Are New Zealand chief financial officers the ‘country cousins’ of their American counterparts?

By Carolyn Black, Jennifer Parry, Hamish Anderson and J. Andrea Bennett

Financial management is no trivial matter with more than one trillion dollars a year spent on capital investments in the United States alone. Financial officers are confronted with a wide variety of financial management tools and techniques that influence their investment decisions. Generally, the theory and practice of financial management has emanated from North American research. Given that New Zealand managers operate in an open economy with international competitors, one would expect New Zealand managers to adopt such practices. However, differences in taxation, industry composition and economic conditions suggest that some of the techniques may not be suitable in New Zealand without modification.

In this article, we will seek to answer the following questions:

1. Do New Zealand chief financial officers (CFOs) use similar sophisticated financial management practices for project evaluation and cost of capital determination as American CFOs?
2. Are there sound reasons why the New Zealand and US financial management practices may differ, such as New Zealand’s unique business environment?

In 1999, Graham and Harvey (hereafter G&H) (2001) surveyed American CFOs about financial management practices. The sample comprised 4440 American CFOs from the 1998 Fortune 500 companies and members of the Financial Executives Institute. They report that the financial management practices of large firms tend to be those endorsed by the academic literature, including discounted cashflow techniques and the capital asset pricing model. In contrast, small firms are more likely to use...
less sophisticated techniques such as the payback criterion. When evaluating new overseas projects, both large and small firms are more likely to consider firm risk rather than project risk.

To ascertain to what extent New Zealand financial management practices follow those of the US, we adapted the G&H survey to suit New Zealand finance terminology. The following discussion outlines the details of our survey and our findings. We then draw some conclusions about the suitability of selected financial management practices in the New Zealand environment.

**OUR SURVEY**

In July 2000, we surveyed the CFOs of all 136 New Zealand-based companies listed on the New Zealand Stock Exchange (NZSE). Twenty-eight responses were received, of which two were omitted from further analysis to enhance comparability with the “small” company group of G&H. This yielded a favourable response rate of 19 per cent for our survey, as opposed to nine per cent for the G&H study.

Survey comparability was enhanced by the following features:

- The survey document closely followed that of G&H.
- Only New Zealand responses fitting the small size category of G&H were used.
- The time elapsed between the two surveys was less than two years.

A comparison of usable responses from the two studies revealed some noticeable differences. Relative to the G&H results, our study is under-represented by manufacturing, technology, communications/media and mining/construction, and over-represented in retail/wholesale, transportation/energy and financial industries. This has probably arisen from historical differences in industrial development in the two countries. It was only

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2 We used the G&H classification of small firms, being those with sales of less than $US1 billion, adjusted for the exchange rate.
in the 1970s and 1980s that New Zealand began to change from a commodity-based economy highly dependent upon one export market to a more diversified industrialised nation. Nevertheless, the comparison is of interest as our sample is representative of industry groups in the New Zealand market.

As pointed out by G&H, some caution should be used when interpreting survey results as the respondents may not be representative of the population, or some questions could be misunderstood. In this study, we found the distribution of respondent firms’ sales to be fairly uniform over our small-firm sales range.

Given the small number of responses to some questions, the results reported here represent only part of the total survey. We will examine the procedures and policies that New Zealand CFOs adopt for project evaluation and cost of capital estimation and compare them first to the entire G&H sample and then to the G&H small-firm sub-sample. A definition of techniques discussed can be found in the glossary.

**PROJECT EVALUATION TECHNIQUES**

Recent surveys have shown that US CFOs are increasingly using sophisticated analytical techniques to evaluate project profitability and risk. We were curious to see whether this was also the case in New Zealand. First we investigate which techniques are currently used in this country. In our survey, New Zealand CFOs were asked to rank on a five-point scale (0 = never, 4 = always) how frequently they use a variety of techniques when evaluating new projects. The results presented in Figure 1 consider only the highest usage scores of 3 and 4 for all CFOs surveyed and reveal surprisingly little difference between the techniques used in both countries.

