Journal of Quantitative Economics* 14, 1-9.

Faff, R.W. and Brooks, R. (1998) Time-Varying Beta Risk for Australian Industry Portfolios: An exploratory analysis, *Journal of Business Finance and Accounting* 25, 721-745.

Faff, R.W. and Brooks, R. (1998), Some New Evidence on the Relationship Between Beta Stability and Market Conditions, *Journal of Quantitative Economics* 14, 67-83.

Liew, K.Y. and Brooks, R. (1998) Returns and Volatility in the Kuala Lumpur Crude Palm Oil Futures Market, *Journal of Futures Markets* 18, 985-999

**1999: 9(46)**

Brooks, R., Berman, G., Davidson, S. and Tan, T.Y. (1999), Announcements and Revisions of Australian Macroeconomic Data and Their News Content for Australian Financial Markets, *Journal of International Financial Markets, Institutions and Money* 9, 195-215.

Brooks, R., Copp, J. and Risman, S. (1999), Currency Risk in Forward Foreign Exchange Markets, *Asia-Pacific Journal of Economics and Business* 3, 48-59.

Copp, J. and Brooks, R. (1999), The Economic Costs of Forward Mispricing, *Accounting Research Journal* 12, 229-232.

Copp, J. and Brooks, R. (1999), Variance Ratio Testing of the Australian Forward Foreign Exchange Market, *Applied Economics Letters* 6, 417-419.

Diggle, J., Brooks, R. and Shannon, J. (1999), International Diversification of the Funds Management Industry, *Applied Economics Letters* 6, 663-667.

Gangemi, M., Brooks, R. and Faff, R.W. (1999), Mean Reversion and the Forecasting of Country Betas: A Note, *Global Finance Journal* 10, 231-245.

Gangemi, M., Brooks, R. and Faff, R.W. (1999), Country Betas, Their Time Sensitivity and the International Crash of October 1987, *International Journal of Finance* 11, 1390-1399.

Ragunathan, V., Faff, R.W. and Brooks, R., (1999) Correlations, Business Cycles and Integration, *Journal of International Financial Markets, Institutions and Money* 9, 75-95.

Trivedi, A. and Brooks, R. (1999), Autocorrelations, Returns and Australian Stock Indices, *Applied Economics Letters* 6, 581-584.

**2000: 9(55)**

Berman, G., Brooks, R., and Davidson, S. (2000), The Sydney Olympic Games Announcement and Australian Stock Market Reaction, *Applied Economics Letters* 7, 781-784.

Brooks, R., Faff, R.W., Ho, Y.K. and McKenzie, M. (2000), US Banking Sector Risk in an Era of Regulatory Change: A Bivariate GARCH Approach, *Review of Quantitative Finance and Accounting* 14, 17-43.

Brooks, R., Faff, R.W., McKenzie, M. and Mitchell, H. (2000), A Multi-Country Study of Power ARCH Models and National Stock Market Returns, *Journal of International Money and Finance* 19, 377-397.

Gangemi, M., Brooks, R. and Faff, R.W. (2000), Modelling Australia's Country Risk: A Country Beta Approach, *Journal of Economics and Business* 52, 259-276.

Lie, F., Brooks, R. and Faff, R. (2000), Modelling the Equity Beta Risk of Australian Financial Sector Companies, *Australian Economic Papers* 39, 301-311.

McKenzie, M., Brooks, R. and Faff, R.W. (2000), The Use of Domestic and World Market Indexes in the Estimation of Time Varying Betas, *Journal of Multinational Financial Management* 10, 91-106.

McKenzie, M., Brooks, R., Faff, R.W. and Ho, Y.K. (2000) Exploring the Economic Rationale of Extremes in GARCH Generated Betas: The Case of US Banks, *Quarterly Review of Economics and Finance* 20, 85-106.

Ragunathan, V., Faff, R.W. and Brooks, R. (2000), Australian Industry Beta Risk, the Choice of Market Index and Business Cycles, *Applied Financial Economics*, 10, 49-58.

Yong, L., Brooks, R. and Faff, R.W. (2000), A Test of Beta Instability for Hong Kong Industry Portfolios, *International Journal of Finance*, 12, 1653-1663.

**2001: 9 (64)**

Bollen, B., Brooks, R. and Faff, R.W. (2001), An Empirical Examination of the Required Number of Leading and Lagged Terms in Estimating The Dimson Beta: An Updated Analysis *Accounting, Accountability and Performance* 7, 23-30.

Brooks, R., Faff, R. and Fry, T (2001), GARCH Modelling of Individual Stock Data: The Impact of Censoring, Firm Size and Trading Volume, *Journal of International Financial Markets, Institutions and Money* 11, 215-222.

Brooks, R., Faff, R.W., and Josev, T. (2001), An Empirical Investigation of The Cross – Industry Variation in Mean Reversion of Australian Stock Returns, *Pacific Accounting Review* 13, 1-16.

Brooks, R., Fausten, D. and Silvapulle, P. (2001), Causality in International Capital Movements: The Income Mobility of Australian Investment Abroad, *Accounting Research Journal*, 14, 58-64.

Brooks, R. and Silvapulle, P. (2001), Testing for Linear and Nonlinear Granger Causality between the Australian Current Account and Trade Weighted Index, *Journal of Quantitative Economics* 17, 102-116.

Faff, R.W., Brooks, R. and Tan, P.F. (2001), A Test of a New Dynamic CAPM, *Advances In Investment Analysis and Portfolio Management* 8, 133-159.

Josev, T., Brooks, R. and Faff, R.W. (2001), Testing a Two Factor APT Model on Australian Industry Equity Portfolios: The Effect of Intervaling, *Applied Financial Economics* 11, 157-163.

