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# Factors Affecting Ethical Sources of External Debt Financing for Indian Agribusiness Firms

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# FACTORS AFFECTING ETHICAL SOURCES OF EXTERNAL DEBT FINANCING FOR INDIAN AGRIBUSINESS FIRMS

Amarjit Gill\*, Harvinder S. Mand\*\*, John D. Obradovich\*\*\*, Neil Mathur\*\*\*\*

## Abstract

Majority of the Indian farmers are financially constrained and pay very high interest rate to private moneylenders which has a negative impact on the survivability and growth of agribusiness firms. Because of less strict debt financing requirements farmers become prey to predatory lenders from private lending institutions that are not controlled by the central bank and may not behave in an ethical way. The study investigates factors affecting ethical sources of external debt financing by taking a sample of Indian agribusiness firms. Owners of agribusiness firms were interviewed through personal visits and telephone calls regarding the factors affecting ethical sources of external debt financing. The findings show that several factors affect ethical sources of external debt financing for agribusiness firms in India. This study contributes to the literature on the factors that affect ethical sources of external debt financing. This study also provides recommendations to improve access to ethical sources of external debt financing. The findings may be useful for agribusiness owners (farmers), financial managers, investors, agribusiness management consultants, entrepreneurs, and other stakeholders.

**Keyword:** Agribusiness, Ethical Sources of External Debt Financing, Internal Financing Sources, Collateral, Financial Performance, CEO Duality, Board Size, Corporate Control

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## 1 Introduction

Majority of the Indian farmers are financially constrained and pay a very high interest rate to private moneylenders (Ghosal and Ray, 2015). Agribusinesses act as the backbone of the Indian economy by creating more than 1.1 million jobs per year (Acharya, 2007) and contributing approximately 18.5% to Gross Domestic Products (GDP).

Because of the world financial crisis and economic difficulties of 2008-2009, credit access has been increasingly restricted to more financially strong firms with low debt to equity ratios (Wu, Guan, and Myers, 2014). Sandhu, Hussain, and Matlay (2012) argued that Indian farmers encounter barriers in accessing agricultural credit. This is because control over access to agricultural credit through financial institutions (i.e., banks) that behave ethically rests in the central bank of India and it has strict requirements for agribusiness debt financing. We define the agribusiness debt financing provided by financial institutions that behave ethically as “ethical source of external debt financing”. According to Ghosal and Ray (2015), banks offer crop loans at 7% annually, while private moneylenders charge 20-30%, if not more. Although, private lenders who may not behave in an ethical way charge very high interest rates on agricultural loans, they have less strict debt financing

requirements. Because of less strict debt financing requirements, farmers become prey to predatory lenders from private lending institutions that do not fall under the control of the central bank.

Literature shows that financial institutions use “5 Cs” of credit -- character of borrower (reputation), capital (leverage), capacity (volatility of earnings), collateral, and condition (macroeconomic cycle) to make credit decisions (see Striscsek, 2009; Bandyopadhyay, 2007). If a majority of “5 Cs” of credit is weak, the lenders decline farm loan applications. Thus, “5 Cs” of credit decisions create barriers to agribusiness financing, which has a negative impact on the growth and survivability of agribusiness firms. Therefore, any assistance that can help agribusiness firms’ access to debt financing will be beneficial to the growth and survivability of agribusiness firms. This study concentrates on the factors affecting ethical sources of external debt financing.

Different theories in the area of debt financing have been developed since the pioneer study of Modigliani and Miller (1958). Although different theories have been proposed and developed to explain the capital structure of the firm, these theories do not provide much information on the factors affecting access to ethical sources of agribusiness debt financing. For example, the tradeoff theory of Miller

(1977), the pecking order theory of Myers (1984), the agency theory of Jensen and Meckling (1976), and the market timing theory of Baker and Wurgler (2002) do not provide the factors that minimize barriers to farm debt financing. In addition, these theories are not directly applicable to the farming industry because the nature of this industry differs from other industries such as manufacturing and service industries (Guan and Oude Lansink, 2006). However, capital structure models developed by Collins (1985) and Barry, Baker, and Sanint (1981) indicated that debt ratio is a decision variable and the optimal debt ratio is found when the farmers' expected utility is maximized (Wu, Guan, Myers, 2014, p. 2).

As with many other firms, the majority of agribusiness firms start small where family members act as the members of the board of directors to make important decisions including debt financing. In most cases, the head of the family acts as CEO of the firm. Gill, Mand, and Obradovich (2015) found that non-resident Indian family members (NRIs) of small business firms in India play a role by providing financial support to their family members in India and by serving on the board of directors. Thus, corporate control of agribusiness firms resides in the hands of family members.

