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Impacts of Chapter 12 and Lender Liability Suits on Bankers' Propensity to Lend in Western Arkansas

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Abstract

The recent availability of Chapter 12 bankruptcy and the more frequent use of lender liability suits by borrowers are factors that may be adversely affecting the supply of agricultural loans. An experiment using hypothetical loan applications was undertaken involving 34 banks in western Arkansas. Responses were used to estimate the impacts of these legal procedures on banks' lending behavior. The estimated models indicate Chapter 12 is not a significant factor in the loan approval process. Lender liability has marginal significance in lowering the probability of granting an intermediate term loan.

Key Words: Chapter 12, lender liability, lender survey, limited dependent variables, loan approval

In 1986 Chapter 12 became part of the Federal Bankruptcy Code. This Chapter gives family farmers in financial stress considerable power to demand concessions from lenders. Chapter 12 can enable the debtor to reduce the amount owed, extend the payment period, and lower the interest rate to current market levels, or a rate even lower, on existing loans. In Chapter 11 of the Bankruptcy Code, where farmers typically filed before Chapter 12 became effective, creditors have the right to block the debtor's plan and force liquidation. Alternatively, in Chapter 12 creditors cannot block the debtor's reorganization plan. As a consequence, creditors' bargaining positions are greatly weakened.

The few studies of Chapter 12 that have been undertaken indicate Chapter 12 has a negative impact on credit availability to farmers. Maio reports 40 percent of 749 farm banks surveyed said the enactment of Chapter 12 has caused them to deny credit. Faiferlick and Harl examined the impact of Chapter 12 in Iowa. They conclude "... that Chapter 12 is having a significant effect not only on debtors filing under the provision, but also on the negotiating process between lenders and borrowers not in bankruptcy." (p. 333). While the survey in Maio indicates a negative impact of Chapter 12 on loan availability, further testing of this hypothesis of a negative impact is warranted.

Lender liability suits are torts by borrowers brought against a lender. The grounds of the suit are generally that the lender has unfairly compromised the ability of the borrower to successfully conduct his business. Lender liability is a growing concern of the banking sector (Swartz). Gustafson and Solemsaas examined the extent and nature of agriculturally related lender liability claims against commercial banks in North Dakota. Their study

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reported that commercial banks had increased interest rates on farm loans, decreased credit availability, and/or purchased insurance to protect against the possibility of lender liability suits. Also, lenders reported improved loan documentation and increased training in an effort to reduce the frequency of future claims.

Given the concerns evidenced by the above studies, it is clear Chapter 12 and lender liability have had some influence on the lending environment and caused changes in the practices of bankers. A study by Rucker suggests changes in the law during the Depression had a definite impact on subsequent loan availability in the agricultural sector. The authors are not aware of any studies seeking to quantify the impact of the emergence of Chapter 12 and lender liability on banker lending practices. That is, the above studies have cited concern and reported changes in lending procedures. However, there appear to be no studies measuring changes in dollar amounts or probabilities of loan acceptance in reaction to the establishment of Chapter 12 or the rising banker concern about lender liability suits.

In the present study, research was undertaken to determine if Chapter 12 and lender liability are having an impact on the agricultural lending practices of bankers in western Arkansas. Loan officers in 34 commercial banks in western Arkansas were asked to approve or disapprove each of four hypothetical loan applications. The hypothetical farm situation was structured to be representative of agriculture in western Arkansas. Each application requested funds for a short-term operating loan to purchase 200 head of stocker-steers for one year and a second loan to buy an intermediate capital item; in this case two broiler houses, each with a 20,000 broiler capacity. In addition to the approval/disapproval responses, the lenders' subjective probabilities about the occurrence of a Chapter 12 filing or lender liability action for each scenario were solicited given their loan decisions.

The first objective of this study is to identify those factors explaining variation in lenders' subjective likelihoods (probabilities) of borrowers resorting to lender liability or bankruptcy given the lenders' loan decisions. The second objective is to test the hypothesis that borrowers' potential recourse to lender liability or Chapter 12 bankruptcy, when combined with other factors influencing loan approval, affects lenders' responses to loan requests. The first objective examines lender attitudes when lenders focus on the risks posed by Chapter 12 and lender liability. Under the second objective, the relative impact of these legal actions, compared with other factors influencing the loan decision, is estimated.

In the remainder of this paper the survey and model construction procedures are discussed. Four equations are then estimated. The first two relate lenders' subjective probabilities of a Chapter 12 petition or a lender liability suit to various borrower and lender characteristics. The second two equations test for an impact of Chapter 12 and/or lender liability on the approval/disapproval decisions for the two loans. Where these two legal actions do have an impact on the approval process, a quantitative measure of their influence is estimated.

