INVESTING IN FARM AND NONFARM EQUITIES
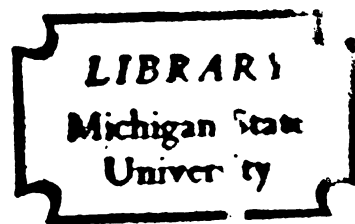
Thesis for the Degree of M. S.
MICHIGAN STATE UNIVERSITY
William Elvidge Kost
1967

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ABSTRACT

INVESTING IN FARM AND NONFARM EQUITIES

by

William Elvidge Kost

This thesis studies in depth two equity investments:

farm real estate and common stock.

The vantage point for this study will be that of an indi-

vidual with funds available for a general investment portfolio.

Thus, these two equity investments are viewed more as a means

of longer run, general investment rather than that of providing

one's primary occupation.

Since particular investments fulfill different investor

objectives they fit into different portions of a total personal

investment program. Because we are considering only a specific

portion of this total investment program the degree of simi-

larity between farm real estate and common stocks must be high

before their rates of return can be directly compared. The

first half of this study shows that these two investments

have many similar characteristics. There are only three major

differences: differences in (1) relative marketability,

(2) degree of ownership and (3) investor attitudes toward

them. With these exceptions they are similar in their invest-

ment advantages and disadvantages as well as in the manner in

which they are valued.

The second half of the study compares the rates of return on these investments. Three rates of return were calculated for each for the period 1950-1963. Farm real estate rates of return are based on aggregate data for the United States while rates of return for common stock are based on data from a random sample of one hundred common stocks listed on the New York Stock Exchange. The total rate of return is composed of two separate components: an income rate of return and a price rate of return.

The income rate of return is the ratio of net earnings to the value of the investment. For common stocks this means that net corporate earnings are used instead of dividends. This is necessary to make the common stock income rate of return comparable to that for farm real estate. The average income rate of return for farm real estate over the fourteen year period is 4.41 percent and 9.31 percent for common stock. A U-test showed that the income rate of return for common stock is significantly higher than that for farm real estate.

The price rate of return is a measure of the change in the purchasing power of the investment. It is computed by dividing a change in the value of an investment into two component parts: that change in value due to a change in the

quantity of the investment and that portion due to a change in the price of the investment. The price component adjusted for changes in the purchasing power of money and divided by the value of the investment is the price rate of return. The average price rate of return for farm real estate and common stock is 4.85 and 8.64 percent respectively. A U-test showed that there is no significant difference between the two.

The total rate of return is the sum of the income and price rates of return. The average total rate of return for common stock is 17.94 percent and 9.26 percent for farm real estate. A U-test showed that the common stock total rate of return is significantly larger than that of farm real estate.

These three rates of return are presented separately so that investors may compare the relative merits of income and capital gains.

In summary, the rates of return for common stock for the 1950-1963 period are larger than comparable rates of return for farm real estate. However, common stock returns showed larger fluctuations than returns from farm real estate. Elimination of biases in the data would narrow the spread between the farm real estate and common stock rates of return.

INVESTING IN FARM AND NONFARM EQUITIES

by

William Elvidge Kost

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

Master of Science

Department of Agricultural Economics

1967

ACKNOWLEDGMENTS

It is perhaps needless to note that in the final analysis I alone am responsible for the content and organization of this thesis and stand ready to face up to or dodge, as the case may be, any criticisms resulting therefrom.

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CHAPTER I

INTRODUCTION

The purpose of this thesis is to study in depth two
classes of equity investments: farm real estate and common
stock.

Every investment that an individual makes should fit
a niche in his overall personal investment program. Differ-
ent investments fulfill different needs. The vantage point
for this study will be that of an individual with funds
available for a general investment portfolio. Thus, these
two types of equity investments are viewed more as a means
of longer run, general investment rather than that of pro-
viding one's primary occupation. Common stocks obviously
fill this criterion. Some may consider an investment in
farm real estate, in most cases, to be an investment in an
occupation. However, for the 1950-1964 period an average
of thirty-eight percent of United States farm real estate
was tenant operated. This shows that a significant portion
of farm real estate is considered an investment, rather than
an occupation, by its owner.

Since particular investments fulfill different investor

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objectives they therefore fit into different portions of a total personal investment program. Because we are here considering only a specific portion of this total investment program it is important to investigate the similarities and differences of these two classes of equity investment. Are farm real estate and common stock close substitutes in an investment portfolio? If they are highly similar on such characteristics as risk, management, taxation, marketability, etc., then the rate of return becomes a key variable in selecting the class in which to invest. The aim of the next three chapters is to make a detailed comparison of all factors except the rates of return for the two investments. The conclusion for this part of the study is that farm real estate and common stock are highly similar.

Chapter II attempts to answer the question of why one should invest, how a personal investment program should be formulated and what some of the broad criteria are by which one may judge any investment. A discussion of the advantages, disadvantages and valuation methods for both farm real estate and common stock, based on the general investment criteria presented in the second chapter, is presented in Chapters III and IV respectively.

On the basis of the discussion in these three chapters farm real estate and common stock may be compared on the

basis of their relative rates of return. They have very similar characteristics and fulfill the same functions in an individual's personal investment program. Thus, the next two chapters consider the rates of return for these two equities for the period 1950-1963. Chapter V presents the basic model by which comparable rates of return will be calculated and Chapter VI presents the empirical results of the study. The final chapter consists of a brief summary of the first six chapters as well as the conclusions reached therein.

CHAPTER II

INVESTING

Why should an individual invest his money? Before
attempting to answer this question let's ask another: why
should an individual save his money?

There are many reasons why he may wish to save. He
might wish to prepare for future family needs, such as buying
a home or educating his children. A fund may also be set
aside to provide aid in case of the death of the income pro-
ducer. He may wish to use his savings to provide a supple-
mentary or a retirement income for himself and his family.
Savings can also be used to create an estate for future
generations.

It is now pertinent to ask why one should invest his
money. In the broadest and commonly accepted sense an in-
vestment is any asset held for the purpose of conserving
capital and/or earning an income. Therefore, investing can
be looked upon as the process of putting savings to work in
order to meet personal saving objectives. This definition
does not differentiate between safe and hazardous invest-
ments, tangible and intangible investments, nor between

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personally and institutionally managed ones. This defini-
tion recognizes that savings accounts, life insurance,
mortgages, bonds, stocks, real estate and other earning
assets all fulfill the same basic function of employing
their owner's savings.

