
Contemporary Issues

An International Comparison of Derivatives Use

Henk Berkman, Michael E. Bradbury, and Stephen Magan

Henk Berkman is a Senior Lecturer, Michael E. Bradbury is a Professor, and Stephen Magan is a Research Assistant in the Department of Accounting and Finance at the University of Auckland.

In this paper, the results of a survey of derivatives use by 79 New Zealand (NZ) firms are presented and compared to the results of earlier *Financial Management* surveys. The main issue we address is whether derivatives use is a phenomenon that is primarily limited to the sophisticated and liquid financial markets of the US. We find that compared to US firms, NZ firms are more active derivatives users (relative to their size) and have more extensive reporting systems. However, the objectives of financial risk management are very similar for firms in both countries.

■ Recent surveys by Bodnar, Hayt, and Marston (1996); Bodnar, Hayt, Marston, and Smithson (1995); and Phillips (1995) present descriptive evidence on the use of derivatives by US nonfinancial firms. The purpose of this paper is to describe derivatives use of a sample of New Zealand (NZ) firms and compare this with the results of these US surveys. The main issue we address is whether derivatives use is a phenomenon that is primarily limited to the sophisticated and liquid financial markets of the US.

The focus on a small economy such as that of NZ provides an interesting perspective. The objectives of financial risk management are very similar for both NZ and the US. Perhaps surprisingly, we also find that compared to US firms, firms in NZ are more active derivatives users (relative to their size) and have more extensive management reporting systems.

We sent questionnaires to 124 public companies listed on the New Zealand Stock Exchange (NZSE) on 31 December 1996.¹ We received a total of 79 useable responses, which represents a response rate of 63.7%. Of these respondents, 42, or 53.1%, replied that they

¹Six firms were not surveyed because they are either financial institutions, or they are overseas firms listed on the NZ Stock Exchange.

use derivatives. This compares to 35% (1994) and 41% (1995) of the respondents in the US surveys. In their analysis of audited financial statements of NZ firms, Berkman and Bradbury (1996) report a 48% use rate.

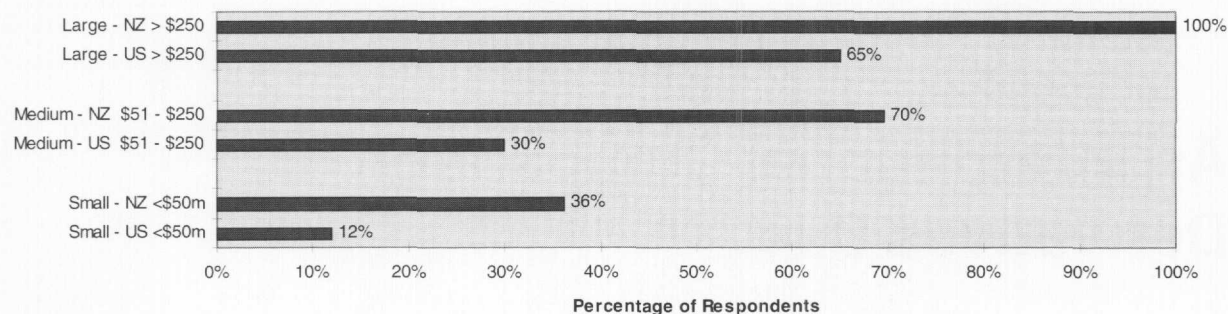
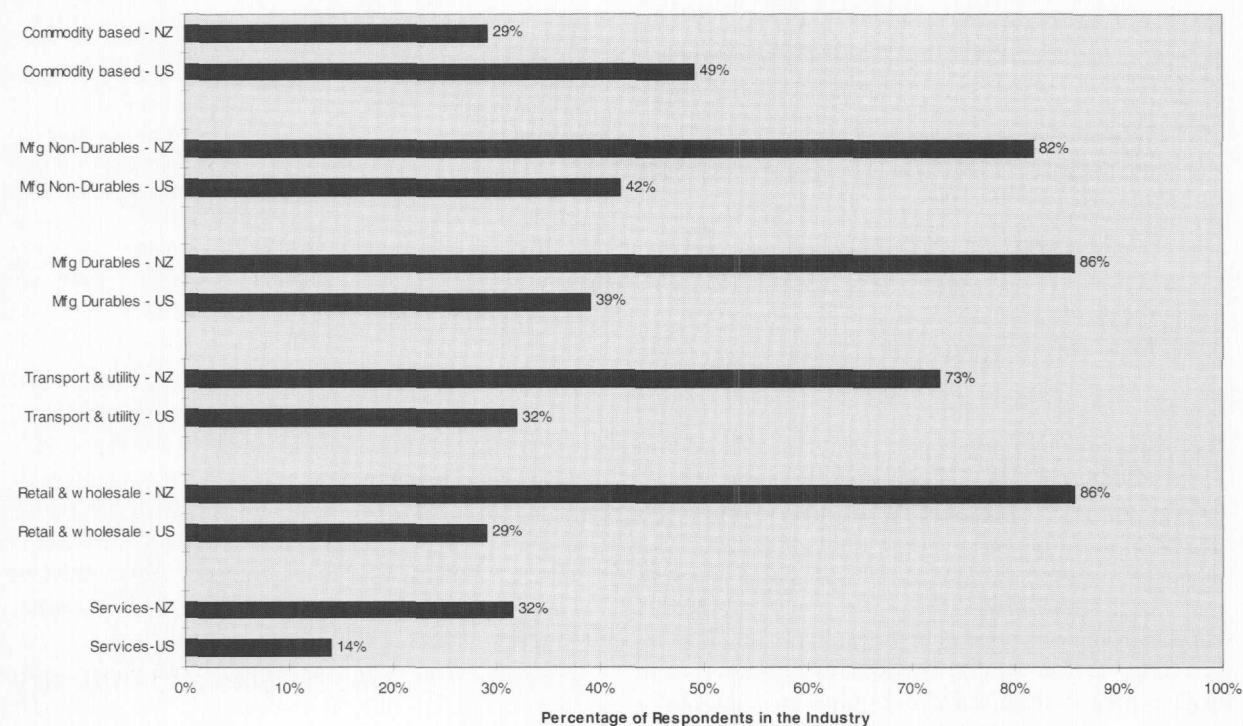
The remainder of the paper presents the results of the NZ survey and a comparison with the US results.