General Methodological Approach

Data Collection Method

Commercial banks in the northwest and southwest crop reporting districts in Arkansas were surveyed between July 9, 1990 and August 15, 1990 to obtain their responses to four different, hypothetical loan request scenarios. The sampling method is described later. The lenders were interviewed personally. A biography of the farmer was presented to the lender describing the farmer's personal characteristics as well as his general history of relations with the bank. In each set of requests the lender was asked to lend $95,000 to purchase 200 head of stocker-steers and, simultaneously, $150,000 for two broiler houses. The four scenarios differ by the borrower's financial strength. The lender had the option of granting the stocker loan in full or a reduced amount.[1] For the broiler houses the lender either had to grant the loan in full or reject it.

Our approach of interviewing actual agricultural lenders to obtain their responses to hypothetical loan requests is similar to the experimental approach used by Sonka, Dixon and Jones, and Sonka and Dixon. The farm situations depicted in the various scenarios are designed to provide data about lender behavior in lending to marginally qualified borrowers. The farm operation depicted in

the loan request is typical of farming situations in western Arkansas, particularly for a young farmer getting started and wanting to expand. The asset values, cost and price data used to build the financial statements are based on Cooperative Extension publications and expert judgement. McKenzie gives additional detail on the hypothetical farm situations.

Several financial statements were prepared for each of the four farm scenarios. These included balance sheets, both present and projected for one year after the loans had been granted, a projected cash flow statement for the first year of the loans, an asset and debt information sheet at the time of the request, and a projected income statement for the coming year. Tax returns were also prepared for the last three years. The balance sheets, cash flow, and asset and debt information were presented to the lender for each of the four financial scenarios. The income statement and tax returns were available upon request of the lender.

In table 1 summaries of the farmers' financial characteristics are displayed for each of the four scenarios. The four scenarios varied by the amount of land the farmer owned free of debt, had mortgaged or leased as indicated in table 1. The overall strength of the borrower's financial position weakens in going from scenario one to four. In particular, the farmer has no land debt in scenarios one and two but has 120 of his 240 acres mortgaged in scenarios three and four.

Table 1. Summary Characteristics of Financial Data and Form of Land Ownership for the Four Scenarios[a]

Item	Scenario			
	1	2	3	4
Cash Flow[b]	$10,777	$9819	$2734	$1774
Net Income[c]	$6981	$6021	$-590	$-1550
Net Worth	$196,142	$165,329	$117,578	$86,618
Leverage[d]	1.09	1.29	2.41	3.28
Acres Owned, Free of Debt	240	180	120	60
Acres Owned, Mortgaged	0	0	120	120
Acres Leased	0	60	0	60

[a] all characteristics are one year projections assuming both loans were granted.

[b] Annual net cash flow for both farm and non-farm.

[c] Net annual income aggregated over both farm and non-farm sources.

[d] Leverage = Total Liabilities / Net Worth

After approving or disapproving the loan for a scenario, the lenders were asked to state their subjective probability of the farmer petitioning for bankruptcy within the next three years. Lenders were also asked how this probability would be modified if Chapter 12 did not exist. A difference in these two probabilities indicates the lender perceives Chapter 12 as adding risk to making the loan. Lenders were also asked if any loans at their bank had been written down as a result of Chapter 12.

An alternative approach to measuring the risk lenders associated with Chapter 12 would have been to solicit approval responses with Chapter 12 in effect and without Chapter 12 in effect. This construction was avoided because it focussed lender attention directly on Chapter 12 in the loan decision when, in fact, Chapter 12 is only one of a host of factors considered in a loan request. With the approach used, it was believed the lenders would more accurately reveal their true feelings about the risk implications of Chapter 12.

Eliciting the perception of the risk created by the possibility of a lender liability suit was less complicated. After each lender stated their response to the loan requests, they were also asked their subjective probability of a lender liability law suit associated with the loan requests within the next three years.

Many factors influence perceptions of risk posed by Chapter 12 and lender liability as well as the loan approval decision. Observations on bank characteristics were collected. These included asset size, loan-to-deposit ratio, dollar percentage of loans that was agricultural, how the percentage of agricultural loans has changed over the last five and ten years, and whether the bank was located within a 30 mile radius of a poultry processing company. Also, prior bank experiences with Chapter 12 and lender liability were obtained as noted above. Since Sonka, Dixon and Jones found that individual loan officer characteristics influenced lender response, observations on selected characteristics about the loan officer granting the interview were also collected. These characteristics included the loan officer's educational level, whether the loan officer had a farm background (worked five or more years on a commercial farm), and years of experience in farm lending.