Investment in a more limited sense is sometimes used
to suggest a commitment that is relatively free from risk
with emphasis on protection of principal and real income
producing ability. No sharp line separates this definition
of investment from speculation and speculation from gambling.
The distinction between the three is a matter of degree.
Speculation means the deliberate assumption of risk in a
venture in the hope of obtaining high income yields or,
more commonly, large capital gains. Speculation involves
choosing ventures with care, balancing the risks involved
against the expected opportunities for capital gains. To
the best of his ability the speculator is making calculated
risks. The difference between investment and speculation
is the degree of risk involved. Speculating heavily on the
basis of "market tips" and accepting risk with no desire
to identify, appraise and balance the risk with the estimated
gains is gambling. Thus, the degree of risk and ones atti-
tude toward a venture determines whether it is classified
as an investment, a speculation or a gamble.

An investor is faced with two problems -- what to buy and when to buy. What to buy is determined by what types of investments are appropriate for his personal saving objectives and the amount of risk he is willing to assume. He must decide what specific investment will satisfy his requirements.

Every individual should establish a personal investment program. Anyone who decides to institute an investment policy for himself will soon realize that his plan must have a definite purpose. It must be formulated to meet certain needs and objectives. To determine these the individual must examine his own future. The organization of a personal portfolio can be broken down into five parts. These parts might reasonably be considered in the following order. First, one would want a certain amount of working capital set aside to meet regularly occurring home and business expenses. This could conceivably be in the form of cash or a checking account. Next, one should consider an adequate insurance protection plan on the head of the household to help assure family security in the case of death or disability of the breadwinner. Third on the list should be a highly liquid emergency fund. This fund would probably be used and replaced many times by the family. Therefore, it should be in a convenient form and be readily available

without delay, inconvenience or heavy costs. This emergency
fund might take the form of a savings account, insurance
reserves or government savings bonds. The next portion of
the personal portfolio should consist of investments in a
home and a personal business if necessary. The last portion
of the portfolio should consist of a general fund which would
receive all sums not accounted for above. The objective of
this portion of the plan might possibly be to provide retire-
ment or supplementary income or provide money for some other
distant future purpose.

In planning a personal investment program one should
consider his family and financial situation. What are the
ages and health of the individuals that are to be the pri-
mary beneficiaries of the portfolio? How many dependents,
current and future, need to be considered? What about the
ages and health of these dependents? How much is currently
available for the portfolio? What is the current debt
situation? What is the occupation of the breadwinner and
how much income does he expect to receive from his occupa-
tion and from other sources? What is the extent of the
individual's training and experience in investment and
financial matters? What are the investment goals -- a
large estate, early retirement, travel, a home, . . . ?
What is the investor's disposition? Is he a risk avertor

or a risk acceptor?

Answers to the above and similar questions will help in determining an investment philosophy which will be consistent with the investor's savings objectives, his circumstances and his temperament. They provide a basis for decisions involving safety, growth of principal, current income and the preservation of the purchasing power of the investment.

An individual will not have a single savings objective but after careful thought will have a list of objectives and will then be able to weight his investment decisions accordingly. In choosing specific investments the investor will need definite ideas about certain features that his portfolio should have.

All investments involve an element of risk. In fact the problem of investment is in large part that of deciding on a policy toward risk. The investor must decide upon the degree of risk he is willing and able to assume and then appraise the degree and types of risk present in the individual investments. Four somewhat overlapping classes of risk are considered.

The first type of risk is the financial or business risk. Every business or property is subject to this risk. The earning power or usefulness of an investment may diminish because of changes in competition, demand, costs, government

action, management errors or any other adverse event. Investments are all vulnerable to financial risk to a greater or lesser degree. For example, there is very little financial risk involved in United States government bonds while common stock and real estate are more subject to it.

Interest rate risk applies especially to fixed income securities of long or indefinite maturity; such as bonds, mortgages and preferred stocks; but it may also apply in a smaller degree to variable income securities such as common stocks and real estate. Interest rate risk refers to the fact that income securities increase in value when the interest rate on new security issues declines and decrease in value when interest rates on new issues rise. Thus, a security that is subject to little or no financial risk may be subject to a great deal of interest rate risk. Selection of short term fixed income securities would minimize the effect of interest rate changes on the investment because the money would be released for reinvestment sooner to take advantage of the new market interest rates. This policy may not be completely satisfactory since the cost of constant reinvestment would be high and the interest rates on short-term investments may average lower than long-term rates due to the increased uncertainty of recovering the principal in the longer run. It could be argued that the investor may

hold the security till maturity and complete the contract as he originally planned, but this policy would still subject him to either a capital loss or an income below the going rate for a long period of time. This is theoretically balanced by the chance of gain in the case of falling instead of rising interest rates but it still should be taken into consideration when investigating investments subject to this risk.

Another type of risk that investments are subject to is the purchasing power risk. Purchasing power risk is due to changes in the purchasing power of the monetary unit or in the general price level. This will affect both the principal in and the income derived from an investment. Fixed income securities are especially susceptible to purchasing power risk. Receipt of dollars is certain, but the value of those dollars is uncertain.

Market prices of investments may fluctuate substantially even though their earning power remains constant. Market risk is the risk of investing when the market price is high relative to the earning power of the investment or selling when it is underpriced. There are many reasons why prices fluctuate. Commonly investments vary in price because of changing investor's opinions about the future desirability of the investment; or as Lord Keynes once said, differences

in, ". . .the average man's opinion of what the average man's opinion will be."[1] Adverse fluctuations in the market price of an investment is not as undesirable as adverse changes in earning power as long as one does not have to sell or borrow on it; though given enough time changes in earning power are reflected in changes in market prices. The only investments that are completely immune to market risk are those which are always available in cash, such as a savings account.

Since risk is a part of all investments the investor may wish to minimize his risk by following a policy of diversification in his portfolio. Diversification means dividing the portfolio into segments on the basis of industry, financial type, maturity, location, management and so forth. If this is accomplished, losses due to adverse effects in any particular segment of the economy or country will tend to be minimized. Diversification, however, can be wasteful if carried too far. Too many different securities can require too much time to manage properly and become uneconomical because of excessive commission and other transaction charges.

Directly related to risk is the rate of return or yield on the investment. Yield may be defined as the ratio

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[1]Bernhard, Arnold, The Evaluation of Common Stock, Simon and Schuster, New York, New York, 1959, p. 36.

of current net income to the current price of the investment. The yield on an investment can be looked upon as the sum of the rate of compensation for the use of money invested plus the rates of compensation for risks and other imperfections of the investment. For those who must depend on their investment for most of their income, the yield will be one of the most important characteristics of the investment. They will be interested in as high a yield as possible on their capital. Also they will want as little year-to-year variation in the yield as feasible.

