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by

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TABLE OF CONTENTS

CHAPTER I. INTRODUCTION

In view of the recent large increases in Iowa farmland values, there is an interest and a need to analyze the phenomenon and to evaluate those factors that support the rise in land values [11, 31, 7]. If based on earning capacity, the price gains on agricultural land may be well-founded. On the other hand, if based purely on speculation, such price gains may signify a superficial farm real estate market.

The returns of farmland investment should meet the objectives of the investor. A farmer purchasing farm real estate should assess the property's value as a factor of production. Of course, the property might also serve as his residence, a private recreation area, a long-term security, or a source of personal satisfaction. The property to an off-farm purchaser may serve to provide annual income, long-term capital gains, a tax shelter, or other specialized personal benefits or satisfactions. A certain parcel of farm real estate, then, may have a different value to different individuals, depending upon each's objectives for its purchase. For a given property, its particular value to different individuals will affect the selling price that each perceives in the event of its sale.

The value of a property to a particular individual will not necessarily represent its market value. Nor does it necessarily represent the price the individual will pay for the property if it is offered for sale. The farm real estate market is the result of the interactions of many people--buyers, sellers, brokers, bankers, lawyers, government officials, and even the general public--all contributing

their personal opinions of value and their perception of the current
market situation. The scope of relationships existing within the
market is not readily understood.

There is a need to more fully understand the forces acting within
the farm real estate market. The present research will attempt to
contribute to such understanding. The price of Iowa farmland will be
the subject of analysis. In particular, the effect of seller financing
on the selling price of Iowa farmland will be discussed, and an attempt
will be made to measure this effect in the Iowa farm real estate market.

A matter of terminology is crucial to the present research. In
particular, the term selling price must be distinguished from the term
market value. Without presenting the historical development of
arguments for a definition of market value, the following is provided
jointly by the American Institute of Real Estate Appraisers and the
Society of Real Estate Appraisers:

> MARKET VALUE--The highest price in terms of money which a
> property will bring in a competitive and open market under all
> conditions requisite to a fair sale, the buyer and seller, each
> acting prudently, knowledgeably and assuming the price is not
> affected by undue stimulus.
> Implicit in this definition is the consummation of a sale as
> of a specified date and the passing of title from seller to buyer
> under conditions whereby:
> 1. buyer and seller are typically motivated.
> 2. both parties are well informed or well advised, and each
>   acting in what he considers his own best interest.
> 3. a reasonable time is allowed for exposure in the open market.
> 4. payment is made in cash or its equivalent.
> 5. financing, if any, is on terms generally available in the
>   community at the specified date and typical for the property
>   type in its locale.
> 6. the price represents a normal consideration for the property
>   sold unaffected by special financing amounts and/or terms,
>   services, fees, costs, or credits incurred in the transaction
>   [4, p. 137].

Market value, in practical use, is a subjective judgment; it is an opinion expressing a dollar amount which hypothetically may be realized upon the sale of a property, assuming the specified perfectly competitive situation. The true test of a market value appraisal can only be achieved through sale of the property in a competitive market. Of course only a very small portion of all real estate is available for sale at a given time, and appraisals of such are widely used for taxation, financial planning, and investment analysis. So market value, at best, is an estimate of the price a property might potentially bring in a sales transaction.

In contrast, selling price is an established fact. It is the price agreed upon and actually paid by the buyer to the seller in exchange for a property. Selling price requires only that a sales transaction has taken place and implies nothing about the market or the motivations and knowledge of the buyer and seller. Frequently the selling price is affected by factors such as limited competition or exposure in the marketplace, a familial or business relationship between the buyer and seller, a reciprocal trade agreement, or favorable (unfavorable) terms by which the property is financed. Therefore, the selling price of a property does not necessarily reflect its market value.

Yet, there is a connection between the meanings of the two terms. An appraisal of market value is based upon historical selling price data of comparable property. The historical prices, though, must be

adjusted for physical differences in property, the market, and any advantages to the buyers and sellers before they can be justified for comparison to market value of another property. So, it might be concluded that market value is a subjective judgment of a property's potential selling price, while selling price is an expression of value established upon the property's exchange in a sales transaction.

Depending upon the purpose and statistical procedures to be employed, both market values and selling prices have been used in past research to construct land value data sets. Market values are typically used when regional or nationwide averages are being examined with respect to price, income, or technological variables, while selling prices are used when the geographical area of study is much smaller, consisting of more homogeneous land types and uses.

The present research will analyze the selling price of a group of farm land sales in Iowa during the years 1975 to 1977. The market values of the properties sold are not known. However, certain financial data and characteristics of each sale are known and available in a form such that their effect on the selling price of the land may be assessed. The research will attempt to provide some reasons for the variation in the selling prices of farmland within Iowa. Of special concern is the impact of seller financing on the selling price of farmland. Some of the characteristics of seller financing, particularly those of the installment land contract, suggest that a portion of the selling price of a transaction financed by such may be imputed to its special financial provisions.

A review of previous research on land values will first be presented in Chapter II. Next, in Chapter III, seller financing, with a particular emphasis on the installment land contract, will be described, and the reasons for its potential effect upon the selling price of property will be discussed. The data that are used in the empirical analysis will be described in Chapter IV, followed by the presentation of the empirical analysis in Chapter V. Finally, Chapter VI will summarize the research and review its implications for those with interests in the farm real estate market.

CHAPTER II. REVIEW OF RELATED RESEARCH

Numerous studies have been done recently to attempt to account
for the magnitude of farmland values, to explain their fluctuations
over time, or to rationalize variations in farmland values within a
given area. The size of geographic area considered in the studies
range as small as an individual county or group of counties to as
large as the entire country. The land value data used for the dependent
variable series in statistical analyses may be selling prices, appraised
valuations, or aggregate land value indices. Past research suggests no
predominantly successful approach to land value analysis, nor does it
imply that there must exist only one model that can accurately explain
the factors affecting farmland values. Land value research cannot be
expected to provide unquestionable and universally applicable explanatory
models. Rather, such research can only offer evidence to support or
disprove its hypotheses to the extent the available data and research
techniques will allow.

Prior to 1950, farmland values in the United States were observed
to change in a manner similar to the changes in net farm income. Since
that time, however, there has been an ever-widening gap between farmland
values and net farm income [25, p. 327]. This phenomenon prompted
research by Reynolds and Timmons [25] in 1965, the objective of which
was to identify the factors affecting farmland values and to estimate
the magnitude of their effect. Two approaches were used in the analysis
of this problem. First, a two-equation recursive model was hypothesized

and its parameters were estimated using least-squares regression

techniques. The data used to fit the model were aggregate time

series data (1933 to 1965) constructed as averages of the respective

variables for the entire United States farmland market for each year

in the analysis. The second approach was a cross-sectional analysis,

which was used to avoid the problems of autocorrelation and multi-

collinearity that are sometimes present in a time series analysis.

The cross-sectional data used were statewide averages of the respective

variables for each of four years (1940, 1950, 1954, and 1959). Unlike

the first procedure, this was designed to account for the variation in

farmland values which occurs among states in a given year. The value

of farmland series used in the research was not actual selling price

data. Rather, it was aggregate data estimated by the United States

Department of Agriculture. The Reynolds and Timmons research indicated

that

> . . . A positive effect [on United States farmland values]
> was exerted by: expected net farm income, government payments
> for land diversion, conservation payments, expected capital
> gains, farm enlargement, nonfarm population density, technological
> advance, and the ratio of debt to equity. But a negative
> effect was exerted by voluntary transfers of farmland, the
> capitalization rate and the expected ratio of farm-to-nonfarm
> earnings [25, p. 325].

While the Reynolds and Timmons research resulted in successful

models identifying the principal factors which affect United States

farmland values and estimating their effect, interpretation and

application of the results must be done carefully. The data used in

the study are highly aggregated. Their analysis therefore does not

account for variations that exist within regions of the country. The
land value models may not appropriately be applied to the analysis of a
more narrowly defined real estate market. In addition, the research
fails to consider the effect on land values that may result from
variations in financing terms available for the purchase of farmland.

A similar study was done in 1973, in which Klinefelter [16]
attempted to identify major factors or economic indicators related to
land values and to estimate their effect upon the value of Illinois
farmland. Again, the study was a time series analysis (1951 to 1970)
in which the data used were statewide averages of the aggregate Illinois
farmland market. The dependent variable series was an index of the
value of farmland and buildings per acre for Illinois that was
estimated by the United States Department of Agriculture. A number of
independent variables analogous to those used by Reynolds and Timmons
were fit to least-squares regression models. Only four independent
variables were kept in the final model to avoid problems of multi-
collinearity. Net rent, average farm size, and expected capital gains
all were found to have a positive effect upon farmland values, while
a negative effect was caused by the number of voluntary transfers of
farmland. The model was able to explain 97.3 percent of the variation
in the Illinois farmland value index.

The Klinefelter model, though, seems somewhat incomplete. Of the
four variables included in the final model, only those for average farm
size and voluntary transfers of farmland are statistically significant

at at least the 0.01 level. Also, the data used in the analysis are statewide aggregates for the variables considered. Here again, neither variations within the area studied nor the effects of financing were accounted for.

Multiple regression analysis has also been used in land value research to develop statistical models to appraise real estate. Schott and White [27] developed an appraisal model intended to estimate the overall land value per acre of properties by evaluating the mixture of several land classes contained within each property. The data used in the study were from a rural county in south central Georgia. The dependent variable data consisted of the selling prices of land transactions obtained from county records, which were adjusted to eliminate the effects of property improvements, federal farm program allotments, and value of timber. The selling price per acre was hypothesized to be a result of land use variables, which were represented by the percent of each property belonging in each of five land classes (three cropland and two woodland), and locational variables which were represented by dummy variables. The two significant locational factors were proximity to a proposed interstate highway and existence of river frontage. The coefficient of determination (R^2) for the model was 0.86.

Schott and White note that the procedure provides an objective estimate of land value and it is able to provide a degree of statistical reliability. However, for proper usage in real estate appraisal, multiple regression analysis requires large amounts of relatively

homogeneous data in order to construct the model. Of concern to the present research is that their appraisal study supports the possibility that certain characteristics of a real property may be assessed systematically to explain the property's selling price. Their research, though, focused on the effects on selling price caused by the physical characteristics of the property. The effects of financial terms on the selling price were not considered.

Blase and Hesemann [3] attempted to explain the variation in land prices for a sample of Missouri farms, initially using 27 independent variables belonging to the following general categories: 1) indicators of land productivity, 2) extent and condition of buildings and fences, 3) proximity to and size of educational institutions, 4) reason for purchase, 6) extent of competition in the land market in the area, and 7) financial requirements. The data used were obtained from members of the Missouri Society of Farm Managers and Rural Appraisers, who were asked to report the information from 1970 land transactions. The dependent variable was the unadjusted selling price per acre of these transactions. For purposes of estimating the structural parameters of the land value model, the original 27 variables were reduced to five. Percent of land capable of producing row crops, size of most important barn, ASC corn yield rating for farm, and percent of purchase price required for downpayment all had a positive effect on selling price per acre, while age of most important barn had a negative effect, In their conclusion Blase and Hesemann state:

Given detailed information, variable specification problems in building reliable land price models appear surmountable, based on this inquiry. In addition, care seems to be justified in identifying populations which are not heterogeneous, i.e., do not include both sales substantially influenced by urban and non-urban areas. Hence, further insights into farm land prices may be possible if additional efforts are made to develop more refined models [3, p. 268].

The study suggests the importance of productivity with respect to both land and buildings in determining the selling price of land. A feature of the final model is that the regression coefficient for the percentage downpayment was found significant at the 0.01 level.

The effect of property tax rates on land values was the subject of two studies by Pasour [22, 23]. His research was intended to investigate the hypothesis that changes in property taxes are capitalized into property values. The first study concentrated on the farmland market in North Carolina, while the second was concerned with the entire United States farmland market. Using regression analysis, Pasour fit the value per acre of farm real estate (land and buildings) to the property tax rate and productivity, farm size, and urban influence variables.[1] A proxy for recreational demand was also included as an independent variable in the North Carolina study. Without specifying the estimated models here and explaining their economic implications, it is mentioned only that the R^2-statistic for the statewide model was 0.72, while that for the United States model was 0.95. In both models the coefficient for the property

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[1]The source for data for the statewide study was the 1970 North Carolina Agricultural Statistics. The source for the United States study was the 1969 U.S. Census of Agriculture.

tax variable was significant at the 0.01 level.

Especially in areas where seller financing represents a significant portion of the total amount of farm real estate credit, there exist additional factors potentially affecting land values. The terms and provisions of the sales contract will possibly offer certain advantages or disadvantages to the buyer or seller that have the capacity to alter the selling price agreed upon from that amount which reflects a property's true market value. Specifically, the characteristics of the installment land contract suggest that transfers financed by such might rightfully demand a higher selling price than a transfer involving commercial financing. Despite a general agreement in support of this reasoning, research concerning the effect of seller financing on land prices is extremely limited.

Reinsel [24] designed a simulation computer model to determine the impact on selling price of variations in downpayment, repayment rate, and interest rates. Assumptions were made concerning income tax liabilities. In application of the simulation model, the cash price of a hypothetical land transfer was compared to the selling price that would be justified using seller financing and making adjustments for the variations in the terms of the sales contract. Reinsel estimated that a contract interest rate 1.5 percentage points below the rate for commercial financing may potentially increase the selling price of the land contract by as much as ten percent. However, he stated that because only 22 percent of real estate transfers were financed with a land contract in 1965, the effect on the aggregate United States farmland

market might only have been to raise prices by two percent, from a nationwide average of $143 to $146 [24, p. 34]. Between 1965 and 1970, Reinsel suggested that land contracts probably inflated land prices less than ten percent.

Although Reinsel's research supports the hypothesis that seller financing may increase the selling price of farmland, it does not offer any empirical evidence to support the hypothesis. Particularly in areas where seller financing is a primary source of credit, its effect on land values may be much more significant. Empirical evidence on the effects of seller financing is lacking.

Harris and Hines [12] conducted a fairly extensive research project concerning installment land contracts for the University of Iowa Agricultural Law Center in 1965. While their work is worthy of economic consideration, their intent was to provide a better under-standing of the legal aspects of land contracts. Their research included a review of the Iowa laws governing land contracts as revealed by the statutes, court decisions, and commentaries by legal writers. They also conducted a survey of the parties of 154 land contracts recorded in the early 1950's. Their questionning was rather extensive to determine the circumstances under which land contracts were used and to analyze the terms and provisions of the contracts individually and as a sample representing the entire state. While the study offers insights into the use of the land contracts for the period of time it concerns, it was not meant to be an extensive economic analysis. The impact of the land contract--its terms and

provisions--on the selling price of farmland was not thoroughly examined.