I. Derivatives Use by Size and Industry

Figure 1 presents the responses of our sample firms analyzed by firm size, and provides a comparison with the results of the Bodnar et al. (1995) survey. Figure 1 shows that in NZ, 100% of the firms with market value of equity greater than \$250 million use derivatives, compared to 65% in the US.² Of the firms with market equity less than \$50 million, 36% of NZ firms use derivatives, compared to 12% of US firms.

The same pattern holds for firms with market equity between \$50 and \$250 million, with 70% of NZ firms using derivatives compared to 30% of US firms. Clearly, relative to their size, NZ firms are more active derivatives users. This result might seem surprising,

²To ensure comparability on the size criteria, we translated the market equity of NZ firms to US dollars, using the US dollar to NZ dollar exchange rate of 31 December 1996.

Figure 1. Use of Derivatives by Firm Size**Figure 2. Use of Derivatives by Industry**

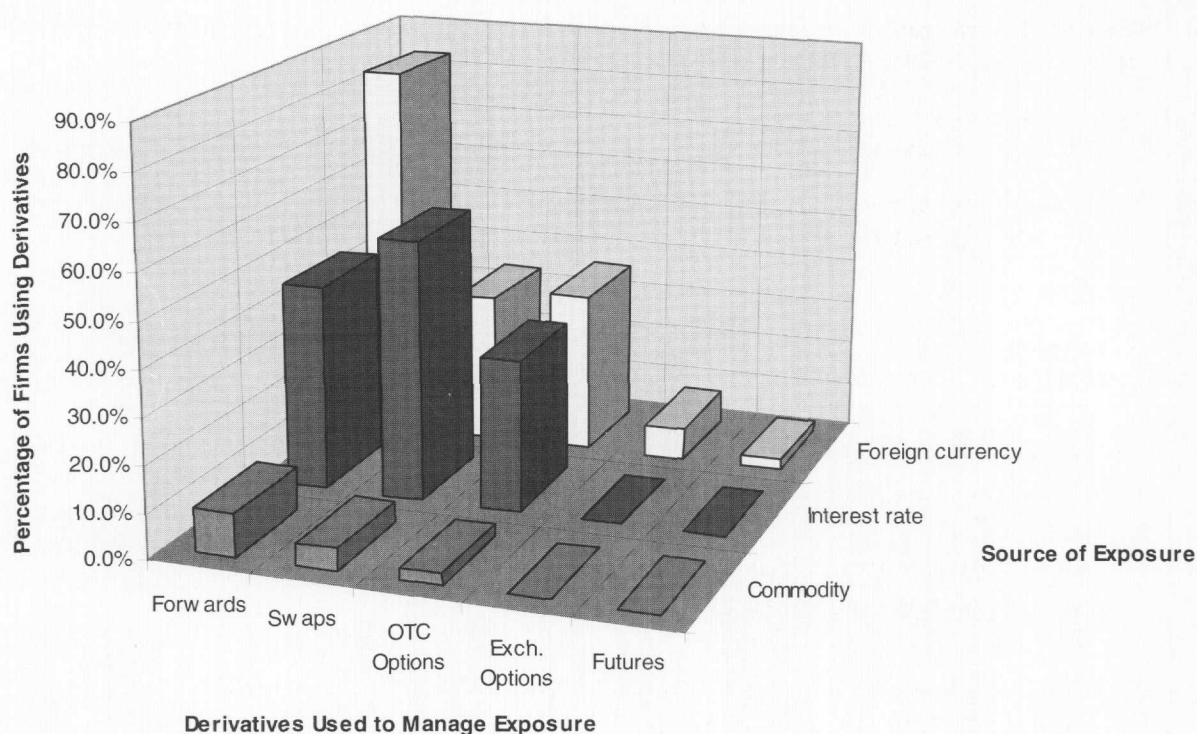
given that transaction costs for most NZ dollar financial products are substantially higher than similar US dollar products. However, firms in a small open economy such as New Zealand's are more likely to be more exposed to currency movements than are US firms. Therefore, the use of derivatives seems to be the result of the need to manage risks rather than their availability as low-cost financial instruments.