Farmer Biography

The farmer is male, 29 years old and holds a bachelors degree in animal science with a minor in business. He operates a 240 acre farm in "the local area" and has operated this farm for the past four years by raising stocker steers on the land. Simultaneously, he has a job with a local poultry company as a production manager where his salary is presently $24,000 per year. His buy/sell steer operation consists of buying 200 head of stocker steers in the fall to sell in the following spring. He has raised steers in this manner for the past four years.

In addition to the steer operation, he wants to enter into the poultry business by building and operating two 20,000 broiler capacity houses. He will have a production contract for the broilers and will have one half of the stocker steers contracted at $.78 per pound. If the broiler house loan is granted, the farmer will quit his job at the poultry company. The farmer is married and his wife is a teacher, with a salary of $23,000 per year. They have a four year old son.

The land free of mortgages was inherited by the farmer from his grandparents. The indebted land was bought in 1988 for $600 per acre and financed with Farmers Home Administration (FmHA). The land is currently worth $500 an acre. Leased land costs $16 per acre per year.

The following credit history is provided to the lender. In 1989 the farmer built a home and financed it through a savings and loan (S&L). The S&L has a mortgage on the home and 20 acres of land as collateral. All house payments have been made on time and in full. The farmer has established a good credit history with FmHA which has provided the past operating loans.

The farmer bought and financed a tractor through the bank being interviewed. This loan was still being paid back at the time of the loan requests. The loan officer being interviewed has felt comfort-

able in his past dealings with this farmer. The farmer's checking, savings and IRA accounts are at the bank being interviewed.

Sampling and Data Collection Method

All banks in Arkansas's northwest and southwestcrop reporting districts were contacted for participation except one bank.[2] One bank in each crop reporting district as well as two banks in neither district were used for pretesting the survey instrument. The remaining banks in the two districts were contacted for participation. It is assumed a bank's decision not to participate was not systematic among banks. Reasons given for not participating included lack of time or the bank did not make agricultural loans. Specific inferences about factors affecting lenders' behavior are strictly applicable only to the hypothetical loan situation and surveyed regions. However, it is assumed the lender attitudes revealed in this study about Chapter 12 and lender liability are reflective of those held by a broader population of agricultural lenders.

In northwest Arkansas, 19 of the 24 banks contacted participated and in the southwest, 15 of the 22 contacted participated. Thus, 34 banks were surveyed for a participation rate of 74 percent. All lender decisions were made during the interview. The interviews with each banker were conducted on an identical basis as much as possible except the orders of the scenarios were randomized to protect against interviewer fatigue or any pattern arising on the part of the lenders in responding to the requests. See McKenzie for further details on the data collection and survey instrument.

Responses to Survey Questions

Frequency of Loan Approval

Table 2 displays the frequency of loans being granted in the four scenarios. The borrower in scenarios 1 or 2 received at least one of the two loans. In moving to scenario 2, which is slightly weaker financially than scenario 1, fewer farmers received the loan to build the broiler houses than in scenario 1. In going to scenarios 3 and 4 it is clear that the bankers perceived a substantial change in financial status engendered by the mortgaged 120 acres. In these two scenarios bankers were more willing to lend on the stocker loan than to make the broiler house loan.

Even in the weakest scenario, at least some lenders were willing to make both loans. Bankers were willing to make the steer loan for most scenarios, but the average amount they would lend decreased with the weakness of the financial position. For scenario 1, the average stocker loan was $82,617. For scenario 4, the comparable figure was $51,412. If the observations of zero are ignored in this latter situation, the average loan would have been $72,833.

It is clear from table 2 that the strength of the financial position is the dominating consideration in whether or not loans are granted. However, table 2 also indicates heterogeneity in banker response. To identify the impact of Chapter 12 and lender liability, it is necessary to incorporate the impact of other important factors influencing the loan decision. These variables are discussed below.

Bank and Loan Officer Characteristics

Total bank asset size ranged from $12 million to $375 million with a mean of $84.5 million. The mean loan-to-deposit ratio for all the banks in the survey was 58.6 percent. This figure varied considerably. Eighty-five percent of the banks had loan-to-deposit ratios between .4 and .79 percent.

The average percentage of the loan portfolio considered agricultural among the banks was 27.8 percent. This figure varied widely among the banks. One bank had only 5 percent of its loan portfolio in agriculture whereas another bank had 75 percent of its portfolio in agriculture. Banks were asked whether the percentage of agricultural loans had increased, decreased, or stayed the same over the last ten years. Sixty-two percent of the banks indicated an increase. Thirty-eight percent of the banks either stayed the same or had a decrease in percentages of agricultural loan activity over the last ten years.