The installment land contract is important to the entire United States farm real estate market for the simple reason that the sellers of farmland as a group comprise the largest source of credit to finance farmland transfers [31]. The United States Department of Agriculture Economic Research Service reported in its Farm Real Estate Market Developments (July 1977) that for the United States as a whole, about 39 percent of the credit financing farmland transfers was extended by the sellers for the year ending March 1, 1977. More than 73 percent of this seller financing was extended through land contracts. About 20 percent was extended through primary mortgages and nearly six percent through secondary mortgages. For the cornbelt region, annual data since 1964 show that the percent of farm real estate credit extended by sellers ranged from 31 percent in 1964 to a high of 61 percent in 1971. (See Table 2.1.) Of these amounts, between 80 and 90 percent represents seller financing by installment land contracts for each year.

The data on farm real estate debt for Iowa are even more impressive. (See Table 2.2.) They show that the amount of farm real estate debt outstanding that is owed to individuals and others in recent years has been more than fifty percent [15]. Of course, because of their breakdown for reporting, the national, regional, and statewide data are not suitable for direct comparison. Nevertheless, the Iowa data suggest that seller financing is very prominent within the state.

Table 2.1. Sources of farm real estate credit in the cornbelt region
(including the states of Iowa, Missouri, Illinois, Indiana,
and Ohio); percentage of regional total volume by year[a]

Year	Sellers[b]	Commercial Banks	Insurance Companies	Federal Land Bank	Other[c]
1977	36 (82)	12	10	34	8
1976	42 (86)	12	4	34	8
1975	38 (86)	8	4	42	8
1974	37 (87)	12	11	30	10
1973	36 (88)	16	11	32	5
1972	44 (90)	15	11	23	7
1971	47 (87)	17	7	14	6
1970	61 (87)[d]	11	7	14	7
1969	55 (86)	13	7	15	10
1968	49 (88)	12	19	11	9
1967	39 (87)	23	18	11	9
1966	33 (83)	20	23	11	13
1965	32 (81)	19	23	12	14
1964	31 (81)	18	26	10	15

[a]Source: [31].

[b]Numbers in parentheses represent percentage of seller financed
sales that use the installment land contract.

[c]Other category includes the Farmers Home Administration, other
individuals, Small Business Administration, and savings and loans.

[d]A 48 state average percentage of seller financed sales that used
the installment land contract is used for the years 1970, 1969, and
1968.

Table 2.2. Farm real estate debt: amount outstanding, Iowa, January 1, 1970-77[a,b]

Year	Federal Land Bank[c]	Farmers Home Administration[d]	Life insurance companies	All banks	Individuals and others[e]	Total farm real estate debt
			Thousand dollars			
1970	402,041	108,403	479,800	119,778	1,074,638	2,184,660
1971	425,756	116,057	467,100	127,472	1,116,337	2,252,722
1972	455,972	124,361	463,300	142,553	1,170,201	2,356,387
1973	497,099	130,414	471,700	162,133	1,318,353	2,579,699
1974	554,678	138,616	481,000	185,500	1,561,478	2,921,272
1975	640,511	146,312	488,700	203,199	1,662,281	3,140,923
1976	789,151	151,509	478,800	234,053	1,834,915	3,488,428
1977	1,013,620	155,614	488,623	283,895	2,042,152	3,983,904
			Percents of total			
1970	18.4	5.0	22.0	5.5	49.1	100.0
1971	18.9	5.2	20.7	5.7	49.5	100.0
1972	19.3	5.3	19.7	6.0	49.7	100.0
1973	19.3	5.0	18.3	6.3	51.1	100.0
1974	19.0	4.7	16.5	6.3	53.5	100.0
1975	20.4	4.6	15.6	6.5	52.9	100.0
1976	22.6	4.3	13.7	6.7	52.7	100.0
1977	25.4	3.9	12.3	7.1	51.3	100.0

[a]Source : [15].

[b]Data include regular mortgages, purchase-money mortgages, and sales contracts.

[c]Includes loans of joint stock land banks and Federal Farm Mortgage Corporation.

[d]Includes both direct and insured loans.

[e]Estimates.

Because seller financing comprises so large a portion of the total farm real estate credit outstanding in Iowa, there exists a possibility that Iowa farmland values may be explained somewhat by special terms and provisions that are characteristic of seller financing. Both seller mortgages and installment land contracts offer special benefits to the buyers and sellers of farmland that are not available with conventional financing. The installment land contract is the major type of seller financing agreement because of the special security it offers the seller. Hence, the analysis in Chapter III will be most concerned with discussing the characteristics of the installment land contract.

The present research will analyze Iowa land values as represented by the selling price per acre of Iowa farmland. Certain financial variables, in particular, the interest rate and downpayment percentage, will be analyzed to determine their effect on selling price. These data are not aggregates. Rather, they are specific to each observation. The research will provide insights into the extent to which the financial terms of land sales actually affect the selling price of farmland as measured in the Iowa farm real estate market.

The present research is an economic analysis of the characteristics of seller financing, with emphasis on the installment land contract. The potential impact on selling price is analyzed from a seller's point of view. The major hypothesis to be tested is that there exists an inverse relationship between the interest rate and the selling price of seller financed farmland transfers.

CHAPTER III. SELLER FINANCING: CHARACTERISTICS WHICH MAY POTENTIALLY AFFECT THE SELLING PRICE OF FARMLAND

Use of the Installment Land Contract

The installment land contract (also called contract for deed, bond for deed, and conditional sale of real estate), is an agreement by which a buyer of real property will promise to make a number of payments to the seller over a period of time in exchange for the seller's promise to provide to the buyer a deed for the property. This method of financing and transferring title may be applicable to any sale of property. Its general structure and legal provisions make it especially suitable for the sale of farmland. The main feature of the land contract is the retention of the title to the property by the seller in order to ensure that the buyer will faithfully execute his duties and responsibilities as stated in the contract. Upon fulfillment of his obligation throughout the term of the contract, the buyer will receive title to the property. Thus, the seller will have a secure interest in the property until he transfers its title to the purchaser.

The retention of legal title by the seller is the distinguishing feature of the land contract from another form of seller financing, the purchase-money mortgage. The seller has a less secure interest in property by giving up its title in exchange for a purchase-money mortgage. Moreover, the legal remedies in the event of default of the buyer are less protective of the seller's interests in a mortgage

than in a land contract. For these reasons, the purchase-money mortgage, if used, is more likely to be a source of secondary credit than primary credit in the sale of farmland.

The installment land contract meets the need to supply capital to finance farm real estate transactions. In some cases, a purchaser might be better able to secure credit from the seller than from a commercial lender, which may restrict credit because of its institutional requirements. Through the land contract, the seller will, in effect, act as a financial intermediary. By lending money to the buyer, the seller is at the same time investing his receipts of the sale. Agreement to a land contract suggests that the size, maturity, liquidity, and risk characteristics the seller seeks in an investment are closely matched by the buyer's obligations. With proper negotiation of the contract, the needs of both parties can be met.

The installment land contract may be used to transfer property within a family. By allowing lenient terms and provisions, the seller may be more assured of continuing a family farming operation. Also, the land contract is useful in estate planning. The periodic payments provide an annuity well-suited as a retirement income. Alternatively, the payments serve to liquidate one's investment and may be used to reduce an estate (and thus avoid taxes) by transferring them as gifts. In summary, the land contract is useful not only to transfer and finance property, but also in providing an opportunity for investment, estate planning, and transfer of management responsibilities within a family.

Advantages for the seller using the installment land contract are numerous. First, he may enjoy savings of federal income taxes for two reasons: 1) Should the sale qualify for the installment method of reporting capital gains, the seller may spread his tax liability over the length of the contract. The gains reported over a number of years will possibly result in a smaller total tax liability than reporting the entire capital gain in the year of sale. 2) The possibility exists for the seller to forgo a portion of the interest payments in favor of charging a higher selling price. Here, tax savings result because the increased capital gains that result from the higher selling price are taxed at a lower rate than are the interest payments. A second advantage for the seller is the flexibility of the land contract and his ability to negotiate its terms and provisions. Also, it is suggested that a low downpayment, which is traditionally associated with the land contract, will allow more people to bid on the contract [25, p. 333]. That is, there will exist a greater demand for the property, and as a result, its selling price might be forced above that which would be obtainable with a higher downpayment and commercial financing. A fourth advantage of the land contract is that it will provide the seller a manageable flow of returns from his investment. As mentioned above, the land contract is a valuable tool in estate planning and in making transfers of property within a family. Finally, the land contract allows the seller a high degree of control should the buyer default,

In particular, in Iowa and some other states, the remedy of forfeiture is available to the seller (if provided for in the contract), should the buyer fail to make payments when they come due or meet other obligations of the contract. Upon being served a written notice of forfeiture, the buyer has a grace period (thirty days by Iowa statute, or some other length as specified in the contract), within which he must correct his default. Should he fail to do so, the seller may repossess the property and keep all payments and improvements made on the property by the defaulted buyer. Thus, inclusion of a forfeiture provision in the land contract allows the seller a high degree of security in the transaction. (The courts, however, generally regard forfeiture as a harsh remedy and therefore may not strictly enforce a forfeiture that has been properly executed by the seller, especially if the buyer has repaid a substantial portion of the selling price.) Other remedies available to the seller in the event of default by the buyer include foreclosure, action for specific performance, rescission, and action for damages.

Perhaps the most important disadvantages of the installment land contract to the seller are the effects of rising land values and inflation. Generally, once the selling price and terms for repayment are agreed upon, the seller will be paid according to a fixed repayment schedule. He is unable to share the benefits of any increases in land values that might occur. The effects of inflation can be very detrimental, especially if the fixed returns of the

installment sale are a source of retirement income. Another
disadvantage to the seller is a low downpayment requirement, which
will increase the risk involved. Moreover, any disadvantages of
the contract may limit the seller's ability to resell or assign his
interests to a third party.

One major advantage to the buyer is the low downpayment that is
typical of the installment land contract. Also, while the seller
retains the title to the property, the buyer is entitled to receive
all the rights of ownership for his own benefit. Thus, the buyer is
able to acquire immediate ownership with a low downpayment, which
will allow him a high leverage position. The buyer, being assured of
a clear title at some time in the future, can make permanent
improvements on the property not having to be concerned about losing
his rights to possess the property. The periodic installment payments,
while building the buyer's equity in the property, can be viewed an
an alternative to paying rent. In addition, the buyer himself is
entitled to the profits of his operations, and he alone will receive
the direct benefits of increasing land values. Of course the buyer,
too, is able to negotiate the terms of the contract to suit his
interests. Finally, it is possible for the buyer to obtain a lower
interest rate and an easier repayment plan through the land contract
than through conventional financing.

A high leverage position resulting from installment land contract
financing, however, may limit the borrowing capacity of the buyer.

Large installment payments will strain his cash flow which will restrict his ability to secure short-term credit. Moreover, interest costs may be forbidding in the early years of the land contract, the time when the buyer is most likely to need operating capital. Of course, with conventional financing the buyer may be faced with a similar situation having to meet installment principal plus interest obligations. However, with conventional financing the buyer will typically be required to pay a somewhat larger downpayment, thus giving him a higher equity position and reducing interest obligations.

With the land contract, the buyer is also responsible for general ownership costs, including property taxes. Furthermore, while increases in land values will benefit the buyer, at the same time there exists the possibility that land values will decrease. Having agreed to a fixed price in a contract, a decrease in property value will require the buyer to pay an amount greater than its value at some future time. A decline in market interest rates could result in this same type of opportunity cost to the buyer. Another economic risk of concern to the buyer is the uncertainty of farm product prices. A final disadvantage of the installment land contract to the buyer is the availability of forfeiture as a harsh remedy in the event of his default.

The many advantages and disadvantages of the installment land contract, some unique to the land contract and others characteristic of any land transfer, all have the potential to affect the selling

price of farmland. It has been suggested that a higher price might
result using a land contract because 1) the seller might be able to
take advantage of the buyer's poor bargaining position, and 2) the
seller might demand a higher selling price to compensate for the risks
involved [5, p. 27]. More logically acceptable reasons for the
hypothesis that use of the installment land contract may affect the
selling price of farmland will be proposed in analysis of its
financial aspects and tax implications.

Establishment of a Payment Plan

The selling price of a land contract may be paid to the seller
using one of a number of payment plans. Perhaps the most popular is
the Springfield plan, by which the principal is paid to the seller
periodically in equal portions throughout the term of the contract.
Interest is charged on the amount of principal outstanding during
each period and is paid to the seller along with the payment on
principal. The installment payment series, then, is a series of
constant principal payments added with a series of declining interest
payments. Therefore, the payment due the seller decreases in each
subsequent period.

An alternative payment plan is the standard, or level payments
plan. This method also consists of a downpayment plus periodic
installment payments. However, in this case, the installment payments,
including a portion of principal plus interest on the outstanding

balance, remain equal throughout the term. The installment series is comprised of a series of increasing payments of principal added to a series of declining interest payments, resulting in a total installment obligation that remains the same in each subsequent period.

Other types of payment plans exist. It is possible to base the amount of principal to be paid each period on some price index throughout the term in an effort to relate the size of the installment obligation to the amount of the buyer's income. Or, sometimes the payment plan may feature interest-only terms for several years initially, before any repayment of principal is required [9]. Choice of the payment plan is based most importantly on the buyer's ability to meet its terms. For this reason, it may be preferred to keep payments somewhat lower in the early years of the contract than in its later years. The buyer may become a more experienced and efficient manager over time and thus be better able to meet larger payments in later years of the contract. The seller, though, will also have preferences in choosing the payment plan to receive his compensation in certain amounts and at certain times consistent with his own interests.

The payment plans are often modified further. One way is provision for a large portion of the selling price, typically 25 to 50 percent, to be paid to the seller at the end of several years of periodic installments. Such a payment, called a balloon payment, will fully repay the outstanding obligation to the seller. The purpose of the balloon payment is to allow the purchaser to end the land contract

obligation, acquire legal title to the property, and refinance the property, if necessary.

Another means of modification of the payment plan is through provision for prepayment by the buyer. With a prepayment provision in the land contract, the buyer may make payments of principal in excess of the required periodic obligation, or as otherwise permitted by the provision. The purpose of prepayment is to allow the purchaser to reduce his outstanding balance and resulting interest obligations, should he at some time during the term of the contract have the ability to make payments to the seller above what he had earlier anticipated.

Federal income tax rules influence the choice of the interest rate in a land contract in at least three ways. First, the interest payments are deductible as an expense from the buyer's gross income for the purpose of computing his income tax. (This is in contrast to the buyer's payments of principal, which are not tax deductible and must come from his net income.) Because interest payments are a before-tax expense, their impact on the buyer's net income will be dampened somewhat. The second tax rule is of concern to the seller. Interest receipts are considered as ordinary income to the seller for the purpose of computing his income tax. (This is in contrast to the seller's receipts of principal, a portion of which is taxed by a lesser amount, according to the rules for capital gains.) Interest receipts of the seller, then, are reduced according to his ordinary income tax rate.

