Sub-theme: Managing risks and debt

NEW ZEALAND DAIRY FARMERS' DEBT MANAGEMENT STRATEGIES

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Abstract

New Zealand's dairy farming sector has changed dramatically over the last two decades. As a result of growth in demand, dairy farms have become more intensive in production, more capital-intensive and have more debt. Previous empirical studies show, rather than keeping debt low, dairy farmers in New Zealand are more focused on monitoring and managing debt to control financial risk. Despite this, little is known about the structure of debt and the debt management strategies that dairy farmers use within their farm businesses. So, the objectives of this study are to provide insights into New Zealand dairy farmers' debt structure and the strategies they use to manage debt.

Results on farmer determinants for leverage ratios indicate an awareness of the reality of farming in an unprotected environment and the need to have their own backstop for poor years, at the same time as having the agility to capture opportunities when they arise. While adopting floating rates has taken precedence over fixed rates in recent years the most important determinant of debt amortization policies is debt repayment. This strategy suggests a strong focus on liquidity, or cash, with the farmers maintaining control on when cash is spent.

Keywords: dairy farming, New Zealand, financial management, debt management

1. Introduction

New Zealand (NZ) dairy farming has undergone dramatic changes in the 21st century. The formation of the Fonterra Co-operative Dairy Company in 2001 and strong global demand for dairy products over the past two decades provided the NZ dairy farming industry with the opportunity for rapid expansion. At farm level, average herd size and farm size increased by 53% and 43%, respectively from the 2001/02 season to the 2016/17 season.

Similarly, milksolids (MS) production per hectare and MS per cow increased by 30% and 24%, respectively.

The increase in profitability and strong demand for dairy products was concurrent with periods of relatively low interest rates that fuelled a substantial increase in land prices, and also the opportunity for significant equity growth. Historical data on dairy farm wealth creation shows that average dairy farm equity (owner's funds or net worth) increased by 8.9% over a 16 year period (Figure 1). A closer look at the components of equity growth highlighted that, on average, over 90% of the growth is driven by capital appreciation, with profits from the dairy farming operation contributing less than 10% of this equity growth (Figure 1).

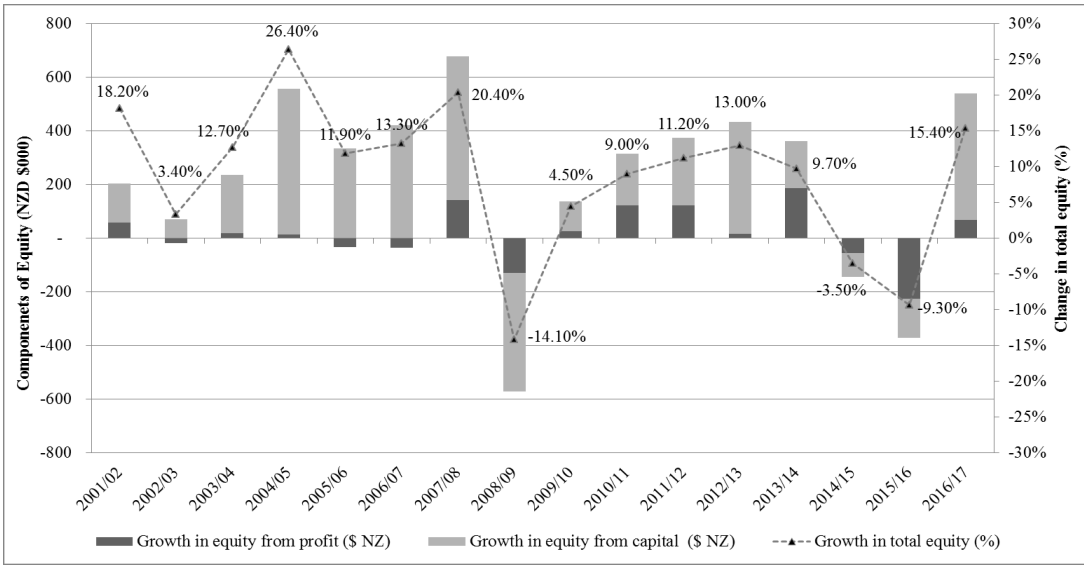

Figure 1. Equity change and components of Equity (Source: DairyNZ)

The rapid expansion in NZ dairy industry has largely been funded by debt (DairyNZ, 2015, Greig, 2010, Shadbolt *et al.*, 2013b). A Reserve Bank of New Zealand (RBNZ) report (2016) shows the total liabilities of the dairy industry almost trebled over the past decade reaching NZ$ 45 billion in 2016. In the 2016/17 season the average debt-to-asset ratio of NZ dairy farmers was 49.4% (Figure 2). The increase in debt and the high proportion of equity growth from capital appreciation led to several commentaries on the so-called farming for capital gain strategy (Simmons, 2017, Hickey 2011). It also raised concerns about the long-term viability of dairy farming (Woodford 2017) and prudency of the NZ financial system (Rotherham, 2015, Ruth, 2015, Mackenzie, 2018).