Table 2. Comparison of Financial Scenarios: Percentage of Loans Granted

Scenario	Area of Arkansas	Both (%)	Steer Only (%)	Broiler Only (%)	Neither (%)
1[a]	ALL[e]	82.4	17.6	0	0
	NW[f]	84.2	15.8	0	0
	SW[g]	80.0	20.0	0	0
2[b]	ALL	61.8	29.4	8.8	0
	NW	63.2	31.6	5.3	0
	SW	60.0	26.7	13.3	0
3[c]	ALL	17.7	61.8	5.9	14.7
	NW	26.3	52.6	5.3	15.8
	SW	6.7	73.3	6.7	13.3
4[d]	ALL	8.8	61.7	11.8	17.7
	NW	5.3	73.7	5.3	15.8
	SW	13.3	46.7	20.0	20.0

[a] Farmer owned 240 acres with no land debt.
[b] Farmer owned 180 acres and leased 60 acres with no land debt.
[c] Farmer owned 240 acres with 120 of those acres indebted.
[d] Farmer owned 180 acres with 120 of those acres indebted and leased 60 acres.
[e] Includes all of the 34 banks surveyed in western Arkansas.
[f] Includes the 19 banks in northwest Arkansas surveyed.
[g] Includes the 15 banks in southwest Arkansas surveyed.

Loan officers were asked if any of their bank's loans had been written down as a result of Chapter 12. Only five of the 34 banks had experienced such a write-down. Lenders were also asked if the bank had been threatened or sued for lender liability within the last three years. Nine of the banks responded affirmatively. This suggests banks in western Arkansas were familiar with both lender liability and Chapter 12 activities, either by direct experience, or awareness of other banks nearby being subjected to these legal procedures.

Average number of years in agricultural lending for the lenders interviewed was 13.1 with a standard deviation of 9.2. Sixty-five percent of the lenders had a bachelor's degree with 11.8 percent having a graduate degree. Finally, 58.8 percent of the loan officers had worked five or more years on a commercial farm.

Results of Statistical Analysis

This section is divided into two parts. Models are first estimated to assess the impact of

various factors in explaining bankers' subjective probabilities of bankruptcy and lender liability. These models identify the most important factors among those considered that shaped lenders' expectations of the borrower filing for bankruptcy or pursuing a lender liability suit. The second set of models examines the question of how lender attitudes about Chapter 12 and lender liability affect the loan decisions.

The specification of each of the four equations estimated was determined by first hypothesizing an initial model. The resulting models were then checked for statistical significance and agreement of signs with a priori expectations. After this first estimation, models were revised until the included explanatory variables, in general, were reasonable in terms of sign, significance, testing the hypotheses of interest, and explanatory power.

The initial specification of each of the four models hypothesized that three major factors influenced the dependent variable. The first factor was the borrower's financial strength as represented by the various financial measures from the loan application as listed in table 1. The second set of factors consisted of bank characteristics including the bank's past experiences with Chapter 12 and lender liability. These characteristics were listed earlier. The third set of factors were loan officer characteristics: educational background, years in agricultural lending, and agricultural background as explained earlier. In fitting each equation an attempt was made to have at least one variable from each category in the equation. In the models that follow, the lack of a variable from any of the major three categories of variables indicates a general lack of significance of variables from that category(ies). The second set of equations also included variables to represent the potential losses associated with Chapter 12 or a lender liability suit.

Because there are only four financial scenarios, there is limited variation in the financial variables describing the borrower compared with the lending bank and loan officer variables. To avoid the problems of high multicollinearity, it was practical to enter only one financial variable describing the borrower in each equation as an explanatory variable.[3]

Factors Affecting Lenders' Subjective Probabilities

Loan officers stated their subjective probability of the farmer filing for bankruptcy given their decision on each scenario. Four such probabilities were obtained from each loan officer. Then the loan officers were asked their subjective probability of a bankruptcy filing if the lender did not have recourse to Chapter 12. Hence each loan officer gave a total of eight probabilities of a bankruptcy filing (PROBBANK). The model estimated to explain variation in PROBBANK is:

$$\text{(1)} \quad \text{PROBBANK} = \underset{(-1.30)}{-4.385} - \underset{(-5.21)}{1.491}\text{CAFL} + \underset{(4.87)}{12.9203}\text{HLED} + \underset{(3.91)}{.449}\text{EXP} + \underset{(2.92)}{7.186}\text{REGION} + \underset{(1.94)}{3.973}\text{CHAP12}.$$

PROBBANK could range between zero and 100 so it is interpreted as a percent. Because of the limits on the variation of the dependent variable, the model is estimated as a Tobit (Tobin) model. The variables are defined in table 3. Figures in parentheses are asymptotic t ratios.

