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Do Decision Makers' Debt-risk Attitudes Affect the Agency Costs of Debt?[1]

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The Issue

Over the past 25 years, traditional agricultural co-operatives have been challenged by competition from local investor-owned firms and multinational companies, deregulation and globalization of trade, and increased market concentration in suppliers and purchasers. At the same time, co-operatives have constantly been seeking to add value to their member services through expansion and/or adoption of new technology. The capital investment needed for these endeavours has to be financed, and for traditional co-operatives the major source of financing new investments has been long-term borrowing. As a result some co-operatives are characterized by high debt loads, which may result in increased financial risk exposure. Important factors that may influence the level of financial risk exposure are the potential conflicts between managerial self-interest and the interest of the owners of the firm (Jensen, 1986; Jensen and Meckling, 1976) and the impact of these differences on the choice of capital structure (Friend and Lang, 1988;

Firth, 1995; Matthews et al., 1994). Despite the considerable literature (e.g., Jensen and Meckling, 1976; Lewis and Sappington, 1995), the impact that differences in attitudes between managers and directors/members have upon the decision making process has remained a relatively unexplained aspect of agency problems, especially in member-owned firms. This article assesses the social-psychological and demographic variables that affect co-operative decision makers' attitudes toward long-term debt financing and their intentions to increase long-term borrowing.

Implications and Conclusions

This study finds that managers and directors of co-operatives differ in their attitudes toward long-term borrowing. These differences, if not resolved, may result in significant costs associated with resolving conflicts (agency costs), or may hamper the success of the co-operative business (Hailu et al., 2004; Jensen, 1986). Additionally, those respondents who have favourable attitudes toward long-term borrowing, are subject to social influence from their referents (e.g., friends, colleagues, spouse, etc.) and gamble frequently are found to be more likely to increase long-term borrowing for business expansion.

Background

Within the finance literature, a decision maker's (DM's) financial risk attitude assessment is considered to be an important factor in determining successful business outcomes (e.g., Firth, 1995; Weber and Hsee, 1998; Barton and Gordon, 1988; Matthews et al., 1994). As well, the potential conflicts between managerial self-interest and the interests of owners (Jensen, 1986; Jensen and Meckling, 1976) and the impact of these differences on the choice of capital structure (Friend and Lang, 1988; Firth, 1995; Matthews et al., 1994) have been acknowledged by many researchers. Despite the considerable literature (e.g., Jensen and Meckling, 1976; Lewis and Sappington, 1995), the impact that differences in attitudes between managers and directors/members have upon the decision making process has remained a relatively unexplained aspect of agency problems, especially in member-owned firms. Any information concerning the risk attitudes of managers and directors (BODs) for co-operative businesses is useful in identifying potential sources of conflict in decisions regarding training, personnel selection, and placement. Moreover, assessment of risk attitudes of managers and directors may have important implications for the design and choice of alternative financial risk management strategies/policies and the performance/success of co-operative businesses. Among other things, the process of risk management[2] is likely affected by the risk attitude of business DMs (Tufano, 1998).

A current issue in co-operative finance concerns the capital constraints facing user-owned organizations, given the financial risks associated with various sources of capital. Some Canadian co-operative agribusinesses are in financial distress as a result of taking on too much debt (Goddard, 2002). While taking on a high level of debt can enhance the level of profitability or firm value (Fama and French, 1998; Graham, 2000) and patronage

payments attributable to members in good economic conditions, the same debt will also increase bankruptcy risks or agency costs (Berens and Cuny, 1995). Co-operatives with relatively high debt-to-equity ratios may exhibit more variability in terms of returns. Moreover, higher aggregate co-operative sector–level leverage may be associated with co-operative business instability. According to Robison and Barry (1987), optimal debt for a business depends on, among other things, the DM's risk attitude. For example, a risk averse DM would tend to hold less debt (MacCrimmon and Weherug, 1986), *ceteris paribus*. Moreover, as opposed to managers, directors/members are likely to tolerate higher debt-to-equity ratios in the firm's capital structure since they hold diversified portfolios (Firth, 1995). On the other hand, based on the takeover hypothesis, managers who believe they are under a threat of takeover (Stultz, 1988) may desire higher levels of debt as the presence of high leverage may repel the potential bidders through the threat of coinsurance (Billett, 1996; Safieddine and Titman, 1999). Thus, in developing risk-based ranges of optimal debt policies, the extent to which managers or boards of directors (BODs) exhibit risk taking or risk averse behaviour when making decisions with a variety of financial data is of specific interest.