Figure 2 analyzes the use of derivatives by industry. The use of derivatives is greater for all NZ industry sectors, with the exception of the commodity-based industries, whereas in the US, the commodity-based firms (agriculture, refining, and mining) are the largest derivative users. A possible explanation for this difference is that many of the mining firms in the NZ sample are explorers rather than producers. In both

NZ and the US, the use of derivatives in the services industry is relatively limited.

II. Types of Risk Hedged and Choice of Instruments

We also asked firms to indicate their use of derivatives to manage foreign-currency risk, interest-rate risk, and commodity-price risk. The types of derivatives used are classified as over-the-counter (OTC) products (i.e., forwards, swaps, and options) or exchange-traded products (i.e., futures and options). The results are summarized in Figure 3. Comparing our results with those of Bodnar et al. (1995), only 7% of NZ firms use derivatives to manage commodity-price exposure, compared to 37% in the US. The use of

Figure 3. Use of Derivatives by Exposure and Type of Instrument

derivatives to manage foreign-exchange and interest-rate risk exposures is similar in both countries. In NZ, all firms that hedge use OTC products and only 9% use exchange-traded derivatives. In the US, the use of exchange-traded derivatives is greater than the use of OTC derivatives.

We also asked if the firm hedged by means other than derivatives. Over 70% responded that they use foreign debt financing as a financial hedge; 65% indicated the use of foreign operations as natural hedges. When asked what was the main currency to which the firm was exposed, 68.6% of derivative users replied the US dollar, 28.5% the Australian dollar, and 2.9% the Japanese yen.

III. Objectives of Derivatives Use

In Figure 4, we compare the objectives of derivatives transactions. The use of derivatives to reduce funding costs is a major factor for NZ firms (69%), compared to US firms (43%). This finding probably reflects the overseas borrowing by some NZ firms who wish to tap into more liquid overseas financial markets. Other reasons for derivatives use are very similar between the two countries: 79% of NZ firms hedge contractual commitments, compared to 80% of US firms; 83% of NZ firms hedge transactions anticipated within 12 months, compared to 77% in the US; and 48% of NZ firms hedge transactions anticipated beyond 12 months, compared

to 50% of US firms. It is evident from Figure 4 that NZ firms use derivatives more frequently than do their US counterparts, which suggests higher risk exposure.

Figure 5 describes the respondents' views on the most important objective of derivatives use. Reducing the fluctuations in earnings is the major objective mentioned by 62% of respondents (49% in the US); 28% of respondents (42% in the US) perceive reduction of cash flow variance as the primary objective. A possible reason for the larger emphasis on reduction of earnings variance is that under NZ accounting standards, firms are allowed to account for short-term hedges at the forward rate. In these cases, the reduction in accounting earnings is equivalent to a reduction in cash flow variance.

From Figure 5, we also see that 10% of NZ firms (8% of US) mention reducing fluctuations in the market value of the firm as the primary objective of derivatives use. None of the respondents claimed to be using derivatives for speculating, and none suggested that minimizing expected taxes was a benefit.³

³Our survey could contain errors on the expected reduction in taxes. We were hoping our survey would elicit some response on the use of derivatives to minimize the variance in taxable income, thereby increasing the present value of tax losses. We believe that respondents answered on the basis of whether financial instruments were used in schemes to avoid or defer tax. In NZ, financial instruments are marked to market for tax purposes, hence there is no benefit in using financial instruments to avoid or defer tax.