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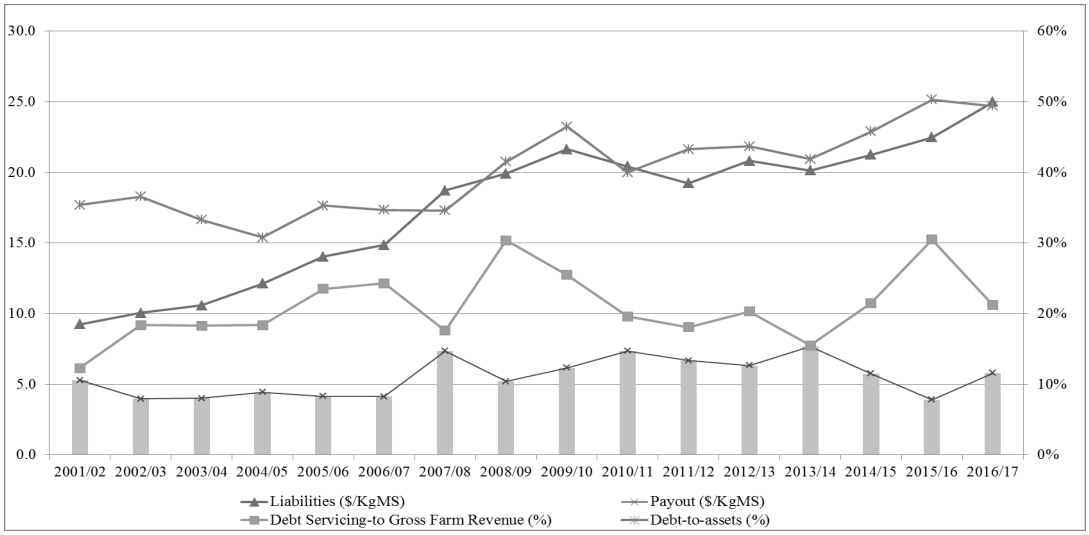

Figure 2. Dairy farming debt and liabilities (Source: DairyNZ)

Empirical studies on dairy farm risk management strategies also showed a shift from a "keeping debt low" strategy in the mid 1990's (Martin, 1996) to "debt management" and "planning of capital expenditure" strategies in the 21st century (Shadbolt and Olubode-Awosola, 2016, Pinochet-Chateau *et al.*, 2005, Duranovich, 2015). Despite this work, with the exception of Gray *et al's* (2014) research on dairy farm financial management, no empirical research has been undertaken to understand NZ dairy farmers' debt management strategies. Therefore, there is little research available for industry and policy makers on dairy farmers' debt management strategies. As such, the main aim of this paper is to provide insights into NZ dairy farmers' debt structure and debt management strategies.

2. Literature review

2.1. Leverage ratio:

Using debt funds to finance a farm' activities requires that a share of the operating profit must be allocated to cover the cost of debt (Purdy et al., 1997, Barry and Ellinger, 2012). Theoretically, higher debt levels increase the variation in expected returns (Escalante and Barry, 2001) and also increase the potential for a loss of equity capital (Ahrendsen et al., 1994). Therefore, the higher the debt level the greater the financial risk leverage for farmers (Barry and Ellinger, 2012). As such, keeping debt low (Shadbolt and Martin, 2005) or maintaining strong equity capital positions (Boehlje, 2002, Barry and Ellinger, 2012) is known as an important risk management strategy to protect farmers equity (Barry and Ellinger, 2012, Hardaker et al., 2015).

Several theories in corporate finance have been developed to explain the choice of capital structure in a business. This include trade-off theory (Modigliani and Miller, 1958), pecking order theory (Myers, 1984), and signalling theory (Jensen and Meckling, 1976).

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Although these theories provide insights into farmers debt policy (Zhao *et al.*, 2008, Barry *et al.*, 2000) they are not directly applicable to a farming context, because farm businesses are quite different from publicly traded firms (Wu *et al.*, 2014, Ahrendsen *et al.*, 1994). To overcome this shortcoming, Collins (1985) and Barry *et al.* (1981) proposed an expected utility model (Collins-Barry model) for analysing the optimal capital structure (debt-to-asset ratio) of farm businesses.

Based on the Collins-Barry model, farmers are risk-averse decision-makers who are trying to maximise their expected return on equity. The impact of different factors such as expected variance in the return on assets, expected rate of return on assets, cost of debt (interest rate), and farmer's degree of risk aversion is then analysed. Extended versions of the Collins-Barry model have also been developed to test the impact of additional factors such as tax and depreciation on the choice of capital structure (See for example Ahrendsen *et al.* (1994)).