Issues around risk attitudes may also be linked to firm performance. Since the objective of a co-operative business is the maximization of its members' welfare (Bateman, Edwards and LeVay 1979; Enke, 1945), efficient allocation of the co-operative's resources will be critical in determining whether the co-operative is competitive nationally and/or internationally. Theoretical evidence suggests that co-operative businesses are less efficient than investor-owned firms (Sexton, Wilson and Wann, 1989), possibly due to a lack of business expertise on the part of directors as compared to directors of investor-owned firms (Helmberger, 1966) and the lack of an incentive structure in co-operatives to induce management to run the association efficiently (Caves and Petersen, 1986). These problems may be related to risk attitude differentials between managers and directors, leading to differing opinions regarding investment, consolidation and borrowing and ultimately firm financial risk exposure and implemented risk management strategies.

Agency theory suggests that conflicts between owners and managers can arise because of differences in their attitudes toward risk (Eisenhardt, 1989). Because of different risk preferences, managers and directors may prefer different actions. Thus, risk attitude incompatibility may impede overall efficiency of resource use. In terms of Canadian co-operative businesses, relatively little is known about the risk attitudes of co-operative business DMs. Moreover, previous studies have not attempted to scrutinize empirically the impact of risk attitude differentials on co-operative capital structure decision processes and, ultimately, on firm value. This study examines the degree to which differences in risk attitudes exist between co-operative managers and directors. The impact managers' and directors' attitudes toward debt have on their intention to take on additional debt is also examined.

A Conceptual Behavioural Model:
Theory of Planned Behaviour (TpB)

With its foundation in social psychology literature, the theory of planned behaviour (TpB) is the model most widely used to describe and measure a DM's attitude toward an object, his or her behavioural intention and his or her behaviour. In this study the use of the TpB allows the incorporation of the DM's perception, preference, experience, belief, facilitating conditions and social pressure in the measurement of attitude toward debt and its impact on the resulting capital structure (Matthews et al., 1994). The theory of planned behaviour has been applied to predict behaviour in diverse contexts from managerial performance benchmarking (Hill, Mann and Wearing, 1996), consumer purchasing (Brinberg and Cummings, 1983), cigarette use (Budd, 1986) and effects of advertising on attitude (Berger and Mitchell, 1989) to capital strucure decision making processes (Matthews et al., 1994), among others.

The TpB states that an individual's behaviour can be predicted if observers know (1) his or her attitude toward a particular behaviour, (2) his or her intention to perform the behaviour, (3) his or her beliefs with respect to the consequences of performing that behaviour and (4) the social norms which govern that behaviour (Ajzen, 1991). Behaviour is a function of intention to perform and perceived behavioural control (or ability to perform the behaviour). Figure 1 depicts the relationship between intention and behaviour.
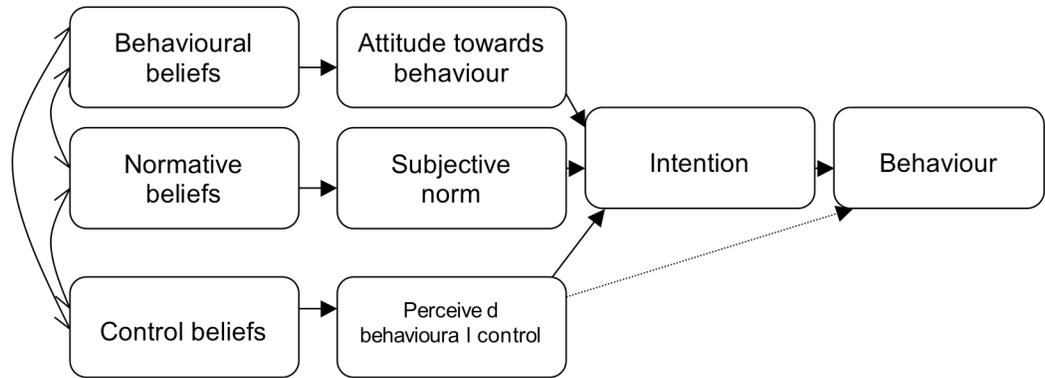
Figure 1 Theory of planned behaviour (Azjen, 1991).