New Zealand and US CFOs most frequently use the more sophisticated techniques of net present value (NPV) and internal rate of return (IRR) – generally about 75 per cent in both countries. Most other results were comparable between the countries, with the exception of the accounting rate of return, which is more frequently favoured by New Zealand CFOs than their US counterparts (48 per cent versus 20 per cent). Given that finance textbooks have long argued the dangers of using unsophisticated techniques such as the accounting rate of return, its relative popularity in New Zealand could be viewed as worrisome.

Finance theory asserts that the techniques of NPV and IRR are the best all-round methods for evaluating capital investment projects. Nevertheless, G&H (page 7) point to evidence that simple techniques such as the payback

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**TABLE 1**

<table>
<thead>
<tr>
<th>Project evaluation technique</th>
<th>NZ average</th>
<th>US average - small firms</th>
<th>US average - large firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net present value</td>
<td>3.23</td>
<td>2.83</td>
<td>3.42</td>
</tr>
<tr>
<td>Internal rate of return</td>
<td>3.21</td>
<td>2.87</td>
<td>3.41</td>
</tr>
<tr>
<td>Hurdle rate</td>
<td>2.75</td>
<td>2.13</td>
<td>2.95</td>
</tr>
<tr>
<td>Payback period</td>
<td>2.31</td>
<td>2.72</td>
<td>2.25</td>
</tr>
<tr>
<td>Accounting rate of return</td>
<td>1.95</td>
<td>1.41</td>
<td>1.25</td>
</tr>
<tr>
<td>Earnings multiple approach</td>
<td>1.36</td>
<td>1.79</td>
<td>2.01</td>
</tr>
<tr>
<td>Discounted payback period</td>
<td>1.26</td>
<td>1.58</td>
<td>1.55</td>
</tr>
<tr>
<td>Real options</td>
<td>1.20</td>
<td>1.40</td>
<td>1.57</td>
</tr>
<tr>
<td>Profitability index</td>
<td>0.48</td>
<td>0.88</td>
<td>0.75</td>
</tr>
<tr>
<td>Adjusted present value</td>
<td>0.38</td>
<td>0.93</td>
<td>0.72</td>
</tr>
</tbody>
</table>

Average usage on a scale of 0-4, ranked in descending order of New Zealand results.

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3 For a brief historical overview of economic development in New Zealand, see Colgate & Stroombergen (February 1993).
4 For example, see Trahan & Gilman (1995).
5 The accounting rate of return is deficient as a project evaluation technique as it uses accounting profits rather than cashflows, it fails to consider the time value of money and is not consistent with shareholder wealth maximisation.
The average usage of real options by New Zealand firms is lower when compared to either small or large US firms.

...period and hurdle rates may implicitly account for the presence of option-like features and that the successful application of these techniques in a small-firm setting may encourage their continued use.

Table 1 reports the “average usage” of each project evaluation technique, with a high average indicating higher overall usage of a particular technique. Comparing the averages of the most frequently used techniques (average greater than 2.0), in all cases the New Zealand results fell between the large- and small-firm US results. The more sophisticated techniques of NPV and IRR were most frequently used by large US firms, followed closely by New Zealand firms and lastly by small US firms. In contrast, the less technical payback period was used most frequently by small US firms, less so by New Zealand firms and least of all by large US firms. This suggests that New Zealand CFOs are reasonably “up with the play” with respect to their usage of “technically correct” techniques when compared to their counterparts in similar-sized US firms.

Interestingly, real options are often or always incorporated into the analysis for 25 per cent of New Zealand firms and 27 per cent of US firms. This reveals a high degree of sophistication in analyses given the practical difficulties of valuing real options. However, when all responses are considered (0 = never, 4 = always), the average usage of real options by New Zealand firms is lower when compared to either small or large US firms.