Finally, the unstated interest rule suggests a minimum interest rate that should be charged on installment contracts. The unstated interest rule may apply to sales qualifying for the installment method of reporting gain and meeting all of the following conditions:

1. The sales price under the contract is more than $3,000.

2. One or more payments are due more than one year after the date of the sale.

3. The contract has a rate of interest that is less than six percent per year for contracts entered into on or after July 24, 1975. (The rule will apply to contracts having a rate less than four percent if entered into prior to July 24, 1975.) This minimum rate of interest allowed before being charged unstated interest is termed the "test rate" [32].

The unstated interest rule will in effect allocate a portion of each installment as interest, leaving the remainder as principal for those contracts which do not specify a rate of interest or do specify a rate that is less than the applicable test rate. A contract entered into on or after July 24, 1975, will have interest imputed at the rate of seven percent. (The imputed interest rate is five percent on contracts entered into prior to July 24, 1975.) That is, for the purpose of determining both the buyer's and the seller's income taxes, the selling price will be reduced in accordance with the amount of imputed interest, and interest payments will be allocated on a pro rata basis to the payments of principal [34]. In conclusion, the unstated interest rule

will eliminate any income tax advantages that may have occurred with a contract interest rate less than the test rate.

The selling price and size of downpayment are two financial aspects yet to be mentioned. While both are influenced by comparable sales, the purchaser's ability to meet financial obligations is important in determining these terms. By agreement to a certain selling price and downpayment, the buyer is accepting terms that are affordable to him with respect to his own management expertise. Moreover, the installment payments are sacrificed from his family's net income, so the payments will potentially lower the family's level of living [5]. A full-time farm operator purchasing farm real estate as income property should consider the acquisition consistent with his potential earnings and standard of living. From the seller's point of view, the selling price and downpayment should be consistent with his income and investment interests, especially if the land contract is to be a major source of his retirement income.

Unique to the installment land contract is the potential for mutual bargaining to establish its financial terms and legal provisions. The land contract is free from restrictions or qualifications that are necessary for institutional lenders. Hence, the parties of a land contract may agree to certain repayment terms or provisions that are not typical of conventional financing.

Net Present Value Analysis of Installment Financing

As a basis for comparing installment financing to other types of
financing, the seller's viewpoint will be considered. When selling
his property, the seller has the choice of receiving the entire selling
price in cash or receiving only a portion of the selling price as cash
and using the remainder as a type of annuity investment. With the
first choice, the buyer must seek financing from an institutional
lender or individual other than the seller, while with the second
choice the credit needed by the buyer is supplied by the seller. So,
from the buyer's point of view, there it is necessary for him to secure
credit in order to purchase the property, the differences between
seller financing and other types of financing lie entirely in the
terms and provisions of the seller contract as compared to those of
the mortgage of the other types of lenders. However, the choice of
the seller as to whether or not to extend credit to the buyer using
the land contract (or purchase-money mortgage) is a choice of whether
or not to retain his investment interests in the subject real estate.
With a land contract the seller is able to integrate some degree of
control into the investment. He is better able to influence the
benefits and returns he will receive from his investment, as well as
offer the buyer certain advantages or enhance the marketability of his
property. In the market for farmland, because the demand is high and
the number of farms listed for sale is small, sellers are generally
in a superior bargaining position to the potential buyers of farm-

land [31]. Therefore, the financial options available to the sellers of farmland seem most important in establishing the terms of a land contract.

Comparison of the land contract to other types of financing requires the comparison of payments from the present time through sometime in the future to a present lump sum payment. Dollars received in the future must be compared to dollars received at the present time. Present value analysis will best serve to reduce all payments to a comparable form. Disregarding tax implications, the following formula will reduce the payments received by the seller in an installment sale to a cash equivalent.

$$PV = DP + \frac{A_1 + I_1}{(1 + r)^1} + \frac{A_2 + I_2}{(1 + r)^2} + \ldots + \frac{A_n + I_n}{(1 + r)^n}$$

$$= DP + \sum_{j=1}^{n} \frac{A_j + I_j}{(1 + r)^j} \tag{3.1}$$

where PV = the present value of the series of payments

DP = the downpayment received at the time of sale

A_j = the payment on principal recieved in period j

I_j = the payment of interest received in period j

r = the seller's discount rate

n = the length of the installment contract (number of periods)

The equation may be generally applied to all types of payment plans, where the periodic payments on principal are not necessarily constant over time, or where interest may not be charged systematically according to some rate. A common element of land contract financing, the balloon payment, may be represented by A_n, where $A_1, \ldots, A_{n-1}$ represent the smaller periodic payments on principal. The discount rate used here reflects the competitive rate of return on an investment; it is the rate of return the seller would expect to receive by allocating his funds to an alternative investment of equal risk [4]. The value of PV represents the receipt of cash the seller would be indifferent to in comparing the receipts of an installment sale to alternative financing, disregarding taxes.

An example will illustrate the discounting procedure. Suppose a farm is sold on contract for $200,000. A 25 percent downpayment, or $50,000, is required upon signing the contract, and the remaining principal is to be paid in five equal annual installments of $30,000 with interest charged at the rate of six percent. The payment schedule, then, is in the form of the Springfield plan. Using a discount rate of eight percent, the present value of the series of payments to the seller is computed as shown in Example 3.1. The present value is less than the selling price because interest is charged at a rate less than the seller's discount rate. That is, by financing the sale of his property at a rate of six percent, the seller is forgoing the opportunity to invest his funds elsewhere at a rate presumed to

Example 3.1. The net present value of a series of installment payments

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$$PV = 50000 + \frac{30000 + .06(150000)}{(1 + .08)^1} + \frac{30000 + .06(120000)}{(1 + .08)^2}$$

$$+ \frac{30000 + .06(90000)}{(1 + .08)^3} + \frac{30000 + .06(60000)}{(1 + .08)^4} + \frac{30000 + .06(30000)}{(1 + .08)^5}$$

$$= \$192,445$$

---

be eight percent. The opportunity cost to the seller in this example
is the difference between the selling price and the present value of
the installment payments, or $7,555.

An alternative contract selling price with a present value of
$200,000 may be determined by dividing the current selling price
(200,000) by its present value, and then multiplying this number by
the current selling price.

$$\frac{200000}{192445} \times 200000 = 207852$$

So, a contract price of $207,852 paid with a 25 percent downpayment
(51,963) and five equal annual installments (31,178) is equivalent to
a cash sale at a price of $200,000. Using the payment plan specified,
the contract price equivalent is 3.9 percent higher than the cash
price. The installment financing equivalent may be further increased

by extending the length of the contract, decreasing the downpayment percentage, decreasing the interest rate, or by assuming a larger discount rate.

The seller of farmland using an installment land contract or a purchase-money mortgage has the opportunity for tax savings. By electing to use the installment method of reporting gain, the seller is allowed to prorate his profits from the sale according to his receipt of payments. So taxes need not be paid on the entire amount of capital gain in the year of the sale. Rather, taxes are assessed throughout the term of the contract as the capital gains are actually realized. Thus, tax savings may result from a lower tax rate due to the recognition of smaller amounts of gain in each year, and also because future tax dollars may be discounted to arrive at a smaller present value of the tax obligations.

The installment method of reporting gain on the sale of farmland may be used if the following conditions are met:

1. Payments in the year of sale do not exceed thirty percent of the selling price.

2. One or more payments is made in each of at least two years. [33] The portion of the downpayment and each installment payment of principal that must be reported as capital gains is computed using the gross profit percentage, which is the ratio between the gross profit and the contract price. Gross profit is the selling price minus the seller's income tax basis on the property. Contract price is generally

the selling price of the property. However, if the buyer assumes an
existing mortgage on the property, the selling price is reduced by the
mortgage to arrive at a value for the contract price.[1] The downpayment
and all payments on principal (not interest), then, are multiplied by
the gross profit percentage to determine the amount of each payment
that is capital gain and taxable in the year in which it was received
by the seller.

Assuming the farmland was held for more than one year, the gain
on its sale is eligible for long-term capital gains treatment.[2] In
computing the seller's personal income tax, long-term capital gains
treatment allows him to claim a deduction of fifty percent of the gain
before applying his ordinary tax rate to the remainder. The deduction
in effect reduces the tax rate on the capital gain to half the seller's
ordinary tax rate.[3]

The portion of the downpayment and each payment of principal

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[1]The discussion here is brief and simplified. A more detailed
description of the installment method of reporting gains is found in
"Farmer's Tax Guide," Publication 225 of the Internal Revenue Service.

[2]Prior to 1978 the qualifying holding period for capital gains
treatment was nine months.

[3]An alternative formula is available for computing the personal
capital gains tax which may modify the liability somewhat. For net
long-term gains of less than $50,000, the individual may pay a flat
rate of 25 percent on the gain. However, this 25 percent option is
only available for gains less than $50,000. Hence, the portion of
long-term gain in excess of $50,000 must be taxed at one half the
rate for ordinary income. A more detailed description of the treat-
ment of capital gains and losses for income tax purposes is also found
in the "Farmer's Tax Guide."

that is not a capital gain is called a return of basis. The return of basis is equal to the seller's money holdings which had been earlier set aside for the purchase and improvement of the property. It is now merely returned to him--free of tax. The remaining portion of each installment receipt, the interest, is taxed at the seller's ordinary tax rate.

Incorporating the effect of taxes, the present value equation that discounts the receipts of installment financing is given by:

$$PV_i = B_0 + (1 - .5t_0)G_0 + \frac{B_1 + (1 - .5t_1)G_1 + (1 - t_1)I_1}{(1 + r)^1}$$

$$+ \frac{B_2 + (1 - .5t_2)G_2 + (1 - t_2)I_2}{(1 + r)^2} + \ldots$$

$$+ \frac{B_n + (1 - .5t_n)G_n + (1 - t_n)I_n}{(1 + r)^n}$$

$$= B_0 + (1 - .5t_0)G_0 + \sum_{j = 1}^{n} \frac{B_j + (1 - .5t_j)G_j + (1 - t_j)I_j}{(1 + r)^j} \quad (3.2)$$

where PV_i = the present value of the series of installment payments

B_j = the return of basis in period j

G_j = the capital gain recognized in period j

I_j = the receipt of interest in period j

t_j = the average ordinary tax rate in period j (It is assumed here that 50% of capital gains is not taxable, while the

remainder is taxed at the ordinary tax rate)

r   = the seller's discount rate

n   = the length of the installment contract (number of periods)

Another example will be presented to illustrate the computation of present value to the seller net of taxes using Equation 3.2. Suppose a farm is sold on contract for $200,000. The adjusted basis, the cost or purchase price paid by the seller when he acquired the property plus the cost of improvements or other additions or reductions, is assumed to be $80,000, or forty percent of the selling price. The buyer will assume no debts or other property of the seller, so the contract price is the same as the selling price. The downpayment is 25 percent of the selling price, and the interest rate is six percent. The repayment schedule for the remaining principal consists of four equal annual installments followed by a balloon payment of forty percent of the selling price at the end of the fifth year. The discount rate is eight percent and the average tax rate on ordinary income is thirty percent.

The schedule of payments, then, includes a downpayment of $50,000 payable upon signing the contract. Four installments of $17,500 are to be paid at the end of each of the next four years, and a balloon payment of $80,000 is to be paid at the end of the fifth year. Interest at the rate of six percent on the outstanding balance will be due with each installment payment.

In order to determine the capital gains to be reported, the

gross profit percentage must be computed, by dividing the gross
profit by the contract price. The gross profit, which is the contract
price minus the adjusted basis, is $120,000 (200,000 - 80,000). So,
the gross profit percentage is sixty percent (120,000 ÷ 200,000).
Therefore, sixty percent of each principal payment must be reported
as capital gain. Using Equation 3.2, the present value of the install-
ment contract is computed in Example 3.2. In the equation, the down-
payment is equal to $B_0 + G_0$ (20,000 + 30,000 or 50,000), the return

Example 3.2.   The net present value of an installment sale to the
seller, net of taxes

$$PV_i = 20000 + [1 - .5(.3)]30000 + \frac{7000 + [1 - .5(.3)]10500 + [1 - .3]9000}{(1 + .08)^1}$$

$$+ \frac{7000 + [1 - .5(.3)]10500 + [1 - .3]7950}{(1 + .08)^2}$$

$$+ \frac{7000 + [1 - .5(.3)]10500 + [1 - .3]6900}{(1 + .08)^3}$$

$$+ \frac{7000 + [1 - .5(.3)]10500 + [1 - .3]5850}{(1 + .08)^4}$$

$$+ \frac{32000 + [1 - .5(.3)]48000 + [1 - .3]4800}{(1 + .08)^5}$$

$$= \$167,527$$

of basis plus capital gain recognized at the signing of the contract.
The four equal installments (17,500) are forty percent return of
basis (B_j = 7,000, j = 1 to 4) and sixty percent capital gain (G_i =
10,500, j = 1 to 4), as is the balloon payment (B_5 = 32,000, G_5 =
48,000). The value of PV_i (167,527) represents the after-tax receipt
of cash from some alternative form of financing to which the seller
would be indifferent.

Of course, from the seller's viewpoint, when the sale is
financed by some alternative means, he receives the entire selling
price in one lump sum, so there is no need to discount his receipts.
The selling price will, however, be reduced by the capital gains tax
liability. The net value of the alternative means of financing may
be shown as:

$$PV_a = B + (1 - .5t)G \qquad\qquad (3.3)$$

where PV_a = the net value to the seller when the entire selling
price is received at the time of sale

B, G, and t have the same meaning as in Equation 3.2 for the
period in which the sale occurred. Here again, the
capital gains tax rate is assumed to be one-half the
ordinary tax rate.

To illustrate the use of Equation 3.3, assume once again the sale
of a farm for $200,000, where credit is supplied by some source
other than the seller. Then, the seller will receive the entire price
agreed to at the time of sale. Say the seller's adjusted basis on the

Example 3.3.   The value to the seller of receiving the entire selling
                price in one lump sum, net of taxes

$$PV_a = 80000 + [1 - .5(.3)]120000$$

$$= \$182,000$$

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property is again \$80,000, so that the gross profit or capital gain

realized on the sale is \$120,000. With an average tax rate of .30,

the net value to the seller is determined as illustrated in Example

3.3. From the seller's point of view, should the buyer use some

alternative source of credit other than seller financing, the sale

is no different from a cash sale, and it may hereafter be referred

to as such. So for simplicity in this discussion, from the seller's

point of view, it is necessary only to distinguish between install-

ment financing and the cash sale, represented by Examples 3.2 and

3.3 respectively. The cash sale here may actually be financed by

a source such as a Federal Land Bank, insurance company, or commer-

cial bank. However, since the seller receives the entire selling

price at the time of sale, such financing is to him equivalent to

a cash sale.