Table 3. Variable Abbreviations and Definitions

Abbreviation	Definition
AGTOTI	AGTOTI = 1 if percent of lending bank's agricultural loans to total loans increased over the last 10 years, 0 otherwise.
ASSETSIZ	Total asset size of lending bank (millions of dollars).
BROLOAN	Granting of broiler house loan. BROLOAN = 1 if intermediate term broiler house loan is granted, 0 otherwise.
CAFL	Farm plus non-farm net cash flow for projected year (thousands of dollars).
CHAP12	If farmer has access to Chapter 12 then CHAP12 = 1, 0 otherwise.
ΔCHAP12	ΔCHAP12 = 1 if lender's subjective probability of bankruptcy is greater when borrower is hypothesized to have access to Chapter 12, 0 otherwise.
DEPRAT	Lending bank's ratio of loans to deposits.
EXP	Years of lending experience loan officer has as an agricultural loan officer (years).
HLED	Highest level of loan officer's education. HLED = 1 if four year college degree or higher, 0 otherwise.
NW	Net worth of lender assuming both loans made (thousands of dollars).
PROBBANK	Lender's subjective probability of a bankruptcy filing given the loan decisions (percent).
PROBLL	Lender's subjective probability of a lender liability suit given the loan decisions (percent).
REGION	REGION = 1 if observation is from a bank in NW, 0 otherwise.
STERAMT	Amount of steer loan granted (dollars).
SUEDLL	SUEDLL = 1 if the bank has been threatened with of suit or sued for lender liability in the last three years, 0 otherwise.

Repayment ability of the firm as indicated by projected cash flow (CAFL) was very important. As shown in table 1, CAFL could range from $1,774 to $10,777. The variability of CAFL explains more of the variation in PROBBANK than any of the other independent variables. The variable HLED which is binary and has a value of 1 if the loan officer has a bachelor's degree or higher, indicates that lenders with college educations thought there was a higher expected probability of a bankruptcy filing. As years of loan officer experience (EXP) increased, so did the expected probability of a bankruptcy.

CHAP12 takes on the value of 1 if PROBBANK was elicited for situations where the

borrower would have access to Chapter 12 and zero otherwise. The coefficient on CHAP12 is significant at .05 on a one sided test. Figure 1 shows the relationship of the expected probability of bankruptcy as a function of CAFL. The existence of Chapter 12 increased lenders' subjective probabilities of a bankruptcy. As the graph shows, the differences in the probabilities are greatest for low levels of CAFL. Counter to expectations, a bank's previous exposure to Chapter 12 was not an important explanatory variable in preliminary versions of this model.

Bankers' subjective probabilities that a lender liability suit would arise out of the transaction (PROBLL) are explained by fewer factors. The model best explaining the probability of a lender liability suit is:

$$\text{(2)} \qquad \text{PROBLL} = \underset{(-4.03)}{-13.41} + \underset{(3.06)}{10.7}\text{SUEDLL} + \underset{(2.46)}{8.297}\text{HLED}.$$

SUEDLL has a value of 1 if the bank previously had been threatened or sued for lender liability within the last three years, 0 otherwise. This equation was estimated as a Tobit model.

The expected value of PROBLL given HLED = 1 and SUEDLL = 1 is 8 percent.[4] If SUEDLL = 0 and HLED = 1, the expected PROBLL is 3 percent. For HLED = 0, the respective probabilities fall to 4 and 1 percent. Since the coefficient of SUEDLL is statistically significant at the .01 level, lenders' perceptions of the possibility of a lender liability suit were influenced by previous experience with lender liability.

The only independent variable common to equations (1) and (2) is HLED. As in (1), HLED indicates lenders with at least a bachelor's degree were more likely to believe the borrower would resort to the two legal actions. Perhaps loan officers with a college education have greater awareness of these legal actions and therefore are more inclined to anticipate a lender liability suit or bankruptcy filing.

In comparing the two models explaining the subjective probabilities, lenders view the possibility of filing for bankruptcy to be related to financial characteristics of the borrower and other variables and not by past Chapter 12 write-downs. In contrast, variations in the observed probabilities of lender liability are related only to past lender liability experiences of the banks and HLED. Thus it appears factors affecting the subjective probabilities of lender liability are different from those affecting the likelihood of filing bankruptcy with the exception of loan officer education level.