RISK AND PROJECT EVALUATION

Finance theory suggests that firms should make an adjustment for project risk when evaluating projects. This can be accomplished either by adjusting the rate used to discount the cashflows or by altering the cashflows themselves.

We asked CFOs how they consider risk in project evaluation. As shown in Figure 2, in...
both countries the most favoured risk assessment technique is sensitivity analysis, used always or almost always by 44 per cent of New Zealand firms and 52 per cent of all US firms. Simulation is less popular in both countries.

Examining Table 2 averages for inclusion of risk in project evaluation, the New Zealand averages fall between those of large and small US averages, indicating that New Zealand CFOs use risk analyses as sophisticated as those used by their US counterparts. This is in line with a 1999 survey by Kester et al, who found sensitivity analysis to be one of the most important techniques for assessing risk in the Asia-Pacific.

Table 3 reveals that the most important risk factors for New Zealand firms were interest rate risk, term structure risk, business cycle risk and inflation risk. The New Zealand results are very similar to the US small-firm results, with the most notable differences being that both interest rate and term structure risks are considered more by New Zealand than US firms.

Given New Zealand’s high volatility in interest rates, CFOs’ concerns about interest rate risk are well founded. Sellon and Weiner (1997) document that on average over the period 1990 to 1996, New Zealand’s interest rate volatility was higher than the US.

With respect to term structure risk, Reserve Bank of New Zealand interest rate data reveals considerable shifts in the relative position of the term structure from 1989 onward. As is consistent with normal expectations, short-term interest rates were at times lower than the long-term rates. However, in many periods the reverse was true when short-term rates exceeded long-term rates. Such a circumstance penalises short-term projects through increased financing costs and can dampen economic activity.

Consequently, the management of interest rate and term structure risks may well be more important in New Zealand than in the US due to

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**TABLE 2**

Risk assessment techniques in project evaluation

<table>
<thead>
<tr>
<th>Risk assessment techniques</th>
<th>NZ average</th>
<th>US average - small firms</th>
<th>US average - large firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity analysis</td>
<td>2.26</td>
<td>2.13</td>
<td>2.56</td>
</tr>
<tr>
<td>Simulation</td>
<td>0.81</td>
<td>0.76</td>
<td>1.22</td>
</tr>
</tbody>
</table>

Average usage on a scale of 0-4, ranked in descending order of New Zealand results.

**TABLE 3**

Risk factors considered in project evaluation

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>NZ average</th>
<th>US average - small firms</th>
<th>US average - large firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest rate risk</td>
<td>72%</td>
<td>54%</td>
<td>41%</td>
</tr>
<tr>
<td>Term structure risk</td>
<td>46%</td>
<td>28%</td>
<td>20%</td>
</tr>
<tr>
<td>GDP or business cycle risk</td>
<td>42%</td>
<td>40%</td>
<td>51%</td>
</tr>
<tr>
<td>Risk of unexpected inflation</td>
<td>40%</td>
<td>38%</td>
<td>38%</td>
</tr>
<tr>
<td>Size</td>
<td>38%</td>
<td>39%</td>
<td>27%</td>
</tr>
<tr>
<td>Commodity price risk</td>
<td>33%</td>
<td>25%</td>
<td>43%</td>
</tr>
<tr>
<td>Foreign exchange risk</td>
<td>32%</td>
<td>33%</td>
<td>62%</td>
</tr>
<tr>
<td>Market-to-book ratio</td>
<td>18%</td>
<td>15%</td>
<td>11%</td>
</tr>
<tr>
<td>Momentum</td>
<td>14%</td>
<td>19%</td>
<td>8%</td>
</tr>
<tr>
<td>Distress risk</td>
<td>9%</td>
<td>18%</td>
<td>19%</td>
</tr>
</tbody>
</table>

The percentage of CFOs who consider each risk factor, ranked in descending order of New Zealand results.
Many companies have tended to fully hedge actual transactions against exchange rate risk, thereby reducing the impact of foreign exchange movements on known future cashflows.