Because the entire price is paid at one point in time in

Example 3.3, there is no need to discount any portion of it. Using

the example situations, the net value to the seller of the receipt

of the purchase price in one lump sum is 8.6 percent greater than

the net present value of the installment sale. Therefore, an installment contract having the terms specified in the earlier example would command a selling price greater than $200,000 in order to leave the seller with the same net present value that he would have if the buyer were to use some alternative means of financing. In order to compute a contract price which leaves the seller with a net present value of $182,000, it is not possible to simply increase the original selling price ($200,000) by 8.6 percent. Because the gross profit percentage which determines the capital gains on the sale does not remain constant as the selling price is increased, an iterative procedure is necessary for the computation. Using such a procedure, it is found that a selling price of $218,343 for an installment contract having the same terms as in Example 3.2 will have the same net present value to the seller as the alternative financing or cash sale of Example 3.3. This price is 9.3 percent higher than the cash sale. For the equivalent installment contract, the gross profit percentage increases to 63.4 percent [(218,343 - 80,000) ÷ (218,343)] of the selling price. The downpayment, remaining at 25 percent of the selling price, becomes $54,586, while the balloon payment, which is forty percent of the selling price, becomes $87,337. The annual installments increase to $19,105. The length of the contract remains at five years, the interest rate at six percent, the seller's average tax rate on ordinary income at thirty percent, and the seller's discount rate at eight percent.

By changing one element of the installment contract in Example 3.2

41

while holding all the others constant, it is possible to assess the impact on the selling price of that element. For example, by requiring a downpayment of only ten percent of the selling price rather than the 25 percent specified in Example 3.2, the installment contract commands a price 10.5 percent above the original price of $200,000. Decreasing the downpayment, then, will require that a higher selling price be charged to maintain the net present value of the installment payments. Reducing the balloon payment to twenty percent of the selling price commands an installment contract price 7.6 percent greater than the original price, while omitting the balloon payment and paying back the principal in five equal installments commands a price only 7.3 percent greater than the original price. Hence, reducing the size of the balloon payment increases the net present value to the seller of an installment sale.

Lengthening the term of an installment contract will have a substantial impact upon the price the seller will command, especially when a large balloon payment is provided for. For example, lengthening the contract in Example 3.2 to ten years will decrease its net present value to the seller to only 86.4 percent of the net value to the seller of a cash sale. So, to leave the seller indifferent between the cash sale in Example 3.3 and his offering installment financing with the terms of Example 3.2 except for a ten-year payback period, the selling price of the installment contract must be increased by 16.6 percent. Lengthening the term to fifteen years will require the installment

contract price to be 22.5 percent above that of the cash sale.

Of course, all the speculations made thus far on the impact of the various terms of installment financing on the selling price of farmland depend upon the assumptions made in the model being examined. The rate used to discount future returns is a critical assumption in any present value analysis. Increasing the discount rate to ten percent in Example 3.2 will reduce the net present value to the seller of the installment financing by 4.7 percent. In order to equalize the net present value of the installment financing with a discount rate of ten percent to the net value of the cash sale, the seller must charge a price 14.6 percent higher on the contract sale. On the other hand, reducing the seller's discount rate to six percent on that same contract will require a price only 3.8 percent above the original price of $200,000.

By choosing not to finance the sale of his land, instead receiving the total selling price at the time of sale, the seller will recognize the entire capital gain at that time. It is therefore quite likely that his capital gains will be subject to a higher average tax rate. Increasing the average ordinary tax rate in Example 3.3 to .35, the net value to the seller of his receiving the entire price at the time of sale becomes $179,000. An installment contract with the same terms as in Example 3.2 (including a tax rate of .30) which has a net present value of $179,000, will have a selling price of $214,541, or 7.3 percent above the original selling price of $200,000. A further increase of the average ordinary tax rate to .40 on the Example 3.3

sale will suggest a price 5.4 percent above the original price on an installment sale having the same terms as in Example 3.2. It is apparent, then, that a higher tax rate on the entire capital gain realized at one time than on the gains realized according to the installment schedule will reduce the size of the selling price premium that installment financing commands.

One additional factor worthy of consideration is the gross profit--that portion of the selling price which must be recognized as capital gain. If the adjusted basis in Examples 3.2 and 3.3 had been $150,000 instead of $80,000, there would be less capital gains recognized from the selling price of $200,000. The net value to the seller of a cash sale as in Example 3.3, after deducting his tax liability, would be $192,500. In the same respect, the net present value of installment financing with terms similar to those of Example 3.2 but with a basis of $150,000 would be $176,054. However, in order to provide a net present value to the seller equivalent to the cash sale, the selling price of an installment contract would be 10.4 percent above the original price. Compared to the 9.2 percent premium commanded by the installment contract with a basis of $80,000, the land with the larger basis commands an even higher installment contract price premium.

The interest rate assumed for all the installment financing examples to this point has been six percent, which is the test rate which determines whether or not the sale will qualify for the installment method of reporting gain. Although a six percent rate is

not uncommon for seller financing, no motivation for the seller to charge such a low rate has yet been presented. The generally accepted explanation is his potential for tax savings. By receiving less compensation in the form of interest payments in exchange for greater compensation in the form of selling price or principal payments, the seller will be forgoing ordinary income in exchange for capital gains income. He thus acts to reduce his total tax liability by subjecting a greater portion of the total compensation to capital gains tax, which is assessed at a lower rate than the ordinary rate, which is assessed on the interest receipts.

Continuing the analysis, an illustration will be presented to support the hypothesis that an inverse relationship exists between the interest rate and the selling price of seller financed farmland transfers. The approach is to compare two example installment contracts which have equal net present values to the seller. All assumptions made in each situation are the same, except for the interest rate. The contract price in each situation is computed to be that price which equates the net present value to the seller to $182,000, given that the sales conditions of each are identical. The comparison is made by means of a cash flow analysis.

Example 3.4 assumes the six percent test rate of interest, while Example 3.5 assumes a market rate of interest of 9.3 percent. The selling price in Example 3.4 is more than $14,000 greater than that in Example 3.5. The interest payments in Example 3.5, however, amount

Examples 3.4 and 3.5.   Cash flow analysis; net present value of
                        installment sales

Terms common to both contracts:

The property's adjusted basis is $80,000
The downpayment is 25 percent of the selling price
There will be four equal annual installments
A balloon payment of 40 percent of the selling price will complete
    the buyer's obligation at the end of the fifth year
The seller's average ordinary tax rate is .30
Capital gains taxes are assessed using the installment method of
    reporting at one-half the ordinary tax rate
The seller's discount rate is .08
The net present value of cash inflows minus cash outflows is
    $180,000

Example 3.4.   Interest rate is 6%; Selling price is $218,343

Time Period	Principal Payment	Remaining Principal	Interest	Total Payment
0	$ 54,586	$163,757		$ 54,586
1	19,105	144,652	$ 9,825	28,930
2	19,105	125,547	8,679	27,784
3	19,105	106,442	7,533	26,638
4	19,105	87,337	6,387	25,492
5	87,337		5,240	92,577
total	$218,343		$37,664	$256,007

[a]The net present values of the contracts in both Examples 3.4 and
3.5 are not exactly equal to $180,000 because of slight rounding errors
in each computation.

Example 3.5.   Interest rate is 9.3%; Selling price is $204,289

Time Period	Principal Payment	Remaining Principal	Interest	Total Payment
0	$ 51,073	$153,218		$ 51,073
1	17,875	135,343	$14,249	32,124
2	17,875	117,468	12,587	30,462
3	17,875	99,593	10,925	28,800
4	17,875	81,718	9,262	27,137
5	81,716		7,600	89,316
total	$204,289		$54,623	$258,912

	Tax		Net Installment	Net Present Value
Capital Gains	Ordinary	Total	Receipt	Of Installment[a]
$ 5,191		$ 5,191	$ 49,395	$ 49,395
1,817	$ 2,948	4,765	24,165	22,375
1,817	2,604	4,421	23,363	20,030
1,817	2,260	4,077	22,561	17,910
1,817	1,916	3,733	21,759	15,994
8,306	1,572	9,878	82,699	56,284
$20,765	$11,300	$32,065	$223,942	$181,988

	Tax		Net Installment	Net Present Value
Capital Gains	Ordinary	Total	Receipt	Of Installment[a]
$ 4,658		$ 4,658	$ 46,415	$ 46,415
1,630	$ 4,275	5,905	26,219	24,277
1,630	3,776	5,406	25,056	21,481
1,630	3,278	4,908	23,892	18,966
1,630	2,779	4,409	22,728	16,706
7,453	2,280	9,733	79,583	54,163
$18,631	$16,338	$35,019	$223,893	$182,008

to nearly $17,000 more than the interest in Example 3.4. The $3,000 difference between these two numbers is represented by the tax savings element of Example 3.4. The interest income forgone by charging a rate below the market rate is returned to the seller through an increased selling price and by realizing tax savings. The combinations of principal plus interest payments less taxes in each of the two examples, when discounted according to the time of their receipt, result in equal net present values to the seller. The seller is indifferent to a choice between the two contracts, assuming all other conditions of each sale are the same.

Summary

The sellers of real estate are a potential source of credit for the purchasers of their property. Particularly in the farmland market, the installment land contract is a popular method of financing and providing for the transfer of title to property. Using the land contract, the seller retains the title to the property while the buyer makes periodic payments and meets all obligations of the contract. Throughout the term of the contract, the purchaser has full rights and responsibilities of possession. Upon full payment of the selling price, or upon such time that other conditions are met as provided for in the land contract, legal title will pass to the buyer. An alternative form of seller financing is the purchase-money mortgage. It has the same installment financing characteristics as the land

contract. However, using the purchase-money mortgage, the buyer receives formal title to the property at the time of sale in exchange for a formal promise of payment to the seller. The seller therefore is in a less secure position should the buyer default in his responsibilities. For this reason, the installment land contract is the most commonly used method of seller financing.

Perhaps the most significant advantage of the installment land contract (or the purchase-money mortgage) is the opportunity for negotiation of the terms and provisions of the contract to the mutual interests of both parties to the sale. The seller seeks to protect his interests in the contract as an investment, giving special attention to his flow of returns and the tax obligations that result. At the same time, the buyer attempts to enhance his farm business operation through proper design of the contract provisions, with special emphasis on his financial obligations. The installment land contract is well-suited to meet the needs of the buyers and sellers of farmland.

Considering the variety of financing terms and contract provisions that are possible for installment financing, it is difficult to design a model to represent the market situation. This chapter introduced a generally applicable present value equation which, by making certain assumptions, may be used to arrive at a common means of comparison for contracts having different terms and sales situations. Using hypothetical examples, the effects of changes in

certain terms of installment contracts were hypothesized. A smaller downpayment percentage should increase the selling price. On the other hand, a smaller balloon payment should decrease the selling price. Increasing the length of the contract will allow the seller to command a higher selling price. A larger discount rate assumed by the seller reduces the present value of future receipts, and so will suggest that the seller require a higher selling price on his property. With the assumptions made in the analysis, a larger tax rate on the cash sale will decrease the premium required on the price of an installment sale. It was suggested also that property of which basis is a large portion of its cash price will command a higher installment price than similar property having a smaller portion of basis. Finally, an inverse relationship is hypothesized to exist between the interest rate and the selling price of installment contracts.

Several reasons were suggested to support a higher selling price for seller financed land sales. First, the seller, in negotiating the contract, may be able to take advantage of the buyer's poorer bargaining position. Second, the seller may require greater compensation to account for the risk he must enter upon. Also, the typical low downpayment required by installment land contract financing may allow more people the chance to bid on the property. Most importantly, the possibility exists for interest payments to be forgone by the seller in exchange for a higher selling price.

CHAPTER IV. THE DATA USED IN THE EMPIRICAL ANALYSIS

The data used to assess the impact of seller financing on the
price of Iowa farmland are the Iowa data obtained from the United States
Department of Agriculture Economic Research Service in its annual
survey of farm real estate brokers. The data are for the years 1975,
1976, and 1977, and were collected during the month of March each
year. A copy of the relevant portion of the survey appears in
Figure 4.1. The results of the nationwide survey are reported by
farm production region in July in Farm Real Estate Market Developments.
The Iowa data will be presented in this section, with a special
emphasis made to distinguish the characteristics of seller financed
farmland transfers from those that are not seller financed.

In its publication, Farm Real Estate Market Developments, the
Economic Research Service attempts to evaluate the market for farmland
on a nationwide basis and assess the major factors influencing farm
sales. There were increases in land values nationally in 1975, but
smaller than during the previous year. The reasons offered for such
were easier credit, but a decline in farm incomes and less buyer
optimism on perspective earnings as compared to the year 1974 [31].
In 1976 there were large increases in land values nationally, caused
mainly by the demand for land for farm enlargement. There was
increased credit availability compared to earlier years and an
apparently good market for United States farm products [31]. The

Figure 4.1. A portion of the United States Department of Agriculture Economic Research Service "Farm and Rural Land Market Survey;" a questionnaire mailed to farm real estate brokers to obtain information from which to assess the current farm real estate situation

PART B: SALES OF FARM REAL ESTATE PRIMARILY FOR AGRICULTURAL USE. Please list below the 5 most recent and grove properties of 10 acres or more that have been completed in your community since October 1, 1973, for whi

TERMS OF SALE

TOTAL ACRES (In farm or tract)	TOTAL SALE PRICE	SOURCE AND AMOUNT OF CREDIT USED TO BUY THIS PROPERTY					
		Include mortgages, deeds of trust, land contracts, personal notes, and other credit obligations. (If no debt was incurred, enter zero below under amount.)					
Acres	Dollars (Omit cents)	**SOURCE CODES** 1—None (All cash) 4—Bank 7—Farmers Home Administration 2—Seller 5—Insurance company 8—Other 3—Other individual 6—Federal Land Bank 9—Don't know					
		PRIMARY SOURCE (First trust or mortgage)			**SECONDARY SOURCE** (Second trust or mortgage)		
		Source Code (Circle one)	Amount of Credit Dollars (Omit cents)	Interest Rate Percent	Source Code (Circle one)	Amount of Credit Dollars (Omit cents)	Interest Rate Percent
1.		1 2 3 / 4 5 6 / 7 8 9			• 2 3 / 4 5 6 / 7 8 9		
2.		1 2 3 / 4 5 6 / 7 8 9			• 2 3 / 4 5 6 / 7 8 9		
3.		1 2 3 / 4 5 6 / 7 8 9			• 2 3 / 4 5 6 / 7 8 9		
4.		1 2 3 / 4 5 6 / 7 8 9			• 2 3 / 4 5 6 / 7 8 9		
5.		1 2 3 / 4 5 6 / 7 8 9			• 2 3 / 4 5 6 / 7 8 9		

cent **VOLUNTARY SALES** of farm, ranch, orchard r which you know the acreage and price paid.