McKenzie, M., Mitchell, H., Brooks, R. and Faff, R.W. (2001), Power ARCH Modelling of Commodity Futures Data on the London Metal Exchange, *European Journal of Finance* 7, 22-38.

Thomas, S. and Brooks, R. (2001), Garch-Based Hedge Ratios for Australian Share Price Index Futures: Does Asymmetry Matter?, *Accounting, Accountability and Performance* 7, 61-76.

**2002: 4 (68)**

Brooks, R. and Davidson, S. (2002), Investigating the Bounce Back Hypothesis After the Asian Crisis, *Economic Papers* 21, 71-85.

Brooks, R., Faff, R.W. and McKenzie, M. (2002), Time Varying Country Risk: An Assessment of Alternative Modelling Techniques, *European Journal of Finance* 8, 249-274.

Brooks, R., Faff, R. and Sokulsky, D. (2002), An Ordered Response Model of Test Cricket Performance, *Applied Economics* 34, 2353-2365.

Faff, R.W., Brooks, R. and Ho, Y.K. (2002), New Evidence on the Impact of Financial Leverage on Beta Risk: A Time Series Approach, *North American Journal of Economics and Finance* 13, 1-20.

**2003: 14 (82)**

Brooks, R. (2003), Econbase Downloads and the Ranking of Australian University Economics Research: A Comparative Study, *Economic Papers* 22, 21-29.

- Brooks, R., Davidson, S. and Faff, R.W. (2003), Sudden Changes in Property Rights: The Case of Australian Native Title, *Journal of Economic Behavior and Organization* 52, 427-442.
- Brooks, R. and Dimovski, W., (2003), Hot Issues, New Economy Stocks and Australian Industry IPO Returns in the Late 1990s, *International Journal of Knowledge, Culture and Change Management* 3, 1-4.
- Brooks, R., Faff, R.W., Hillier, D. and Hillier, J. (2003), Do Stock Markets React to the Re-rating of Sovereign Risk? *JASSA* 4, 2-8.
- Brooks, R. and Raganathan, V. (2003), Returns and Volatility on the Chinese Stock Markets, *Applied Financial Economics* 13, 747-752.
- Brooks, R., Stewart, M. and Gangemi, M. (2003), Measuring the Economic Impact of Knowledge Based Institutions on National and Local Economies, *International Journal of Knowledge, Culture and Change Management* 3, 521-550.
- Dimovski, W. and Brooks, R. (2003), Financial Characteristics of Australian Initial Public Offerings from 1994 to 1999, *Applied Economics* 35, 1599-1607.
- Dimovski, W. and Brooks, R. (2003), Promise More, Leave Less. The Importance of Dividend Forecasts in Initial Public Offerings, *International Journal of Knowledge, Culture and Change Management* 3, 5-9.
- Keane, P., Brooks, R. and Green, P. (2003), Developing a Knowledge Base for Postal Organisations, *International Journal of Knowledge, Culture and Change Management* 3, 23-34.
- Lai, E., Brooks, R. and Faff, R.W. (2003), Mean Reversion of Skewness: International Evidence, *International Journal of Finance* 15, 2619-2627.
- Lai, E. Brooks, R. and Faff, R.W. (2003), Persistence and Predictability of Skewness in Country Equity Market Returns, *Journal of Quantitative Economics* 1, 36-51.
- McKenzie, M and Brooks, R. (2003), The Role of Information in Hong Kong Individual Stock Futures Trading, *Applied Financial Economics* 13, 123-131.
- Sokulsky, D. Brooks, R. and Davidson, S. (2003), Time Varying Volatility and Beta Patterns of Sub-indexes on the Australian Stock Exchange, *Accounting Research Journal* 16, 117-132.
- Sokulsky, D., Brooks, R. and Davidson, S. (2003), Price Effects of Changes to Size Sub-indexes on the Australian Stock Exchange: An Event Study, *Accounting, Accountability and Performance* 9, 67-88.

**2004: 16 (98)**

Brooks, R. and Davidson, S. (2004), How Much R&D Should Australia Undertake, *Economic Papers* 23, 165-174.

Brooks, R., Davidson, S. and Gangemi, M. (2004), Determinants of R&D in Australia, *International Journal of Knowledge, Culture and Change Management* 4, 1803-1818.

Brooks, R., Davidson, S. and Jackson, M. (2004), The price of discrimination: An economic analysis of the human rights and equal opportunity commission rulings 1985-2000, *Economic Papers* 23, 244-256.

Brooks, R., Faff, R.W., Fry, T. and Maldonado, D. (2004), Alternative Beta Risk Estimators in Emerging Markets: The Latin American Case, *International Finance Review* 5, 329-344.

Brooks, R., Faff, R.W., Fry, T. and Newton, E. (2004), Censoring and its Impact on Multivariate Testing of The Capital Asset Pricing Model, *Applied Financial Economics* 14, 413-420.

Brooks, R., Faff, R.W., Fry, T. and Newton, E. (2004), The Selectivity Corrected Market Model and Heteroscedasticity in Stock Returns: Yet Another Look At Volume Versus Garch, *Accounting Research Journal* 17, 192-201.

Brooks, R., Faff, R.W., Hillier, D. and Hillier, J. (2004), The National Market Impact of Sovereign Rating Changes, *Journal of Banking and Finance* 28, 233-250.

Diggle, J., Brooks, R. and Stewart, M. (2004), Credit Wrapping and Local Infrastructure Investment, *Sustaining Regions* 4, 39-46.

Dimovski, W. and Brooks, R. (2004), Do You Really Want to ask an Underwriter How Much Money You Should Leave on the Table, *Journal of International Financial Markets, Institutions and Money* 14, 267-280.