Another feature one should consider in planning his portfolio is safety. Depending on the objectives, one may be interested in safety of principal and/or safety of income. In both cases there are two types of safety: "dollar" safety and "purchasing power" safety. In the first case, one would be maintaining the nominal value of the investment or having a steady and safe flow of nominal income from it. This safety objective would be subject to the purchasing power risk. An example here might be a savings account where the original sum invested would be relatively safe and the income from this account would be stable as well as safe. The other case would be that of minimizing the purchasing power risk in order to maintain the real value of the principal or the income. For this one might consider

certain "blue chip" common stocks. These represent tangible goods and their price and earning power in dollars would be expected to vary proportionally with all commodities and with the purchasing power of money.

In some cases, capital appreciation or growth may be a more important feature than current yield. One who is actively employed may be more interested in building up the value of his assets for the distant future than he is of earning an income from them now.

The marketability of an investment is also an important feature. Marketability refers to the degree of readiness with which an investment may be converted into cash. It is especially important for an investment to be highly marketable if it suffers from major price fluctuations. Also, to be marketable the investment should be capable of being purchased or sold with little expense and trouble.

If an investor thinks that in the future he may have a temporary need for money, but does not want to sell his investment asset and buy it back later, he should consider those investments that have a high value as collateral for a loan. An investment that has a relatively stable value will usually be taken by a lender as security for a loan. The more stable and the more marketable the investment is the more you can borrow relative to the value of the investment.

Investment policy is also affected by the tax policies of the federal and state governments. As elsewhere, the investor should be interested in the net returns from his investment and must therefore take into consideration any changes in net returns due to differences in tax structures for different investments. The investor must consider the advantages and disadvantages of income tax, capital gains tax, estate and inheritance tax and property tax policies in making his investment decisions.

One must also consider the minimum sum that is required to make a specific investment. Even though an investment meets all of the requirements of an investor, the minimum denomination may be so high that the specific investment is out of his relevant range of investment possibilities.

The existence of risks in all investments makes "buying good things and then forgetting them" impossible. Constant supervision is necessary for all investments in order to receive good returns and/or prevent losses. The degree of supervision required by an investment varies. Some require constant attention while others require only cursory treatment. Some investments require more than just watching securities. Active control of the investment may be required by the investor instead of the passive kind that is associated with the management of most securities. Supervision

and control of an investment requires time. Investments
here have been discussed in terms of investing for a general
portfolio fund and not as a full-time profession. Thus,
other things equal, an investment that is relatively free
from care is preferred to one that is not.

Don't hire yourself to do a job that someone else
wouldn't hire you to do is an old saying that has some rele-
vance for an investor. In planning an investment program
one must ask himself if he is proficient enough to go it
alone. If not, he should obtain the best advice he can from
outside sources. But, one must not forget that this outside
investment help and advice is secured only at a cost and
should be obtained only as long as it is profitable to do so.

So far we have discussed personal portfolio investment
objectives and the general criteria one must consider in
making investment decisions. An investor's most important
task is to develop investment goals that are consistent
with his investment philosophy, temperament and personality
and then stick to these goals.

CHAPTER III

INVESTING IN FARM REAL ESTATE

What is meant by farm real estate? Farm real estate

here will be defined to include land, tenements and other

buildings, other improvements, patent rights and heredita-

ments used for agricultural purposes. Thus, an investment

in farm real estate would be an investment in what is com-

monly defined as a "farm" for farming purposes.

Advantages of a farm real estate investment

Farm real estate as a field of investment offers

several distinct advantages to certain investors.

Farm real estate is an earning asset. Investment in

it will return a current flow of income and/or a capital

gain. Since returns are dependent upon earnings, an invest-

ment in farm real estate is not subject to a large amount

of interest rate risk. Therefore, when the farm business

earnings are increasing, the investor will not be forced

to settle for a fixed income stream -- fixed at a relatively

low level -- but will be able to reap some of the benefits

from the larger earnings through larger returns to the farm

real estate.

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Since it is an earning asset, where current returns are dependent upon current earnings, the value of farm real estate can be expected to increase as the general price level increases. That is, farm real estate provides a good hedge against inflation and therefore is not subject to purchasing power risk.

Another incentive for investing in farm real estate is provided by the United States tax structure. One tax advantage an owner of farm real estate may claim is that of a depreciation deduction for that portion of farm real estate that is depreciable property. The purpose of this depreciation deduction is to let the investor recover his investment in depreciable property over the useful life of such property. It permits the investor a reasonable allowance for the exhaustion, wear and tear, and obsolescence of property held for the production of income. This will reduce the investor's taxable income.

A second advantage the investor in farm real estate finds in the tax structure is the investment credit provision (instituted in 1962). Under this clause certain new or used depreciable property, acquired for use in the farm business, can be used to reduce the investor's income tax liability by a certain percentage of the value of the qualified investment for the year the asset is acquired. Both

the depreciation allowance and the investment credit provision allow the investor to reduce his income tax liability.

A third method by which an investor in farm real estate might decrease his income tax liability is through a carry-back adjustment for net operating losses. If in a calendar year, ". . . the total of your losses from operation of your farm, sale or other disposition of depreciable property or other property used in your trade or business, casualty, or sale or exchange of stock of certain small business corporations, exceeds your income from all other sources, . . .,"[1] then this net operating loss may be carried back three years to offset the net income for that year. If any excess net operating loss still remains, it may be utilized to offset the net income earned two, then one year prior to the current calendar year. If any excess still remains it may be carried forward, for five years, as a debit against future income until it is absorbed.

Another incentive to invest in farm real estate is provided by the current capital gain and loss provisions of the income tax law. Under these provisions gains and losses from the disposal of assets used in the farm business and held for six months or more are treated as gains and losses

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[1]Farmer's Tax Guide, 1964 Edition, United States Treasury Department, Internal Revenue Service, Publication No. 225, p. 31.

from sales of capital assets.[2] The income from the capital
appreciation of the farm real estate is thus eligible to be
taxed at a much lower tax rate than is income derived from
current operating profits. Not only is the income from
capital appreciation taxed at a lower rate, but it is not
taxed until such time that the actual gain is realized by
the sale of the capital asset.