Impact of Lender Liability and Chapter 12 on Loan Response

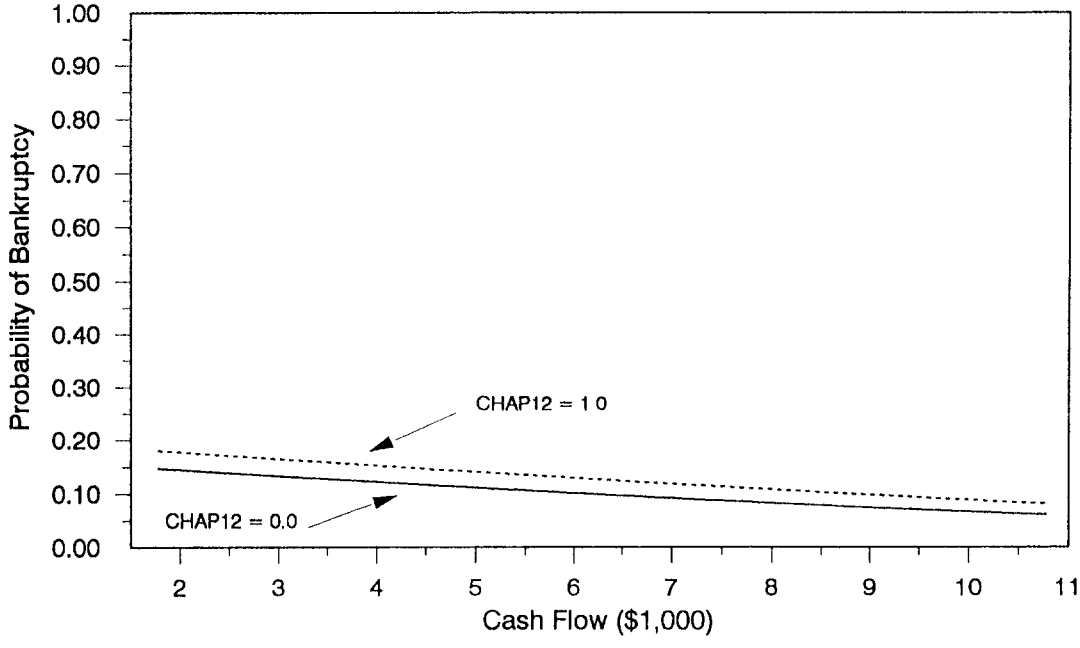
The above two models relate lenders' subjective probabilities of bankruptcy or a lender liability suit to various independent factors. It does not necessarily follow that these same factors influence the response to a specific loan request as discussed earlier. Analysis was undertaken to identify which variables, in addition to variables representing the potential impact of Chapter 12 or lender liability, were most important in determining whether either of the two loans would be granted and the level of the stocker loan.

Because the borrower would only accept the full amount or no loan at all on the broiler house loan, a logit model was estimated to explain which factors influenced the decision to grant or deny the loan. Logit models are used to estimate the probability of an event occurring as a function of independent variables. The best model of the probability of loan acceptance is a function of CAFL, whether the level of agricultural loans had been increasing over the last ten years (AGTOTI), asset size (ASSETSIZ) and the subjective probability of a lender liability suit (PROBLL). The estimated model is:

$$\text{(3)} \qquad \text{P(BROLOAN)} = (1 + \exp\{-(\underset{(-3.78)}{-2.029} + \underset{(5.92)}{.3445}\text{CAFL} \underset{(-1.70)}{-.0636}\text{PROBLL} + \underset{(1.99)}{.9394}\text{AGTOTI} \underset{(-2.18)}{-.0064}\text{ASSETSIZ})\})^{-1}$$

where P(BROLOAN) is the probability BROLOAN equals 1, indicating the loan was made. The model predicts 81 percent of the observations correctly. If

Figure 1. Estimated probability of bankruptcy as a function of net cashflow and whether Chapter 12 is available to borrower



no explanatory variables were included in the logit model, only 50 percent (the proportion of sample successes) of the observations would be classified correctly. The pseudo-R^2 for the model (Maddala, equation 2.50) is .50.

CAFL is by far the most important factor in terms of explaining variability in the probability of the loan compared with the other independent variables. As shown in figure 2, increases in CAFL, other variables being held constant at their sample means, increases the probability of the loan being granted. This is not surprising since CAFL is a strong indicator of ability to pay back the loan. Also, AGTOTI is positively associated with the granting of the broiler house loan. This indicates that as a bank has a greater involvement in agriculture, it is more receptive to making the broiler loan. The variables ASSETSIZ and PROBLL were negatively related to the loan being granted. This is somewhat surprising in the case of ASSETSIZ. The negative relationship may indicate that as banks grow larger they become less inclined to be involved in agricultural lending activities.