The individual's intention to perform a given behaviour (e.g., intention to increase debt capital) is a central construct in the theory of planned behaviour and reflects how individuals are motivated to try to perform the behaviour in question (Ajzen, 1991). Basically, the TpB (Fishbein and Ajzen, 1975) states that human behaviour is determined by the formation of prior intentions, and that intentions are formed on the basis of a weighted combination of attitudinal (A) and normative (SN) factors. According to Ajzen (1991), an individual DM's behavioural intention is affected by the attitude toward the

behaviour, the subjective norm and perceived behavioural control. Attitude is the individual's feeling and belief about the behaviour. Subjective norm refers to approval of a person's important referents with regard to the consequences of performing the behaviour or not. Perceived behavioural control refers to the degree to which a person feels that his or her performance or non-performance of the behaviour is under his or her control (Ajzen, 1991). Perceived behavioural control is hypothesized to have an impact on both the intention to perform the behaviour and the behaviour per se.

Empirically, attitudes toward actions (e.g., debt leveraging) are determined by and can be measured as the sum of evaluative salient behavioural belief, where behavioural beliefs are beliefs held about the consequences of the action in question. The basic form of the Fishbein multi-attribute attitude model can be expressed as

$$(1) \qquad A_j = \sum_{i=1}^{n} b_{ij} a_i \ ,$$

where A_j is an individual's attitude toward an object j (e.g., debt leveraging); b_{ij} is the individual's belief, expressed as a subjective probability that object j is associated with some attribute i; a_i is the evaluative aspect (i.e., judged goodness or badness) of attribute i; and n is the number of salient beliefs. Equation (1) represents a model of attribute measurement wherein the strengths of an individual's beliefs about particular attributes are weighted and summed to yield an index of overall attitude. It is assumed that a person's attitude toward the behaviour is proportional ($\propto$) to this summative index (Ajzen, 1991).

Subjective norm (*SN*) is obtained by summing the products of the strength for each normative belief (*NB_i*) and the motivation to comply (*MC_i*) with the referent in question, over the *m* normative beliefs. Normative belief is a belief about what a specific referent person thinks one should or should not do regarding borrowing. Individuals who believe that most referents with whom they are motivated to comply think they should endorse borrowing will perceive social pressure to do so. It is assumed that a person's subjective norm is proportional ($\propto$) to the resulting summative index. Thus, subjective norm can be expressed as

$$(2) \qquad SN = \sum_{i=1}^{m} NB_i MC_i \ ,$$

where NB_i is the DM's normative belief that the salient reference thinks he or she should (or should not) perform the behaviour and MC_i is the DM's motivation to comply with that referent (Ajzen and Fishbein, 1980).

To obtain a measure of perceived behavioural control (*PBC*) each control belief (*CB_k*, the assessment as to whether or not a given control factor – e.g., decision making power – makes it harder or easier to endorse additional borrowing) is multiplied by perceived behavioural facilitation (*PF_k*, the assessment of the strength of the given control factor – e.g., decision making power – in actually affecting borrowing) of the particular control factor to facilitate or inhibit performance of behaviour, and the resulting products are

summed across the *r* salient control beliefs to produce the perception of behavioural control (*PBC*); that is,

$$(3) \qquad PBC = \sum_{k=1}^{r} CB_k PF_k .$$

Overall, the motivational factors that influence behaviour are assumed to be captured by intention to perform a given behaviour. Intentions are the indications of how much of an effort the DMs are planning to exert in order to perform the behaviour. Behavioural intention represents the person's motivation to perform the behaviour in question.

The above theoretical constructs are latent variables in that they cannot be directly observed but must be inferred from observable responses. The theory of planned behaviour can be used to organize the key concepts of behaviour and to predict behaviour. In this case, the behaviour in question is debt financing. Once the information on attitude toward risk or debt capital, subjective norm and perceived behavioural control is obtained, the next step is to investigate which of the three is the best predictor of intention to increase/decrease debt capital; that is, $BI = w_1 A + w_2 SN + w_3 PBC$, where the *w*'s are parameters to be estimated.

In the empirical literature, the TpB has been modified to include individuals' previous habits or behaviours and socio-demographic variables. For example, using the Fishbein and Ajzen approach, Bentler and Speckart (1979) modeled attitudes, subjective norms, intentions and past behaviour and subsequent behaviour. The behavioural model is also versatile in accommodating socio-demographic variables. Identification of differences in attitudes attributable to a DM's gender, age, manager or director status, income, education and awareness of risk management practices is an important outcome of the study.

