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The Relationship between Board Compensation and the Firm Value of the Farm Credit System

Chris Rodgers

Abstract

This project analyzed 82 annual financial reports (2006) of Agricultural Credit Associations which create the branches of Farm Credit Services. The goal of this research is to determine the impact additional board members and their level of compensation have on the effectiveness of ACA's. The data collected shows evidence that a positive linear relationship between the compensation of the board of directors and the overall productivity of each firm exists. The results are based on the comparison of company assets, return on assets, liabilities, owner's equity, return on equity, net income and total loans. These factors have been compared to the number of board meetings per year, the compensation of board members, and the size of the cooperative board. The key components in proving the hypothesis were board compensation, board size, total loans, and gender. A large percent of the associations follow the null hypothesis, which was first thought to be that there would be some connection between finances and board of director compensation.

The author is a senior in the Department of Food and Resource Economics, University of Florida. His advisor was Dr. Michael Gunderson. They can be reached at chrislrodgers@gmail.com and mag79@ufl.edu, respectively.

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Introduction

Farm Credit Services (FCS) is a network of independently owned credit and financial institutions that cater mainly to farmers, ranchers, agribusinesses and individuals seeking home loans for country living. Farm Credit was created by the government in 1916 to provide American Agriculture with a reliable source of credit at reasonable rates of interest. Farm Credit consists of five Farm Credit Banks that provide monetary funds and services to the Agriculture Credit Associations from which the data has been collected. The purpose of the Farm Credit System is to provide these Farm Credit Associations with monetary funds to disperse to its members. There are close to 100 associations in the Farm Credit system which served $103 billion in loans to over 500,000 farmers and growers [should this be individuals since homeowners are also lent money?] in 2006.

It is important to remember that these boards are comprised of directors who are members of the agricultural community who conduct business with Farm Credit, thus decisions are made in the best interest of the members. . Each branch operates independent of one another and each region has a different lending strategy specific to that area's needs. Agriculturally heavy areas rely more on the Farm Credit system than industrialized areas and business may be better in those parts of the country. These results have been gathered from the 2006 annual reports of each Farm Credit branch.

In a sample of 82 Agricultural Credit Associations' 2006 Annual Reports collected from May 20, 2007 to September 29, 2007 the data supports my original hypothesis: The compensation paid to members of the board of directors has a positive impact on overall efficiency of a farm credit association; The data was compared in a scatter plot diagram that determined a weak, but positive correlation between the two variables that were tested at multiple significance levels. It is important to understand how and why boards of directors exist. If an understanding of how to increase firm value is discovered, then boards can consequently become more effective.

Literature Review

The purpose of boards of directors is defined in many different ways. Shleifer and Vishny (1997) feel that the sole responsibility of the board of directors is to ensure a return on investment for investors and shareholders. Gillian and Starks (1998) define corporate governance as a control of company operations through a system of rules, laws and governance. Boards of directors sit on the border of internal and external operations for a corporation. The board is influenced by outside shareholders to increase firm value, which increases return on investment. Shareholders' investment interests depend largely on how the board controls the company internally. Jensen (1993) believes that the most important part of the board of directors' internal responsibilities is to regulate and monitor senior management. It is up to the board to decide how much to compensate managers, as well as evaluate their performance.

Managers are used to enforce corporate decisions into the firm. How well managers do their jobs directly effects stock value, if stock value is falling, management must be adjusted accordingly. Corporate executives must ensure investors that they have the best people working to ensure profitability.

Baysinger and Butler (1985) believe that a company performs better if it has more outside directors. Outside directors are members of the board that are not shareholders nor employees of the company, allowing for impartial decision making. This generates new and exciting ideas which can promote positive company growth. The presence of outside directors also helps the board to act even more so on the behalf of the shareholders who actually gain from the company. . Rosenstein and Wyatt (1990) find that investors and shareholders react positively towards the appointment of outside directors; they believe that an experienced outsider can have a great influence on board meetings that make or break a corporation.