	BUYER		**SELLER**		What is the
If SELLER was credit source, was this an INSTALLMENT land purchase contract?	Status of buyer BEFORE this purchase	Probable way this land will be operated AFTER sale	Status of seller BEFORE sale	BEFORE the sale, how was this land used?	**PROBABLE USE** to be made of this land in 5 years?
CODE 1—Yes 2—No 3—Don't know	1—Tenant farmer 2—Owner operator 3—Retired farmer 4—Local non-farmer 5—Absentee owner (Outside the county) 6—Other 7—Don't know	1—Complete farm unit 2—With land already owned 3—With rented land 4—As a part-time farm 5—Other (rural residence, etc.) 6—Don't know	1—Estate 2—Active farmer 3—Retired farmer 4—Local non-farmer 5—Absentee owner (Outside the county) 6—Other 7—Don't know	1—Complete farm unit 2—Part of a farm 3—Part-time farm 4—Other (rural residence, etc.) 5—Don't know	1—Agriculture only 2—Forest 3—Mineral 4—Recreation 5—Rural residence 6—Subdivision 7—Commercial or industrial 8—Other
(Circle one)	(Circle one)	(Circle one)	(Circle one)	(Circle one)	(Circle one or more for each sale)
1 2 3	1 2 3 4 5 6 7	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5	1 2 3 4 5 6 7 8
1 2 3	1 2 3 4 5 6 7	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5	1 2 3 4 5 6 7 8
1 2 3	1 2 3 4 5 6 7	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5	1 2 3 4 5 6 7 8
1 2 3	1 2 3 4 5 6 7	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5	1 2 3 4 5 6 7 8
1 2 3	1 2 3 4 5 6 7	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5	1 2 3 4 5 6 7 8

Economic Research Service hinted that land value increases in the previous five years psychologically reinforced a continued upward trend in land values. Again in 1977 there were very large increases in land values nationally. Farm income and credit availability were the most important factors influencing land prices [31]. Although some cash flow and credit problems were foreseen which might tend to restrain further land price increases, pressures for farm enlargement, scarcity of listings, a bullish market, proposed legislation, population pressure, outside investment, and inflation were cited as forces continuing to push United States land prices higher [31]. The increases in Iowa land values reported by the Economic Research Service were among the highest of all 48 states. For the years 1975 to 1977 Iowa's reported increases were 24 percent, 26 percent, and 35 percent, respectively [31]. The main reasons for the large increases were given as being the result of increased demand for grain and oilseeds and the demand by farm operators for farm enlargement.

For the analysis in this section, the number of observations in the original data set were reduced somewhat. About 34 percent of all the observations in each year include responses only for total acres and total sale price. No response was given for the remaining questions of the survey. Because these observations contain no credit information, they are omitted from the present analysis. The remaining data set includes 335 observations from 1975, 297 observations

from 1976, and 365 observations from 1977.

It was necessary to compute a value for selling price per acre from the data given, simply by dividing the total sale price by the total acres given for each sale. This computation assumes that the total sale price is justifiably allocated entirely to the land purchased, and buildings or other assets have no bearing on the selling price per acre.

Average selling price per acre and total acres per sale of the Iowa sample data are listed in Table 4.1 for each year. The values

Table 4.1. Average selling price per acre and average acres per sale

Part A. Average selling price per acre (in dollars)

	1975	1976	1977
Seller financed sales	953	1322	1511
Conventionally financed sales	1038	1344	1703
Overall Iowa average[a]	1000	1327	1601
Cornbelt average[b]	790	1054	1345

Part B. Average acres per sale

	1975	1976	1977
Seller financed sales	168	171	163
Conventionally financed sales	159	142	150
Overall Iowa average[a]	164	159	157
Cornbelt average[b]	157	144	144

[a]Includes observations having primary source codes "None (all cash)" and "Don't know."
[b]Source: [31].

are broken down by seller financing, which includes those observations with a "seller" primary credit source code, and by conventional financing, which includes those observations having a primary credit source code for "other individual," "bank," "insurance company," "Federal Land Bank," or "other." The corn belt averages listed are the values reported in Farm Real Estate Market Developments. They are averages of the aggregate data from the corn belt farm production region, including the states of Iowa, Missouri, Illinois, Indiana, and Ohio. The data show that the average selling price of Iowa farmland is substantially above the corn belt average. Also, these average data suggest that selling prices for conventionally financed farmland may be slightly above that for seller financed land, contrary to the hypothesis to be tested in Chapter 5. The average acreage data show that Iowa farmland sales, on the average, are in larger tracts than are the acreages of the corn belt region as a whole. Moreover, seller financed sales in Iowa average a slightly larger acreage than do conventionally financed sales.

Tables 4.2, 4.3, and 4.4 display the farmland credit data for the years 1975, 1976, and 1977, respectively. In Part A of each table are listed the percent of total credit volume extended by type of lender in Iowa, the corn belt region, and for the entire 48 states. In Iowa, the sellers of farmland are by far the dominant source of credit, lending nearly twice as much over the three years as the second major source, the Federal Land Bank. While seller financing is the predominant source of credit for sales for the entire 48 states, the margin over the Federal Land Bank is not as wide as it is in Iowa.

Table 4.2. 1975 Farmland credit data[a]

Part A. Percent of total credit volume extended by type of lender

	Iowa	Corn Belt[b]	48 States[b]
Sellers	58.0	38	43
Commercial banks	3.2	8	7
Insurance companies	5.7	4	7
Federal land banks	28.9	42	33
Others[c]	4.3	8	11
Total	100.1	100	101

Part B. Percent of total primary and secondary credit volume and percent of total farmland transfers extended by type of lender, for Iowa

	Primary credit		Secondary credit	
	volume	transfers	volume	transfers
Sellers	59.8	56.2	9.8	8.8
Commercial banks	2.2	3.0	31.1	44.1
Insurance companies	5.9	6.4	0.0	0.0
Federal land banks	30.0	31.0	0.0	0.0
Others[c]	2.2	3.3	59.2	47.1
Total	100.1	99.9	100.1	100.0

Part C. Statistical totals for Iowa sample data

	Primary	Secondary	Total
Total credit volume	$36,217,107	$1,381,000	$37,598,107
Total farmland transfers	329	34	329

[a]The data are not inclusive of every Iowa farmland transfer in 1975.

[b]Source: [31].

[c]Others includes other individuals, Farmers Home Administration, Small Business Administration, and savings and loans.

Table 4.3.   1976 Farmland credit data[a]

Part A.   Percent of total credit volume extended by type of lender

	Iowa	Corn Belt[b]	48 States[b]
Sellers	62.4	42	44
Commercial banks	3.2	12	10
Insurance companies	3.0	4	9
Federal land banks	27.0	34	30
Others[c]	4.4	8	8
Total	100.0	100	101

Part B.   Percent of total primary and secondary credit volume and percent of total farmland transfers extended by type of lender, for Iowa

	Primary credit		Secondary credit	
	volume	transfers	volume	transfers
Sellers	63.4	59.8	12.8	5.6
Commercial banks	1.9	3.8	37.9	29.6
Insurance companies	2.4	2.4	20.8	9.3
Federal land banks	27.8	29.7	6.5	7.4
Others[c]	3.7	4.2	22.0	48.1
Total	100.1	99.9	100.0	100.0

Part C.   Statistical totals for Iowa sample data

	Primary	Secondary	Total
Total credit volume	$41,239,188	$1,560,100	$42,799,288
Total farmland transfers	286	54	286

[a]The data are not inclusive of every Iowa farmland transfer in 1976.

[b]Source: [31].

[c]Others includes other individuals, Farmers Home Administration, Small Business Administration, and savings and loans.

Table 4.4   1977 Farmland credit data[a]

Part A.   Percent of total credit volume extended by type of lender

	Iowa	Corn Belt[b]	48 States[b]
Sellers	50.0	36	39
Commercial banks	6.0	12	10
Insurance companies	8.8	10	13
Federal land banks	31.7	34	28
Others[c]	3.4	8	11
Total	99.9	100	101

Part B.   Percent of total primary and secondary credit volume and percent of total farmland transfers extended by type of lender, for Iowa

	Primary credit		Secondary credit	
	volume	transfers	volume	transfers
Sellers	51.2	52.3	6.9	3.2
Commercial banks	5.7	9.4	18.5	22.6
Insurance companies	9.0	4.4	0.0	0.0
Federal land banks	32.5	30.6	0.0	0.0
Others[c]	1.5	3.3	74.6	74.2
Total	99.9	100.0	100.0	100.0

Part C.   Statistical totals for Iowa sample data

	Primary	Secondary	Total
Total credit volume	$62,786,097	$1,620,552	$64,406,649
Total farmland transfers	363	31	363

[a]The data are not inclusive of every Iowa farmland transfer in 1977.

[b]Source: [31].

[c]Others includes other individuals, Farmers Home Administration, Small Business Administration, and savings and loans.

For the corn belt region, the Federal Land Bank competes strongly to be the largest lender, and in 1975 extended four percent more credit than sellers.

Part B of Tables 4.2, 4.3, and 4.4 subdivide the total Iowa farmland credit volume for 1975, 1976, and 1977 into primary and secondary credit. The definition of conventional financing here is expanded to include institutions that are somewhat important as a source of secondary credit. These institutions include the Farmers Home Administration, Production Credit Associations, savings and loan associations, and the Small Business Administration. In Part B the percent of credit volume and percent of total farmland transfers are reported for each type of lender within each group. A difference in the percentage of volume from the percentage of transfers for a lender for a given year is an indication of the relative average loan size of that lender compared to the average loan size of other types of lenders. Finally, in Part C the total primary and secondary credit volume and total farmland transfers are given. It is emphasized that the data reported for Iowa are derived from the restricted data set. They are, then, representative of all farm sales in Iowa for the respective years, but the data may be unknowingly biased in some manner.

Figure 4.2 presents a relative frequency histogram of the downpayment percentage for the sales each year grouped between seller financing and conventional financing. Since the amount of downpayment was not requested in the survey, it was computed for each sale by
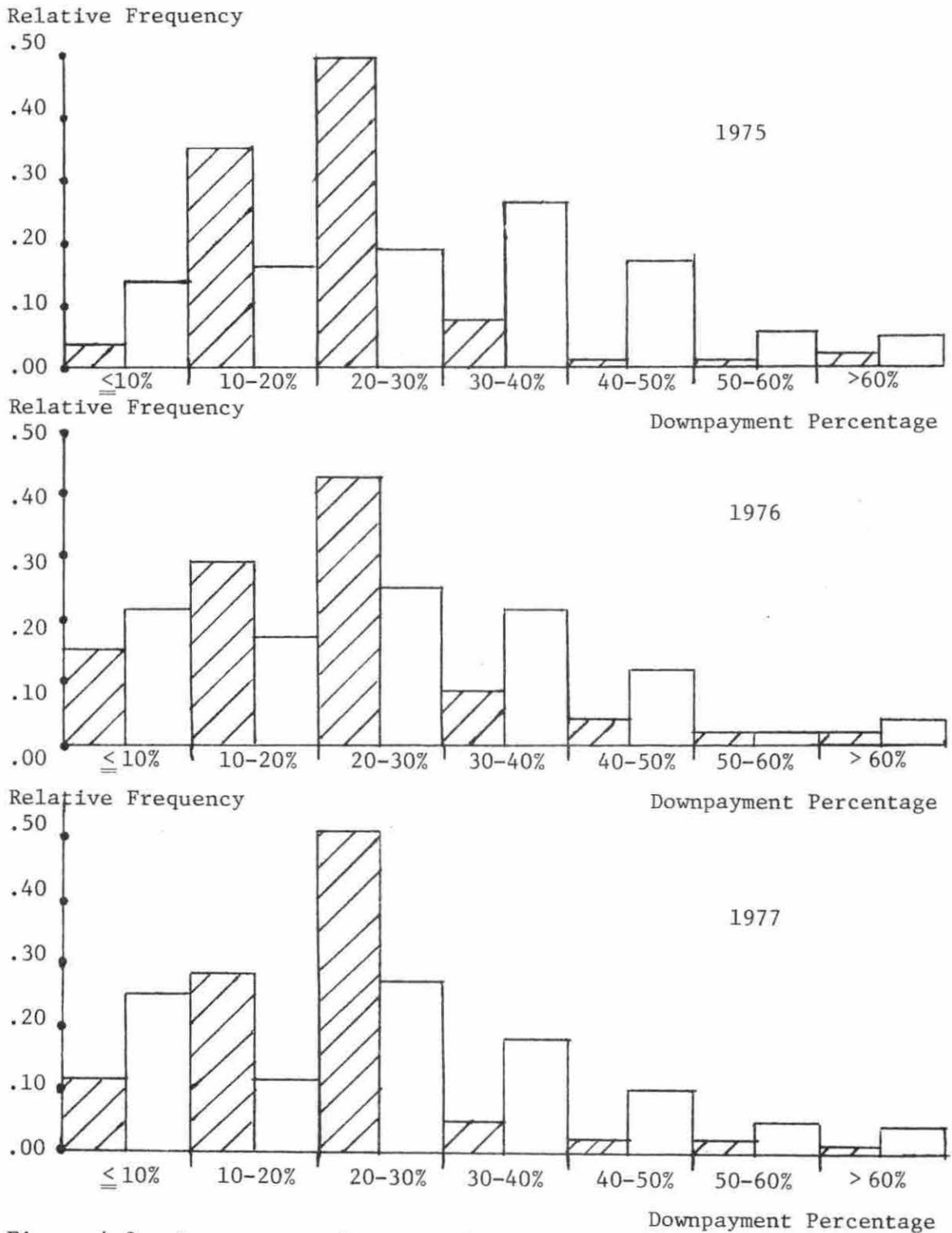
60

Figure 4.2. Downpayment frequency histograms, by year; frequencies of seller financing observations are crosshatched while those of conventional financing are not

subtracting the amount of primary and secondary credit from the total sale price. The histogram reveals what might be expected for the data. In particular, the downpayment percentages required for seller financed sales are generally lower than those of conventionally financed sales. Few downpayments of seller financed sales are greater than thirty percent of the selling price, the maximum allowable for the seller to qualify for the installment method of reporting gain. Downpayment percentages of conventionally financed sales, on the other hand, average somewhat higher to account for the more risky position of the lender in the event of buyer default. In addition, there are no tax rules restricting the size of down-payment for formal lending agencies, and there may exist institu-tional guidelines within an agency limiting the minimum downpayment to be allowed on a mortgage of a given level of risk.