...to unique market factors and economic downturns in the early and late 1990s that were not evident in the US.

In contrast, large US firms considered foreign exchange risk to be most important, followed by business cycle risk, commodity price risk and interest rate risk. This is consistent with the greater emphasis among large US firms on risks relating to international trade, whereas small firms suffer more from exposure to risks relative to domestic economic conditions. In a small open economy like New Zealand’s, one would expect most firms to have some exposure to exchange rate risk. Also, given New Zealand’s fluctuating dollar value, it could be expected that exchange rate risk represents an important risk factor for New Zealand firms. Yet only 32 per cent of New Zealand CFOs surveyed consider foreign exchange risk when evaluating projects.

One possible explanation is provided by Atherfold (1999), who performed in-depth interviews with six large New Zealand companies that undertake substantial foreign direct investment. None of the interviewees considered foreign exchange risk, as most of them attempt to maintain a fully hedged balance sheet. Other research evidence has revealed that many New Zealand companies have in the recent past tended to fully hedge actual transactions against exchange rate risk, thereby reducing the impact of foreign exchange movements on known future cashflows.

Many New Zealand companies, such as The Warehouse, have expanded their operations offshore. To evaluate a new project in an open economy...

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**FIGURE 3**

Comparison of discount rates used for new projects overseas

<table>
<thead>
<tr>
<th>Company discount rate</th>
<th>Risk-matched discount rate</th>
<th>Overseas discount rate</th>
<th>Divisional discount rate</th>
<th>Different discount rate for each risk characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>NZ</td>
<td>US-all</td>
<td>NZ</td>
<td>US-all</td>
<td>NZ</td>
</tr>
</tbody>
</table>

The percentage of firms that “always” or “almost always” use selected discount rates for evaluating new overseas projects.

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6 See Prevost, Rose & Miller (2000), who examine the use of derivatives in New Zealand companies for the management of risk factors including exchange rate risk.
overseas market, finance theory suggests that firms should use a risk-adjusted discount rate. So we asked New Zealand CFOs how frequently their companies use particular discount rates when evaluating new overseas projects.

Of the 26 New Zealand firms sampled, only 16 (62 per cent) invest in overseas projects. As shown in Figure 3, 81 per cent of these companies always or almost always use a company-wide discount rate. A risk-matched discount rate was the second most popular choice at 46 per cent, followed by an overseas country discount rate at 27 per cent. These findings support those of Atherfold (1999), but are rather surprising, as a company-wide rate is appropriate only when the project financing and risk levels are identical to those of the firm overall.

Unreported results reveal that most New Zealand firms prepare a sensitivity analysis, analysing each project using more than one discount rate, while others adjust for risk through project cashflows. These tendencies perhaps highlight the difficulties that firms experience in determining the “correct” discount rate to employ. Comparing internationally, although the ranking of preferences was identical, New Zealand CFOs were more likely to use a company-wide discount rate as compared with US CFOs. The US results include both large and small firms, yet larger firms are likely to have more overseas investments and, therefore, be more motivated to devote resources to the rather complex task of determining appropriate risk-matched discount rates. Yet this would not explain why in the matched sample reported in Table 4, the average usage of company-wide discount rates was higher among New Zealand CFOs compared to their counterparts in US small firms (rating of 3.25 versus 2.50).