No previous studies have examined NZ dairy farmers' optimal debt-to-asset ratio or the factors that determine their choice of capital structure. This latter statement is of particular importance because macroeconomics, financial, and legal (particularly tax system) factors in NZ are different to those in the US and EU where these financial theories including Collins-Barry model were initially developed and tested. Therefore, this paper seeks to investigate what factors influence the leverage ratio decisions of NZ dairy farmers.

2.2. Interest rate variation

In addition to the risk arising from the use of debt financing, farmers are also subject to variation in the borrowing cost of their loans. The results from a study by Leatham and Baker's (1988) using a stochastic programming model for a representative corn-soybean-hog farm in the Midwest highlighted that there is no correlation between the return on farm assets and interest rates changes. Therefore, an increase in interest rates potentially can diminish farms' financial position. As such, strategies to manage interest rate risk are other important decisions in relation to debt management (Leatham and Baker, 1988, Barry and Ellinger, 2012).

Two debt financing options available to farmers are fixed-rate and floating-rate loans. For floating-rate loans, farmers take the risk arising from variation in the borrowing costs, whereas in fixed-rate loans, farmers transfer the borrowing cost risks to the lending institutions, but pay an interest rate premium charge (Leatham and Baker, 1988).

LaDue and Zook (1984) investigated the influence of interest rates changes on the financial position of a sample of dairy farms in California. Their results show when interest rates trend up floating-rate loans reduce the capacity of farms to service the debt whereas in a

declining interest rate environment, floating-rate loans provide an advantage over fixed-rates loans and increase the capacity of farms to service the debt. Finally, an interest rate environment with no particular trend produces similar results with either type of loans (LaDue and Zook, 1984).

Leatham and Baker's (1988) findings also indicate that farms might be interested to pay an interest premium charge to mitigate the risk arising from variations in the borrowing cost. However, demand for fixed-rate loans is sensitive to the size of interest rate premium (Leatham and Baker, 1988).

Vickery's (2008) multiple-case study of SMEs showed that credit-constrained firms (higher debt-to asset-ratio) are more likely to use fixed-rate loans because they are more vulnerable to rising interest rates. Similarly, Campbell and Cocco (2003) found that in the housing industry, households with volatile income streams were more likely to default on their loans if their income declined and/or their loan repayments increased. Therefore, they concluded that homeowners with volatile income streams would be more inclined to choose fixed-rate loans because it minimizes the likelihood of loan default (Campbell and Cocco, 2003).

In summary, studies in agriculture indicated that interest rates variation potentially can increase the variability of cash-flow and may reduce the capacity of farms to service the debt (Pederson *et al.*, 1991). These studies also indicated that the advantage of fixed-rate versus floating-rate loans depends upon the interest rate environment (LaDue and Leatham, 1984) and the interest rate premium charged (Leatham and Baker, 1988).

No empirical study in NZ has explored the factors that influence dairy farmers' choice between fixed-rate and floating-rate loans. Therefore, the second objective of this study is to investigate the factors that influence the choice between fixed-rate loans and floating-rate loans in NZ dairy industry.

2.3. Debt amortization

Another important decision in relation to debt management is the choice of debt amortization policy. The amortization structure refers to the size of the principal payments over the life of a loan. With respect to amortization, dairy farmers in NZ can choose between two main types of loans: principal-and-interest[1] loans (also called conventional or table loans) and Interest-Only[2] loans (also called non-conventional or flexible loans).

[1] Principal-and-interest loans are defined as having scheduled repayments and include revolving credit loans which have a scheduled reducing limit (RBNZ).

[2] According to RBNZ, interest-only loans are defined as having no scheduled repayments. This includes loans where borrowers independently choose to repay principal.

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Principal-and-interest (P&I) loans are loans that require periodic payments consisting of an interest payment and a principal payment in that the principal payment can be increasing, reducing, or constant (Shadbolt and Martin, 2005). Interest-Only (IO) loans are loans where the borrower pays the interest accruing on loans on a monthly basis, but principal repayment is at the borrower's discretion. The borrower is obliged to repay all remaining principal at the end of the loan's term.

None of the studies in agriculture context directly explored the effect of IO loans. However, a series of simulation and mathematical programming studies investigated the possible effect of non-conventional loans (with flexible principal payment structure) on the financial situation of representative farms (Baker, 1976, Rahman and Barry, 1981, Schnitkey and Novak, 1989). A number of inferences on the advantages and disadvantages of non-conventional loans can be made from these studies.