Figure 4. Reasons for Derivatives Transactions

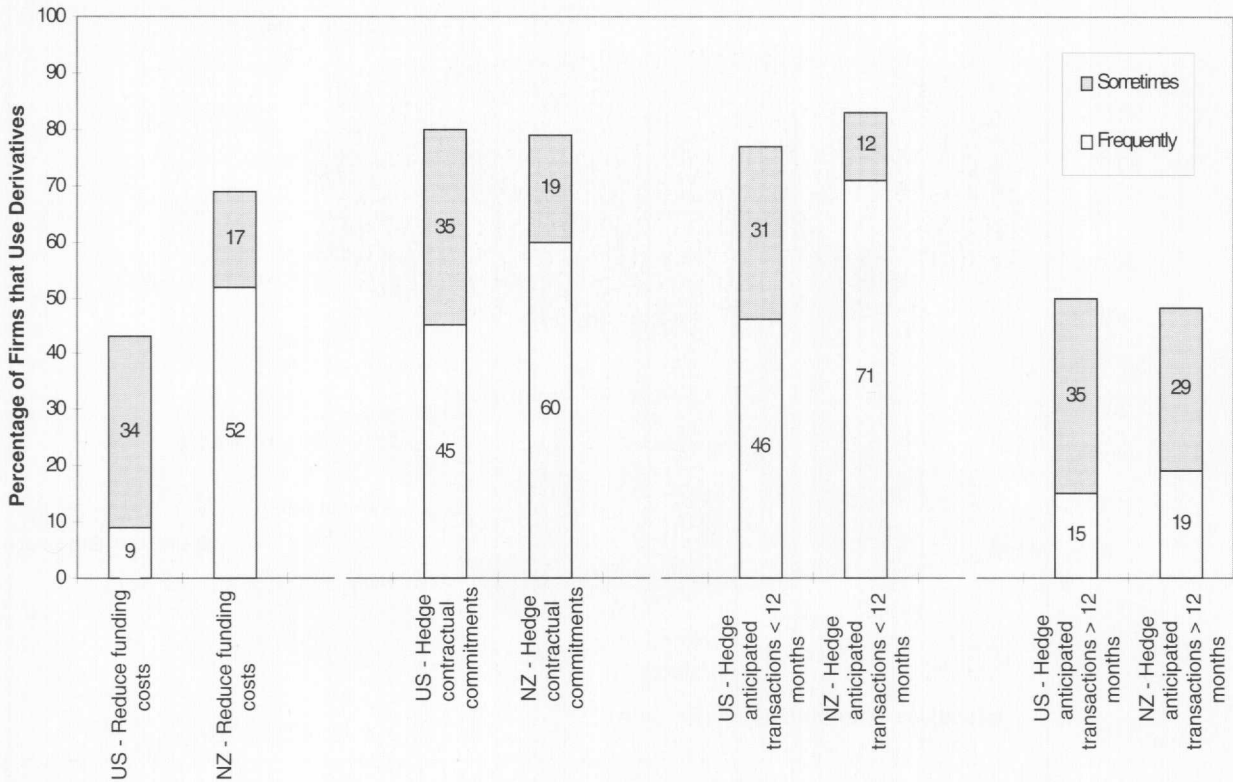
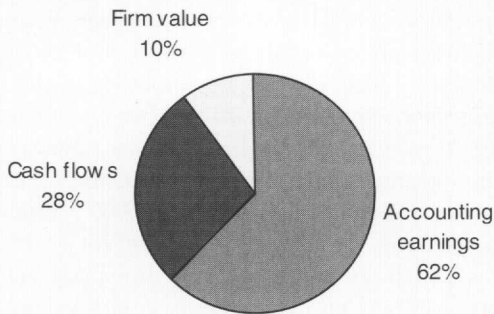


Figure 5. Most Important Objective of Derivatives Use



IV. Reporting and Control

Similar to Bodnar et al. (1995), we focus on the management control of derivatives activity. Figure 6 presents the reporting frequency of derivatives positions to the board of directors. Over 61% of NZ firms report monthly, compared to only 7% in the US. In the US, quarterly reporting is more prevalent (26%), compared to only 6% in NZ.⁴ Both countries have a large percentage of firms with no set reporting schedule, 27% in NZ and 53% in the US. The shorter

⁴The NZSE does not require quarterly reporting.

reporting frequency in NZ could be a function of the more frequent use of derivatives by NZ firms, as observed in Figures 1 and 2.