Lipton and Lorsh (1992) believed that problems in the boardroom increase as the size of the board increases; they recommend that board size be limited to ten people or less. It is much easier for a CEO to control a smaller closer group of people as opposed to a room full of dozens of people voicing differing opinions.. It has become a priority for some investors and directors to decrease the size of boards in an effort to increase productivity. This has been the case for several large corporations including Time Warner, Scott Paper, Westinghouse Electric, IBM, and General Motors.

Yermack uses Tobin's Q, which is an equation comparing the value of a company given by financial markets with the value of the company's assets to evaluate the relationship of board size and firm performance. Tobin's Q equals market value / asset value; the result indicates whether the market is over or under valuating the company as a whole. The goal of Yermack's research was to discover if the size of a board of directors in a corporation had an effect on overall productivity. His results were compatible with theories that suggest corporations with smaller boards of directors are more effective. His hypothesis suggests there is an inverse relationship between board size and firm value among 452 major U.S. corporations from 1984 to 1991.

The hypothesis of "higher market valuation of companies with a small board of directors" by David Yermack was to determine if the firm value was based on the quality of supervision and decision making by the board of directors and if the size of the board represented the performance of the company.

One study shows that boards of directors are not very effective at all when controlling a corporation. Lorsch and MacIver (1989) suggest that the vast majority of meetings result in no significant action to benefit a company. Finally, Bhagat and Black (2000) examine the effect of board composition on long-term stock market and accounting performance. Once again, they do not find any relation between board composition and firm performance. Overall, there is little to suggest that board composition has any cross-sectional relation with firm performance.

Methods

The majority of this research database was collected from the 2006 annual reports housed on the websites of each Agricultural Credit Association. The associationsthat did not list their 2006 annual reports electronically were contacted by telephone and a hard copy of the report was requested. The list of registered brances of Agricultural Credit Associations was found at www.fca.govThere were a few associations that choose not to participate in this study and the sample size ended up being 82 associations.

The summer of 2007 was spent visiting each website and creating a database in Microsoft Excel. The first Excel spreadsheet consisted of an alphabetized list of each Agricultural Credit Association accompanied with its location, bank district, and CEO. Once this sheet was completed it included all the amounts of total assets, total liabilities, owner's equity, net income and total loans. The second spreadsheet contained the same alphabetized list of association, as well as each board member. Once this sheet was completed it included each board members name, age, gender, board position, and compensation; there were over 1,000 members to research.

The fall of 2007 was spent grouping, analyzing, graphing, and hypothesizing the database. The data was compared against two different aspects of each association, the first being board size and the second board member compensation. Board of director size was compared to all assets, liabilities, owner's equity, net income and total loans of the associations. This was accomplished by taking the correlation coefficient between board size and each firm value variable. The data was then graphically depicted to determine if a linear relationship or if any outliers existed. Any outliers were then removed to improve the accuracy of the data. The second part of this comparison took the average board member compensation of each association and compared them to all assets, liabilities, owner's equity, net income and total loans of the associations. The data was then graphically compared to see if there was a linear relationship. This is the component that was found to be most helpful in determining the hypothesis.

Data

Table 1 is a summary of all of the data collected from the beginning of this project to its completion. It represents a sample size of 82 Agricultural Credit Associations. The average number of board members was 12, with the high value being 41 members and the low value being 5. There were an average of 11 meetings per year with a high on 26 and a low of 5. Each member was compensated almost $12,000 per year, there were members that earned up to $38,000 and some members were not compensated at all. The board of directors earned an average of $1,000 per meeting attended. The average number of total loans is around 1 billion

dollars per year. The highest loan portfolio was around $10 billion and the lowest was $20 million.

Average Compensation vs. Firm Value

The largest factor that can determine if a board of directors effectiveness is compensation. The average compensation of board members for all Agricultural Credit Associations for 2006 was $11,745.49, with an average board size of 13 members. This raises the question, does compensation effect operation? The Farm Credit associations have a positive relationship with firm value and board compensation, as seen in Table 2.