Literature also shows the impact of access to credit on farms' capital structure decisions. While some studies used proxies such as age and credit scores (e.g., Bierlen et al., 1998; Barry, Bierlen, and Sotomayor, 2000), others such as a study conducted by Sandhu, Hussain, and Matlay (2012) used collateral, loan guarantees, loan repayment capacity, social status, education, solid financial data, default risk, administrative costs, and information asymmetry to study barriers to farm financing. To remain consistent with previous studies, the current study used proxies from previous studies to find the factors affecting access to ethical sources of external debt financing for the agribusiness firms.

The organization of the remainder of the paper is as follows. Section two examines the previous literature and develops hypotheses. Section three describes the data and methodology used to investigate our research questions. Section four discusses and analyzes the empirical results. Section five concludes and considers the implications of the findings.

## 2. Literature Review

Because small business firms are financially constrained (Joeveer, 2013) and associated with higher volatility (Bottazzi, Secchi, and Tamagni, 2014), these firms have lower access to bank loans (Canton et al., 2013) and face tighter pricing terms and conditions (Drakos, 2013). The majority of agribusiness firms in India are either small or medium sized firms. The Indian provision of Micro, Small, and Medium Enterprises Development (MSMED) Act of

2006, classifies Micro, Small, and Medium Enterprises (MSMEs) into two categories -- manufacturing and services. Agribusiness firms fall into the category of production firms since they produce agricultural products. Lahiri (2012, p. 4) classified MMSEs based on their limits for investment in plant, machinery and equipment for manufacturing and production enterprises in India as follows:

Enterprise	Investment in Plant and Equipment
Micro Enterprises	• Does not exceed twenty five lakh (2.5 million) rupees.
Small Enterprises	• More than twenty five lakh (2.5 million) rupees but does not exceed five crore rupees.
Medium Enterprises	• More than five crore (50 million) rupees but does not exceed ten crore (100 million) rupees.

Agribusiness firms are similar to firms in other industries in terms of lenders applying financing terms and conditions. Sandhu, Hussain, and Matlay (2012) identified factors that represent barriers to credit access for agribusinesses such as lack of loan collateral, loan guarantees, loan repayment capacity, social status of farmers, education of farm owners, and lack of solid financial data. In addition, these authors identified other barriers such as high default risk, higher administrative costs, and information asymmetry.

Because credit risk is the largest risk faced by lending institutions such as banks and private lenders in agricultural loans, they use the "5 Cs" of credit to mitigate lending risk in the farming industry. However, private lenders may not be as strict as banks (that behave ethically) in applying the "5 Cs" of credit, and they charge a very high interest rate. If the "5 Cs" of credit are weak, they create barriers to access to ethical sources of external debt financing for agribusiness firms and, consequently, lenders decline the agribusiness loan application. Bandyopadhyay (2007) argued that the structure and conduct of agricultural lending has been changing rather dramatically over the past two decades because of contractual and ownership arrangement issues, locational issues, management quality, and risk management issues; thus, the agricultural lending decision-making process is becoming much more complex and it creates barriers to agribusiness debt financing. The following literature review encompasses five sections based on the "5 Cs" of credit and provides additional details on factors affecting access to ethical sources of external debt financing.

### 2.1 Factors affecting the character (reputation) of borrowers and possible ways to reduce their impact on ethical sources of external agribusiness debt financing

Credit Bureau records of agribusiness firms and their owners demonstrate their history of loan payments. Poor credit history and information asymmetry issues (i.e., farm owners have better information than creditors) reflect unfavorably on the character of borrowers. These factors, in turn, affect the social status and creditability of borrowers, which create barriers to access to ethical sources of agribusiness debt financing. Although a bad credit record may stem from such things as minor disputes between creditors and customers over credit card fees, it nevertheless creates barriers to agribusiness debt financing because lenders consider it as an important determinant of risk management (Gill et al., 2014). Lenders perceive poor character as a serious issue because it can lead to loan repayment delinquency; therefore, lenders tend to decline loan applications for those with character issues. Dierkes et al. (2013) found that financial institutions highly value business credit information to lower their realized default rates.

To minimize the issue of poor credit bureau history (if it exists), agribusiness borrowers should aggressively clarify the issue to lenders whether it was due to a dispute over, for example, credit card fees. Agribusiness borrowers should also build social capital (relationships between lenders and clients) with bankers to build trust. In addition, poor moral values create informational asymmetry issues. Schoar (2012) found that the personal interaction between borrowers and bankers reduces moral hazard problems and the default risk on loans.

The literature shows that non-resident Indian family members (NRIs) provide financial support and help their family members in India (Gill, Mand, and Obradovich, 2015); therefore, it is strongly recommended to use the social capital of NRIs (if one has NRIs) to build social status with lenders and to reduce information asymmetry, which may reduce barriers to agribusiness debt financing. Social capital, in the context of this study, is defined as the networks of relationships among family members living abroad. Financial support from NRIs reduces issues of fallback position and lack of liquid assets, which arise from the lack of timely cash flows.