**COST OF CAPITAL**

Cost of capital is the average cost of financing a firm’s investments and it forms a key component of project evaluation. Interestingly, we found that 80 per cent of New Zealand CFOs estimate their firm’s cost of equity compared to only 64 per cent of their US peers. This demonstrates a high level of financial acumen among New Zealand CFOs. As shown in Table 5, the capital asset pricing model

### Table 4

Comparison of discount rates used for new projects overseas

<table>
<thead>
<tr>
<th>Discount rates</th>
<th>NZ average</th>
<th>US average - small firms</th>
<th>US average - large firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company discount rate</td>
<td>3.25</td>
<td>2.50</td>
<td>2.50</td>
</tr>
<tr>
<td>Risk-matched discount rate</td>
<td>2.00</td>
<td>1.86</td>
<td>2.36</td>
</tr>
<tr>
<td>Overseas discount rate</td>
<td>1.27</td>
<td>1.49</td>
<td>1.84</td>
</tr>
<tr>
<td>Divisional discount rate</td>
<td>1.27</td>
<td>0.82</td>
<td>1.09</td>
</tr>
<tr>
<td>Different discount rate for each risk characteristic</td>
<td>0.62</td>
<td>0.68</td>
<td>0.64</td>
</tr>
</tbody>
</table>

Average usage on a scale of 0-4, ranked in descending order of New Zealand results.

### Table 5

Method of estimating the cost of equity capital

<table>
<thead>
<tr>
<th>Estimation method</th>
<th>NZ average</th>
<th>US average - small firms</th>
<th>US average - large firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPM</td>
<td>3.40</td>
<td>2.49</td>
<td>3.27</td>
</tr>
<tr>
<td>Equity average historical returns</td>
<td>1.31</td>
<td>1.80</td>
<td>1.65</td>
</tr>
<tr>
<td>CAPM plus additional risk factors</td>
<td>0.12</td>
<td>1.39</td>
<td>1.70</td>
</tr>
<tr>
<td>Discounted dividend/earnings model</td>
<td>0.05</td>
<td>0.96</td>
<td>0.87</td>
</tr>
<tr>
<td>What investors require</td>
<td>0.04</td>
<td>1.22</td>
<td>0.54</td>
</tr>
<tr>
<td>Other</td>
<td>0.00</td>
<td>0.37</td>
<td>0.50</td>
</tr>
</tbody>
</table>

Average usage on a scale of 0-4, ranked in descending order of New Zealand results.
(CAPM) is by far the most popular technique for estimating cost of equity in both New Zealand and the US. In fact, it is used more by New Zealand firms than by either small or large US firms. This is unexpected as the CAPM is notoriously difficult to apply correctly, especially in a small market like New Zealand with a dividend imputation tax system.  

Notwithstanding the criticisms of the CAPM and its variants, finance theory has been unable to offer a more robust, workable alternative. CFOs are left with the choice of adopting the less-than-ideal modified CAPMs or employing alternative models such as those that consider firm size or the book/market ratio.

**IMPLICATIONS FOR MANAGERS**

So what insights can managers draw from the above? Our results reveal that New Zealand CFOs use relatively sophisticated techniques for project evaluation and cost of capital determination. Structural changes in the New Zealand economy have led firms to adopt a market-led orientation and it is reasonable to assume that such a competitive environment requires that New Zealand financial managers adopt the latest and best financial management practices. Our recommendations for project evaluation and determination of cost of capital are:

- Use the best project evaluation techniques. Managers should review their project evaluation practices to ensure that sound techniques such as NPV and IRR are routinely employed. Consideration should also be given to the presence of real options and how they may affect the value of projects.

- Assess project risk. The risk inherent in new projects needs to be assessed both qualitatively and quantitatively. The latter may be incorporated by adjusting cashflows or project discount rates.

- Consider the method used for determining the firm’s cost of capital. Firms need a theoretically sound method for determining the cost of equity capital. The most widely used approach is the CAPM, but it is difficult to use and can easily yield misleading results if applied incorrectly. Modern research has been unable to offer a more robust, workable alternative.