Dimovski, W. and Brooks, R. (2004), Initial Public Offerings in Australia 1994 to 1999: Recent Evidence of Underpricing and Underperformance, *Review of Quantitative Finance and Accounting* 22, 179-198.

Dimovski, W. and Brooks, R. (2004), Stakeholders Representation on the Boards of Australian Initial Public Offerings, *Applied Financial Economics* 14, 1233-1238.

Dimovski, W. and Brooks, R. (2004), The Importance of Intangible Assets in Initial Public Offerings, *International Journal of Knowledge, Culture and Change Management* 4, 1505-1509.

Holian, R. and Brooks, R. (2004), The Australian National Statement On Ethical Conduct In Research: Application and Implementation For Insider Applied Research in Business, *Action Research International*, paper 7, <http://www.scu.edu.au/schools/gcm/ar/ari/p-rholian04.html>.

Jones, S., Brooks, R., Maldonado, D. and Russell, R. (2004), Researching Innovation in the Knowledge Economy: Developing a Multi-Disciplinary, Multi-Methodology Research Process, *International Journal of Knowledge, Culture and Change Management* 4, 935-941.

Maldonado, D. and Brooks, R. (2004), ARC Linkage Projects and Research Intensive Organisations: Are Research Intensive Organisations Likely to Participate, *Economic Papers* 23, 175-188.

Ragunathan, V., Faff, R.W. and Brooks, R. (2004), Correlations, Integration and Hansen-Jagannathan Bounds, *Applied Financial Economics* 14, 1167-1180.

**2005: 10 (108)**

Brooks, R. (2005), Ranking Economics Research Output by Econbase Downloads: A Comparison to Publication Based Measures, *Applied Financial Economics Letters* 1, 75-78.

Brooks, R., Faff, R.W., Fry, T. and Bisoodoyal-Bheenick, E. (2005), Alternative Risk Estimators in Cases of Extreme Thin Trading: Canadian Evidence, *Applied Financial Economics* 15, 1251-1258.

Brooks, R., Faff, R., Fry, T. and Gunn, L. (2005), Censoring and its Impact on Beta Risk Estimation, *Advances in Investment Analysis and Portfolio Management* 1, 111-136.

Brooks, R., Faff, R.W. and Sokulsky, D. (2005), The Stock Market Impact of German Reunification: International Evidence, *Applied Financial Economics* 15, 31-42.

Diggle, J. and Brooks, R. (2005), The Changing Nature of World Return Correlations, *Asia-Pacific Journal of Economics and Business* 9, 40-47.

Dimovski, W. and Brooks, R. (2005), Dividend Forecasts and Dividend Payments of Initial Public Offerings – When Zero Means Zero and No Comment Most Likely Means Zero, *Applied Financial Economics Letters* 1, 139-141.

Dimovski, W. and Brooks, R. (2005), The Gender Composition of Boards of Property Trust IPOs, *Pacific Rim Property Research Journal* 11, 201-210.

Dimovski, W. and Brooks, R. (2005), Putting Their Money Where Their Mouth Is – The Importance of Shareholder Directors Post Listing, *Accounting Research Journal* 18, 34-39.

Faff, R.W., Brooks, R. and Ho, Y.K. (2005), A Simple Test of the Risk Class Hypothesis, *Studies in Economics and Econometrics* 29, 83-96.

Treloar, K. and Brooks, R. (2005), The Relative Size of the Venture Capital Market in Australia, *International Journal of Knowledge, Culture and Change Management* 5, 47-50.

**2006: 13 (121)**

Berman, G., Brooks, R. and Murphy, J. (2006), Funding the Non-profit Welfare Sector in Australia: Explaining Changing Funding Sources 1960-1999, *Economic Papers* 25, 83-99.

Bissoondoyal-Bheenick, E., Brooks, R. and Yip, A. (2006), Determinants of Sovereign Ratings: A Comparison of Case Based Reasoning and Ordered Probit Approaches, *Global Finance Journal* 17, 136-154.

Brooks, R. and Byrne, J. (2006), A Citation Impact Analysis of ARC Discovery and Linkage Grant Investigators in Economics and Finance, *Applied Economics Letters* 13, 141-146.

Brooks, R. and Lye, C.S. (2006), The Impact of Capital Controls on Malaysian Banking Industry Betas, *Applied Financial Economics Letters* 2, 247-249.

Diggle, J. and Brooks, R. (2006), Risk-Return Tradeoffs in the Australian Cash Management Industry, *Applied Financial Economics Letters* 2, 147-150.

Dimovski, W. and Brooks, R. (2006), The Pricing of Property Trust IPOs in Australia, *Journal of Real Estate Finance and Economics* 32, 185-199.

Dimovski, W. and Brooks, R. (2006), The Gender Composition of Boards After an IPO, *Corporate Governance* 6, 11-17.

Dimovski, W. and Brooks, R. (2006), Factors Influencing Money Left on the Table by Property Trust IPO Issuers, *Journal of Property Research* 23, 269-280.

Dimovski, W. and Brooks, R. (2006), Intangible Assets and the Underpricing of Industrial Company Initial Public Offerings, *International Journal of Knowledge, Culture and Change Management* 6, 67-73.



Jens, P. Brooks, R., Nicoletti, G. and Russell, R. (2006), Capital Raising by Australian Biotechnology IPOs: Underpricing, Money Left and Proceeds Raised, *Accounting Research Journal* 19, 31-45.

Jens, P. Brooks, R., Nicoletti, G. and Russell, R. (2006), Media Coverage and Biotechnology IPOs: Some Australian Evidence, *Journal of Commercial Biotechnology* 13, 43-47.

Loh, J. and Brooks, R. (2006), Valuing Biotechnology Companies Using the Price Earnings Ratio, *Journal of Commercial Biotechnology* 12, 254-260.