NRIs, in return for supporting their family members, expect their families to protect their existing assets in India. NRIs also expect their family members to build their assets by obtaining higher rates of return from agribusiness firms. Thus, both the NRIs and their family members can benefit. NRIs serve as foreign directors on the board of directors of many small business firms (Gill et al., 2015) and visit India from time to time due to their strong ties with family members living in India. During their visits, NRIs meet different bank managers as a part of social networking. NRIs also build social capital with Indian banks by making deposits and by investing funds in the Indian economy (The Press Trust of India, 2011).

## **2.2 Factors affecting capital (leverage) and possible ways to reduce their impact on access to ethical sources of external agribusiness debt financing**

Another barrier to farm financing is a high level of debt (leverage) which impacts the loan repayment capacity of borrowers as explained by Sandhu, Hussain, and Matlay (2012). Du and Dai (2005), using data of East Asian firms, found that controlling owners prefer a higher level of debt. Vakilifard et al. (2011) showed a positive relationship between CEO duality and level of debt financing, and a negative relationship between board size and leverage in Iran. However, these studies used data from publically traded firms. Since family members control many of the unlisted agribusiness firms, the same situation may not prevail. Higher levels of debt in the capital structure can be considered another barrier to agribusiness debt financing. The board of directors in which NRIs serve as foreign directors (Gill, Mand, and Obradovich, 2015) make capital structure decisions. Poor management of agribusiness firms can lead to higher leverage which can create barriers to further debt financing. The involvement of NRIs can help minimize the barrier to access to debt financing due to poor management.

The majority of unlisted agribusiness firms in India does not maintain proper records and does not prepare financial statements used by financiers; thus, lenders do not get all the necessary information they need to make lending decisions and tend to reject agribusiness loans. Poor agribusiness planning can also lead to a higher level of leverage. Agribusiness education and training will assist owners of agribusiness firms to minimize issues related to their lack of business records and financial statements. Literature shows that small business firms perform better with the involvement of NRIs (Gill, Mand, and Obradovich, 2015). Better performance makes management appear stronger and minimizes barriers to external agribusiness debt financing by improving their loan repayment capacity.

The higher level of debt, however, may not actually belong to the farm borrower(s). Agribusiness owners, to support the businesses of immediate family members and relatives, may have borrowed funds. Therefore, family members and relatives, in this situation, are responsible for the debt repayment and not only the borrowers themselves (Gill et al., 2014). However, Schoar (2012) found that personal interaction between borrowers and bankers reduces default perceptions of lenders.

## **2.3 Factors affecting loan repayment capacity (volatility of earnings) and possible ways to reduce their impact on access to ethical sources of external agribusiness debt financing**

Because of cyclical performance, seasonal production patterns, high capital intensity, leasing of farmland, and annual payments of real estate loans, agribusiness firms tend to fall into financial difficulties to make debt liability payments (Bandyopadhyay, 2007). Agribusinesses typically repay loans on an annual basis rather than monthly because the cash flow cycle is an annual cycle for the farming industry. Volatility in agribusiness' financial performance mainly comes from fluctuations in commodity prices and weather conditions (Bliss, 2002; Ghosal and Ray, 2015). These characteristics may impact agribusiness loan repayment capacity. The annual cash flow cycle of agribusiness firms, impacts credit risk for agricultural loans. For example, poor cash inflow increases default risk for creditors and thus, default risk creates barriers to ethical sources of external agribusiness debt financing.

To improve the capacity of agribusiness to repay loans, agribusiness borrowers should consider improving their fallback position by involving other parties such as NRIs. The involvement of NRIs can improve firm performance (Gill, Mand, and Obradovich, 2015). Financial support from NRIs builds internal financing sources that reduce issues of fallback position and lack of liquid assets, which come from the lack of timely cash flows.

#### **2.4 Factors affecting collateral and possible ways to reduce their impact on ethical sources of external agribusiness debt financing**

The unavailability of collateral is also a barrier to ethical sources of external agribusiness debt financing. Collateral, in the context of this study, is defined as the availability of tangible and intangible assets to be pledged by borrowers. Because farmers lease farmland to produce agricultural products, they lack the availability of tangible assets used as collateral (Bandyopadhyay, 2007). One should not ignore the fact that joint family systems are prevalent in Asian communities, which are also prevalent in the farming industry. In addition, residential and other properties are sometimes registered in the names of parents out of respect. Therefore, agribusiness borrowers should disclose all information and parents should be included in the agribusiness loan applications where applicable for collateral purposes (Gill et al., 2014). The issue of availability of tangible collateral arises when agribusiness owners, for example, open and operate poultry and/or dairy farms because of the nature of live-stocks and intangibility of assets such as operating licenses issued by franchisors. The co-signing of family members and other parties increases the possibility of securing agribusiness debt financing.