Farm real estate will assimilate large inputs of capi-
tal. It will therefore provide investors in the higher in-
come brackets an opportunity to transform some current
operating income into income from capital gains. The farming
enterprise can, in this manner, be operated so as to show a
net accounting loss, thereby lowering the investor's income
tax bracket as well as transferring part of his "real"
current income to capital gains income which will be taxed
at a later date as well as at a lower rate. In this case,
it could be possible that the investor in farm real estate,
who is in a high income tax bracket may find it to his
advantage to invest in his farm real estate beyond the high
profit point to capital in the farming enterprise or to sell
his farm real estate at a price that would represent an out-
right loss to an individual whose only income is derived

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[2]In the case of livestock, they must be held for
twelve months or more before qualifying.

from the farming enterprise or one who has a much lower income. The point at which the investor stops investing in his farm real estate will be a function of his "true" marginal income tax rate for his income from all sources.

The effects of the capital gains tax may be mitigated by retaining ownership of the asset until the death of the original buyer. When the asset is transferred to the investor's heir a new cost base is acquired. This base is determined by the market value of the farm real estate at the time of death of the original owner. The new owner or owners may sell the farm real estate subject to little or no capital gains tax, or this inheritance process may be continued for another generation.

It is true that inheritance taxes will still have to be paid as they would in any case. But appraisal practices of farm real estate for inheritance tax purposes are different than for other assets. An estate consisting of negotiable securities will, in most cases, be valued at current market prices as of the date of death; while an estate consisting of farm real estate will seldom be appraised for inheritance tax purposes at current market prices. This gain through relatively lower inheritance taxes, however, may be partly offset if the heirs decide to sell the farm real estate, as the base for computing the amount of capital

gain will therefore be lower. But even in this case there will tend to be a relatively lower total tax liability.

To a certain extent, farm real estate has maintained its popularity due to the fact that the owner could easily see and inspect his investment as well as exert direct personal control over it. The ordinary investor in equity securities does not have a direct voice in or control of the management of the enterprise in which he has invested. He has only a limited indirect influence upon management.

Investing in farm real estate has been discussed, so far, in terms of it entering into the general investment fund portion of an individual's total investment program. By investing in farm real estate the investor may also meet another of his personal portfolio objectives. As well as providing a place for his excess funds an investment in farm real estate may provide him with a home. It may also contribute to family living by providing unlimited access to natural resources and recreational facilities such as hunting and fishing. In certain instances an investment in farm real estate could also provide a form of occupational insurance.

Farm real estate, more so than any other type of investment, has affiliated with it strong elements of tradition, as well as social beliefs and values, as to its innate

virtues. To many people farm real estate has a special appeal. It is tangible and exists forever. The owner can, possibly with rapture, observe his property, walk on it and feel its substance; while if he owns intangibles he can find comfort only in a mental image, a fragile, tenuous paper extending by law his rights to the actions and properties of others.

These agricultural fundamentalistic views regarding farm real estate vary in degree and over time among different individuals. Einaudi sums up some attitudes that are as applicable to certain individuals in the United States now as they were to some Italians in 1934:

> The land is not sold by comparing the marginal yield obtained from it with that which could be obtained by reinvesting the proceeds of the sale. Perhaps the only case which has some affinity with sales for 'economic reasons' is that of the peasant who owns a little bit of land -- and who sells it in order to buy a larger farm. But to sell for the sake of selling, for the sake of a good bargain, so as to have a nice little sum of money in the bank, no, never. Such an idea never crosses the peasant's mind. . . Land for sale does not appear on the market until one or the other of the events. . .described occurs; economic convulsions, as in the post-war years; the ruin of a peasant family due to idleness, or in the case of gentry, gambling, bad behavior or slow exhaustion and financial difficulties long disguised by the creation of debt. Apart from such circumstances, the axiom governing the normal economic conduct of a landowner is that land is not for sale. This is not an economic axiom; it is born of instinct and is incomprehensible to the townsman. Those in whom that

instinct works buy but do not sell. To sell
is an illicit, immoral act, which their moral
code forbids."[3]

For some people, the belief that land is basic to our

economy and the pride of ownership received from the posses-

sion of farm real estate provides reason enough to invest

here over other alternative investments.

Another advantage that one might attribute to invest-

ing in farm real estate concerns the effects of government

farm programs in agriculture. Most of these programs have

had as their goal stabilizing and/or increasing farm incomes.

This might provide an incentive for investing in agriculture.

However, the fact that most farm programs are "temporary" in

nature might have a tendency to offset any advantages attri-

buted to them.

Disadvantages of a farm real estate investment

Some possible advantages of and reasons for investing

in farm real estate have been cited. But investment in farm

real estate is not one-sided. For some individuals this

investment has certain distinct disadvantages.

One of the advantages attributed to farm real estate

above was that it was an asset where returns were dependent

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[3]Scofield, William H., "Prevailing Land Market Forces,"
Journal of Farm Economics, Vol. 39, December 1957, p. 1509.

upon earnings. As an investment it may be subject to little interest rate risk but it is susceptible to financial or business risk. It was also stated that an advantage of farm real estate was that it acted as a hedge against inflation. While the value of farm real estate increases with increases in the general price level it must not be forgotten that the reverse is also true. In periods of deflation the value of farm real estate will decrease, unlike that of fixed value investments. The same argument applies to the income produced by farm real estate as well as to the value of the investment.

A second disadvantage associated with investments in farm real estate lies in the relatively large minimum investment that is required to obtain an economically viable unit. This large initial outlay almost eliminates those investors who have only a small amount to invest. A small investor may still invest in farm real estate by taking advantage of the liberal credit facilities available to purchasers of farm real estate. However, to do this, it will mean tying up future investment funds. Because future investment funds are tied to a specific investment, the buyer will not be able to follow a comprehensive diversification policy with respect to his general investment portfolio.

Another disadvantage is due to some typical character-
istics of the farm real estate market. Farm real estate is
not a standardized product. It is a heterogeneous product,
not easily graded or described in common terms. Since farm
real estate is an immobile asset, its market value must be
determined on the basis of its use only at its present fixed
location. Because of this, farm real estate transactions
occur in many local markets instead of a single national
market or a few closely integrated markets, with no stand-
ardization, with lack of market organization and limited
communication of information.

With this dependence upon local supply and demand con-
ditions the number of transactions is often so low that an
objectively observed level of farm real estate prices cannot
be reported. This is due, in part, to the absence of specu-
lators in the market, in the sense of being ready to clear
the market of all offerings. These characteristics plus
the general inexperience of the average buyer and seller,
due to their infrequent participation in the market, cause
farm real estate to lack marketability. This uncertainty
and slowness of the farm real estate market implies the
presence of a relatively large amount of market risk.
Another possible reason that may cause the marketability of
farm real estate to be lower involves the problem and expense

of obtaining a merchantable title.