Russell, R., Brooks, R. Nair, A. and Fredline, L. (2006), The Initial Impacts of a Matched Savings Program: The Saver Plus Program, *Economic Papers* 25, 32-40.

**2007: 10 (131)**

Brooks, R. (2007), Power ARCH Modelling of the Volatility of Emerging Equity Markets, *Emerging Markets Review* 8, 124-133.

Brooks, R., Zhang, X. and Bissoondoyal-Bheenick, E. (2007), Country Risk and the Estimation of Asset Return Distributions, *Quantitative Finance* 7, 261-265.

Diggle, J. and Brooks, R. (2007), The Target Cash Rate and Its Impact on Investment Asset Returns in Australia, *Applied Financial Economics* 17, 615-633.

Dimovski, W. and Brooks, R. (2007), Factors Influencing The Direct Costs of Property Trust IPOs, *Pacific Rim Property Research Journal* 13, 2-15.

Dimovski, W. and Brooks, R. (2007), Differences in Underpricing Between REIT IPOs and Industrial Company IPOs, *Advances In Quantitative Analysis in Finance and Accounting* 5, 215-225.

Dimovski, W., Brooks, R. and Van Eekelen, A. (2007), The Costs of Raising Equity Capital for Closed End Fund IPOs, *Applied Financial Economics Letters* 3, 295-299.

Galagedera, D. and Brooks, R. (2007), Is Co-skewness a Better Measure of Risk in the Downside than Downside Beta: Evidence in Emerging Market Data, *Journal of Multinational Financial Management* 17, 214-230.

Iqbal, J. and Brooks, R. (2007), Alternative Beta Risk Estimators and Asset Pricing Tests in Emerging Markets: The Case of Pakistan, *Journal of Multinational Financial Management* 17, 75-93.

Iqbal, J. and Brooks, R. (2007), A Test of the CAPM on the Karachi Stock Exchange, *International Journal of Business* 12, 429-444.

Jugurnath, B., Stewart, M. and Brooks, R. (2007), Asia Pacific Regional Trade Agreements: An Empirical Study, *Journal of Asian Economics* 18, 974-987.

**2008: 15 (146)**

Brooks, R. and Harris, E. (2008), Efficiency Gains from Water Markets: Empirical Analysis of Watermove in Australia, *Agricultural Water Management* 95, 391-399.

Brooks, R., Maharaj, A. and Pellegrini, B. (2008), Estimation and Analysis of the Hurst Exponent for Australian Stocks Using Wavelet Analysis, *Applied Financial Economics Letters* 4, 41-44.

Brooks, R. and Naylor, S. (2008), An Ordered Probit Model of Morningstar Individual Stock Ratings, *Applied Financial Economics Letters* 4, 341-345.

Dimovski, W. and Brooks, R. (2008), The Underpricing of Gold Mining Initial Public Offerings, *Research in International Business and Finance* 22, 1-16.

Fry, T., Mihajilo, S., Russell, R. and Brooks, R. (2008), The Factors Influencing Saving in a Matched Savings Program: Goals, Knowledge of Payment Instruments and Other Behaviour, *Journal of Family and Economic Issues* 29, 234-250.

Galagdera, D., Maharaj, E. and Brooks, R. (2008), Relationship Between Downside Risk and Return: New Evidence from a Multiscaling Approach, *Applied Financial Economics* 18, 1623-1633.

Guo, H. and Brooks, R. (2008), Underpricing of Chinese A Share IPOs and Short Run Underperformance Under the Approval System from 2001 to 2005, *International Review of Financial Analysis* 17, 984-997.

Jugurnath, B., Stewart, M. and Brooks, R. (2008), Dividend Taxation and Corporate Investment: A Comparative Study Between The Classical System and Imputation System of Dividend Taxation in the United States and Australia, *Review of Quantitative Finance and Accounting* 31, 209-224.

Kutsuna, K. Dimovski, W. and Brooks, R. (2008), The Pricing and Underwriting Costs of Japanese REIT IPOs, *Journal of Property Research* 25, 221-239.

Lim, K., Brooks, R. and Hinich, M. (2008), Nonlinear Serial Dependence and the Weak Form Efficiency of Asian Emerging Stock Markets, *Journal of International Financial Markets, Institutions and Money* 18, 527-544.

Lim, K., Brooks, R. and Kim, J. (2008), Financial Crisis and Stock Market Efficiency: Empirical Evidence from Asian Countries, *International Review of Financial Analysis* 17, 571-591.

Loh, J. and Brooks, R. (2008), Valuing Biotechnology Companies: Does Classification by Technology Type Help, *Journal of Commercial Biotechnology* 14, 118-127.

Russell, R., Atchison, M. and Brooks, R. (2008), Business Plan Competitions in Tertiary Institutions: Encouraging Entrepreneurship Education, *Journal of Higher Education and Policy Management* 30, 123-138.

Sokulsky, D., Brooks, R. and Davidson, S. (2008), Untangling Demand Curves from Information Effects: Evidence from Australian Index Adjustments, *Applied Financial Economics* 18, 605-616.

Vaz, J., Ariff, M. and Brooks, R. (2008), The Effect of Interest Rate Changes on Bank Stock Returns, *Investment Management and Financial Innovations* 5, 221-236.

**2009: 10 (156)**

Brooks, R., Faff, R., Mulino, D. and Scheelings, R. (2009), Deal or No Deal, That is the Question: The Impact of Increasing Stakes and Framing Effects on Decision Making Under Risk, *International Review of Finance* 9, 27-50.

Brooks, R., Fry, T., Dimovski, W. and Mihajilo, S. (2009), A Duration Analysis Of The Time From Prospectus To Listing For Initial Public Offerings, *Applied Financial Economics* 19, 183-190.