Data and Methods

A questionnaire was constructed according to the TpB. Survey questionnaires were sent to 139 managers and directors of co-operative agribusiness firms. Of these, 30 completed questionnaires were returned, for a response rate of 22 percent. The respondents included 2 females and 28 males; 14 were managers while the other 16 were directors. Approximately 67 percent of the respondents had more than high school education; 30 percent were above the age of 54 years; 50 percent had before-tax household income in 2003 of at least C$100,000. More than 80 percent of the respondents were from agribusiness supply co-operatives, while the rest of the respondents were from feed mills and fruit and flower co-operatives. Besides the responses considered in the current analysis, company background, awareness of different risk management strategies, frequency of previous gambling activities and perceptions of importance and effectiveness of risk management strategies were also elicited.[3]

Information on social-psychological variables (BI, A, SN, PBC) are obtained using the TpB model. Measures for attitude, SN and PBC are given in tables 1, 2 and 3, respectively.

Intention is a measure of the extent to which an individual is motivated to approve additional borrowing. Two items, each based on a 7-point Likert scale are used to measure behavioural intention. These include the following statements: *(1) During the next two years I will approve additional borrowing to finance investment in the company;* (very unlikely – very likely) and *(2) If you were told that a higher level of debt leads to higher returns to equity because of tax benefits, how would it affect your intention to finance proposed expansion using 100% long-term debt?* (would not borrow – would borrow).

Based on this information, the attitudinal index is derived for each individual as in table 1. Each respondent is asked to respond to a series of statements, such as, *Increasing expected returns to members' equity is ...*, using a 7-point Likert scale response from "very bad" to "very good". The individual's responses are indexed from -3 to +3 and used as the *outcome evaluation* measure. The respondent is then asked to respond to another series of statements, such as, *If I approve 100% long-term debt financing of expansions it will increase returns to members' equity*, again using a 7-point Likert scale response from "very unlikely" to "very likely". The individual's responses are indexed numerically from 1 to 7 and used as the *belief strength* measure. The products of *outcome evaluation* and *belief strength* are summed over all of the statements to obtain an overall attitudinal index. Table 1 provides a summary of the statements from the survey and numerically indexed responses for a sample respondent, to illustrate the method used. In this case, the overall attitude index value is 13. This person's attitude toward increasing borrowing is, then, predicted to be positive.

To measure subjective norm, individuals are asked to respond to a series of statements, such as, *My colleagues think that I should approve long-term borrowing for*

Table 1 Decision Makers' Beliefs about Long-term Debt Financing of Business Expansions (Sample Respondent)

Belief	Outcome evaluation	Belief strength	Product
1. Increasing expected returns to shareholder/member equity	1	5	5
2. Overcoming capital constraint problems	3	5	15
3. Benefiting from the tax deductibility of interest charge	-2	4	-8
4. Increasing likelihood of bankruptcy	1	6	6
5. Increasing profit	-1	1	-1
6. Increasing financial risk exposure	-1	2	-2
7. Reducing future flexibility	-1	2	-2
8. Making a safe investment	0	6	0
		Sum	13

business expansion …, using a 7-point Likert scale response from "very strongly disagree" to " very strongly agree". Each individual's responses are indexed from -3 to +3 and used as the *motivation to comply* measure. Individuals are then asked to respond to another series of statements, such as, *Doing what my colleagues think is …*, again using a 7-point Likert scale response from "very unlikely" to "very likely". Their responses are indexed numerically from 1 to 7 and used as the *normative beliefs* measure. The products of *motivation to comply* and *normative belief*s are summed over all of the statements to obtain an overall subjective norm index. Table 2 provides a summary of the statements from the survey and numerically indexed responses for a sample respondent, to illustrate the method used. In this case, the overall subjective norm index value is -8. This person's subjective norm toward increasing borrowing is, then, predicted to be negative.

Table 2 Subjective Norms (Sample Respondent)

Referents	Motivation to comply	Normative beliefs[4]	Products
1. Colleagues	1	0	0
2. Shareholders/members	-1	1	-1
3. Senior management	0	2	0
4. Boards of directors	1	2	2
5. Spouse	-3	3	-9
6. Friends	0	0	0
7. Parents	0	0	0
		Sum	-8

To measure perceived behavioural control, individuals are asked to respond to a series of statements, such as, *If I want to have more decision making power I can easily find out*, using a 7-point Likert scale response from "very strongly disagree" to "very strongly agree". An individual's responses are indexed from -3 to +3 and used as the *perceived behavioural facilitation* measure. Individuals are then asked to respond to another series of statements, such as, *I could approve long-term debt to finance business expansion more easily if I had more decision making power*, again using a 7-point Likert scale response from "very unlikely" to "very likely". The responses are indexed numerically from 1 to 7 and used as the *control beliefs* measure. The products of *perceived behavioural facilitation* and *control beliefs* are summed over all of the statements to obtain an overall perceived behavioural control index. Table 3 provides a summary of the statements from the survey and numerically indexed responses for a sample respondent, to illustrate the method used. The overall subjective norm index value in this case is -12. This person's perceived behavioural control toward increasing borrowing is, then, predicted to be negative.

