



# NEWSLETTER

DECEMBER 2008

As we approach the year's end, we can look back on a year of lows and highs. On the global scene the financial markets have crashed, perhaps due to a poor understanding of the data, while on a personal note Data Analysis Australia has celebrated 20 years of success.

Dr John Henstridge  
Managing Director

## Seeing the Unforeseeable

The past six months has seen a meltdown of the global financial system. Previously solid companies have had big profit falls. Growth companies, particularly in the property sector, are now facing liquidation. Many homeowners fear that their borrowings total more than their houses are now worth. And the traditionally safe area of superannuation has seen many funds move backwards. Many people have been forced to reconsider just what is a good investment and ask "why did no-one see this coming?".

These are questions of risk and forecasting, areas where statisticians and mathematicians have a special view. Probability theory, initially developed to model the risks in gambling, today finds application in understanding risk in other contexts. Modern portfolio theory developed by leaders such as the Nobel Prize winner Markowitz is essentially statistical mathematics.



Data Analysis Australia is often asked to produce forecasts, whether they are for population, economic variables or for demand for services. In this, we always try to give bounds on the certainty of the forecast – what is most likely and a range of what might happen. Usually this is based upon the unpredictable variations that have occurred in the past.

Clients from all sectors are often surprised by the results, saying "surely the future cannot be as uncertain as that". This reaction is common, perhaps a sign that most people tend to underestimate risks. Usually we can show them the past events that suggest high uncertainty, but the reaction is that "those were special events – they could not happen again". This discounting of past uncertainty leads to understating future uncertainty and risks.

Today under the Basel II accords, banks are required to properly manage their risks and they all use past data to objectively quantify risks. With this year's hindsight, we have to ask whether banks have been selective in their use of past data.

The events of 2008 do bring a sense of reality – while the details are different the effects are similar to those seen in the past. Unforeseeable events do occur. We don't know what they will be or when they will occur, but we can be sure that something will happen.

Planning in the face of uncertainty requires understanding the risks. Partly to minimise the risks – Markowitz's ideas were to trade off risk against return in an optimal manner – and partly to be able to respond to events. Typically this requires using different types of forecasts, such as "what is the worst case that has a probability of 10% of occurring?". And, not to be too pessimistic, "what is the best case?".

For further information on how Data Analysis Australia can help you better quantify your risk contact **John Henstridge**.



All the staff at Data Analysis Australia wish our clients a very Merry Christmas and a Happy and Prosperous New Year.





## When is a response rate of 95% not enough?

Most of us consider a response rate of 50% as acceptable, 60% good and anything higher as excellent. But the world is not so simple. In conducting the National Preschool Census for the Department of Education, Employment and Workplace Relations, Data Analysis Australia recognises that even a small non-response in the wrong place is unacceptable. The issues surrounding obtaining a response rate of greater than 95% and Data Analysis Australia's approach to resolve these issues are discussed in a new Case Study on our website.

See [www.daa.com.au/case-studies/95-percent-response-rate/](http://www.daa.com.au/case-studies/95-percent-response-rate/)

## Staff Profile - Donna Hill



Donna has recently returned from adventures in Canada where she spent two weeks travelling by train and bus across the country. Highlights of her trip included getting to walk on top of the Athabasca Glacier and driving through the spectacular Rocky Mountains. Refreshed, Donna resumes her many responsibilities as one of Data Analysis Australia's Senior Consultants.

Donna's leadership qualities are shown in the management of a number of high profile projects currently being run at Data Analysis Australia, including the National Preschool Census, which has been featured as the case study in this newsletter. Donna manages and oversees a diverse range of projects drawing on her depth of knowledge and years of experience at Data Analysis Australia.

Some of her clients include the Department of Education, Employment and Workplace Relations, the Office of Road Safety, BHP Billiton and Alcoa.

**Left: Donna and friend in Toronto, Canada**

## Company News

Congratulations to **Cheryl Praeger** who is a finalist in the prestigious **Premier's Science Awards** in the category of 'Scientist of the Year'. The awards recognise excellence in science and give Western Australians the opportunity to publicly celebrate, encourage and reward the State's best in science. We wish her the best of luck.

Continuing our commitment to mathematics, Data Analysis Australia was a sponsor for the **West Australian Junior Mathematical Olympiad** held at the University of Western Australia on November 1st. Almost 230 students in Years 8 and 9 competed for both individual and team prizes. Data Analysis Australia sees such events as critical in encouraging students to view mathematics as a possible career and ensuring that there are sufficient mathematicians to meet Australia's needs in the future.

In October, Data Analysis Australia marked our **20th anniversary** with a party at our Nedlands premises. We would like to thank all our clients who helped us celebrate our achievements over the last 20 years. The evening was enjoyed by all with good food, good wine and good company.

We farewell **Jason Rabbitt** who intends to see the world starting in Asia and continuing to London. We also say goodbye to **Rian Caccianiga** who has decided to take up a position with the Rottneest Island Authority. This will allow her to work much closer to nature and the environment that she is so passionate about. We are currently in the process of recruiting additional consultants and hope to be able to introduce them to you in our next newsletter.

## Classic Quote

"There is a special department of hell for students of probability. In this department there are many typewriters and many monkeys. Every time that a monkey walks on a typewriter, it types by chance one of Shakespeare's sonnets."

**Bertrand A. Russell, *Nightmares of Eminent Persons***

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