The first advantage of non-conventional loans is that they provide cash-flow flexibility for farmers (Barry and Robison, 2001). That is, farmers can match their debt repayments with farm returns This is particularly important in the early stages of an investment because the probability of cash-flow deficits then is higher (Shadbolt and Martin, 2005). Non-conventional loans also let farms free up funds for other investment activities (Ellinger *et al.*, 1983). Outside the farm management context, Larsen *et al.* (2018) stated that the tax deductibility of interest payments is another advantage of non-conventional loans. Schnitkey and Novak (1989) argue that non-conventional loans also have some disadvantages when compared to conventional loans. First, the total interest paid on non-conventional loans might be higher, and second, withdrawal from a debt-financed investment in a non-conventional loan might be slower (Schnitkey and Novak, 1989).

No empirical study specifically exploring the determinants of choosing P&I loans versus IO loans have been found. So the third objective of this study is to explore the factors that determine the choice between P&I loans versus IO loans.

3. Methodology

A questionnaire was designed based on the findings of a series of semi-structured interviews with NZ dairy farm owners and on questions and statements related to dairy farm risk management in previous studies (Shadbolt and Olubode-Awosola, 2016, Gray *et al.*, 2014). After the initial design, the survey was tested to verify that the wording of statements and questions was appropriate for potential respondents. The questionnaire was 12 pages and covered different facets in eight sections (farm and farmer characteristics, risk preferences and risk profile, farm capital structure, debt management, liquidity management, financial management metrics and practices, perceived business

environment uncertainty over the long-term, and the use and importance of business risk management strategies). The survey also had separate questions that explored the motivations and determinants of debt-to-assets ratio policy, interest rate risk management policy, and debt amortization policy.

The questionnaire was distributed as either a postal or online survey to approximately 2000 dairy farm owners randomly selected from a database of industry levy payers. A reminder sent to the potential participants three weeks after the initial distribution, as the survey spanned between June 2017 and September 2017.

4. Results & discussion

4.1. Sample description

From the 2000 contacts that could potentially respond to the survey questionnaire, 526 responses (27.13%) were received of which 340 (17.53%) were usable. In comparison with industry averages taken from the DairyNZ Economic Survey (2018) farms in this sample are larger (both in terms of effective milking area and number of cows milked at peak). The stocking rate of the farms in the sample is slightly lower than the NZ average. The average production per cow and per hectare is similar to the NZ average. Finally, the stated debt-to-asset ratio of the farms in the sample is lower than the industry average (Table 1).

Table 1. Farm and farmer characteristics

	Average in survey (n=340)	Average (Owner-operators) in NZ (2016/17)
Effective milking area (ha)	219	149
Cows milked at peak	605	418
Stocking rate (cows/ha)	2.72	2.80
Production per cow (kg MS/cow)	389	380
Production per hectare (kg MS/ha)	1065	1063
Age[1] (%)	2.4/ 11.8/ 19.7/ 35.0/ 23.5/ 7.6	-
Education[2] (%)	25.1/ 12.0/ 17.7/ 15.9/ 9.0/ 10.5/ 9.9	-
Business stage[3] (%)	3.9/ 20.8/ 46.6/ 22.0/ 6.8	-
Ownership structure[4] (%)	39.8/ 11.8/ 17.3/ 17.9/ 7.6/ 5.4	-
Debt-to-assets ratio (%)	37.5%	49.4%

1. 20-30 years; 31-40 years; 41-50 years; 51-60 years; 61-70 years; 71 years or more.
2. NCEA level 1 / School Certificate; University Entrance NCEA level 2 or 3; Diploma graduate; Degree graduate; Postgraduate; Technical training qualification.
3. Entry; Growth; Consolidation; Entry of next generation; Exit.
4. Owner-operator; Owner with herd owning sharemilker(s); Owner with variable order sharemilker(s) or contract- milker(s); Owner with manager; Managing-partner in an equity partnership; Other.

4.2. Capital structure & policy

When asked their debt-to-asset ratios 12.8% of respondents stated they were less than 10% whereas debt levels of 25% of respondents were between 11%-30. Thirty five percent of respondents had leverage ratios between 31%-50% and 21% of respondents had leverage

ratio between 51% -70%. Only six percent of respondents had a leverage ratio of 71% or higher (Figure 3).