The investor in farm real estate must also consider the fact that he has operating and maintenance expense obligations to meet. Farm real estate also has some general property taxes which are fixed expense that must be paid every year whether a net income was produced or not. These are reoccurring expenses and, in a sense, represent "out-of-pocket" costs. This is especially true when the farm incurs a net operating loss. Even in the case of a net operating profit the timing of the inpayments and outpayments may be such that the investor incurs a "short-run" loss. Thus, an investor in farm real estate is forced to have a relatively larger fund of working capital than would be necessary elsewhere.

In discussing the tax advantages of farm real estate above, the benefits of a depreciation expense allowance were examined. While this improves the current income picture, it must not be forgotten that, at the same time, it implies a decreased value of the original investment. This is true of all equity investments.

Another advantage previously discussed concerned the possibility of exercising complete ownership control over the farm real estate investment. Managing and supervising the farming enterprise requires relatively more time than

for more intangible investments. It also entails a certain
degree of more specialized knowledge and experience. This
personal responsibility and time involved may be a disadvan-
tage, although not a major one, for some investors. By
utilizing the facilities available in many commercial bank
farm departments or professional farm management services
the investor can negate this disadvantage at a relatively
modest cost.

A final disadvantage attributable to farm real estate
concerns its value as collateral for loans. Farm real estate
is not as satisfactory as common stock, especially from the
viewpoint of divisibility. The relative illiquidity of farm
real estate also greatly affects loans made upon it.

Valuation of farm real estate

Some pros and cons of farm real estate investment have
been discussed. The most relevant question to ask now is --
"What is farm real estate worth?" No one actually knows the
answer. The best reply is the old standby -- "That depends."
To have worth a thing must have utility. Therefore, the
worth of a thing is a subjective concept that is determined
in the mind of each individual. Value, on the other hand,
is a general overall quality of worth that exists in a thing
measured in terms of money. There are then two kinds of

value: subjective value and market value. Subjective value
is a measure of the worth of a thing, in dollars, determined
by an individual. While it is subjective in the sense that it
is determined by an individual, it can be determined by this
individual in a systematic, objective manner. Market value,
on the other hand, measures the worth of a thing, in dollars,
in the marketplace; it is a group determination of worth.

The investor is interested in both the subjective value
and the market value of farm real estate. The subjective
value tells the investor how much he is willing to pay for
the farm real estate while the market value tells him how
much he has to pay before ownership will be transferred to
him. This relationship between subjective value and market
value determines whether the investor purchases the farm
real estate or not. If the subjective value is greater than
or equal to the market value he will buy the farm real estate.
If the market value is greater than the subjective value he
will not buy it; it will "not be worth what it sold for" to
this investor.

In an attempt to answer the above question, two sys-
tematic farm real estate appraisal methods will be discussed:
income capitalization and market comparison.[4] In the final

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[4]For a detailed discussion of rural appraisal see
Murray, William G., Farm Appraisal and Valuation, Iowa
State University Press, Ames, Iowa, 1961.

analysis the answer will still be the same -- "That depends."
The solution will be heavily dependent upon the assumptions
made during the appraisal process and these assumptions are
a function of the individual's subjective knowledge and
expectations.

Income Capitalization Approach. Traditional economic
theory says that the value of any durable productive asset
is the discounted present value of the future stream of
earnings from its most productive use. This income capitali-
zation approach is usually emphasized in most farm real estate
appraisals because of the large weight placed on the future
income producing ability of the individual property. For
most properties, earnings constitute a basic value which is
attainable and subject to calculation. Earnings, therefore,
provide a positive foundation on which farm real estate can
be judged.

An appraisal, using the income capitalization approach,
can be made by determining four estimates or expressions of
opinion; the annual gross revenue that the farm real estate
will produce, its annual total cost, the proper capitaliza-
tion rate and the adjustments necessary to account for all
those factors that are not fully reflected in earnings.

The first step in the income capitalization approach
is the estimation of the future net earnings from the farm

real estates most productive use. These net earnings are the annual flows of economic rent that the piece of farm real estate can reasonably be expected to earn in the future.

There are two methods of obtaining the farm real estate's economic rent after gross revenues are determined: the landlord-tenant method or the owner-operator method. The estimates made by the first method represent the net income received by the landlord for the use of his farm real estate while those from the latter depict the amount that the owner has left as a return on his farm real estate after all expenses have been deducted. Either method may be used to determined the economic rent regardless of the plan to be followed on the farm. Both methods have their disadvantages. The owner-operator method is subject to the problem of allocating net profit from farming to the various factors of production. The landlord-tenant method involves the issue of rental share determination. The landlord-tenant method is generally preferred because the owner-operator expense deductions are harder to estimate than rental shares. This, in part, is due to the existence of a market in which rental contracts are determined by landlords and tenants.

Now that the economic rent or net income attributed to farm real estate has been determined, the next step in the income capitalization approach is to choose the appropriate

capitalization rate. The capitalization rate depicts that rate of return which the investor is willing to accept on his investment. The actual rate of return that investors are willing to accept may vary greatly between individuals and between investments. So like the estimated net income attributed to farm real estate the capitalization rate has an element of personal or individual subjectivity in it.

There are three systematic methods of estimating the appropriate capitalization rate. The first is the comparison method. This is an opportunity cost concept. It is based on the relationship existing between the annual net incomes and the current market values of comparable investments. That is, if the next best alternative investment is currently earning a six percent rate of return then the capitalization rate for farm real estate should be six percent.

A second approach to determining capitalization rates is the summation method. By this method a capitalization rate is constructed from independent estimates of rates for the various factors considered in the capitalization process. A separate capitalization rate is estimated for the various risk features of an investment and these separate rates are summed to give a capitalization rate for the investment as a complete unit. Each time the investor takes on an additional risk the capitalization rate will increase. An

example of determining capitalization rates by the summation

method is presented in Table 3-1.

Table 3-1:   Summation Method Used by the Federal Housing
             Administration in Determining Capitalization
             Rates for Residential Income Properties[1]

Risk Features	Rates for Five Grades of Properties Ranging from Poor to Excellent					Rate For Property Considered
	Risk					
	1	2	3	4	5	
Safety of principal	3.50	3.25	3.00	2.75	2.50	
Certainty of return	2.00	1.75	1.50	1.25	1.00	
Regularity of return	1.75	1.50	1.25	1.00	0.75	
Liquidity	1.50	1.25	1.00	0.75	0.50	
Burden of management	1.25	1.00	0.75	0.50	0.25	
Total capitalization rate						

[1]Barlowe, Raleigh, Land Resource Economics, Prentice-
Hall, Inc., Englewood Cliffs, New Jersey, 1958, p. 192.