The subjective probability of a lender liability suit (PROBLL) is interpreted as indicating the riskiness of a lender liability suit in the mind of the lender. The top line in figure 2 gives the probability of the loan being granted if PROBLL=0 and the bottom line the probability if PROBLL=3.67, its sample mean. Since the broiler loan is proposed as a 12 year loan, lenders may see some possibility for lender liability actions. The likelihood of granting the loan diminishes as PROBLL increases. However, the impact of PROBLL relative to the other three factors is small and barely significant at the .05 level on a one sided test.

Absent from the above model is a variable representing the potentiality of a Chapter 12 write-down. Variables reflecting the likelihood of a Chapter 12 filing were tried in the model but failed to show any significant relationship to broiler loan approval. Perhaps the possibility of a write-down on the broiler house loan balance may be considered somewhat negligible by lenders. If the houses were secured by a mortgage on some of the land, current-

ly worth about $500 an acre, lenders might have considered a large devaluation of this collateral as remote.

Bankers could respond to the stocker loan by granting any amount between $95,000 and $0. Thus a two limit probit model (Rosett and Nelson) was used to estimate the regression parameters. The estimated model is:

$$\text{(4)} \quad \text{STERAMT} = \underset{(5.79)}{61050} + \underset{(7.75)}{395.4\text{NW}} - \underset{(-5.90)}{766\text{DEPRAT}} + \underset{(2.81)}{12572\Delta\text{CHAP12}}.$$

Net worth (NW) is the most important variable in the sense that it provides the largest range of variability in the dependent variable when all the variables are varied from their minimum to their maximum values. The negative coefficient on the loan-to-deposit ratio (DEPRAT) also indicates that the more financially extended the bank is, the less likely it is to make the loan as well as the loan amount being smaller.[5]

The variable ΔCHAP12 equals one if the lender responded that his/her subjective probability of bankruptcy increased when the borrower had access to Chapter 12, and ΔCHAP12 equals zero otherwise. This variable is interpreted as reflecting the lender's perception of a potential loss due to the borrower's access to Chapter 12. The sign on this variable is counter-intuitive. Initially it was hypothesized this coefficient would be negatively related to STERAMT but the opposite occurred. Since it is highly improbable that Chapter 12 or the threat of it increases the supply of funds, a different mechanism is probably working. The variable ΔCHAP12 may be identifying a group of lenders who are more aware of Chapter 12 and sensitive to the risks it poses. However, these lenders may know enough about the farmer and market conditions to still think the loan would be profitable. A number of other specifications involving variables measuring risks posed by Chapter 12 were estimated and none were found to be significant.

For both loans the threat of Chapter 12 did not appear to alter lender behavior. One possible explanation is that mortgaged land was purchased at $600 an acre and as mentioned earlier, bankers may have believed there was little chance of a major devaluation. Thus the write-down feature of a Chapter 12 could not be utilized (Flaccus and Dixon) if land were used to secure either loan. The stocker loan was short-term and if the lender had a Farmer's Home loan guarantee, which some lenders required, or a security interest in the cattle, then the impact of Chapter 12 would likely be insubstantial.