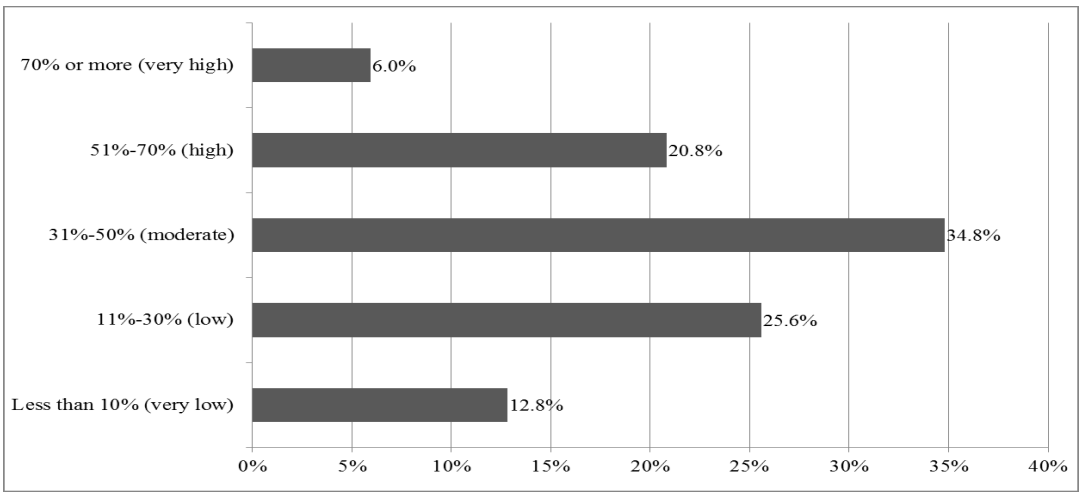

Figure 3. Distribution of debt-to-asset ratio (n=336)

Actual leverage ratios of farms vary through time (Barry and Ellinger, 2012). Such variability might occur because of strategic adjustment (risk balancing) in the financial position of a farm (Escalante and Barry, 2001), short-term fluctuations in farm assets (land) value, or as a result of debt increasing due to adverse weather conditions and low output price for two -three consecutive seasons (Shadbolt *et al.*, 2013a, Gray *et al.*, 2014). As such, the respondents were asked to indicate where their debt-to-assets ratios should be over the next 5-7 years (Figure 4).

The majority (73.4%) of the respondents believe they should decrease their leverage ratio in the coming 5-7 years. Some 17% of respondents believe their leverage should remain at current ratio. Only 9% of respondents believed they should increase their leverage ratio in the coming 5-7 years. This can be partly explained by the fact that dairy farmers experienced two consecutive seasons of downturn (2014/15 & 2015/16) that reduced farm incomes and forced some to borrow to meet operating costs (RBNZ, 2018b). When dairy prices recovered in 2016/17 season, farmers started to repay their debt and increase their equity ratio (DairyNZ, 2018). More recently the RBNZ has asked rural lenders to closely monitor vulnerable dairy debt so farmers are being asked to improve their equity buffers and increase their profitability (Stringleman, 2017).

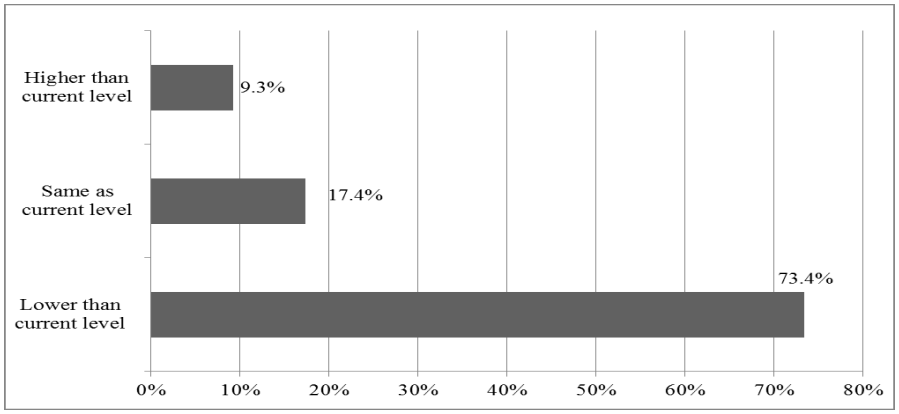

Figure 4. Respondents' anticipated debt-to-assets ratio over the next 5-7 years

The farmers were then asked to rank the factors that they use to determine the appropriate leverage ratio in the farm businesses (1: very low important, 5: very high important). Consistent with Barry-Collins hypothesis, results show that "expected income volatility" is the most important determinant of leverage ratio (Table 2).