Figure 7 reports the use of different software for managing derivatives activity. In NZ, managers do not rely heavily on outside vendors for management of their derivatives positions. As in the US, reliance on commercially available spreadsheets and internally developed software is the norm.

V. Conclusions

The purpose of this paper is to compare the use of derivatives between nonfinancial firms in New Zealand and the United States. New Zealand is a small open economy with a less well-developed financial infrastructure than that of the US. Despite this, we find that across all firm sizes, relatively more NZ firms use derivatives. This greater use of derivatives despite higher transaction costs reflects the relatively high risk exposure of NZ firms. We also find that NZ firms report more frequently on their derivative positions to their boards of directors than do US firms. However, the types of transactions that derivatives are being used to hedge and the objectives of risk management are very similar between NZ and US firms. ■



Figure 6. Reporting Frequency to Board of Directors

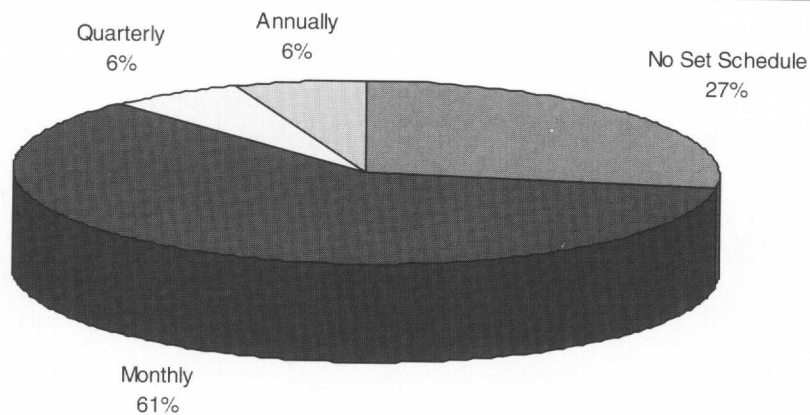
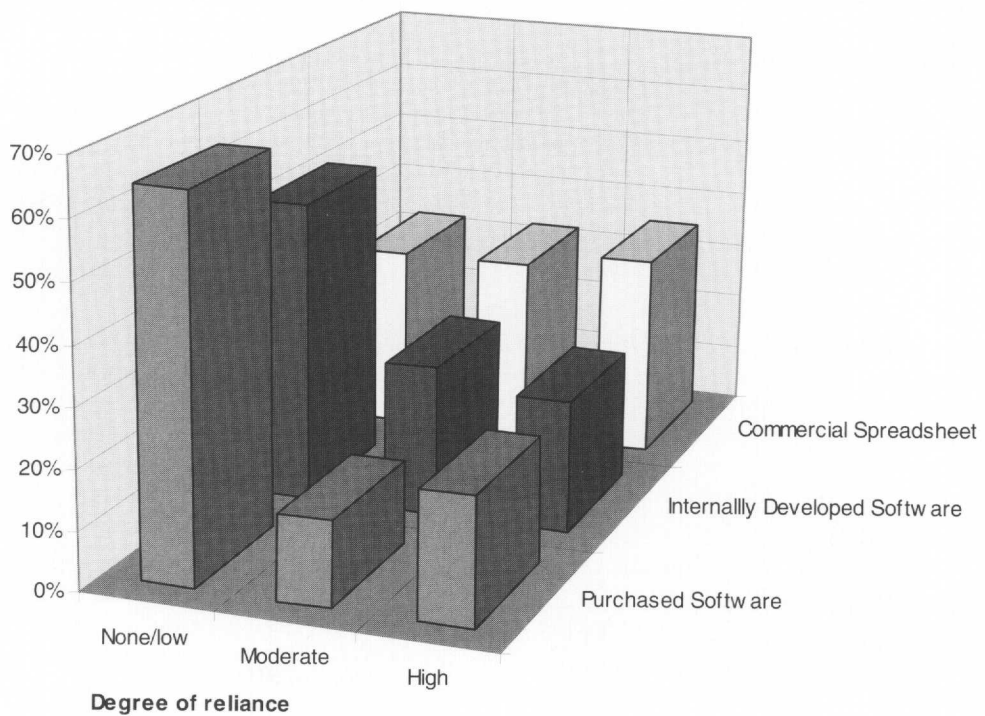


Figure 7. Software Used to Manage Derivatives Activity



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