Figure 4.3 presents a relative frequency histogram for the primary source interest rates that were specified in the survey for the sales each year grouped between seller financing and conventional financing. It is readily apparent that the interest rates for seller financed sales are lower, generally speaking, than the interest rates for conventional financing. This is, then, evidence that sellers often do finance the sale of their property with an interest rate below the market rate, and hence they may potentially command a higher selling price than if they had sold their property outright and left the buyer to secure credit elsewhere. Practically no sales

62

Relative Frequency

Relative Frequency   Primary Source Interest Rate

Primary Source Interest Rate
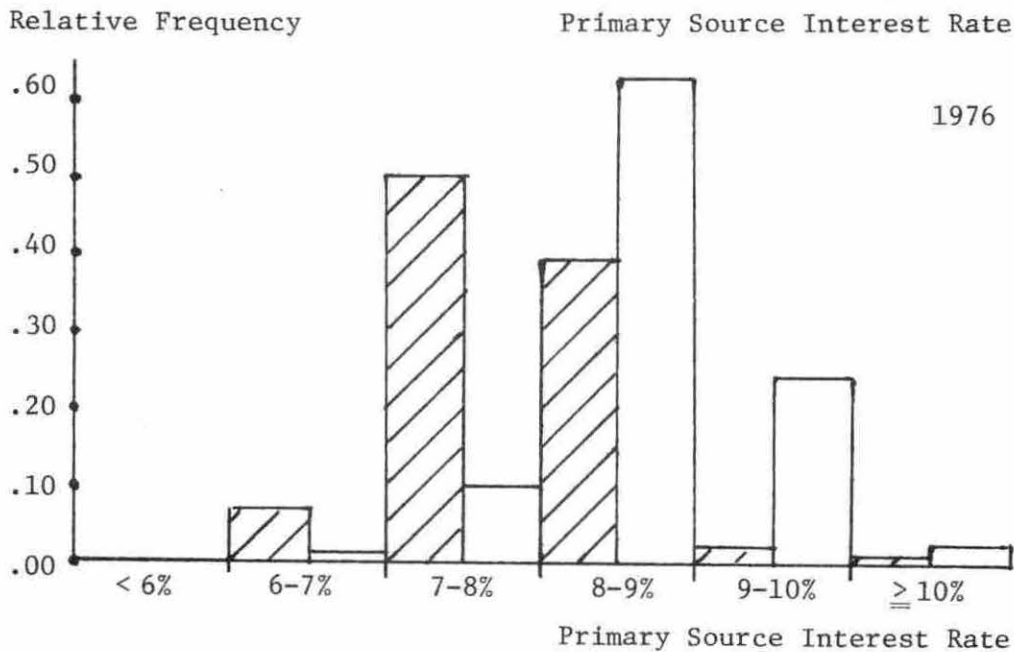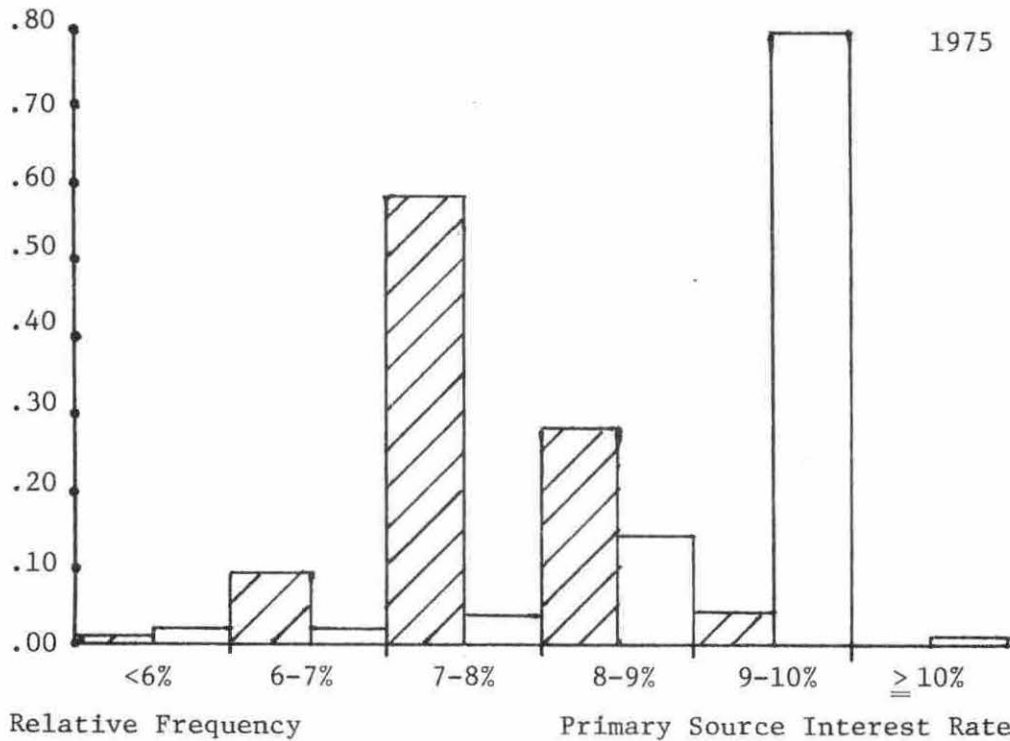
Figure 4.3. Primary source interest rate frequency histograms,
            by year; frequencies of seller financing observa-
            tions are crosshatched while those of conventional
            financing are not
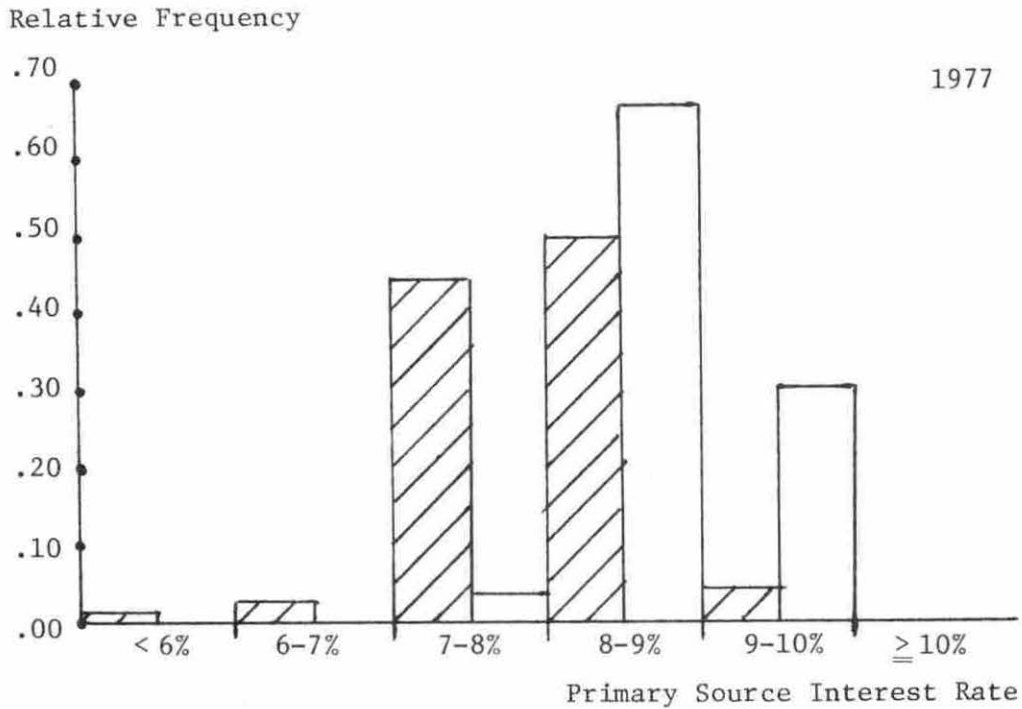
Relative Frequency

Figure 4.3.   Continued

are financed at rates below six percent, the test rate of interest.

Of those sales financed at rates of at least six percent but less

than seven percent, nearly all are seller financed.   Rates between

these amounts permit the seller to negotiate for a larger selling

price to compensate for his forgone interest receipts.   The interest

rate differential among types of financing is further distinguished

by examining the frequencies of at least seven percent but less than

eight percent for each year.   While few sales were conventionally

financed at these rates, about half the seller financed sales were

at these rates over the three years.   The situation may be summarized

by noting the difference in average interest rates between conventional

financing and seller financing: 1.39 percent in 1975, 1.05 percent in 1976, and 0.97 percent in 1977.

The survey question asking of the seller financed sales whether or not the terms were secured by an installment land purchase contract suggest that very few purchase-money mortgages were used. The percentage such mortgages represent of all seller financed sales is computed by dividing the number of "no" responses by the number of "yes" plus "no" responses. The number of "don't know" responses and the number giving no response to the question are left out of the computation. (Only thirteen responses were left out of the computation for 1975, six for 1976, and four for 1977.) Using this computation procedure, it is found that 1.7 percent of seller financed sales in 1975 were purchase money mortgages, 0.6 percent in 1976, and 2.7 percent in 1977. By this estimation, purchase-money mortgages represent a very small portion of the total amount of seller financing in Iowa.

The remaining sections of the survey seek information to describe the market in which farm real estate is sold. Tables 4.5, 4.6, and 4.7 present this data for Iowa, separated between seller financing and conventional financing for each year. The data in Table 4.5, Part A, reveal that a farm to be operated as a complete unit after its sale is more often financed by the seller than by some other credit source. This may be reflective of the use of the installment land contract for transferring farmland within a family. The suggestion is

Table 4.5. Probable future use and past use of farmland; Iowa
            sales sample data

Part A. Probable way land will be operated after sale, percentage
         of seller financed (SF) and conventional financed (CF)
         transfers, by year

	1975 SF	1975 CF	1976 SF	1976 CF	1977 SF	1977 CF
Complete farm unit	21.3	18.2	29.4	15.0	22.8	11.0
With land already owned	62.6	64.2	56.4	74.2	63.0	70.3
With rented land	10.3	13.1	10.4	5.0	10.9	11.6
As a part-time farm	3.4	1.5	3.1	5.8	3.3	4.1
Other	2.3	2.9	0.6	0.0	0.0	2.9
Total	99.9	99.9	99.9	100.0	100.0	99.9

Part B. Use of land before sale, percentage of seller financed (SF)
         and conventional financed (CF) transfers; by year

	1975 SF	1975 CF	1976 SF	1976 CF	1977 SF	1977 CF
Complete farm unit	61.9	41.8	66.9	43.0	49.2	36.0
Part of a farm	34.7	52.5	29.5	49.6	46.0	58.1
Part-time farm	1.1	3.5	3.6	5.8	3.7	2.3
Other	2.3	2.1	0.0	1.7	1.1	3.5
Total	100.0	99.9	100.0	100.1	100.0	99.9

Part C. Group totals for Iowa sample data

	1975	1976	1977
Total seller financed sales	185	171	190
Total conventionally financed sales	150	126	175
Total sales in sample	335	297	365

further supported by the large portion of farms that are complete
units prior to sale that are seller financed, which is shown in
Part B. A hypothesis is here made that a complete farm unit prior
to its sale that is sold for use as a complete farm unit after the
sale using seller financing may be indicative of a transfer within a
family. Should such be the case, there is reason to expect preferential
treatment of the sale, and a lower selling price per acre may result.
The hypothesis will be tested in Chapter 5 by including a dummy
variable for those sales of land that were operated as a complete
farm unit both before and after the sale and were financed by the
seller.

The data in Part A also show a large portion of sales that will
be used by the buyer for the purpose of expansion. The observations
having responses "with land already owned" may be expected to have
a selling price above comparable sales that are not purchased for
expansion. A farmer already owning land will likely have more
experience in his occupation and a larger equity base with which to
secure credit to finance the purchase. Moreover, farm enlargement
often permits more efficient use of labor and other fixed capital
to result in a lower average cost per acre for the total farming
operation. A dummy variable will be used in the empirical analysis
in Chapter 5 to assess the impact of farm enlargement on selling
price.

Table 4.6 identifies characteristics of the buyers and sellers

Table 4.6. Status of buyer before the purchase and status of seller before the sale; Iowa farmland sales sample data

Part A. Status of buyer before the purchase, percentage of total group responses; by seller financing (SF) and conventional financing (CF), 1975 and 1977[a]

	1975		1977	
	SF	CF	SF	CF
Tenant farmer	15.8	26.2	12.0	15.8
Owner operator	58.8	58.9	59.6	67.8
Retired farmer	1.1	0.7	3.3	1.2
Local non-farmer	8.5	6.4	12.0	7.0
Absentee owner	11.3	4.9	8.7	5.8
Other	4.5	2.8	4.4	2.3
Total	100.0	99.9	100.0	99.9

Part B. Status of seller before the sale, percentage of total group responses; by seller financing (SF) and conventional financing (CF), 1975 and 1977[a]

	1975		1977	
	SF	CF	SF	CF
Estate	7.4	39.3	7.6	42.8
Active farmer	43.2	27.1	45.4	18.5
Retired farmer	26.1	12.9	22.7	12.7
Local non-farmer	6.8	7.9	11.9	9.8
Absentee owner	13.1	8.6	10.8	12.7
Other	3.4	4.3	1.6	3.5
Total	100.0	100.1	100.0	100.0

[a]Group totals for the respective years are equal to those in Table 4.5, Part C.

of Iowa farmland. In Part A, the importance of farm expansion is
shown once again, with about sixty percent of all sales purchased by
a person who was already an owner-operator prior to the sale. Part B
shows that certain groups of sellers will more likely extend credit to
the buyer than other groups. Estate sales in 1975 and 1977 were
typically conventionally financed, while sellers who were active or
retired farmers before the sale typically extended credit to the
buyer of their land.

The questions concerning the status of the buyer and the seller
before a sale appeared on the survey only in 1975 and 1977. In
1976 these two questions were substituted by the following:

"Which of the following best describes the way title to this

property WILL BE HELD?"

"Which of the following best describes the way title to this

property WAS HELD?"

The responses to these questions are reported in Table 4.7, by seller
financing and by conventional financing responses. Although the data
reveal no significant differences between types of financing, they
do support the existence of a slight trend away from title ownership
by an individual in favor of ownership by a private corporation. The
trend was identified in Farm Real Estate Market Developments (July 1976)
as being ". . . indicative of local farm families forming partner-
ships and corporations for tax, inheritance, and capital pooling
purposes." The data do not necessarily warn of increasing investment

69

Table 4.7. Iowa title ownership data, percentage of total responses, by seller financing (SF) and conventional financing (CF)

	Way title will be held		Way title was held	
	SF	CF	SF	CF
Individual	83.6	83.7	86.7	86.8
Partnership	9.1	6.5	9.0	3.3
Private corporation	6.7	8.9	1.2	0.8
Public corporation	0.6	0.0	0.6	0.8
Other	0.0	0.8	2.4	8.3
Total	100.0	99.9	99.9	100.0

There are 171 seller financing and 126 conventional financing observations in the final data set.

by outside business interests.

The final question of the survey is included to assess the amount of nonfarm influence in the farm real estate market. About 95 percent of all sales of Iowa farmland in each year were specified to have agriculture as their probable use in five years. The remainder of responses specified primarily "rural residence" and "subdivision."

CHAPTER V. MEASUREMENT OF THE EFFECT OF SELLER FINANCING ON IOWA LAND VALUES

The argument has heretofore been presented that the price of a seller financed land sale is worthy of special consideration in comparison to the price of a conventionally financed land sale. In particular, tax advantages to the seller offer an incentive for a lower interest rate to be charged on an installment contract. To compensate for the reduction in interest payments, then, it is reasonable for the stated selling price of an installment contract to be above that at which the land might otherwise be sold if a rate of interest were charged at the market rate. In this chapter the United States Department of Agriculture survey data will be examined using multiple regression analysis to determine to what extent seller financed land sales affect the selling price of farmland in the Iowa farm real estate market.