The third method of determining capitalization rates

is the band-of-investment theory. In this case the capi-

talization rate is computed as the weighted average of the

market interest rates that apply to various segments or

"bands" of the investment. An example of a capitalization

rate computed by the band-of-investment method is given in

Table 3-2. When the investment is wholly financed through

the owner's equity the band-of-investment method is identical

to the comparison method.

Table 3-2: Computation of a Capitalization Rate by the
Band-of-Investment Method -- An Example

Type of Financing (1)	Financing Covered by Each Type (2)	Market Interest Rate (3)	Weight (2) x (3) (4)
First mortgage	0.50	6.00%	3.00
Second mortgage	0.20	8.00	1.60
Short-term loan	0.10	6.00	0.60
Owner's equity	0.20	10.00	2.00
Total Capitalization Rate			7.20%

Now that estimates of annual net income and capitali-

zation rates are determined, they can, with the appropriate

capitalization formula, be used to find the current value of

the investment.[5] As stated before the current value of an

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[5] For an extended discussion of capitalization for-
mulas see Heady, Earl O., <u>Economics of Agricultural Produc-
tion and Resource Use</u>, Prentice-Hall, Inc., Englewood
Cliffs, New Jersey, 1952, Chapter 13.

investment is the discounted present value of all its

future income streams. This concept is based on the theory

of time preference -- income today is worth more than income

tomorrow. Capitalization formulas are all based on the

principle of compound interest.

The present value of income received in a future

period is

$$V = \frac{Y_n}{(1 + r_n)^n}$$

(3-1)

where V equals the discounted present value of the invest-

ment, Y_n equals the net income received from the investment

in period n, r_n equals the capitalization rate applicable to

period n and n equals the number of periods between the present

and the time when the income is received.

If income is expected to come in each period for a

definite length of time the formula

$$V = \frac{Y_1}{(1 + r_1)} + \frac{Y_2}{(1 + r_2)^2} + \ldots + \frac{Y_n}{(1 + r_n)^n}$$

$$= \sum_{i=1}^{n} \frac{Y_i}{(1 + r_i)^i}$$

(3-2)

can be used. This equation is a sum of equations (3-1) for

the periods one to n. This is the general form of the capi-

talization formula.

After the discounted present value of the future income
stream from farm real estate has been calculated it must be
adjusted to account for those factors which are not fully
reflected in net income. Some factors that should be con-
sidered in adjusting the discounted present value are (1) the
quality of roads and transportation facilities available;
(2) the educational, cultural and religious facilities avail-
able in the local community; (3) the location in the com-
munity and neighborhood; (4) the natural resources, recrea-
tional and scenic features; (5) the housing, landscaping and
other farmstead improvements; (6) the public utilities
available; (7) the distance from urban areas; (8) the pos-
sibility of the farm real estate being subject to restricted
use or having oil, mineral and/or other rights reserved; and
(9) the possibility that the property is included in special
improvement districts; such as drainage projects, levee and
flood protection districts and irrigation projects; and is,
therefore, subject to special bonded indebtedness.

Farm real estate value to an investor stems from two
sources. The first, the future income stream, has already
been discussed. A second important determinant of farm real
estate is through future changes in real estate price that
are not or not completely supported by future income changes.
These capital gains or losses change the investors' real

wealth position. These future real wealth changes should be capitalized separately from the future income streams. They should be capitalized independently so that the investor may express his differing preferences for these two types of "income". He can do this by capitalizing these two "income" streams with different capitalization rates.

After the discounted present value of the farm real estate has been adjusted for the above factors, the investor will have, what he considers to be, the best estimate of the subjective value of the farm property.

Market Comparison Approach. A second real estate appraisal method that is frequently used is the market comparison approach. With this approach the prospective investor would examine market conditions and price relationships associated with the sale of comparable farm properties. He would then value the prospective piece of farm real estate in terms of the price he feels it would bring on the current real estate market. A disadvantage of this method is that farm real estate properties are not homogeneous and the volume of transactions is too small to accurately determine the condition of the market.

The major disadvantage of the market comparison method of appraisal is that it bases the estimate of the subjective value upon market value of property. What the market

comparison approach really determines is an estimate of the market value of farm real estate. This is not what an investor wants to determine. If an investor had perfect knowledge and estimated the value of a piece of farm real estate by the market comparison approach, the estimate would always equal the market value of that property. While an estimate of the market value may be of some assistance, the subjective value is relatively more important. It is through the subjective value that the investor determines whether the property is a "good buy" or not by comparing it with the seller's price.

A final question needs to be answered. Where can the investor obtain the relevant information necessary to make a decision about an investment in farm real estate? A large percentage of the information necessary for evaluation of a specific piece of farm property may be obtained from its present owner and/or operator. Other important sources of information are county agents and state university college of agriculture extension services. Tax records and lending agencies may also supply certain relevant data.

CHAPTER IV

INVESTING IN COMMON STOCK

Common stock represents ownership equity in private

business corporations. It consists of the residual owner-

ship and control of the corporation and entitles the stock-

holders to all assets and earnings of the business after all

other limited claims have been satisfied. Thus, the common

stockholder occupies a directly comparable position to that

of the owner of farm real estate or any other equity asset.

While the stockholder exerts direct ownership control he

only has an indirect influence on the management of the cor-

poration through the election of corporate officers.

The most fundamental right of the common stockholder

is to share in the net earnings of the corporation. His

principal immediate benefit derived from this stream of net

earnings is through the distribution of dividends. Neither

the specific dollar amount of dividends nor the proportion

of net earnings distributed as dividends is specified in

the common stock contract. This decision is left entirely

with the corporate management, which may be almost completely

independent and separate of the majority of the stockholders.

Dividends generally mean a cash payment to stockholders out of the present or past earnings of the corporation. Dividend policy varies considerably but common stock dividends are usually based on one of the following plans: (1) stabilized regular dividends, (2) regular dividends at rates occasionally revised as earnings vary, (3) regular dividends at a minimum rate with occasional extra dividends as justified and, (4) the time and amount of each dividend based on the current situation.