Table 2. Distribution of respondents by leverage ratio determinants (n=337)

Variable	Mean	Std. Dev	Very Low	Low	Moderate	High	Very High
Expected income volatility	3.74	.88	1%	6%	28%	**45%**	**19%**
The ability to borrow further funds when unexpected opportunities and/or threats occur	3.71	.93	4%	4%	26%	**49%**	**17%**
Interest rates	3.49	.96	3%	9%	38%	**35%**	**15%**
Farm creditworthiness (as assigned by banks)	3.49	.98	4%	8%	34%	**40%**	**13%**
Availability of own funds	3.11	1.03	7%	18%	42%	**24%**	**9%**
Tax deductibility of interest	2.87	1.14	11%	28%	33%	**17%**	**10%**
The likelihood of insolvency or bankruptcy	2.68	1.40	25%	27%	18%	**13%**	**16%**

The second most important determinant of leverage ratio, "the ability to borrow further funds when unexpected opportunities and/or threats occur" (mean score= 3.71) refers to the financial flexibility in farm investment decisions. Congruent with Anastassiadis et al.'s (2015) conclusion, this finding confirms that dairy farmers intentionally create an equity buffer that can be used when unexpected investment opportunity or threat occurs.

Interest rates level scored as the third most important determinant of leverage ratio (mean=3.49). Shadbolt and Martin (2005) argue that interest rate is an indicator of the minimum expected rate of return from an investment (hurdle rate). Therefore, it is plausible that any increase in debt should be decided based on interest rate expectations. This is also confirmed the Barry-Collins hypothesis that proposed interest rates are influential on the optimal leverage ratio of the farms (Barry and Ellinger, 2012)

The next statements, "availability of own funds" have moderately high importance on leverage decision. This might be explained by the fact that due to the nature of faming

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businesses, it is not possible for farmers to fund their major investment activities (e.g. land acquisition) with their own funds (Barry and Ellinger, 2012). As such, it seems plausible that this factor has lower importance than the first four factors.

Finally, "the likelihood of insolvency influences their debt decisions" is the least important factor in the respondents' leverage decisions (score: 2.68 in Table 2). This might be explained by the fact that 73% have leverage of 50% or less (Figure 3) and that land appreciation over the past 20 years has helped farmers to keep their businesses solvent. As such, they are not concerned about insolvency.

4.3. Interest rate structure & policy

The distribution of respondents by their choice of fixed versus floating loans is presented in Figure 5. Thirty-two percent of respondents did not have any fixed rate loans whereas 42% had more than 50% of their loans as fixed. The rationale behind choosing fixed versus floating rate loans among NZ dairy farmers can be justified from empirical findings of LaDue and Zook (1984). At the time the survey was held the expectations were that the floating rate would remain low in the foreseeable future (RBNZ, 2017). Therefore, floating-rate loans have advantage over fixed-rates loans and increase the capacity of farms to service debt.

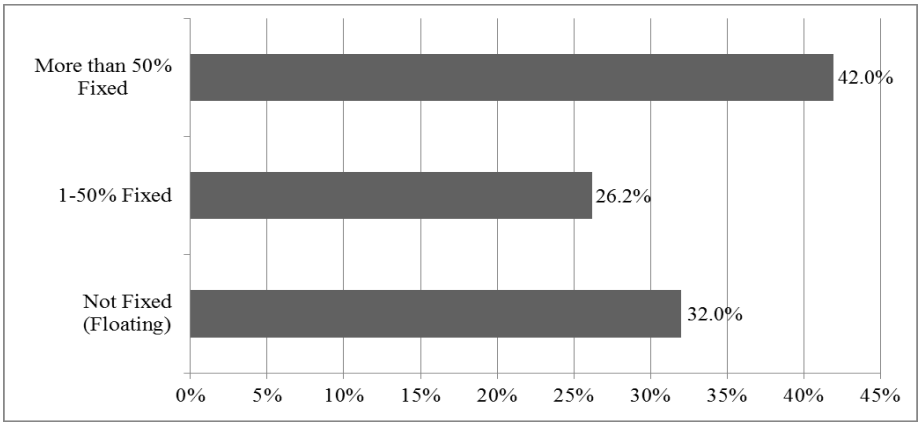

Figure 5. Distribution of respondents by the choice of fixed-rate loans (%)

The respondents were also asked to indicate the importance of a series of factors on the choice between fixed-rate versus floating-rate loans (Table 3). Consistent with Gray *et al.* (2014), these results show that "forecast interest rates at the time of borrowing" is an important determinant of the fixed-rate to floating-rate ratio policy.

The historical data in NZ dairy farming also corroborates the findings in this research (Figure 6). According to RBNZ (2016), the share of fixed-rate loans in total dairy loans was around 70% in 2003, peaked at over 80% in 2008 and then dropped dramatically to slightly over 30% in 2018. These figures again attest that NZ dairy farmers switch between

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fixed and floating loans depending on the expectations about interest rates (Shadbolt and Martin, 2005).