#### **2.5 Factors affecting market conditions (macroeconomic cycle) and possible**

#### **ways to reduce their impact on ethical sources of external agribusiness debt financing**

Characteristics of farm businesses include cyclical performance and seasonal production patterns, which increase default risk (Bandyopadhyay, 2007). Demand for and supply of agricultural products both negatively as well as positively affects the farming industry. Unfavorable weather conditions causes volatility in the market (International Monetary Fund, 2015). Market volatility affects character, capital, capacity, and collateral of agribusiness borrowers. For example, floods may ruin both the land and crops of agribusiness firms, which has a negative effect on these firms. However, co-signers and retained earnings can reduce this barrier to ethical sources of external agribusiness debt financing. The appearance of NRIs leads to better agribusiness management decisions, which can assist in selling agricultural products on time at better prices by exploring different markets.

#### **2.6 Summary of literature review**

In summary, internal financing sources, collateral, agribusiness performance, and corporate control with the participation of NRIs can improve access to ethical sources of external agribusiness debt financing.

A higher level of debt in the capital structure can lead to rejection of agribusiness loans. Literature shows that NRIs provide financial support to their family members in India, which increases internal financing sources. Higher internal financing sources decrease the level of leverage. The appearance of NRIs on the board of directors makes the management team appear stronger and leads to better corporate decisions, which in turn improves firm performance (Gill, Mand, and Obradovich, 2015) and increases the chances of maintaining solid financial data and having stronger agribusiness planning. Improved financial performance and a higher level of internal financing sources reduce the level of debt leverage and, consequently, the chances of loan default. Thus, there are several factors that can assist agribusiness owners' access to ethical sources of external agribusiness debt financing. Hence the following hypotheses:

*H1: The appearance of NRIs is positively associated with access to ethical sources external agribusiness debt financing.*

*H2: Higher levels of internal financing sources are positively associated with access to ethical sources external agribusiness debt financing.*

*H3: The availability of collateral is positively associated with access to ethical sources external agribusiness debt financing.*

*H4: Higher level of agribusiness performance is positively associated with access to ethical sources external agribusiness debt financing.*

### 3. Methodology

#### 3.1 Research design

We collected sample data for this study by conducting a survey among agribusiness owners in the Punjab states of India. First, a large number of residents from Punjab have been living abroad for many years (Varrel, 2012), and they usually maintain strong home ties. Second, many of Punjabi non-residents are engaged in self-owned businesses overseas compared to other non-resident Indians, and thus are capable enough to invest in their home (Varrel, 2012). Finally, due to high GDP growth in Punjab, Punjabi non-resident business owners experience higher growth opportunities and better return on investment in Punjab than in other parts of India (The Times of India, 2014).

A non-probability (purposive and snowball) sample was constructed because the majority of the owners of the agribusiness firms were reluctant to participate in a research study. To obtain a reasonable sample size, an extensive list of agribusiness owners' names and telephone numbers was used to distribute surveys and to conduct telephone interviews. We collected responses from a total of 122 (34.86%) interviewees out of 350 agribusinesses over the telephone and through personal visits. We discarded two of the survey responses due to inconsistency and incomplete answers.

Common method bias does not appear to be a problem because our variables, although self-reported, are largely measured objectively. Nevertheless, a factor analysis (e.g., Podsakoff and Organ, 1986) indicated that common method bias does not seem to be a concern for this study.

#### 3.2 Variables and their measurements

We chose several variables used commonly in similar studies. Further, we limited the total number of variables due to the small sample size and for our convenience in conducting surveys over the telephone. To collect raw data for constructing the variables, we designed the survey questions such that respondents felt comfortable disclosing information with confidentiality. For instance, rather than asking for disclosure of actual sales revenue in the recent year, we provided five individual ranges of sales, such as, total sales of (i) INR 0 – INR 500,000, (ii) INR 500,001 – INR 1,000,000, (iii) INR 1,000,001 – INR 2,000,000, (iv) INR 2,000,001 – INR 3,000,000, (v) more than INR 3000,001.

Ethical sources of external debt financing. Ethical sources of external debt financing (ESEDf) for the purposes of this study is defined as the extent

to which agribusiness owners perceive that they borrow funds from financial institutions that i) behave in an ethical way, ii) donate funds for the welfare of society, and iii) work against money laundering. Following the definition, we selected three separate components to measure the ESEDf index. We categorized their responses on a five-point Likert Scale assigning 5 as "Extreme" and 1 as "None". Responses were initially collected for each of the above three sources of external debt financing. The three measures are highly correlated with correlation values ranging from 0.85 to 0.94. Therefore, we constructed a new index by using principal component analysis (PCA). We constructed the FPSA index using the first component, which explains approximately 93.41% of the variation<sup>1</sup>.