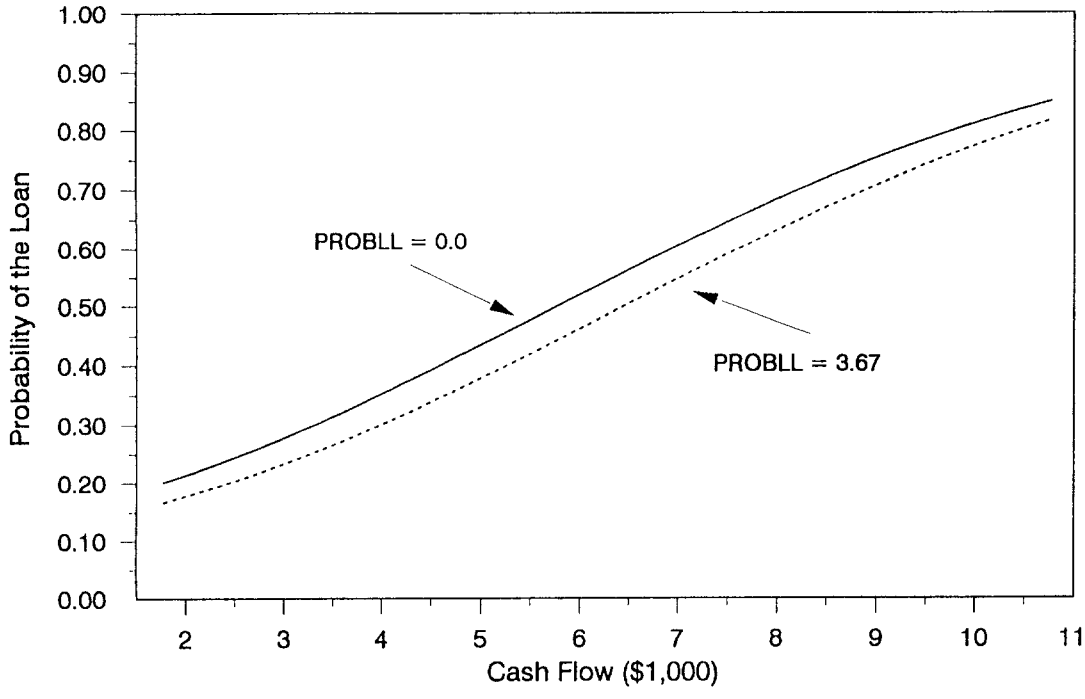
Summary and Conclusions

This study set out to identify factors explaining variation in lenders' beliefs about the likelihood of a bankruptcy filing and lender liability actions for a given loan, and then how the existence of Chapter 12 and lender liability affected the loan approval decision. Hypothetical loan requests were presented in face-to-face interviews with 34 bankers in western Arkansas. The estimated models show lenders believed the existence of Chapter 12 increased the likelihood of a bankruptcy petition. Past experience at a bank with a Chapter 12 proceeding was not an important factor in explaining variation in this likelihood. None of the borrower financial characteristics were relevant in explaining the variation in the subjective probability of instituting a lender liability suit. A bank's past experience with lender liability led to a higher subjective probability of a lender liability suit.

Two additional equations estimated the impact of lender liability and Chapter 12 on the loan approval process. The impact of these two legal actions on loan availability seemed modest if at all significant. Chapter 12 can be judged not to have a significant effect for the granting of either type of loan. Chapter 12 bankruptcy can be beneficial when the current value of secured assets is below what is owed on these assets. Chapter 12 may have taken on increased importance if the indebted land had been purchased at a much higher price than $600 per acre. The prospect of a lender liability suit has a marginally, statistically significant effect in lowering the probability of receiving the broiler loan. Thus lenders may perceive these two legal actions as threatening in a general sense, but in the loan situations considered here, the existence of such avenues of recourse appeared to have little impact on whether the loan was approved.

A number of caveats should be acknowledged. The sample is confined to a small geo-

Figure 2. Impact of lender liability on probability of obtaining broiler house loan



graphical region and only four of a possibly infinite set of farm scenarios were considered. Also, the time period when the survey was conducted, summer 1990, was relatively prosperous for agriculture, particularly compared with the early 1980's. The scenarios involved livestock and poultry loans and different results may have occurred for row crop farming. Finally, the responses were to a hypothetical situation.

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Endnotes

1. Following Sonka, Dixon and Jones, a response of less than the full amount would be used to purchase assets equal to the loan amount. In the present study, a loan of less than $95,000 was presumed by the interviewer to be for the purchase of proportionately fewer head. The borrower's financial situation plainly indicated no other source of additional funds to buy all 200 stockers without the full $95,000.

2. One bank in the northwest district was not included in the study because it was omitted from the list of banks originally provided for the study. By the time this omission was discovered, the interview phase of the study had been completed.

3. Some of the financial statements corresponded to the time of application (balance sheet and debt/asset sheet) and others were projected (balance sheets and cash flow). The projected financial statements furnished to the lender were prepared under the assumption that both loans were granted in full at a 12 percent annual interest rate. It was assumed the broiler house loan would be amortized over twelve years. Any deviation from this plan would change applicable financial variables. During the interviews the loan officers would sometimes perform their own computations before making a decision. Not all lenders did this nor did any completely recompute all financial statements. Thus the values of the borrower's financial variables used in the regression models are those in table 2 since these are the values that, for the majority of cases, the lenders used for evaluating the loan application.

4. The formula for computing the expected value of the observed dependent variable for a Tobit model is given in equation 21-24 of Greene.

5. As pointed out by an anonymous reviewer, the negative sign on DEPRAT could also indicate banks with higher DEPRAT might have better lending opportunities than banks with lower DEPRAT's.