Table 3 Perceived Behavioural Control (Sample Respondent)

Control factors	Perceived behavioural facilitation	Control belief	Product
1. Decision making power	-2	1	-2
2. Tax benefits of borrowing	-2	1	-2
3. Risks of borrowing	-2	-1	2
4. Benefits of borrowing	-2	-1	2
5. Debt maturity structure	-2	1	-2
6. Likelihood of occurrences of bankruptcy	-1	1	-1
7. Level of equity reserve	0	2	0
8. Attitudes of shareholders/members toward borrowing	1	-1	-1
9. Extent of interest rate risk exposure	1	-1	-1
10. Term structure of interest rates	0	1	0
11. Costs of borrowing	1	1	1
12. Level of competition	2	-2	-4
13. The shareholders'/members' financial commitment	2	-2	-4
		Sum	-12

Based on the theory of planned behaviour, the following regression equations are specified:

$$(4) \qquad A_i = \alpha_0 + \sum_{j=1}^{n} \alpha_j Demo_{ji} \; + \; \varepsilon_{1i} \; ,$$

$$(5) \qquad SN_i = \delta_0 + \sum_{j=1}^{n} \delta_j Demo_{ji} \; + \; \varepsilon_{2i} \; ,$$

$$(6) \qquad PBC_i = \phi_0 + \sum_{j=1}^{n} \phi_j Demo_{ji} \; + \; \varepsilon_{3i} \; , \text{ and}$$

$$(7) \qquad BI_i = \beta_0 + \beta_1 A_i + \beta_2 SN_i + \beta_3 PBC_i + \sum_{j=1}^{n} \beta_j Demo_{ji} \; + \; \varepsilon_{4i} \; ,$$

where, for individual i, BI_i is observed behavioural intention; A_i is attitude toward behaviour; SN_i is subjective norm; PBC_i is perceived behavioural control; *Demo* refers to demographic characteristics (age, manager-director dummy variable, age, income); β, α, δ and ϕ are parameters to be estimated; and ε's are i.i.d. disturbance terms. The above equations are estimated independently.

When the dependent variable takes more than two values, but these values have a natural ordering, the ordered probit model is often appropriate (McKelvey and Zavoina, 1975). Since the dependent variable for behavioural intention is an ordinal response, ordinary least squares may not be appropriate. Thus, an ordered probit model is proposed to estimate the equation for behavioural intention.

Ordered response regression recognizes the indexed nature of various response variables. Underlying the indexing in such models is a latent but continuous descriptor of the response. In an ordered probit regression, the random error associated with this continuous descriptor is assumed to follow a normal distribution. The observed and coded discrete behavioural intention variable (i.e., 1,2....,*J*), *BI*, is determined from the model as follows:

(8) $BI_i^* = \beta_0 + \beta_1 A_i + \beta_2 SN_i + \beta_3 PBC_i + \sum_{j=1}^{n} \beta_j Demo_{ji} + \varepsilon_{4i}$,

where BI_i^* is a latent and continuous measure of behavioural intention for the *i*-th DM and *J* represents possible values of BI_i. The relationship between BI_i^* and BI_i is defined in terms of threshold parameters (μ's) to be estimated with β; that is, $BI_i=1$, if $\mu_0<BI_i^*\leq\mu_1$; $BI_i=2$, if $\mu_1<BI_i^*\leq\mu_2,\ldots$; $BI_i=$J, if $BI_i^*>\mu_{j-1}$. In the above, the respondents have their own intensity of behavioural intention. The intensity of behavioural intention depends on observed exogenous variables, and unobservable factors, ε_{4i}. The ordered probit model is based on an assumption that respondents could respond to the question with their own BI_i^* if asked to do so. Given only seven or five possible discrete answers (depending on the question), respondents opt for the choice that most closely represents their own intentions on the question (Greene, 2000). However, one of the undesirable consequences of applying linear regression is that "it implicitly assumes that respondents who give the same response have exactly the same attitude" (Daykin and Moffatt, 2002). This may not be the case, as a particular response may be consistent with a range of attitudes, and ignoring such differences may lead to biased estimates. The ordered probit model accommodates such differences.