Financial performance. The definition of financial performance of agribusiness firms (FPAF) for the purposes of this study is the agribusiness owners' general perception about the changes in net profit margin, return on investment, and cash flow from operations of their agribusiness firms. Following the definition, we selected three separate components to measure the FPSA index. In the survey, we asked all participants to rate the extent to which they believe there are changes in (i) net profit margin, (ii) return on investment, and (iii) cash flow from operations of their agribusiness firms. Their responses were categorized on a five-point Likert Scale assigning 5 as "Gone up a lot" and 1 as "Gone down a lot". Responses were initially collected for each of the above three sources of financial performance. The three measures are highly correlated with correlation values ranging from 0.71 to 0.91. Therefore, we constructed a new index by using principal component analysis (PCA). We constructed the FPSA index using the first component, which explains approximately 88.59% of the variation<sup>2</sup>.

Internal financing sources. Internal financing sources (IFS) measures agribusiness owners' capacity to invest his or her personal and family assets in his or her own agribusiness firm. IFS is measured as a categorical variable where IFS = 1 if an agribusiness owner has adequate internal (personal and family) financing sources to invest in agribusiness firm. Alternatively, IFS = 0 if an agribusiness owner does not have adequate internal (personal and family) financing sources to invest in an agribusiness firm.

Collateral. The availability of collateral (COLL) is measured as a categorical variable where COLL = 1 if the agribusiness owner has collateral available for the lending institutions. Alternatively, COLL = 0 if no collateral is available for the lending institutions.

<sup>1</sup> The eigenvalues of the four principal components are 2.802, 0.153, and 0.045, respectively. Factors that have eigenvalues greater than one are included in the construction of the component (Kaiser, 1960)

<sup>2</sup> The eigenvalues of the four principal components are 2.658, 0.290, and 0.053, respectively. Factors that have eigenvalues greater than one are included in the construction of the component (Kaiser, 1960).

Non-resident Indians. Non-resident Indians (NRI) is measured as a categorical variable where  $NRI = 1$  if any family member of agribusiness owner lives outside India. Alternatively,  $NRI = 0$  if none of their family members reside overseas.

Board size. Board size (BS) is measured as the actual number of members of the board of directors (partners). For empirical analyses, we calculated the natural logarithm (ln) of average number of board of directors.

CEO duality. CEO duality (CD) is a dummy variable with assigned value of 1 if an agribusiness owner/operator is both CEO and Chair of the same agribusiness firm, or 0 otherwise.

Firm size. Firm size (FS) is a categorical variable. In the survey, we identified five different firm sizes as follows: (i) INR 0 – INR 500,000, (ii) INR 500,001 – INR 1,000,000, (iii) INR 1,000,001 – INR 2,000,000, (iv) INR 2,000,001 – INR 3,000,000, (v) more than INR 3,000,001. During the survey, respondents chose only one category to which the average sales of their business belong. For empirical analyses, we calculated the natural logarithm (ln) of average sales.

Firm Age. Firm age (FA) is measured as the actual age of an agribusiness firm. For empirical analyses, we calculated the natural logarithm (ln) of actual age of agribusiness firms.

Interest rate. Interest rate (INT) is measured as the actual interest rate that agribusiness firms pay to lending institutions. For empirical analyses, we calculated the natural logarithm (ln) of actual interest rate paid by agribusiness firms on their borrowings.

Age. Owner age (AGE) is measured as the actual age of an agribusiness owner. For empirical analyses, we calculated the natural logarithm (ln) of actual age of agribusiness owners.

Education. The education of an agribusiness owner (EDU) is a categorical variable with an assigned value of 1 = High school or less, 2 = College diploma, 3 = Bachelor's degree, 4 = Master's degree, and 5 = PhD degree or more.

Agribusiness owner experience. An agribusiness owner's years of experience (EXP), is measured as the actual number of years of owner experience. For empirical analyses, we calculated the natural logarithm (ln) of average number of years' experience.

Gender. Owner Female Gender (GN) is a dummy variable indicating whether agribusiness owners report that they are female.