Brooks, R., Harris, E. and Joymungul, Y. (2009), Market Depth in an Illiquid Market: Applying the VNET Concept to Victorian Water Markets, *Applied Economics Letters* 16, 1361-1364.

Lim, K. and Brooks, R. (2009), On the Validity of Conventional Statistical Tests Given Evidence of Non-Synchronous Trading and Non-linear Dynamics in Returns Generating Process: A Further Note, *Applied Economics Letters* 16, 649-652.

Lim, K. and Brooks, R. (2009), Price Limits and Stock Market Efficiency: Evidence From Rolling Bicorrelation Test Statistic, *Chaos, Solitons and Fractals* 40, 1271-1276.

Lim, K. and Brooks, R. (2009), Are Chinese Stock Markets Efficient? Further Evidence from a Battery of Nonlinearity Tests, *Applied Financial Economics* 19, 147-155.

Mulino, D., Scheelings, R., Brooks, R. and Faff, R. (2009), Does Risk Aversion Vary with Decision Frame? An Empirical Test Using Recent Game Show Data, *Review of Behavioral Finance* 1, 44-61.

Nandha, M. and Brooks, R. (2009), Oil Prices and Transport Sector Returns: An International Analysis, *Review of Quantitative Finance and Accounting* 33, 393-409.

Woodward, G. and Brooks, R. (2009), Do Realised Betas Exhibit Up/Down Market Tendencies, *International Review of Economics and Finance* 18, 511-519.

Zhang, X., Brooks, R. and King, M. (2009), A Bayesian Approach to Bandwidth Selection for Multivariate Kernel Regression with an Application to State Price Density Estimation, *Journal of Econometrics* 153, 21-32.

**Forthcoming: 13 (169)**

Bissoondoyal-Bheenick, E. and Brooks, R. (2009), Does Volume Help in Predicting Stock Returns? An Analysis of the Australian Market, *Research in International Business and Finance*, forthcoming (accepted 4 November 2009).

Bissoondoyal-Bheenick, E. and Brooks, R. (2008), Sovereign Rating Changes and National Stock Markets: Some Impacts of GARCH Effects, *Risk Letters*, forthcoming (accepted 1 May 2006).

Brooks, R., Dark, J., Faff, R., Fry, T. and Maldonado, D. (2008), A Comparison of Two Time Varying Beta Estimators for Latin American Stocks, *Emerging Markets Letters*, forthcoming (accepted 9 January 2007).

Brooks, R., Di Iorio, A., Faff, R., Fry, T. and Joymungul, Y. (2009), Asymmetry and Time Variation in Exchange Rate Exposure – An Investigation of Australian Stock Returns, *International Journal of Commerce and Management*, forthcoming (accepted 12 March 2009).

Brooks, R. DiIorio, A., Faff, R. and Wang, Y. (2008), Testing the Integration of the US and Chinese Stock Markets in a Fama-French Framework, *Journal of Economic Integration*, forthcoming (accepted 18 June 2008).

Guo, H. and Brooks, R. (2009), Duration of IPOs Between Offering and Listing: Cox Proportional Hazard Models- Evidence from Chinese A-Share IPOs, *International Review of Financial Analysis*, forthcoming (accepted 7 September 2009).

Guo, H., Brooks, R. and Shami, R. (2009), Detecting Hot and Cold Cycles Using Markov Regime Switching Models: Evidence from the Chinese A-Share IPO Market, *International Review of Economics and Finance*, forthcoming (accepted 4 April 2009).

Hill, P, Brooks, R. and Faff, R. (2009), Variations in Sovereign Credit Quality Assessments Across Rating Agencies, *Journal of Banking and Finance*, forthcoming (accepted 28 November 2009).

Iqbal, J., Brooks, R. and Galagedera, D. (2009), Multivariate Tests of Asset Pricing: Simulation Evidence from an Emerging Market, *Applied Financial Economics*, forthcoming (accepted 31 October 2009).

Lim, K. and Brooks, R. (2009), Why Do Emerging Stock Markets Experience More Persistent Deviations from a Random Walk over Time: A Country Level Analysis, *Macroeconomic Dynamics*, forthcoming (accepted 20 May 2009).

Lim, K. and Brooks, R. (2009), The Evolution of Stock Market Efficiency Over Time: A Survey of the Empirical Literature, *Journal of Economic Surveys*, forthcoming (accepted 26 August 2009).

Masters, T., Russell, R. and Brooks, R. (2008), The Demand for Creative Arts in Regional Victoria - Australia, *Applied Economics*, forthcoming (accepted 28 October 2008).

Nath, H., Kim, J. And Brooks, R. (2009), Realized Dual Betas for Leading Australian Stocks: An Evaluation of Estimation Methods and the Effect of the Sampling Interval, *Mathematics and Computers in Simulation*, forthcoming (accepted 5 June 2009).

### **Work in Progress**

Bissoondoyal-Bheenick, E. and Brooks, R. (2009), The Impact of Sovereign Rating Changes: A Comparison of the Market Model, Quadratic Market Model and Downside Model.

Bissoondoyal-Bheenick, E., Brooks, R., Hum, S. and Treepongkaruna, S. (2009), Joint Rating Announcements by the Three Leading Agencies: An Analysis of Realised Volatility in Asian FX Markets.

Brooks, R., Dark, J., Di Iorio, A., and Faff, R. (2006), Modelling Time Varying Asymmetric Foreign Exchange Exposures in the Australian Stock Market.

Brooks, R., Dark, J., Faff, R. and Fry, T. (2006), A Selectivity Corrected Time Varying Beta Estimator for Australian Stocks.

Brooks, R. and Davidson, S. (2006), R&D, Agency Costs and Capital Structure: International Evidence.