With the assumption that ε_{4i} is distributed normally across sample observations, the probability that BI_i falls into the *j*-th category is given by

(9) $\mathrm{Pr\,ob}(BI = j) = \Phi\left(\mu_j - \beta' x\right) - \Phi\left(\mu_{j+1} - \beta' x\right)$,

where Φ denotes the cumulative standard normal distribution function and μ_j and μ_{j+1} denote the upper and lower threshold values, respectively, for the *j*-th category, respectively. If *j* is the lower category, then the lower threshold value is $-\infty$ and the upper threshold value is zero. If *j* is the higher category, the upper threshold value is $+\infty$. For all probabilities to be positive, the ordering $0 < \mu_1 < \mu_2 < ... < \mu_{J-1}$ must hold. The estimated coefficients from an ordered probit regression do not have an intuitive interpretation. Therefore, marginal effects are calculated to provide more information. For the above probabilities, the marginal effect of changes in the regressors for the *j*-th category is

(10) $\dfrac{\partial \mathrm{Pr\,ob}(BI = j)}{\partial x} = \left[\phi\left(\mu_j - \beta' x\right) - \phi\left(\mu_{j+1} - \beta' x\right)\right]$,

where ϕ is the standard normal density function. Note that the marginal effects sum to zero (Greene, 2000). The marginal effect for binary explanatory variables is estimated as the difference between $\text{Prob}(BI = j)|x = 1$ *and* $\text{Prob}(BI = j)|x = 0$.

Survey Results

Attitudes toward Long-term Borrowing

The test for differences in attitude toward long-term borrowing between managers and directors of agribusiness co-operatives is conducted based on the information gathered using TpB procedures. For each individual, the index for attitudes toward long-term borrowing is constructed as in table 1. Both a t-test and a Mann-Whitney test are then applied to assess if there are any differences in attitudes between managers and directors of co-operative firms (table 4). Results from both tests suggest there are statistically significant mean differences between managers and directors in attitudes toward increasing borrowing. This may indicate that directors tend to have more favourable attitudes toward a higher debt-to-equity ratio. This is consistent with evidence from co-operatives in Portugal showing that managers generally tend to adopt management practices that reduce debt-to-equity ratios while members do the opposite (Rebelo, Caldas and Matulich, 2003). In the United States, Kenkel, Holcomb and Ac Bol (2003) have also found that managers and board members differ significantly in their attitudes toward value-added activities and new generation co-operatives on several issues. The results are also consistent with the principal-agent theory proposition that managers prefer moderate or low levels of corporate debt as it is in their interest to reduce the chances of company bankruptcy (Firth, 1995).

Table 4 Tests for Differing Attitudes toward Additional Long-term Borrowing (N=30)

T-test for equality of means		Nonparametric test	
Mean difference (manager-director)	-1.923	Mann-Whitney U	57.5
t-statistics	-2.424	Wilcoxon W	162.5
Degrees of freedom	28	Z	-2.269
P-value	0.022	P-value	0.023

Determinants of Attitudes toward Increased Borrowing, Subjective Norm and PBC

One of the objectives of this study is to investigate factors that influence DMs' attitudes toward long-term borrowing and their behavioural intention to borrow more in order to finance business expansion. In particular, are DM attitudes toward long-term borrowing and their behavioural intentions to approve additional borrowing related to their personal characteristics and social-psychological factors? First, factors that are believed to affect attitudes, subjective norms and perceived behavioural control are investigated using multiple regressions. Second, the impacts of attitude, subjective norm, perceived

Table 5 Multiple Regression Estimates of Determinants of Attitude, Subjective Norms and Perceived Behavioural Control (N=30)

Variable	Attitude		Subjective norm		PBC	
Intercept	19.734***	(4.124)	3.371	(1.339)	25.561***	(3.061)
Manager	-14.008***	(-2.980)	-4.538*	(-1.834)	-16.600**	(-2.024)
Age old	-16.676***	(-3.225)	-0.600	(-0.221)	-12.881	(-1.427)
Income high	-1.903	(-0.392)	-3.174	(-1.242)	8.177	(0.965)
Education high	-1.980	(-0.437)	-0.140	(-0.059)	-6.647	(-0.841)
R^2	0.373		0.176		0.217	

Manager = 1, if a manager, 0 otherwise; age old = 1, if age > 54, 0 otherwise; income high = 1, if income > $100,000, 0 otherwise; and education high = 1, if > high school, 0 otherwise.
Figures in parentheses are t-statistic.