## 4. Analysis and Discussion of Empirical Results

### 4.1 Empirical Model

Financial performance of agribusiness firms (FPAF), internal financing sources (IFS), availability of collateral (COLL), and corporate control with the

participation of NRIs (i.e., BS and NRI) in the board of directors minimize barriers to external debt financing and thus, improve access to ethical sources of external debt financing (ESEDF). Therefore, we use five main explanatory variables to estimate the following model:

$$Y_i = \alpha_0 + \alpha_1 FPAF_i + \alpha_2 IFS_i + \alpha_3 COLL_i + \alpha_4 BS_i + \alpha_5 NRI_i + \sum X_{ij} + \epsilon_{it}$$

In the model,  $i$  refers to an individual agribusiness firm,  $Y_i$  is ESEDF for agribusiness firm  $i$ , and  $X_{ij}$  represents individual control variables ( $j$ ) corresponding to agribusiness firm  $i$ .  $\epsilon_{it}$  is a normally distributed disturbance term. In the estimated model,  $\alpha_1$ ,  $\alpha_2$ ,  $\alpha_3$ ,  $\alpha_4$ , and  $\alpha_5$  measure the magnitude at which FPAF, IFS, COLL, BS, and NRI affect an access to ethical sources of external agribusiness debt financing for agribusiness firms. We extend this model by considering different set of control variables once at a time. We estimate the coefficients of variables of model by applying ordinary least square (OLS) regressions<sup>3</sup>.

### 4.2 Descriptive Data Analysis

In the dataset, some of the variables, except ESEDF and FPAF indices, are individual dummy variables. The data exhibits that the distribution of both ESEDF and FPAF is almost symmetrical around their mean values and thus there is no outlier present in either of these indices. We examined the differences in variables among individual firms with and without bank financing. Indian banks are considered as behaving in an ethical way because they are controlled by the central bank.

We found that agribusiness firms with higher financial performance and higher financial resources have enhanced ability to access ESEDF (0.76 versus -0.92) compared to other agribusiness firms with lower financial performance and lower financial resources, and their differences are significant at the one percent level. We observe that agribusiness firms with higher financial performance (0.38 versus -0.46) have better access to ESEDF compared to other firms with lower financial performance, and their differences are significant at the one percent level.

Further, we observe that the mean IFS score among agribusiness firms with access to ESEDF is 0.82 compared to 0.20 in the case of agribusiness firms financed by private lending institutions, and their differences are significant at the one percent level. Likewise, the mean COLL score among agribusiness firms with access to ESEDF is 0.90 compared to 0.22 in the case of firms with lower financial resources, and their differences are significant at the one percent level.

<sup>3</sup> ESEDF, the first principal component of ESEDF1, ESEDF2 and ESEDF3, is a continuous variable

We also observe that agribusinesses with NRIs, large board size, larger firm size, and higher level of CEO education have higher access to ESEDF relative to the agribusiness firms without NRIs, with smaller board size, smaller firm size, and lower level of CEO

education. Finally, the results exhibited that firms with higher financial resources pay a lower interest rate on external debt financing compared to firms with lower resources that are financed by private lending institutions (see Table 2).

**Table 1.** Descriptive statistics

	Mean	Standard Deviation	Minimum	Median	Maximum
ESEDF	0.00	1.00	-1.61	0.46	1.15
ESEDF1	3.24	1.54	1	4	5
ESEDF2	3.35	1.45	1	4	5
ESEDF3	3.40	1.51	1	4	5
FPAF	0.00	1.00	-2.47	0.33	1.26
FPAF1	3.59	1.16	1	4	5
FPAF2	3.65	1.07	1	4	5
FPAF3	3.71	1.20	1	4	5
IFS	0.54	0.50	0	1	1
COLL	0.59	0.49	0	1	1
NRI	0.39	0.49	0	0	1
BS	1.13	0.35	0.00	1.10	1.95
CD	0.53	0.50	0	1	1
FS	14.20	0.93	12.43	14.73	14.91
FA	2.95	0.73	1.10	3.22	3.91
INT	2.61	0.30	1.95	2.48	3.18
AGE	3.93	0.28	2.89	4.01	4.38
EDU	1.57	0.96	1	1	4
EXP	3.15	0.64	1.61	3.40	4.09
GN	0.73	0.45	0	1	1
FIN	0.55	0.50	0	1	1

Notes: Variables include ethical sources of external debt financing (ESEDF), financial performance of agribusiness firms (□FPSA), internal financing sources (IFS), collateral (COLL), non-resident Indian family members (NRI), board size (BS), CEO duality (CD), firm size (FS), firm age (FA), interest rate (INT), owner age (AGE), owner education (EDU), owner experience (EXP), owner female gender (GN), and financing from financial institutions that behave ethical way (FIN).