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7 New Zealand and other research have indicated that in thinly traded markets like New Zealand, where many shares do not trade daily, the basic CAPM model requires modification (see Dimson & Marsh 1983, Ibbotson, Kaplan, & Peterson 1997, and Bartholdy & Riding 1994). This problem for many of the NZSE listed companies is further compounded by the dominance of Telecom in many of the major indices. For example, as Telecom represents approximately a quarter of the NZSE40 index, the index is greatly manipulated by changes in Telecom’s share price, thereby biasing the betas used in the CAPM. Furthermore, the conventional CAPM model was developed assuming a classical system of dividend taxation that operates in the US. Modifications are needed in order to apply it correctly in New Zealand where a dividend imputation system operates. For a useful summary of the research on the cost of capital in a dividend imputation environment see Bowman & Marsden (1996). Lally (1996) points out that estimates using a domestic CAPM model can be biased by up to 60 per cent in the circumstance of when an international version is more appropriate.


9 Real options include the option to abandon a project, the opportunity for further follow-on investments, the choice to delay a new investment and the chance to vary production levels. The inclusion of real options in project evaluation is discussed in Brealey, et al (2000).
to provide any robust, workable alternatives, although factors such as firm size and the book/market ratio may hold some promise.

The differences in the financial management practices as investigated in this article between New Zealand and American CFOs tend to reflect differences in firm size and environment. Small listed firms tend to adopt less sophisticated financial management practices than large listed firms, perhaps because CFOs in smaller firms benefit from closer involvement in day-to-day operations. Given the distinctive features of the New Zealand market, including the dividend imputation taxation system and the absence of a capital gains tax, it is particularly important for New Zealand managers to consider the relevance and applicability of the financial techniques they employ.

GLOSSARY
A brief non-technical definition of each of the key techniques mentioned in this article:
Accounting rate of return (ARR) – a technique for measuring project return by dividing the annual accounting profit by the initial investment.
Capital asset pricing model (CAPM) – estimates the expected return for an investment. The model assumes investors will demand the risk-free rate (e.g. interest yield on government stock) plus a premium to compensate them for the risk of the investment. The risk premium is measured using beta.
Net present value (NPV) – the value in today’s dollars of all cashflows generated by a project. This technique measures the change in firm wealth as a result of implementing a project.
Payback period – measures the length of time it takes for a project to recover its initial investment.
Sensitivity analysis – technique that helps to assess project risk. The technique manipulates one or two variables (e.g. a project’s expected sales) at a time to determine the effect on an outcome (e.g. a project’s NPV).
Simulation – assesses project risk by generating a probability distribution that indicates the most likely outcomes of a project. A computer is typically used to simulate the probable outcomes.

ACKNOWLEDGEMENTS
Many thanks to John Graham and Campbell Harvey for allowing us to use and adapt their survey of financial management practices of American chief financial officers. The authors also appreciate the helpful comments made by Professor Larry Rose and two anonymous referees.

REFERENCES
View all our chief financial officer vacancies now with new jobs added daily! Opportunity for an up and coming Financial Controller to join a high growth business and fast track their career to CFO level, based in Queenstown. Save. Chief Financial Officer. Listed twenty four days ago24d ago at Wolfbrook Property Group. This is a Full Time job. location: Canterbury Canterbury. area: Christchurch Canterbury. classification: Accounting. Many countries such as the United Kingdom and New Zealand are dependent on international trade. Click card to see the definition 👆. Tap card to see the definition 👆. If a country has a currency, importers and exporters may have to keep changing the prices of their goods. floating. Some countries try to be in certain commodities so that they are not dependent on imports. self-sufficient. It is better to start exporting on a small and then expand if things go well. New Zealand - English. Pakistan - English. Singapore - English. The Chief Financial Officer (CFO) is often the ultimate position for a finance career. You're as high as you can go in a company, the only person above you operationally is the Chief Executive Officer, then there are the owners entrepreneur, shareholders, chairman who you have to report to and keep happy. The CFO has complete oversight of an organisation's financial operations and has a significant amount of responsibility for the overall business strategy and performance. The CFO role comes with wide-ranging responsibility and accountability, as well as a high level of job satisfaction. says Paul McDonald, Robert Half senior executive director.