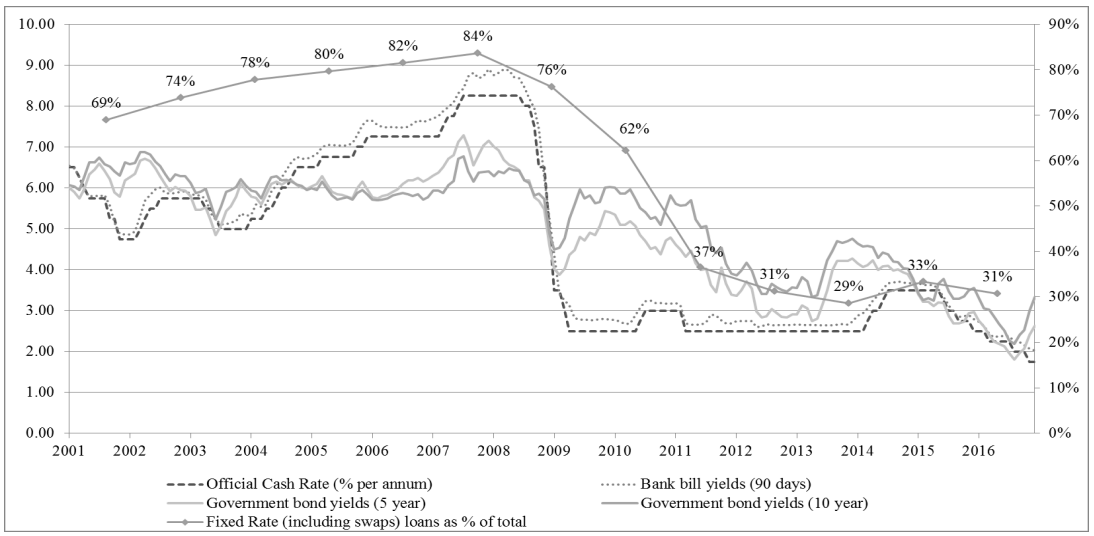

Figure 6. Historical interest rates and share of fixed- rate loans in dairy (Source: RBNZ)

The difference between fixed and floating rates at time of borrowing is the next important statement. The importance of this factor supports Leatham and Baker's (1988) simulation modelling that shows demand for fixed-rate loans is sensitive to the size of the interest rate premium. The next three statements "the flexibility of making additional repayment on floating loans", "certainty over interest rates on fixed-rate loans", and "the flexibility of restructuring or exiting on floating loans" reflect some trade-offs that farmers are facing when they want to make the decision about fixed and floating rate loans. Although fixed-rate interest provides certainty over interest expenses, it leaves farmers with limited scope for making adjustments in the interest payments structure because lenders apply early repayment fees on fixed-rate loans. Therefore, using floating-rate loans let farmers adjust their debt servicing structure and pay off additional debt without paying any early repayment fees.

Table 3. Importance of factors in choice of fixed-to-floating loans (n=318)

Variable	Mean	Std. Dev	Very Low	Low	Moderate	High	Very High
Forecast interest rates at the time of borrowing	3.72	.88	2%	6%	26%	**50%**	**16%**
The difference between fixed and floating rates at time of borrowing	3.70	.89	3%	4%	30%	**47%**	**16%**
The flexibility of making additional repayment on floating loans	3.55	1.02	4%	11%	29%	**39%**	**18%**
Certainty over interest rates on fixed-rate loans	3.52	1.03	5%	11%	27%	**42%**	**16%**
The flexibility of restructuring or exiting a floating loan	3.46	1.00	3%	14%	33%	**36%**	**15%**
Expected income volatility	3.39	.88	2%	11%	45%	**33%**	**10%**

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4.4. Debt amortization structure & policy

No data are available on IO loans in the dairy farming sector. However, as of December 2016, 75.7% of loans in agriculture sector were IO loans (RBNZ, 2018a). The distribution of respondents by debt amortization policy is presented in Figure 7. Some 68% of respondents only had IO loans, whereas 13.6% of respondents had less than 50% of their loans as IO.

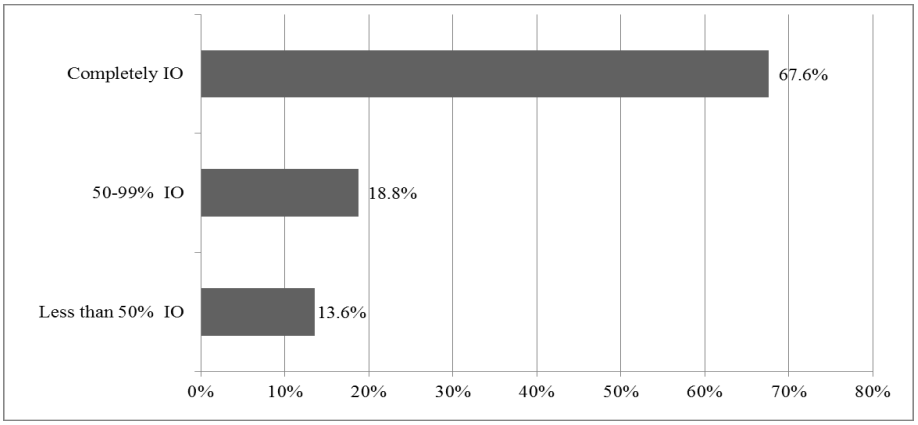

Figure 7. Distribution of respondents by the choice of IO loans (%)