**Table 2.** Comparison of agribusiness firm characteristics with and without ethical sources of external agribusiness debt financing

Variables	With ESEDF	Without ESEDF	Mean Difference
	I	II	I-II
ESEDF	0.76	-0.92	1.68***
ESEDF1	4.34	1.89	2.45***
ESEDF2	4.43	2.04	2.39***
ESEDF3	4.51	2.05	2.46***
FPAF	0.38	-0.46	0.84***
FPAF1	3.99	3.11	0.88***
FPAF2	4.06	3.15	0.91***
FPAF3	4.13	3.20	0.93***
IFS	0.82	0.20	0.62***
COLL	0.90	0.22	0.68***
NRI	0.49	0.27	0.22**
BS	1.19	1.04	0.15**
CD	0.55	0.51	0.04
FS	14.35	14.01	0.34**
FA	2.91	2.99	-0.08
INT	2.40	2.87	-0.47***
AGE	3.96	3.89	0.07
EDU	1.88	1.20	0.68***
EXP	3.17	3.13	0.04
GN	0.79	0.65	0.14*

Notes: Variables include ethical sources of external debt financing (ESEDF), financial performance of agribusiness firms (□FPSA), internal financing sources (IFS), collateral (COLL), non-resident Indian family members (NRI), board size (BS), CEO duality (CD), firm size (FS), firm age (FA), interest rate (INT), owner age (AGE), owner education (EDU), owner experience (EXP), and owner female gender (GN). \*\*\*, \*\* and \* imply significance of each mean difference at the 1%, 5%, and 10% level, respectively.



The correlation coefficient matrix exhibits that FPAF, IFS, COLL, NRI, AGE, and EDU are positively and significantly correlated ( $\rho$ FPAF, ESEDF = 0.529;  $\rho$ IFS, ESEDF = 0.639;  $\rho$ COLL, ESEDF = 0.687;  $\rho$ NRI, ESEDF = 0.404;  $\rho$ AGE, ESEDF = 0.269;  $\rho$ EDU, ESEDF = 0.299, and all significant at the one percent level), implying that higher financial performance, high internal financing sources, higher collateral, appearance of NRIs on the

board of directors, older CEOs, and higher level education of the CEO improve access to ethical sources of external agribusiness debt financing in India. Further, the results show a negative relationship between INT and ESEDF ( $\rho$ INT, ESEDF = -0.811), significant at one percent implying that higher cost of capital on agribusiness loans reduces access to ethical sources of external agribusiness debt financing (see Table 3).

**Table 3.** Correlation coefficient

	ESEDF	FPAF	IFS	COLL	NRI	CD	BS	FS	FA	INT	AGE	EDU	EXPGN	
ESEDF	1													
FPAF	0.529***	1												
IFS	0.639***	0.457***	1											
COLL	0.687***	0.525***	0.671***	1										
NRI	0.404***	0.353***	0.270***	0.296***	1									
CD	-0.013	-0.061	-0.005	0.055	-0.019	1								
BS	0.155	0.217**	0.190**	0.106	0.013	-0.186**	1							
FS	0.147	0.244***	0.157	0.309***	-0.035	0.009	0.179**	1						
FA	0.025	0.052	0.170	0.119	0.233***	-0.022	0.006	0.269***	1					
INT	-0.811***	-0.442***	-0.572***	-0.632***	-0.294***	0.034	-0.124	-0.169	-0.039	1				
AGE	0.269***	0.206**	0.135	0.180**	0.318***	-0.051	0.112	0.038	0.416***	-0.186**	1			
EDU	0.299***	0.289***	0.329***	0.360***	-0.080	-0.159	0.156	0.129	-0.221**	-0.274***	0.006	1		
EXP	0.160	0.171	0.189**	0.199**	0.287***	-0.059	0.125	0.196**	0.719***	-0.143	0.665***	-0.110	1	
GN	0.043	0.003	0.106	0.093	-0.152	0.539***	0.032	0.166	-0.015	-0.064	-0.070	-0.001	0.026	1

Notes: Variables include ethical sources of external debt financing (ESEDF), financial performance of agribusiness firms ( $\square$ FPSA), internal financing sources (IFS), collateral (COLL), non-resident Indian family members (NRI), CEO duality (CD), board size (BS), firm size (FS), firm age (FA), interest rate (INT), owner age (AGE), owner education (EDU), owner experience (EXP), and owner female gender (GN). \*\*\*, \*\* and \* imply significance of each mean difference at the 1%, 5%, and 10% level, respectively.

**4.3 Regression Results and Discussion**

Table 4 reports the estimated coefficients of Equation. We find that higher level of FPAF, IFS, COLL, and appearance of NRIs on the board of directors improve access to ESEDF for agribusiness firms relative to agribusiness firms with lower level of FPAF, IFS, COLL, and appearance of NRIs on the board of directors.

As shown in model specification I, the coefficient of FPAF is 0.140, significant at the ten percent level; the coefficient of IFS is 0.537, significant at the five percent level; the coefficient of COLL is 0.769, significant at the one percent level; and the coefficient of NRI is 0.345, significant at the one percent level, implying that FPAF, IFS, COLL, and NRI improve access to ethical sources of external agribusiness debt financing.