***, **, and * represent 99%, 95% and 90% confidence levels, respectively.

behavioural control, frequency of previous gambling behaviour, and individual characteristics on behavioural intentions are investigated using ordered probit regression. The parameter estimates for equations (4)–(6) are obtained using least-square procedures (table 5) whereas those for equation (8) are obtained using a maximum likelihood procedure in TSP 4.5 (tables 6 and 7).

Results from multiple regression analysis indicate that 37.3 percent, 17.6 percent and 21.7 percent of the variations in attitude, subjective norm and perceived behavioural control, respectively, are explained by respondent characteristics. Being a manager has a negative impact on the values (indices) of attitude, subjective norm and perceived behavioural control. As opposed to directors, managers may have unfavourable opinions toward increases in long-term borrowing to finance business expansion. Being a manager also has a negative effect on subjective norm. As opposed to directors, managers also perceive that they have less control over co-operative business decisions. Age has a statistically significant relationship to attitude, subjective norm and perceived behavioural control. Sample DMs who are older than 54 years of age have unfavourable feelings toward increases in long-term borrowing.

Determinants of Behavioural Intention

The next step is to investigate the impacts of social-psychological variables (i.e., attitude, subjective norm and perceived behavioural control) and respondent characteristics on behavioural intention to increase long-term borrowing. In this study 53.3 percent of the respondents report that they intend to approve additional long-term borrowing over the next two years; 13.3 percent are "very likely" to approve additional borrowing. Moreover, 63 percent of the respondents state that, if there are tax benefits, they are neutral about increasing additional borrowing. When respondents were asked their intentions to finance expansions using 100 percent long-term debt if costs of borrowing are low, only 15

Table 6 Factors Affecting Behavioural Intention to Approve Additional Borrowing to Finance New Investment: **Model I** (N=30)

Model I: *During the next two years I will approve additional borrowing to finance new investments in the company.*

Variables			Marginal effects						
			Very unlikely	Unlikely	Somewhat unlikely	Neutral	Somewhat likely	Likely	Very likely
Intercept	0.860	(1.115)							
A	0.031**	(2.172)	-0.007	-0.002	-0.003	0.001	0.005	0.004	0.003
SN	0.006	(0.837)							
PBC	-0.006	(-1.404)							
FPB	0.025**	(1.979)	-0.008	-0.001	0.001	0.001	0.005	0.002	0.001
Manager	0.425	(1.099)							
Age old	-0.405	(-0.988)							
Income high	-0.067	(-0.175)							
Education high	0.262	(0.631)							
μ_2	0.337*	(1.595)							
μ_3	1.197***	(3.687)							
μ_4	1.429***	(4.077)							
μ_5	2.267***	(5.427)							
μ_6	2.920***	(7.331)							
Log likelihood	-48.414								
Schwarz B.I.C.	72.222								
R^2	0.356								

A: attitude; SN: subjective norm; PBC: perceived behavioural control; FPB: previous gambling behaviour; manager = 1, if a manager, 0 otherwise; age old = 1, if age > 54, 0 otherwise; income high = 1, if income > $100,000, 0 otherwise; and education high = 1, if > high school, 0 otherwise.

Figures in parentheses are t-statistic.

***, **, and * represent 99%, 95% and 90% confidence levels, respectively.

percent replied that they are "inclined to borrow", whereas 23 percent are "not inclined to borrow".

As in the discussion earlier, the behavioural intention variables are based on the responses to two survey questions: willingness to approve additional borrowing (model I); tax benefits of debt and intention to borrow (model II[5]). For both models the estimated threshold parameters have the expected ordering. Positive parameter estimates for the social-psychological variables and individual characteristics suggest that the likelihood of intention to approve additional borrowing increases for models I and II.

Table 6 shows parameter estimates for model I. Attitude and frequency of previous gambling behaviour have statistically significant relationships with behavioural intention.

Based on the marginal effects, the probability of approving additional borrowing increases with increased value of attitude. This may suggest that respondents with favourable attitudes tend to endorse additional borrowing. In the same vein, the probability of approving additional borrowing increases with increased frequency of previous gambling behaviour. The individual characteristics specified in the model do not have statistically significant impacts on behavioural intention for model I.