Brooks, R. and Davidson, S. (2006), Do R&D Tax Credits Crowd Out Dividend Franking Credits.

Brooks, R. and Davidson, S. (2006), R&D, Valuation and Non-Debt Tax Shields: Australian Evidence.

Brooks, R., Davidson, S. and Taylor, M. (2006), Does the Diversification Penalty Crowd Out R&D Value?

Brooks, R., Davidson, S. and Bissoondoyal-Bheenick, E. (2007), R&D Externalities and Stock Market Value: An Australian Case Study.

Brooks, R., Greene, W., Harris, M. and Naylor, S. (2007), What Drives Morningstar Individual Stock Ratings.

Brooks, R., Harris, E. and Joymungul, Y. (2007), Price Clustering in Australian Water Markets.

Brooks, R., Harris, M. and Spencer, C. (2007), An Inflated Ordered Probit Model of Monetary Policy: Evidence from MPC Voting Data.

Dimovski W. and Brooks, R. (2006), Industry Characteristics of Australian Initial Public Offerings from 1994 to 1999.

Dimovski, W. and Brooks, R. (2006), Market Sentiment and the Underpricing of Initial Public Offerings.

Dimovski, W. and Brooks, R. (2006), Characteristics and Underpricing of Australian Mining and Energy IPOs from 1994 to 2001.

Dimovski, W. and Brooks, R. (2006), The Pricing of Closed End Fund Listed Investment Company Initial Public Offerings.

Dimovski, W. and Brooks, R. (2006), Women Directors and Women Company Secretaries on the Boards of Australia's Top 200 Companies.

Dimovski, W. and Brooks, R. (2009), Underwriter Reputation and Underpricing: Evidence from the Australian IPO Market.

Fry, T., Mihajilo, S., Russell, R. and Brooks, R. (2006), Evaluation of the Australian MoneyMinded Financial Literacy Program.

Harris, E., Brooks, R. and Joymungul, Y. (2009), The Effects of Centrally Determined Water Prices on Irrigation Water Demand: Evidence from the Victorian State Rivers and Water Supply Commission 1980-1984.

Iqbal, J., Brooks, R. and Galagedera, D. (2009), Testing Conditional Asset Pricing Models: An Emerging Market Perspective.

Irawan, B. and Brooks, R. (2009), Determinants of Bond Market Size: Developed vs. Emerging Markets.

Jugurnath, B., Stewart, M. and Brooks, R. (2006), Host Country Tax Policy and FDI Inflows: An Empirical Study.

Lim, K. Brooks, R. and Hinich, M. (2006), Time Irreversibility and Evolutionary Change in Stock Markets: International Evidence.

Lim, K. Brooks, R. and Hinich, M. (2006), Events That Shook The Market: An Insight From Nonlinear Serial Dependencies In Intraday Returns.

Luo, W., Brooks, R. and Silvapulle, P. (2009), Effects of the Open Policy on the Dependence Between the Chinese A Stock Market and Other Equity Markets: An Industry Sector Perspective.

Masters, T., Russell, R. and Brooks, R. (2006), Modelling Individual Expenditure Underlying the Economic Impact of Festivals.

Nguyen, H., Dimovski, W. and Brooks, R. (2007), Underpricing, Risk Management, Hot Issue and Crowding Out Effects: Evidence from the Australian Resources Sector Initial Public Offerings.

Parkatt, G., Davidson, S. and Brooks, R. (2006), Testing the CAPM and Performance Measurement for Thai Mutual Funds.

Russell, R. and Brooks, R. (2007), An Evaluation of an Interest Free Loan Scheme for Those Affected by Domestic Violence.

Russell, R., Mihajilo, S., Brooks, R. and Musch, S. (2008), Designing Financial Literacy Training Programs for the Small Business Sector: Some Australian Evidence.

Treloar, K. and Brooks, R. (2007), The Participation of Women on the Boards of Cooperative Research Centres.

Zhou, X., Brooks, R. and Chen, G. (2009), Does the Market Reaction to Former Information Influence the Future Voluntary Disclosures of Earnings Forecasts – Evidence from the Chinese A-Share Market.

## **Journal Refereeing and Thesis Examination**

### *Editorial Board (current)*

Accounting & Finance

### *Editorial Board (previous)*

Accounting Research Journal

International Journal of Knowledge, Culture and Change Management

### *Journal Refereeing*

Accounting Research Journal, Accounting & Finance, Agricultural Economics, Agricultural Water Management, Annals of Operations Research, Applied Economics, Applied Financial Economics, Asia Pacific Journal of Economics & Business, Australian Economic Papers, Australian Journal of Agricultural & Resource Economics, Australian Journal of Management, Australian Universities Review, Corporate Governance, Corporate Governance: An International Review, Economic Papers, Economic Record, Economics E-Journal, Emerging Markets Finance and Trade, Emerging Markets Review, European Journal of Finance, European Journal of Operational Research, Financial Markets and Portfolio Management, Financial Review, Global Finance Journal, International Journal of e-Collaboration, International Journal of Emerging Markets, International Review of Economics and Finance, International Review of Finance, International Review of Financial Analysis, Journal of Agricultural and Resource Economics, Journal of Applied Statistics, Journal of Banking & Finance, Journal of Business, Journal of Business Venturing, Journal of Econometrics, Journal of Economic Studies, Journal of Economic Surveys, Journal of Economics and Business, Journal of Empirical Finance, Journal of Futures Markets, Journal of International Financial Markets Institutions & Money, Journal of International Money & Finance, Journal of Quantitative Economics, Managerial Finance, Manchester School, Monash Business Review, Multinational Finance Journal, Pakistan Journal of Statistics, Quantitative Finance, Quarterly Review of Economics and Finance, Review of Pacific Basin Financial Markets and Policies, Review of Quantitative Finance and Accounting, Science of the Total Environment, Studies in Economics and Econometrics.