In the following model specifications, we include a set of control variables one at a time. For instance, in model specification II, we include

agribusiness firm’s BS and FS, and then we include FA, INT, AGE, EDU, EXP, and GN in model specification III. Regardless of individual model specifications, we find significant and positive coefficients of IFS, COLL, and NRI suggesting that a higher level of IFS, COLL, and appearance of NRIs on the board of directors improve access to ESEDF for agribusiness firms relative to agribusiness firms with a lower level of IFS, COLL, and participation of NRIs in the board of directors. These findings remain robust when we consider all control variables together (refer to model specification III). The results exhibit that higher cost of debt capital reduces access to ethical sources of external agribusiness debt financing (refer to model specification III).

Appendix A reports the expectations of NRIs. The majority of the NRIs expect their family members protect their existing assets, achieve higher rate of return, build their assets, and maintain their properties in return for supporting their family members.

**Table 4.** Ordinary least square regression analysis

Variables	I	II	III
FPAF	0.140* (1.87)	0.147* (1.93)	0.073 (1.22)
IFS	0.537** (3.23)	0.522** (3.11)	0.328** (2.36)
COLL	0.769*** (4.39)	0.812*** (4.44)	0.328** (2.13)
NRI	0.345** (2.59)	0.327** (2.41)	0.251** (2.19)
BS	0.091 (0.50)	0.105 (0.57)	0.052 (0.36)
CD	-	-0.028 (-0.22)	0.021 (0.18)
FS	-	-0.59 (-0.83)	-0.007 (-0.11)
FA	-	-	-0.127 (-1.27)
INT	-	-	-1.779*** (-8.25)
AGE	-	-	0.481** (2.07)
EDU	-	-	0.003 (0.06)
EXP	-	-	-0.079 (-0.60)
GN	-	-	-0.001 (-0.01)
Constant	-0.982*** (-4.22)	-0.159 (-0.16)	2.930** (2.25)
N	181	181	181
F-test statistic	31.99***	22.71***	26.84***
R <sup>2</sup>	0.580	0.582	0.764

Notes: In the regression models, the dependent variable is ethical sources of external debt financing (ESEDf). Independent variables include financial performance of agribusiness firms ( $\square$ FPSA), internal financing sources (IFS), collateral (COLL), non-resident Indian family members (NRI), board size (BS), CEO duality (CD), firm size (FS), firm age (FA), interest rate (INT), owner age (AGE), owner education (EDU), owner experience (EXP), and owner female gender (GN). \*\*\*, \*\* and \* imply significance of each mean difference at the 1%, 5%, and 10% level, respectively.

## 5. Conclusion

By taking a sample of agribusiness firms, this study concentrated on factors affecting access to ethical sources of external agribusiness debt financing in India. This study provides a mechanism through which agribusiness owners may improve access to ethical sources of external debt financing which in turn lowers the cost of debt capital. The paper shows that internal financing sources, collateral, and the appearance of NRIs on the board of directors improve access to ethical sources of external agribusiness debt financing. Since NRIs help improve access to ethical sources of agribusiness debt financing, agribusiness owners should consider NRIs serving on the board of directors. There is, however, no free lunch; that is, the majority of the NRIs expect their family members to protect their existing assets, achieve a higher rate of return, build their assets, and maintain their properties in return for supporting their family members in India.

## 6. Limitations

This study relies on the perceptions and judgments of research participants because we collected data using surveys and interviews. Not all family involvements (or NRI associations) are the same; some NRI

families are more involved than others, and some NRI families, by virtue of their wealth or status can facilitate access to agribusiness financing by providing financial support and by participating in the board of directors as foreign members.

This is a co-relational study that investigates the association between the perceived access to ethical sources of external agribusiness debt financing and the factors affecting perceived access to ethical sources of external agribusiness debt financing. There is not necessarily a causal relationship between the two. The findings of this study may only be generalized to firms similar to those that were included in this research.

## 7. Future Research

Although we have bridged some gaps in the literature, many questions still remain unanswered. One such question is to understand how agribusinesses that have NRIs improve access to ethical sources of external debt financing. Since NRI families, by virtue of their wealth or status, can facilitate access to ethical sources of external debt financing by providing financial support and by participating in the board of directors as foreign members, we call for a direct and

objective measure of the strength of this involvement in future research.

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### Appendix A

#### Expectations of non-resident family members in return to supporting their family members

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1	Protect their existing assets.	Yes = 27	No = 21
2	Higher rate of return from their investment(s) for serving on the board of directors.	Yes = 25	No = 23
3	Build their assets to reward for their investment(s).	Yes = 25	No = 23
4	Maintain their properties.	Yes = 28	No = 20

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N = 48.