Dividends may not be cash, but, on occasion, may consist of distributions of stocks, bonds or various kinds of property. Stock dividends are proportionate payments to stockholders of additional amounts of common stock. Stock dividends increase the number of shares owned by each stockholder but do not change his total nor his proportionate investment in the corporation. They then represent the reinvestment of corporate profits through the capitalization of a portion of the earnings. Thus, stock dividends are similar to stock splits. A stock split can be defined as a reduction in the par value or stated value of a corporation's common stock. This gives the common stockholder a larger number of the new shares, having the same aggregate value, in exchange for their old shares. Thus, both stock dividends and stock splits increase the number of shares outstanding

without changing the total capital position of the corpora-
tion. The result is to reduce the value per share of the
stock which will tend to make the shares more marketable.

Property dividends, other than stock dividends, usually
consist of (1) those paid in preferred stock or bonds of the
paying corporation, (2) those paid in securities of other
corporations and, (3) those paid in goods and services.
Property dividends, however, are uncommon except in the case
of the liquidation or voluntary reorganization of a corpora-
tion. The income tax position of the shareholder may be
quite complex in this case. In general, securities received
through voluntary reorganization or liquidation, like stock
dividends and stock splits, are not considered as taxable
income but as a return of the stockholder's investment in
the stock of the corporation. However, to the extent that
such a distribution exceeds the stockholder's original invest-
ment in the stock it must be considered as a capital gain.
Most other property dividends, however, are considered as
taxable income.

All earnings that are not paid out in dividends are
either reinvested in the corporation or used to reduce any
outstanding senior capital claims. Therefore, retained
earnings increase the asset position and/or strengthen the
financial position of the corporation. This implies that

retained earnings will make the corporation more profitable in the future and less susceptible to unfavorable future developments than it would have been had there been no retained earnings.

Advantages of a common stock investment

Like farm real estate, common stock offers several distinct advantages to the investor. Common stocks are earning assets and are, therefore, subject to little interest rate risk. Because they are earning assets where the stockholder's returns are a function of corporate earnings, common stocks provide a good hedge against inflation.

Common stocks offer the investor few direct tax advantages. However, the tax advantages attributed to farm real estate in the previous chapter are available to the corporation directly. These tax advantages will tend to improve the asset position of the corporation which will in turn lead to increased common stock values and/or dividends. Thus, the stockholders benefit indirectly from a favorable corporate tax structure.

Common stocks offer few direct tax advantages to the stockholder that are not available from other types of equity investments. A minor direct tax advantage deals with the ease with which individuals can keep tax records on their

investment in common stock. A summary of data necessary

for tax purposes is usually made available to the stockholder

by the corporation. Not only are tax data made available

to stockholders but general information on the business

affairs of the corporation also is readily attainable.

Stock exchanges generally require publication of financial

statements and annual reports. These, along with the wealth

of information in financial journals and newspapers, supply

adequate information to keep the stockholder well informed

pertaining to his common stock investment.

Another advantage claimed for common stock is that

the investor need not be burdened with the time-consuming

job of managing the affairs of the corporation. The stock-

holder can receive the benefits of an equity investment and

still, by delegating his management responsibilities, apply

his full time and energies to his primary occupation.

A related advantage concerns the limited liability

aspects of common stock. If the corporation becomes bank-

rupt a stockholder only loses his original investment in

the corporation. Almost no corporations have the legal

power to assess stockholders for added capital, even in

the case of insolvency. This also means there are no out-

of-pocket expenses associated with a common stock investment.

Due to the existence of Stock exchanges in all major

financial centers, common stocks are readily marketable.
Common stocks can be bought or sold at a moments notice on
any business day. There is always a ready market for common
stock. Since the majority of common shares sell for less
than one hundred dollars, an investment in common stock is
within the range of investment possibilities for the investor
with limited funds. Thus, common stocks can be purchased in
blocks to suit the needs of the individual investor. Because
of this it is also much easier for an investor to follow a
policy of diversification in the equity portion of his port-
folio. He can spread his investment over several different
industries within the economy as well as over several com-
panies within any particular industry.

Disadvantages of a common stock investment

Common stocks also have some disadvantages, many of
which are common to all equity investments.

Because they are equity investments common stocks are
subject to business risk. Thus, even though common stock-
holders gain during periods of business expansion, they can
also lose in the reverse case. This also means that during
periods of deflation the value of their investment will
decline. The opposite is true, however, for any fixed
income asset, such as a bond. This tends to offset some

of the advantages of any equity investment, especially in periods of deflation.

One of the advantages of common stocks stated above concerned their marketability. Because there is a ready speculative market in common stocks their market prices are subject to unpredictable fluctuations. J. P. Morgan described this phenomenon when once asked what the stock market was going to do. He said that it was his considered judgment that the stock market would fluctuate. Thus, even though common stock can be sold at any time, there is no assurance that any share can be resold at what was paid for it. These relatively wide day to day fluctuations may eliminate common stock from consideration for certain individuals.

Another advantage mentioned above dealt with the limited amount of management responsibility required on the part of the investor. In most cases the shareholder has no responsibilities in the management of the corporation. In fact the corporation management may consist of a completely separate group from that of the average shareholder. If a shareholder or part owner of a corporation feels that the firm is being mismanaged, there is little, if anything, he can do to remedy the situation as long as he is in the minority. The only way he can show his dissatisfaction is by selling his stock in the firm. If his view is shared by

the market this alternative may not be very advantageous to him as the market price of the stock will then be depressed.

Valuation of common stock

Common stocks differ in their investment characteristics as widely as do the companies that they represent. Because they are such a heterogeneous commodity they are hard to evaluate in the aggregate. Common stocks can be classified into different functional groups -- each satisfying different portfolio objectives. Income stocks are those of companies in reasonably stable industries whose earnings and dividends per share follow a relatively stable trend and that have little long-term growth prospects. Growth stocks are those of companies whose sales are increasing at a rate greater than that of the national economy and whose earnings per share, but not necessarily dividends, increase at a rate greater than the average for all corporations. Even though some common stocks appear suitable for income purposes and some for long-term growth prospects, it is highly unlikely that the same common stock is desirable for both income and growth. It is possible, however, that a given group of common stocks can be chosen to meet any combination of investment goals.

Because common stocks differ and the investor's

objectives vary greatly it is impossible to define a sys-

tematic appraisal approach to use in determining what common

stocks to buy and what the subjective value of these stocks

is. Clendenin, however, suggests an outline for investment

analysis which will help organize the ordinarily available

data on common stocks. This outline is presented in Table

4-1. Part I indicates that the investor should formulate

his investment philosophy and then, on the basis of this

philosophy, decide on what general type of common stocks

will best fit these goals. On the basis of his philosophy

the investor can make a first approximation of some accept-

able industries and corporations within these industries.