### *Thesis Examination*

#### *PhD*

Australian National University, Edith Cowan University, Griffith University, LaTrobe University, Monash University, Nanyang Technological University, Queensland University of Technology, University of Melbourne, University of Queensland, University of Southern Queensland, University of the Sunshine Coast, University of Sydney, University of Western Australia, Victoria University



## **1. Supervision of postgraduate research students.**

### **PhD students**

#### **Main Supervisor – Completed: (13)**

Berman, G. A Charity Case – Efficiency and Accountability of Nonprofit Welfare Organisations in Australia, Economics and Finance, RMIT, 2001.

Bissoondoyal-Bheenick, E., Sovereign and Australian Credit Ratings: Determinants and Valuation Effects, Economics and Finance, RMIT, 2004.

Chan, D. The Role of Information In Stock Pricing In The Hong Kong Stock Market, Economics and Finance, RMIT, 1998.

Diggle, J. When Cash Is King – The Optimal Management of an Asset Allocation to Cash, Economics and Finance, RMIT, 2002.

Gionea, J. Trends/Prospects In The Global Grain Sector: The Opportunities For Australia's Grain Industry, Economics and Finance, RMIT, 2003.

Guo, H. The Chinese initial public offering market: underpricing, duration to listing and hot issue cycles, Econometrics and Business Statistics, Monash University, 2009.

Iqbal, J. Asset Pricing on the Karachi Stock Exchange, Econometrics and Business Statistics, Monash University, 2008.

Lambrick, S. An Assessment and Test of the Arbitrage Pricing Theory in Australia: 1974 to 2000, Econometrics and Business Statistics, Monash University, 2009.

Lim, K. An empirical analysis of the weak-form efficiency of stock markets, Econometrics and Business Statistics, Monash University, 2009.

Lin, D. Investment Decision Making Under Uncertainty: A Residual Character Approach, Economics and Finance, RMIT, 1998.

Loh, J. A Framework for the Valuation of Biotechnology Companies, Econometrics and Business Statistics, Monash University, 2007.

McKenzie, M. Australian Exchange Rate Volatility: Modelling, Forecasting And Assessing The Impact On Trade Flows, Economics and Finance, RMIT, 1997

Sokulsky, D. An Empirical Investigation into the Price Effects Associates with Constituent Changes to Australian Equity Indices, Economics and Finance, RMIT, 2002.

**Associate Supervisor – Completed: (18)**

Anderson, J. Trading Rules and Money Management, Economics and Finance, RMIT, 2002.

Coate, B. Australian Indigenous and Non-indigenous Art at Auction, Economics and Finance, RMIT, 2009.

Davidson, S. South African Corporate Structures In An Agency Theory Framework, Economics and Finance, RMIT, 1999.

Di Iorio, A. An Analysis of the Exchange Rate Exposure of the Australian Equities Market, Economics and Finance, RMIT, 2002.

Gangemi, M. Modelling Regional Economic Development, Economics and Finance, RMIT, 2008.

Glasson, S. Censoring Regression Techniques for Credit Scoring, Statistics, RMIT, 2007.

Hart, K. Modelling The Asset Allocation Process And The Effectiveness Of Models Through Time, Communications And Informatics, VUT, 2000.

Jens, P. Valuations and Business Models for Biotechnology Companies, Economics and Finance, RMIT, 2007.

Jugurnath, B. An Analysis of an Integrated Tax System in APEC, Economics and Finance, RMIT, 2005.

Lai, E. The Role of Return Skewness In Financial Modelling: Some International Evidence, Economics and Finance, RMIT, 2000.

Leeprechanon, N. A Pricing Optimisation Model For Transmission Services Open Access In The Competitive Electricity Supply Industry In Thailand, Electrical Engineering, RMIT, 2003.

Luo, L. Business and Economic Forecasting in Australia, Econometrics and Business Statistics, Monash University, 2008.

Maldonado, D. Knowledge Development Between Industries and Universities, Management, RMIT, 2005.

Masters, T. Demand and Supply for the Creative Arts in Rural and Regional Victoria, Economics and Finance, RMIT, 2007.

Parkatt, G. The Role Of Equity Factors In Explaining The Cross-sectional Variation In Stock Returns In The Thai Capital Market, Economics and Finance, RMIT, 2002.

Ragunathan, V. Integration Of And Correlations Between National Stock Market Indices, Economics and Finance, RMIT, 1999.

Wang, Y. Development of China's Capital Markets, Economics and Finance, RMIT, 2006.

Yip, A. A Case Based Reasoning Approach to Business Failure Prediction, Business Information Technology, RMIT, 2005.

**Main Supervisor – In Progress: (2)**

Irawan, B. Development of bond market in East Asia as a policy response to financial crisis, Econometrics and Business Statistics, Monash University.

Treloar, K. Challenges in Early Stage Commercialisation and Entrepreneurship in Australia, Econometrics and Business Statistics, Monash University.

**Associate Supervisor – In Progress: (3)**

Jutasompakorn, P. Forecasting the Financial Crisis, Accounting and Finance, Monash University.

Muth, R. International Real Estate Investments in a Mixed-Asset Portfolio, Accounting and Finance, Monash University

Vaz, J. The Behaviour of Interest Rates and Financial Institution Returns, Accounting and Finance, Monash University.

**DBA Students**

**Main Supervisor – Completed: (1)**

Dimovski, B. Characteristics Of Initial Public Offerings In Australia 1994 to 1999: Recent Evidence of Initial Day Underpricing and Longer Term Underperformance, Management, RMIT, 2002.

**Associate Supervisor – Under Examination: (1)**

Lekkumporn, P An exploration of personal values as antecedent of gift-giving behavior, Marketing, Monash University.