The data in Table 2 show that the amount of compensation that is paid to boards of directors allows them to bring positive value to the firm. This comparison shows that there is a strong correlation between board compensation and firm value. This shows that perhaps board size does not matter as much as how much board members are paid for their efforts. Perhaps if members are compensated more they will bring even more value to the firm. Note that a study performed by Rosenstein and Wyatt (1990) created a more successful approach to measuring changes in board compensation and firm value. They examined the stock price on a day when a new outside director is added to the board. They find that there is a 0.2% increase in prices.

Figure 1 uses Net Income versus Average Board Compensation to show that a positive correlation exists. As board compensation increases, net income rises. It is important to remember that this graph uses board compensation as an average number and not all 1000 members are included individually.

Regression

The results of Table 3 are based on the following equation:

$ROE = \alpha + \beta_1(\text{Board Size}) + \beta_2(\text{Compensation}) + \beta_3(\text{Total Loans}) + \beta_4(\text{Gender}) + \varepsilon.$

The independent variables (compensation, board size, total loans) impact the dependent variable (ROE). The following results represent the hypothesized impacts of the research. Return on Equity increases when the following is true:

1) Compensation increases
2) Board size increases
3) Total Loans decreases

Results

The model was estimated using Microsoft Excel. The results are presented in Table 3. Table 3 is a statistical summary of the relationship between Return on Equity (measured in percent) and board size, average compensation, total loans, and the female gender dummy variable. Average compensation is entered into the regression equation in thousands of dollars and total loans are entered in billions of dollars. The results from the ANOVA table, concerning

the hypothesis, can be interpreted using three examples. The fourth variable, gender, shows absolutely no statistically significant effect on Return on Equity.

The results of this regression analysis can be broken down into three very simple terms. First, if board compensation increases by $1000, then return on equity increases by %0.23. Secondly, if board size increases by one member, return on equity increases by %0.11. Lastly, if total loans increase by $1,000,000,000, return on equity decreases by %0.57. Board compensation has the largest positive effect on firm value, which confirms the hypothesis: the compensation paid to members of the board of directors has a positive impact on overall efficiency of a farm credit association.

This research was conducted to uncover information on a subject that has not been explored very thoroughly. The Farm Credit System is a valuable resource for the agricultural community. Proper understanding of how the corporate board of directors functions is important to the shareholders, as well as the system as a whole. The data gathered for this report was taken individually from each Agricultural Credit Association, these associations make up the collective Farm Credit System. This research has uncovered how firm value can improve in each association, which can be beneficial to all cooperative members that are apart of Farm Credit.

The results from this paper could be very beneficial to the executives of Farm Credit branches. They can learn that the gender of board members has no effect over how well a firm performs, and that prospects for appointment should be judged on their professional abilities. Executives can also learn that adding several board members does not impact the firm in a big way; it is actually more important to compensate members appropriately. The results show that board members that are compensated appropriately are more likely to act in the best interest of the company.

The results of the collected data are limited to simple conclusions that go as far as regression analysis. Other studies of corporate boards used more advanced economics. Econometrics could have been used to further analyze the data, but the author's knowledge of that field is very limited. The literature used for this project was gathered from a broad spectrum of economic and business backgrounds. The authors of the literature spent years on their research, while this paper was constructed over the course of one year. It is the hope of the author that further research is done on this subject. There is much to be learned about the most effective way to run a board of directors.