Discussion of Variables Used in the Analysis

A number of variables will be tested in the analysis to determine if they contribute significantly to the explanation of the selling price of Iowa farmland. Certainly, soil productivity is perhaps the most important factor influencing the price of agricultural land. A measure of overall soil productivity, the corn suitability rating, for a given soil reflects the integrated effects of numerous factors that influence the yield potential in use of the soil for row-crop production at a specified level of management. Soil and weather differences as well as responses to different technologies are incor-

porated with the comparison of corn suitability ratings [8].

One problem with the survey data is that no measure of soil productivity is given for each farm sold. So, to account for productivity, the mean corn suitability rating for the county in which the responding real estate broker is located is used as a proxy for each observation. Granted, soil types and fertility may vary widely within counties. However, a county mean productivity rating is the closest approximation that can be made with the available data.

In the regression analysis that follows, the county mean corn suitability rating itself for each observation will comprise an independent variable series. The ratings, which range between 5 and 100 for soil types, with the higher ratings signifying the more productive soils, range between 36 and 85 for county-wide averages [8]. The corn suitability rating variable is expected to have a positive coefficient at a very high level of significance.

The percentage downpayment on a sale may be analyzed in two ways. First, a lower downpayment requirement may allow a larger number of people to consider purchasing the land. That is, a smaller initial investment is less restrictive to potential buyers so there is more competition to bid up the selling price. Second, from the seller's point of view, a lower downpayment results in his forgoing immediate payments of principal for payments in future years. The time value of money principle suggests that the seller would prefer to receive a payment at the time of sale to an equal payment at some time in the future,

particularly if he has a relatively high discount rate compared to the interest rate he receives on the money outstanding. It is reasonable to believe that a seller would be willing to agree to a low downpayment only if he is compensated with a larger selling price. So, by either explanation, a lower than normal downpayment requirement on a land sale would suggest that the selling price might be somewhat higher than if a typical downpayment were required.

Two hypotheses have been suggested here. First, there is an inverse relationship between the selling price of farmland and the downpayment percentage required for its financing because there exists a larger number of potential buyers with a lower downpayment who will compete among themselves to bid up the selling price of the land. This hypothesis may be tested in a regression model that includes a downpayment percentage independent variable for every observation in the data set. The second hypothesis is that there exists an inverse relationship between the downpayment percentage and the selling price because of the time value of money to the seller. This hypothesis may be tested with a regression analysis that includes a downpayment percentage independent variable only for the seller financing observations in the data set. Zeroes should substitute in the other observations. Using this procedure, the impact of the downpayment percentage will be relevant only in the seller financing observations. The test of each hypothesis by regression analysis is expected to result in the downpayment variable having a negative coefficient.

The other financial variable, the interest rate, will be analyzed in several ways. In each case, the attempt is to measure the effect of the size of the interest rate on the selling price of farmland. First, the difference between the interest rate agreed to in a seller financed contract and the market rate of interest will be assessed. Second, the ratio of the contract rate of interest to the market rate of interest will be assessed. The market rate will be represented by either of two values, the overall average interest rate for convention- ally financed land transfers that was computed in Chapter IV, or the interest rate charged by the Federal Land Bank in each year. Naturally, the difference between the market rate and the contract rate of interest, or the ratio of the two rates, will be relevant only for seller financed sales. Therefore, the independent variable series distinguishing the contract rate from the market rate will have non-zero values only for seller financed observations. Because the variable is meaningless for conventionally financed sales, zeroes will be assigned to those observations.

The comparison of interest rates by a ratio is constructed by dividing the seller financed contract rate by the market rate. The market rate of interest is an exogenous value, a constant for all observations, while the contract rate varies among observations. Then, since a lower contract rate of interest is expected to result in a higher selling price, a negative coefficient is expected for that independent variable in the regression analysis.

The difference between interest rates is found by subtracting the contract rate from the market rate. A lower contract rate would result in a larger difference between rates. Then, the larger the difference, the higher is the selling price that is expected. Therefore, a positive coefficient is expected for the independent variable series representing the difference between the market rate and contract rate of interest. Again, non-zero values are assigned only to the seller financing observations.

The major hypothesis concerning the interest rate used to finance a sale of farmland involves the difference between the market rate and the contract rate of interest, and it is relevant only for seller financed sales. The hypothesis implies that the farm real estate prices are established by contract terms demanded by or agreeable to the sellers. It further implies that a sale that is not financed by the seller is equivalent to a cash sale from the seller's point of view. The conventional financing terms available to the buyer, then, are assumed to have no bearing on the selling price of the land.

The possibility exists, though, that the interest rate charged the buyer, no matter how the sale is financed, will directly affect the selling price the buyer is willing to pay or that he can afford. It is reasonable to believe that the higher the rate of interest the buyer must pay, the lower will be the selling price of the land, and conversely. The suggestion here is that the buyer has a significant

influence in the bargaining for the selling price. To test this suggestion, the primary source interest rate will be included as an independent variable in a regression equation for every observation, regardless of its source of credit. The expected sign for the coefficient of this variable is negative.

Seller financing, particularly the installment land contract, offers some unique characteristics which may potentially affect the price of land sold by such. Most important, both the buyer and the seller are able to participate in the negotiation of the terms and provisions of the contract to meet their mutual needs and satisfactions. Selling costs and legal fees may be kept to a minimum. Also, the land contract offers special security to the seller in protecting his investment. A dummy variable will be included in the analysis to account for any effects on selling price due to the unique characteristics of installment land contracts. Observations that are seller financed will be assigned the value one, while all those not seller financed will be assigned a zero. The coefficient is expected to be negative, if the selling price is most affected by the special advantages of seller financing mentioned above. However, the coefficient may be positive, should the seller, by offering lenient terms and provisions, be able to command a higher selling price as a result.

Another independent variable to be included in the analysis is total acres. The hypothesis to be tested is that the size of tract

(measured in acres) transferred in a land sale will have an effect

upon the price per acre paid in the sale. The purchase of a large

acreage at a very high total selling price may be limited by the

borrowing capactiy of the buyer. Hence, he may not be able to bid as

high a price per acre as he might otherwise be able to bid if the land

were a smaller acreage. Also, a high price per acre suggests the

land may be somewhat overpriced. While a buyer may consider the

purchase of a small acreage that is overpriced or expensive by his

judgment, he will likely be much more scrupulous when considering

the purchase of a large acreage at a high price per acre. The

total acres sold, then, is most likely inversely related to the

selling price per acre, and so the coefficient is expected to be

negative.

Two final effects on selling price to be tested in the analysis

are those of farmland sold as "add-on" units to existing operations

and those that are suggested to represent family transfers, or

transfers which may have been sold under special conditions. The

reasons supporting both of these effects were discussed in detail

earlier in the presentation of the survey data in Chapter IV. Dummy

variables will be included in the regression analysis to account for

each of the two characteristics. A farm sold as an "add-on" unit is

expected to have a higher selling price than if the farm were not

and "add-on" unit. Therefore, the expected sign of this variable is

positive. That land which was used as a complete farm unit before its

sale and which is expected to be used as a complete farm unit after
its sale according to the survey responses is suggested to represent
family transfers, or transfers worthy of special consideration. The
selling price of such a sale is expected to be lower than that of land
which was not and will not be a complete farm unit both before and
after its sale. The coefficient of that variable, then, is expected
to be negative.

Presentation of the Regression Analysis

The data set on which the regression analysis was performed is
the data discussed in Chapter IV with a few further minor restrictions.
As before, those observations for which no primary source of credit or
interest rate was given are omitted. The data were further restricted
slightly by omitting the extreme values of selling price per acre
on either end of the distribution for each year. This was done
simply by eliminating those observations having a selling price per
acre in the lower 1.25 percent and the upper 1.25 percent of the
sample distribution for each year. The purpose of eliminating these
extreme values was to obtain a better regression fit using the remaining
observations. With these restrictions, there are 904 observations
remaining out of the original 1510.

Also omitted are those observations where the computed down-
payment percentage is less than or equal to zero or greater than or
equal to 75, since those observations are possibly the result of

either an inaccurate survey response or a result of special financing

arrangements. This step leaves 826 observations. Finally, those

observations in which less than forty acres were transferred were

omitted. The reason for leaving these observations out of the analysis

was to eliminate the effect of land purchased for part-time farms,

rural residences, or speculative purposes. The final data set, then,

contains 810 observations--294 from 1975, 244 from 1976, and 272 from 1977.

The general regression model is

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 \qquad (5.1)$$

where Y = the selling price per acre

X_1 = the county mean corn suitability rating

X_2 = the downpayment percentage

X_3 = the total acres of the farm sold

X_4 = the measure of the contract interest rate, market rate

difference

X_5 = a dummy variable distinguishing farms sold as add-on units

X_6 = a dummy variable distinguishing farms which were operated as a

complete farm unit before their sale and which will be

operated as a complete farm unit after their sale

X_7 = a dummy variable distinguishing seller financed sales from

conventionally financed sales

X_8 = the primary source interest rate

β_0 = an intercept term

β_i, i = 1 through 8, = the regression coefficients for each

independent variable

Regressions were first performed using the entire set of independent variables. The equations were estimated separately for each year. The coefficient for X_6 was statistically insignificant in all equations. From this it can be concluded that there is no evidence that suggests a farm's being operated as a complete unit both before and after its sale has an effect upon its selling price. Such farms, then, may not necessarily represent family transfers or other sales in which the selling price is worthy of special consideration.

The downpayment percentage was entered into the regression analysis in two ways. First it was included for every observation, regardless of the source of credit for the sale. Second, it was included only for seller financed sales. Using either method, the coefficient for X_2 was statistically insignificant for all years. From these results, it is concluded that for the sample data, the size of downpayment available for the purchase of farmland does not in general have any effect upon its selling price.

Of the remaining variables, only the corn suitability rating was significant in all three years of the analysis. The other variables were significant in at least one year, but not in all three years. To attempt to improve the consistency of the model, X_2 and X_6 were dropped from the equation, and the new model was estimated.

The estimates of the new regression model are reported for each year. The t-statistic of each regression coefficient is given in

parentheses.[1]

For 1975: $Y = -1324.05^{***} + 19.66X_1^{****} - 0.22X_3 + 95.25X_4^{*} + 79.92X_5^{**}$
$(-3.46) \quad\quad (8.90) \quad\quad (-1.29) \quad\quad (1.73) \quad\quad (2.08)$

$- 78.10X_7 + 115.57X_8^{***}$
$(-0.89) \quad\quad (2.76) \quad\quad\quad\quad R^2 = 0.305 \quad\quad (5.2)$

For 1976: $Y = -1163.48 + 25.74X_1^{****} - 0.99X_3^{**} + 134.48X_4 + 71.67X_5$
$(-1.51) \quad (6.40) \quad\quad (-3.15) \quad\quad (1.28) \quad\quad (1.05)$

$-141.03X_7 + 106.71X_8$
$(-1.08) \quad\quad (1.27) \quad\quad\quad\quad R^2 = 0.193 \quad\quad (5.3)$

For 1977: $Y = -167.39 + 44.20X_1^{****} - 0.60X_3^{***} - 267.37X_4^{***} - 12.42X_5$
$(-0.31) \quad (12.66) \quad\quad (-2.77) \quad\quad (-2.95) \quad\quad (-0.18)$

$+ 262.12X_7^{**} - 107.55X_8^{*}$
$(2.12) \quad\quad (-1.80) \quad\quad\quad\quad R^2 = 0.437 \quad\quad (5.4)$

Again, only the corn suitability rating is statistically significant at at least the 0.10 level in the equations for all three years. The remaining variables are significant in at least one year, but not in all three years.

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[1]Significance levels are as follows:
**** indicates significance at the 0.0001 level;
*** indicates significance at the 0.01 level;
** indicates significance at the 0.05 level;
* indicates significance at the 0.10 level;

Considering Equation 5.2 for 1975, X_1, the variable for the corn suitability rating is not surprisingly found to be the most statistically significant variable--at the 0.0001 level. Its coefficient suggests that each unit difference in the corn suitability rating affects the selling price per acre of farmland by $19.66. The coefficient for X_8, the primary source interest rate, is significant at the 0.01 level. However, it bears a positive sign, which is contrary to that which is expected. From a buyer's point of view, this sign suggests that as the amount of interest he must pay increases, so will the selling price increase. From a seller financing viewpoint, the sign suggests that as the seller reduces his interest requirement, so will he also reduce the selling price. Such is not consistent with the interest rate hypotheses. The coefficient for X_5, the add-on dummy variable, is significant at the 0.05 level, and suggests that the add-on unit brought a price $79.92 per acre higher than that farmland which was not sold as an add-on unit. The coefficient for X_4, the Federal Land Bank interest rate minus the seller contract rate, is significant at the 0.10 level. Its magnitude suggests that for each percent a contract rate is below the Federal Land Bank rate, the selling price per acre of the contract sale will be increased by $95.25. The coefficients for total acres and the dummy variable for seller financed sales are not statistically significant. The R^2-statistic, which measures the total amount of variation in the selling price data that is explained by the model, is 0.305.

The data for 1976 result in a somewhat less successful regression

fit. Only two coefficients are found to be statistically significant. Again, the coefficient for the corn suitability rating is significant at the 0.0001 level. It suggests that for each unit difference in the corn suitability rating, the selling price per acre of farmland was increased by $25.74. The other significant coefficient, that for X_3, the total acres of a farmland transfer, suggests that the selling price per acre is decreased by $0.99 for each additional acre. It is significant at the 0.05 level. The R^2-statistic for the 1976 equation is only 0.193.

Finally, the results of the regression on the 1977 data are presented. Once again, the coefficient for X_1 is most significant--at the 0.0001 level. It suggests that each unit increase in the corn suitability rating raises the selling price of farmland by $44.20. The coefficient for X_4 is significant at the 0.01 level. Its magnitude suggests that for each percent a seller contract rate is below the Federal Land Bank rate, the per acre selling price of the farmland transferred will decrease by $267.37. This is not consistent with the hypothesis that the selling price will increase as the contract rate falls below the market rate of interest. The coefficient for X_3 is also significant at the 0.01 level, and suggests that the selling price per acre is decreased $0.60 for each additional acre transferred. The coefficient for X_7, the dummy variable for seller financed sales, is significant at the 0.05 level, and suggests that a seller financed sale requires a premium of $262.12 per acre above the conventionally

financed sale. The coefficient for X_8 is significant at the 0.10 level and suggests that as the primary source interest rate is increased by one percent, the selling price will decrease by \$107.55 per acre. The R^2-statistic indicates that the model accounts for 43.7 percent of the variation in the 1977 selling price data.

A potential problem of multicollinearity exists when including both X_4 and X_8 in the same regression model. The variable X_4, which accounts for the differential between the interest rate of a seller contract and the market rate of interest, is computed using the primary source interest rate. The two variables are not linearly dependent, though, because the value of X_4 is zero for conventionally financed sales. The degree of association between X_4 and X_8 can be measured by the correlation coefficient, which is -0.87 between the two variables.

To eliminate this problem, two regression equations were estimated for each year. The equations are similar to Equations 5.2, 5.3, and 5.4, but in the first equation for each year X_4 is included and X_8 is left out, while in the second equation X_8 is included and X_4 is left out. The estimates of the revised regression models follow.