The parameter estimates for model II are presented in table 7. For this model, attitude, subjective norm, age and income level have statistically significant associations with behavioural intention. In terms of marginal effects, a unit "increase" in favourable attitude toward long-term borrowing increases the probability of approving additional borrowing for business expansion. All other things being equal, a unit increase in the value of

Table 7 Factors Affecting Behavioural Intention to Approve Additional Borrowing to Finance New Investment When There Are Tax Benefits: **Model II** (N=30)

Model II: *If you were told that higher level of debt leads to higher returns to equity because of tax benefits, how would it affect your intention to finance proposed expansions using 100% long-term debt?*

Variables			Would not borrow	Not inclined to borrow	Less inclined to borrow	Neutral	Inclined to borrow	More inclined to borrow
					Marginal effects			
Intercept	4.391***	(3.924)						
A	0.106***	(3.914)	-1.8E-07	-1.2E-05	-0.0002	-0.0082	0.0082	0.0002
SN	0.024**	(1.988)	-4E-08	-3E-06	-5E-05	-0.0019	0.0019	4E-05
PBC	-0.001	(-0.198)						
PB	-0.007	(-0.507)						
Manager	0.184	(0.312)						
Age old	-1.533***	(-2.564)	0.0016	0.0205	0.0882	-0.0998	-0.0105	-0.0001
Income high	-3.031***	(-3.558)	0.0334	0.1513	0.2753	-0.4323	-0.0275	-0.0003
Education high	0.250	(0.489)						
μ_2	0.936*	(1.891)						
μ_3	1.735***	(3.727)						
μ_4	6.778***	(6.627)						
μ_5	8.298***	(7.936)						
Log likelihood	-19.526							
Schwarz B.I.C.	41.634							
R^2	0.787							

A: attitude; SN: subjective norm; PBC: perceived behavioural control; FPB: previous gambling behaviour; manager = 1, if a manager, 0 otherwise; age old = 1, if age > 54, 0 otherwise; income high = 1, if income > $100,000, 0 otherwise; and education high = 1, if > high school, 0 otherwise.
Figures in parentheses are t-statistic.
***, **, and * represent 99%, 95% and 90% confidence levels, respectively.

subjective norm increases the probability of intending to borrow to finance business expansion. This may suggest that individuals with higher social influence from referents (i.e., colleagues, spouse, etc.) are less likely to approve additional borrowing for business expansion. Age and income have statistically significant negative effects on the probability of intention to finance business expansion through borrowing. Older sample respondents are less likely to approve additional borrowing for business expansion. Higher income category respondents are also less likely to approve, which could be the case because of the positive correlation between age and income for the sample respondents.

Summary and Conclusions

For the sample respondents, there are statistically significant differences in attitudes toward long-term borrowing between managers and directors. These differences may result in agency problems emanating from conflicting preferences. The differences, if not resolved, may result in significant costs related to resolving conflicts (agency costs) or may hamper the success of the co-operative business. The conflicts of preference among decision makers may delay the process of decision making and, hence, may negatively affect actual business performance.

Results from the ordered probit model suggest that those respondents who have favourable attitudes toward long-term borrowing, are subject to social influence from referents and gamble frequently are more likely to intend to increase long-term borrowing to support business expansion.

Findings from this study have several managerial implications. First, given results from other studies (e.g., agency costs, as discussed in Hailu et al., 2004), differences in DMs' attitudes toward debt and risk may affect corporate financial risk management. Tufano (1998) found that the level of managerial risk aversion affected corporate risk management policy in the North American gold mining industry. Demsentz and Lehn (1985) and Jensen and Meckling (1976) stated that if managers' holdings are substantial, their motivations become aligned with those of shareholders and the agency problem is reduced. In the case of a co-operative business, where managers have no equity holdings in the business, the motivations of managers and directors may not be very well aligned. Thus, differences in risk attitudes may be expected. Second, acknowledging and aligning differing DMs' attitudes through technical support may facilitate the optimization of the overall co-operative goals. Hence, evidence from the survey may suggest a need for technical support for co-operative decision makers in the area of financial risk management.

Although the results from this study may not be conclusive due to the small sample size, it may provide direction and suggestions for future research. Further research is warranted to assess the degree to which manager-director differences in attitude toward long-term borrowing affect the success of the business. As well, does this result extend to

a larger and diversified sample of managers and directors? In order to explore the implications of divergence in risk preference and attitude toward long-term borrowing, simulation based on a multiple-criteria, multiple-DM model is proposed. A larger sample size drawn from diverse co-operative types and structures would merit more confidence in the representativeness of the results.

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Endnotes

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[2] Risk management may be defined as choosing among alternative strategies to reduce risks.

[3] This information was used in other analysis not dealt with in this paper.

[4] Normative belief indicates the likelihood that a significant other would think the respondent should approve additional borrowing. Motivation to comply captures respondents' willingness to do what each referent thought they should do with respect to additional borrowing.

[5] Model II is meant to explore the impact of additional information on DMs' behavioural intentions to approve additional borrowing.