Tables and Figures

Table 1. Statistical Characteristics of Key Variables

	Board Size	Annual Meetings	Assets ($)	Liabilities	OE	Net Income	Total Loans	Member Compensation
Mean	12.41	11.6	$1,152,674.10	$972,640.49	$200,748.27	$19,638.23	$1,067,178.98	$11,745.49
Median	11	11	$535,414	$457,322	$99,314	$11,464	$448,207	None
St Dev	5.95	3.67	$1,906,600.85	$1,614,556.02	$323,154.79	$27,556.04	$1,776,165.46	$10,825
High Value	41	26	$11,385,471	$9,640,687	$1,7744,784	$193,649	$10,429,021	$38,500
Low Value	5	5	$22,623	$16,829	$5,794	$214	$20,545	$0

Table 2. Firm Value Variables Correlation with Average Compensation

Variable	Correlation with Average Compensation
Assets	0.61
Liabilities	0.61
Owner's Equity	0.58
Net Income	0.66
Total Loans	0.58
Boards Meetings Per Year	0.41

Table 3. Regression Results of Return on Equity at Farm Credit Associations
SUMMARY OUTPUT

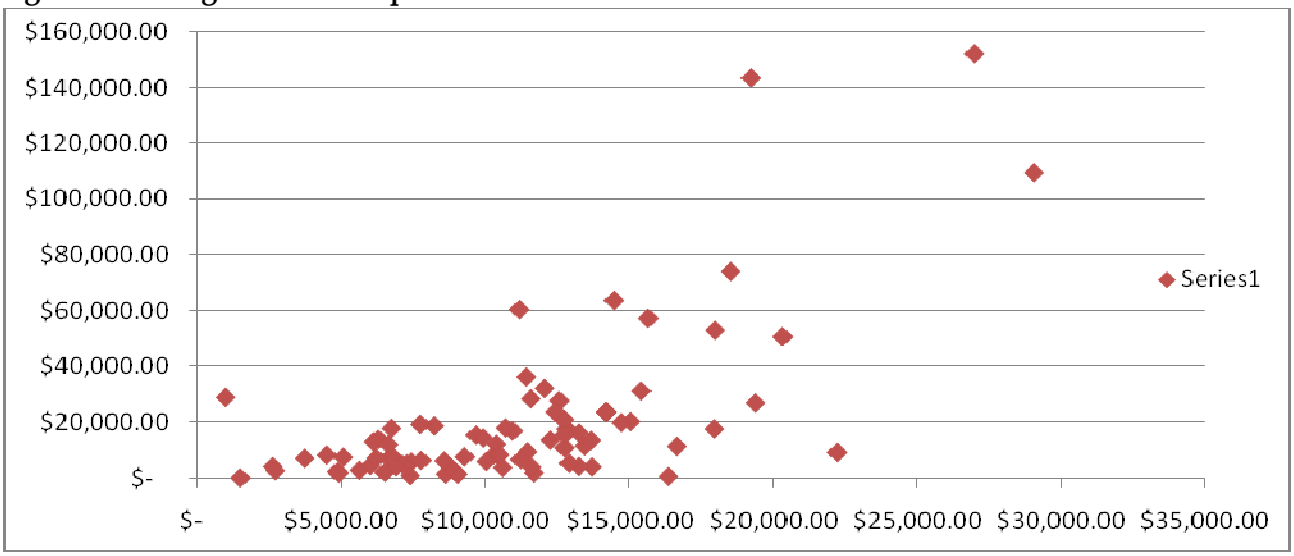
Regression Statistics	
Multiple R	0.290954
R Square	0.084654
Adjusted R Square	0.035836
Standard Error	3.943021
Observations	80

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	107.840957	26.96023913	1.734066	0.151374
Residual	75	1166.05609	15.54741455		
Total	79	1273.89705			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	7.715555	1.49563957	5.15869976	1.97E-06	4.736089	10.69502
Board Size	0.117021	0.11876548	0.985309501	0.32764	-0.11957	0.353614
Compensation	0.237324	0.10478343	2.264903898	0.026407	0.028585	0.446064
Total Loans	-0.57462	0.32145596	-1.787553159	0.077888	-1.21499	0.065753
Female	-0.743094	1.01934633	-0.728990842	0.468278	-2.77374	1.287548

Figure 1. Average Board Compensation vs. Net Income



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