For 1975: $\quad Y = -354.96^{**} + 20.23X_1^{****} - 0.19X_3 - 17.24X_4$
$\qquad\qquad\quad (-2.31) \qquad (9.09) \qquad (-1.11) \qquad (-0.46)$

$\qquad\qquad + 91.72X_5^{**} - 7.60X_7$
$\qquad\qquad\quad (2.37) \qquad (-0.09) \qquad\qquad R^2 = 0.286 \qquad\qquad (5.5)$

$$Y = -844.04^{***} + 19.56X_1^{****} - 0.22X_3 + 81.10X_5^{**}$$
$$(-3.18) \qquad (8.82) \qquad (-1.25) \qquad (2.10)$$

$$+ 42.51X_7 + 61.71X_8^{**}$$
$$(0.79) \qquad (2.19) \qquad\qquad R^2 = 0.298 \qquad (5.6)$$

For 1976:
$$Y = -252.39 + 25.85X_1^{****} - 0.97X_3^{**} + 28.16X_4$$
$$(-0.91) \qquad (6.42) \qquad (-3.10) \qquad (0.45)$$

$$+ 73.69X_5 - 80.61X_7^{**}$$
$$(1.08) \qquad (0.66) \qquad\qquad R^2 = 0.187 \qquad (5.7)$$

$$Y = -409.44 + 25.67X_1^{****} - 0.99X_3^{**} + 70.34X_5$$
$$(-0.82) \qquad (6.38) \qquad (-3.17) \qquad (1.03)$$

$$- 14.50X_7 + 20.17X_8$$
$$(-0.17) \qquad (0.40) \qquad\qquad R^2 = 0.187 \qquad (5.8)$$

For 1977:
$$Y = -1047.33^{****} + 43.31X_1^{****} - 0.61X_3^{***} - 159.80X_4^{**}$$
$$(-4.25) \qquad (12.48) \qquad (-2.80) \qquad (-2.34)$$

$$-3.54X_5 + 202.81X_7^{*}$$
$$(-0.05) \qquad (1.70) \qquad\qquad R^2 = 0.430 \qquad (5.9)$$

$$Y = -1160.79^{***} + 43.75X_1^{****} - 0.66X_3^{***} + 14.21X_5$$
$$(-2.65) \qquad (12.37) \qquad (-3.01) \qquad (0.21)$$

$$- 23.58X_7 + 9.19X_8$$
$$(-0.30) \qquad (0.20) \qquad\qquad R^2 = 0.419 \qquad (5.10)$$

The revised models offer little improvement in significance of regression coefficients. Again, only the coefficient for the corn suitability rating is highly significant in all three equations. Hence, there is evidence of a very consistent relationship between the selling price and the productivity of a farm, which is unquestionably accepted for Iowa agricultural land. In the equations for 1976 and 1977 there is some evidence that indicates the selling price per acre of farmland decreases slightly as the total acres sold increases. The equations for 1975 suggest that land sold as an add-on unit in that year did bring a higher price than land which was not an add-on unit. However, the evidence is not strong enough in the 1976 and 1977 equations to make that conclusion.

Perhaps the most important finding to the present research is the lack of sufficient evidence to support the hypothesis that the size of the interest rate agreed to on a seller financed sale of farmland will affect its selling price. The variable that accounts for the difference between the market rate and the contract rate of interest, X_4, is statistically significant only in Equation 5.9. Moreover, its coefficient there is negative, which is contrary to what is expected. The dummy variable for seller financed sales, which is to account for any effects on selling price due to characteristics of seller contracts other than its financial aspects, is only marginally significant in one equation, 5.9. Discounting its importance here is its lack of significance in Equation 5.10, the other model for 1977. It thus may

be concluded from the analysis of the given data, that there exists little evidence supporting any effects on the selling price of Iowa farmland caused by seller financing.

The effect of the size of the primary source interest rate, regardless of the type of financing used, is significant only in Equation 5.6. The sign of this coefficient also is contrary to that which is expected. Hence, no conclusion is made regarding the effect on the selling price contributed by this variable.

It was mentioned earlier that the differential between the interest rate for seller financing and the market rate would be tested in several ways. The market rate was measured first as the rate charged by the Federal Land Bank, and second as the average of the primary source interest rates for conventional financing reported in the survey data. The differential between the contract rate for a particular sale and the market rate was measured both as a ratio of the rates and as their difference. While the difference between the Federal Land Bank interest rate and the interest rate charged on seller contracts resulted in coefficients that were more significant and a higher R^2-statistic in the regression analysis, its advantage was only slight. The major advantage to using the difference in rates rather than their ratio is the more easily understood interpretation that can be made.

The regression models were also estimated without the restrictions that the downpayment must be greater than zero and less than or equal to 40. These regression fits resulted in the same variables being

significant in the equations as in the previous fits with the restrictions. However, the coefficients for certain variables were less significant in some equations, and the R^2-statistic was reduced slightly for each model.

Evaluation of the Regression Analysis

The present research seems to offer rather inconclusive results pertaining to the effect of seller financing on the selling price of Iowa farmland. While the analysis of Chapter 3 illustrates a definite potential for seller financing, particularly the installment land contract, to affect a farm's selling price, the regression analysis offers little evidence to support the existence of such an effect on the selling price of Iowa farmland for the years 1975, 1976, and 1977. The present research, though, is not sufficient to conclude that the source of credit and terms of financing have no effect on the selling price of Iowa farmland.

The major criticism lies in the data used in the analysis. The data are not an exhaustive sample. More important, though, the data are merely assumed to be a representative sample, because there is no proof otherwise. Also, there is no check on the accuracy of the survey responses.

For a more complete analysis of the factors affecting the selling price of farmland, more detailed appraisal data need to be obtained. While the county mean corn suitability rating may be a useful proxy,

a productivity measure of each individual farm would be a more appropriate explanatory variable. Also important to explaining the selling price of farmland are the buildings or other improvements, the natural resources, and the amount of tillable acreage that exist on the land.

A more complete analysis should evaluate more effectively the intentions of the buyer and seller. Certainly, any family relationships should be explicitly accounted for. The choice of credit source and all terms and provisions of seller financing must be assessed as they vary with the motivations of both the buyer and the seller. The past use of a property by its seller and the intended use by its buyer can also have a substantial effect upon its selling price.

The present research is an initial attempt at measuring certain financial relationships that are frequently speculated to exist in the farm real estate market [3, 5, 6, 12, 13, 17, 19, 21, 24, 25, 29, 30, 31]. While the empirical analysis is suggested to be limited somewhat by the available data, such is not necessarily responsible for its shortcomings. The farm real estate market is, in economic terms, an imperfect market. Estimation of the relationships existing within this market may be hampered by the existence of instability within it. In particular, for the years 1975, 1976, and 1977, Iowa land values increased at phenomenally high rates [7, 11, 31]. The selling prices of farmland then were influenced by many individuals, each assessing a real estate market that was behaving in an unfamiliar and uncertain

manner. Hence, it may be the interactions within a dynamic market that complicate the estimation of relationships existing within that market.

CHAPTER VI.   CONCLUSION

The farm real estate market is of interest to anyone interacting within a rural economy. Especially in recent years, when farmland values have increased dramatically, there is special concern over what the major factors are that determine the price a property will sell for. A property's market value, defined briefly as the highest price a property will bring in a competitive market, assuming the conditions of a bona fide sale, does not necessarily provide an accurate estimate of a property's selling price. The motives of the buyer and seller, as well as the financial arrangements, involved in the negotiation of the contract may have a significant impact in determining the selling price in a particular sale of farmland.

Several approaches have been used to assess the importance of factors which affect land values. One such approach is to employ aggregate statewide or nation-wide time series data to determine those factors which contribute most to explaining a land value index over a number of years. Or, cross-sectional aggregate data collected among states of the country or among regions of a state have been used to explain variations among the state or regional land value indices for a given year. Recently, multiple regression analysis has been used in narrowly defined real estate markets as a statistical approach to appraising property values. Land value research has thus been performed using many diverse methods of analysis.

Research concerning the effect on selling price of the financial

terms of land sales has been quite limited. Although there is general agreement that the size of downpayment or the interest rate required of a buyer does have the potential to affect the selling price of property, there exists little empirical evidence evaluating those effects. These financial factors are of special interest in sales of farmland which are seller financed. In such sales, the terms and provisions of the financial contract are subject to negotiation between the buyer and the seller, and there exist few institutional restrictions or standards by which the agreement must conform. The effects of seller financed sales are of particular importance to the Iowa farm real estate market, since in recent years sellers have provided over half the credit to finance the purchase of their farmland.

The predominant type of seller financing agreement is the installment land contract. Its primary difference from the purchase-money mortgage is its provision for the seller to retain title to the property until a substantial portion, or the entire amount of the selling price is paid. This and the seller's remedy of forfeiture in the event of default by the buyer offer the seller a high degree of security to ensure that the provisions of the land contract will be met. In turn, the security allows the seller to be more willing to require a smaller downpayment of the buyer. The fact that both the installment land contract and the purchase-money mortgage are subject to negotiation by the buyer and seller suggest that the two types of seller financing both have a similar potential to affect the selling

price of farmland.

The buyer's financing a sale of property through some commercial lender is, to the seller, equivalent to a cash sale. In such a case, the seller accepts the entire selling price, gives up title to the property, and is relieved of any further obligations. The seller is responsible for taxes on the entire capital gains recognized by the sale. On the other hand, a seller financed sale represents a continuing investment interest in the property by the seller. The seller receives an immediate downpayment plus a series of principal and interest payments that extend for a number of years into the future. By electing to use the installment method of reporting capital gains, the seller may experience tax savings.

In order to differentiate between the benefits of the seller financing the sale himself and a sale that the seller does not finance, a present value analysis of cash flows can be used. If the sale is financed by an institutional lender, the seller need only subtract his tax liability from the selling price to determine the net value of the sale. He need not make any adjustment for time value. However, to arrive at a value of a sale for which the seller provides the financing, a suitable comparison must be made by accounting for the time at which payments are made. Future receipts of principal and interest, as well as deductions for ordinary and capital gains tax liabilities must be discounted. The discounting procedure accounts for the opportunity cost of the seller having his money invested in the

seller contract while the money could alternatively have been invested elsewhere.

Each sale of land in the farm real estate market is a unique transaction. No two farms have the same physical characteristics. The motivations of buyers and sellers vary. Moreover, the terms by which a sale is agreed to are subject to wide consideration.

One uncontrollable factor of a farm sale is the income tax basis that exists on the farm. It is the difference between the selling price and the tax basis that establishes the capital gains that are recognized by the seller. Generally, a larger amount of capital gain will enhance the tax savings accruing to the seller by financing the sale himself.

The tax rate assessed on the capital gains is also somewhat uncontrollable. It depends primarily on the seller's level of income. Of course, by spreading the principal payments over a number of years into the future and thus recognizing a smaller capital gain in each year, the seller does have some degree of control over the rate at which the gains will be taxed.

The three financing terms that are most subject to bargaining between the buyer and seller are the downpayment, the interest rate, and the length of the contract. Each of these in turn will have a potential effect upon the selling price which the seller can command.

A low downpayment implies that a large portion of the principal will be spread over the future years of the contract. As a result, the

present value of the stream of benefits will be reduced slightly according to the discounting process, and the seller will be able to command a higher selling price to compensate for his loss in time value of money. In addition, a low downpayment suggests the seller is accepting increased risks, and hence he may demand a further increase in the selling price as a risk premium.

Certainly, the interest rate which the seller receives compared to that which he might earn on alternative investments has a potential to affect the selling price. The seller may wish to charge a low rate of interest to minimize his ordinary income tax obligations which are assessed on interest income. By doing this he may in turn seek to increase the selling price to compensate for his lower interest receipts. The strategy described here is the seller's forgoing interest income in favor of capital gains, to take advantage of a lower income tax rate.

The length of the installment contract and the seller's discount rate will have a substantial effect upon the selling price which a seller will demand. While the length of the contract determines the amount of principal to be received in each future year, the discount rate reduces those payments to yield their net present value to the seller. As the number of years allowed for payment increases, and as the seller's discount rate increases, the net present value to the seller of the series of installments will decrease. Hence, the seller will demand a higher selling price to compensate for his loss in time value of money.

Examination of Iowa farmland sales survey data reveals some distinct differences among the financial terms of seller financed land sales and those of other sources of credit. On the average, the interest rate and the downpayment percentage on seller financed sales are lower than they are for conventionally financed sales. According to the major hypothesis, then, there is reason to believe that seller financed sales are priced somewhat above sales that are conventionally financed.

The regression analysis, though, offers no evidence supporting the existence of an inverse relationship between the selling price and the interest rate, or between the selling price and the downpayment percentage, of a seller financed sale of farmland. The regression coefficient for the downpayment percentage never had a statistically significant coefficient, while that for the interest rate was highly significant in one year, but with a sign opposite to that which was expected. Of the remaining variables in the regression model, only the corn suitability rating had a highly significant coefficient in each year. The variable for total acres showed some consistency, having a significant coefficient in two of the three years, and the expected sign in all the years. A dummy variable to estimate the effect of land sold as an add-on unit was significant in only one year. The regression models were generally able to account for between 19 and 44 percent of the variation in the selling price of farmland for each year of the data set.

Although the research offers no definite indication that the selling price of Iowa farmland is affected by seller financing, it does not provide conclusive evidence. Because the farm real estate market is not a perfectly competitive market, stable relationships existing within the market may be more difficult to estimate. Perhaps because of its imperfect market, the price of farmland may be subject to a certain amount of unexplainable fluctuation. Moreover, certain physical characteristics of farmland, the conditions of its sale, and the resulting financial arrangements may be perceived differently by different individuals. The set of factors determining the price of farmland may not be the same for all sales. Nevertheless, analysis of supposed influences on land prices is essential for a more thorough understanding of the farm real estate market.

Additional research is suggested to better evaluate the farm real estate market. Each farm property is unique, and the motivations of the buyers and sellers of farmland may require special consideration. Hence, the circumstances pertaining to each farm sale need to be evaluated more accurately. More detailed data need to be analyzed concerning the value of buildings and other improvements, the productivity level of the soil, locational factors, and other physical aspects of each farm sold.

In addition, the factors which influence the seller's decision to sell and the buyer's decision to purchase a property need to be evaluated in more detail. The existence of a familial, neighboring,

or business relationship should be accounted for. Moreover, the intention of the buyer for purchasing a farm property--farm business expansion, initial purchase for farming, hedge against inflation, residence, commercial or industrial site, recreation, or speculation-- should be assessed as it affects the negotiations for the sale.

Also, there is a need for research to analyze the agreement to financial terms of seller contracts. Specifically, the use of the balloon payment needs to be better understood. The purpose of the balloon payment may be to limit the length of the seller's investment in a property, or it may be to allow the buyer the opportunity to refinance his debt at a future time when his financial situation will be more stable. Especially with regards to refinancing, the effects of inflation, appreciation in land values, and changes in a farmer's operation warrant further research effort.

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