**Master of Philosophy (Research) Students**

**Associate Supervisor – Completed: (1)**

Nurjannah, Asset Pricing in the Indonesian Stock Market, Econometrics and Business Statistics, Monash University, 2009.

**Associate Supervisor – In Progress: (1)**

Ting, S. Essays in Financial Econometrics, Econometrics and Business Statistics, Monash University.

**Master of Business (Research) Students****Main Supervisor – Completed: (1)**

Gangemi, M. Country And Industry Beta Risk: Stability, Mean Reversion And The Role Of Macroeconomic Variables, Economics and Finance, RMIT, 1999

**Associate Supervisor – Completed: (1)**

Piriyapant, G. An Analysis Of The Thai Mutual Fund Industry, Economics and Finance, RMIT, 1999.

### **External Research Grants, Tenders and Contracts**

ARC Small Grant, The Relationship Between Risk Instability And Changes In Markets Conditions, \$14,000, January 1995 to December 1995.

ARC Small Grant, Revisions To Macroeconomic Data And Their News Content For Financial Markets, \$15,000, January 1996 to December 1996.

The Pratt Foundation, Efficiency And Accountability In Charitable Organisations In Australia, \$10,000 per annum, March 1998 to February 2001

ARC SPIRT Grant, The Development Of New Sub-Category Benchmark Indices On The Australian Stock Exchange, \$25,756 per annum, January 1999 to December 2001.

William Noall Ltd, Developing Socially Responsible Investment Criteria, \$12,500, May 2001 to November 2001.

Australian International Hotel School, The Economic Impact of the Australian International Hotel School, \$25,000, August 2001 to December 2001

AUSTROADS, Benefits of Road Investment to Assist Tourism, \$54,000 August 2001 to March 2002

Siemens Ltd, The Implications and Effects on the Culture of Siemens Ltd as it shifts from being primarily a manufacturing/engineering company to a Fully Integrated Service Company, \$20,500, January 2002 to July 2002.

Taxpayers Research Foundation, Do R&D Tax Concessions Add Value, \$46,255, May 2002 to April 2003

Universal Postal Union, Knowledge Base Case Study, \$15,000, July 2002 to November 2002

Department of Industry, Innovation and Regional Development & Southern Grampians Shire Council, The Economic Impact of RMIT Hamilton, \$15,000, October 2002 to December 2002

ARC Discovery Grant, A Complex Systems Approach to Modelling Time Varying Risk in the Presence of Market Frictions, January 2003 to December 2005, 2003 - \$40,000, 2004&2005 - \$38,000 per annum

ARC Linkage Grant, Valuations and Business Models for Biotechnology Companies, January 2003 to December 2005, \$28,033 per annum

ARC Linkage Grant, Censored Regression Techniques for Credit Scoring, January 2003 to December 2005, \$28,033 per annum

ARC Linkage Grant, Demand and Supply for the Creative Arts in Rural and Regional Victoria, January 2004 to December 2006, \$28,033 per annum

Department of Industry, Tourism and Resources – Minerals Council of Australia, February to June 2005, \$7,000.

The Big Chair, Development of the CEO Performance Index, September to December 2008, \$20,000.

ARC Discovery Grant, Financial Crises, Volatility and Sovereign Ratings: Do Ratings Really Matter When They Are Needed Most? January 2010 to December 2012. 2010 - \$80,000, 2011 - \$70,000, 2012 - \$72,000

ARC Linkage Grant, Organisational Performance During Environmental Uncertainty: The Impact Of An Influential Human Resource Function And High Involvement Work Practice, January 2010 to December 2012, \$31,669 per annum.



**UNITED ENERGY**

**Distribution**

United Energy Distribution Pty Limited  
ABN 70 064 651 029

**Registered Office**

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- Telephone (03) 8540 7800
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**6<sup>th</sup> August 2010**

Our Reference: UE-SU-01

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

Dr Neil Diamond  
Room 674, Building 11E  
Department of Econometrics and Business Statistics  
Monash University  
CLAYTON VICTORIA 3800  
Australia

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;<sup>1</sup> and
- A February 2010 study by SFG Consulting<sup>2</sup>

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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<sup>1</sup> 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

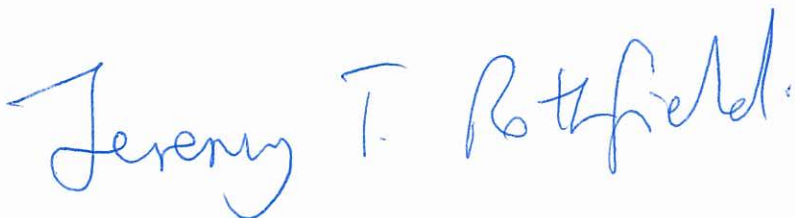
Attached are Expert Witness Guidelines issued by the Federal Court of Australia. Although this brief is not in the context of litigation, the Victorian electricity distribution businesses are seeking a rigorously prepared independent view for use in the context of regulatory decision making and you are 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 Rothfield  
*Regulatory Economist*

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<sup>2</sup> 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<sup>1</sup>, 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.

### **Guidelines**

#### **1. General Duty to the Court<sup>2</sup>**

- 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<sup>3</sup>.
- 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<sup>4</sup>**

- 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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<sup>1</sup> 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].

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

<sup>3</sup> 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]

<sup>4</sup> 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<sup>5</sup>.
- 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<sup>6</sup>.

### **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

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<sup>5</sup> The “*Ikarian Reefer*” [1993] 20 FSR 563 at 565

<sup>6</sup> The “*Ikarian Reefer*” [1993] 20 FSR 563 at 565-566. See also Ormrod “*Scientific Evidence in Court*” [1968] Crim LR 240