This research seeks to identify the importance of different factors on the choice of debt amortization policy (Table 4). Results show "flexibility in the repayments" by far is the most important reason for choosing IO loans. Simulation studies on the impact of non-conventional loans also confirms that cash-flow considerations are the most important advantage of non- conventional loans over conventional loans (Barry and Robison, 2001). In contrast, "tax deductibility on interest" was the least important factor on debt amortization decisions. These two finding collectively may be explained by the fact that farmers do not follow the typical repayment plan of conventional loans. Instead, as also observed by (Gray *et al.*, 2014) dairy farmers are using IO loans to match their debt repayment with their cash-flow and repay principal as conditions allow.

Table 4. Distribution of respondents by the choice of debt amortization policy (n=280)

Variable	Mean	Std. Dev	Very Low	Low	Moderate	High	Very High
Flexibility in the repayments for interest-only mortgages	3.68	0.99	2%	9%	26%	**41%**	**22%**
Potential to borrow more on interest-only mortgages	3.08	1.04	7%	19%	39%	**26%**	**10%**
The difference between the initial amount paid on table-mortgages and the initial amount paid on interest only-mortgages	2.92	1.05	10%	20%	44%	**18%**	**8%**
The difference between the overall amount paid on table-mortgages and the overall amount paid on interest-only mortgages	2.92	1.02	9%	22%	43%	**19%**	**7%**
Higher tax deductibility potential for interest-only mortgages	2.86	1.09	12%	23%	37%	**21%**	**7%**

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"Potential to borrow more funds" is scored as the second most important factor in choice of debt amortization policy. This is generally consistent with the simulation modelling that suggests non-conventional loans may help farmers to acquire more assets with less equity (Ellinger *et al.*, 1983, Rahman and Barry, 1981).

The moderately high importance of the next factor "the difference between the initial amount paid on table-mortgages and the initial amount paid on interest only-mortgages" reinforces higher desirability of IO loans in terms of cash-flow flexibility. It also verifies the crucial impact of cash-flow availability in the early stages of a farming investment (Barry and Robison, 2001).

5. Conclusions

The increase in dairy farm debt over the past 18 years has raised concerns over the long-term viability of dairy farming (Woodford 2017, Stringleman, 2017) and the prudency of New Zealand's financial system (Rotherham, 2015, Ruth, 2015, Mackenzie, 2018, RBNZ, 2018a). New Zealand dairy farmers identify debt management as their most important risk management strategy (Shadbolt and Olubode-Awosola, 2016, Pinochet-Chateau *et al.*, 2005, Duranovich, 2015) yet little is known about what that specifically entails. The aim of this study was to provide an empirical insight, using a survey (n=340), into New Zealand dairy farmers' debt structure and the strategies that they choose to manage debt.

The two most important determinants of the leverage ratio were "expected cash-flow volatility" and "the ability to borrow further funds when unexpected opportunities and/or threats occur". These indicate an awareness of the reality of farming in an unprotected environment and the need to have their own backstop for poor years, at the same time as having the agility to capture opportunities when they arise.

With regards interest rate management the evidence is that NZ dairy farmers actively monitor interest rate movements and switch between fixed and floating loans as they change not necessarily depending on the shape of the yield curve.

Most importantly the results also highlighted that the ability to match farm income with debt repayment is the most important determinant of debt amortization policies among NZ dairy farmers. This form of liquidity management also noted by Gray *et al.* (2014), aligns with the next most important risk management strategy of "planning capital expenditure" noted in previous surveys (Shadbolt and Olubode-Awosola, 2016, Pinochet-Chateau *et al.*, 2005, Duranovich, 2015). Both strategies suggest a strong focus on liquidity, or cash, with the farmers maintaining control on when cash is spent.

The current trend by rural lenders to move farmers back into conventional loans (Bell, 2018) is in direct conflict with the risk management strategies New Zealand dairy farmers

recognise as important for liquidity management. How farmers adapt to these constraints will be interesting to study over time. Similarly the prospect of a capital gains tax on farm land has been mooted by politicians over time. Imposing capital gain tax may have a direct impact on farmland values and leverage ratios and an indirect impact on the financial structure of dairy farms. Using capital structure models such as the Barry-Collins model would be useful to explore the possible implications of capital gains tax on farm financial structure.

6. References

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