This first approximation selection can be refined on the

basis of some easily attainable preliminary data, as is out-

lined in part II. The stocks remaining can be analyzed in

more detail as is suggested in parts II through VI.

On the basis of the predictions made in part VI an

income capitalization approach can be used to determine the

subjective value of these stocks. This approach is analogous

to that discussed in the preceding chapter. Capitalization

rates can be determined in a like manner and the same cap-

italization formulas can be used. Both the expected future

stream of dividends and the expected future change in price

of the common stocks can be capitalized with separate

Table 4-1: Outline for Common Stock Investment Analysis[1]

I. Determination of type of investment desired

    A. General type
    B. Acceptable industries
    C. Quality and characteristics

II. Basic (preliminary) indications

    A. Earnings per share
    B. Dividends
    C. Price-earning ratio
    D. Leverage
    E. Book value
    F. Market price
    G. Reputation

III. Industry analysis

    A. Permanence of the industry
    B. Growth of the industry
    C. Stability of sales and earnings
    D. Competitive conditions
    E. Labor relations
    F. Governmental attitudes
    G. Immediate outlook for sales and earnings

IV. Analysis of the firm

    A. Size, leadership, dominance
    B. Growth
    C. Prestige, established position
    D. Brands, patents, good will
    E. Diversification
    F. Assets and operating situation
    G. Sales outlook
    H. Costs, overhead, profit margins
    I. Earnings estimates
    J. Stability of sales and earnings
    K. Working capital position
    L. Dividend estimates

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[1]Clendenin, John C., Introduction to Investments, McGraw-Hill Book Company, Inc., New York, New York, 1960, p. 319-20.

Table 4-1: (continued)

        M. Capital structure
        N. Management
        O. Stockholder position

V. The individual security

        A. Its legal rights
        B. Its market position

             1. Number of holders
             2. Popularity of type
             3. Eligibility
             4. Additional issues or secondary
                 offerings
             5. Market history

        C. Financial position in capital structure,
           improving or weakening

VI. Conclusions

        A. Future earnings
        B. Future payments
        C. Quality and characteristics
        D. Future price

capitalization rates. By using two separate capitalization rates the investor can differentiate between the relative importance of the two components of total subjective value. This estimate of subjective value can then be compared with the easily attainable market value to determine whether these remaining common stocks are or are not good investments.

The discussion above is in more general terms than that concerning the valuation of farm real estate in the previous chapter. This is because common stocks represent many more industry types than do farm real estate. Were we to consider farm real estate in terms of the outline presented in Table 4-1 we would only be concerned with parts IV, V and VI. In this case the industry is already determined: agriculture. More specifically the farm real estate portion of agriculture. After this industry has been chosen an analysis of individual farms (firms) can be conducted following this latter portion of the outline.

This discussion does not mean that the investor should disregard the large volume of interpretative reports from stock brokers and financial services and conduct all his own analytical work from primary data. It would be uneconomical to do this. The investor should collect data from all sources and compare his individually reached conclusions with those reached by the experts.

CHAPTER V

THEORETICAL FRAMEWORK FOR COMPARING INVESTMENTS
IN FARM AND NONFARM EQUITIES

In the previous chapters some advantages, disadvan-

tages, and methods of determining values for the two types

of equity investment have been suggested. There has been

considerable discussion in recent years concerning the in-

come position of the agricultural sector of the economy.

Investment analysts are almost unanimously pessimistic con-

cerning investing in real estate--especially farm real

estate. This attitude is exemplified by Jordan and Dougall:

"Aside from the investment in his home, however, the average

investor is advised to utilize other media for the placement

of that portion of his funds that may appropriately be de-

voted to equities."[1]

To advocate investing in equities other than farm real

estate it must be shown that the total rate of return on

farm real estate is significantly lower than that of other

types of equity investment. Is this so? The following two

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[1]Jordan, David F. and Herbert E. Dougall; Investments,
Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1959,
p. 587.

chapters will be devoted to answering this question. This chapter will present the theoretical framework used in this study to determined the total rates of return for the two types of equity investment and Chapter VI will present the empirical results of the study.

The total rate of return on an investment is composed of two components: an income rate of return and a price rate of return. The income rate of return is the same as the yield of an investment, as was discussed in the second chapter, and is the rate of return that is generally considered in the standard accounting process. The income rate of return is defined as

$$r_{Y_t} = \frac{Y_t}{V_t}, \qquad (5\text{-}1)$$

where r_{Y_t} equals the income rate of return in period t, Y_t equals the income received in period t and V_t equals the value of the investment in period t. Both Y_t and V_t are in current dollar terms. In the case of farm real estate Y_t equals the net rent to landlords in period t and V_t equals the value of farm real estate owned by landlords in period t. For common stock Y_t and V_t, respectively, equal net profits for the year and the market value of the common stock in period t. Retained earnings must be included to

make the common stockholder's income comparable to net rent

to landlords. A landlord must take money out of his net

rent if he wants to have any added investment in his farm

real estate but this is already done by a corporation before

an investor obtains his cash dividend. Stock dividends and

splits are not included in Y_t because if the common stock

investor were allowed to sell them to obtain current income

it would mean a change in the investor's proportionate share

of the corporation. The effect of stock dividends and splits

will show up in the real wealth component through changes in

future price expectations.

The price rate of return represents that portion of

the change in value of an investment that changes the in-

vestors' real wealth position. It reflects changes in the

purchasing power of price sensitive assets. This real

wealth gain or loss is considered by accountants to be an

unrealized gain or loss. The real wealth gain or loss is

not accounted for until the asset under consideration is

actually sold. This concept of realized and unrealized

real wealth gains and losses emphasizes cash receipts and

expenditures rather than the concept of accrual accounting.

This price rate of return is included in the total rate of

return because, as one writer puts it, ". . . this interpre-

tation accords well with common sense: for the gain or loss

results from <u>holding</u> money claims during a period of changing

prices, not from <u>disposing</u> of the money claims at some par-

ticular level of prices."[2]

In determining the price rate of return the total change

in the value of the investment between two periods must be

decomposed into corresponding price and quantity components.[3]

This is done as follows:

$$V_{t+1} - V_t = P_{t+1} Q_{t+1} - P_t Q_t$$

$$= P_t (Q_{t+1} - Q_t) + Q_t (P_{t+1} - P_t)$$

$$+ (P_{t+1} - P_t) (Q_{t+1} - Q_t) , \qquad (5-2)$$

where P_t equals the price per unit in period t and Q_t equals

the physical quantity of the asset in period t. This change

in value can also be represented graphically, as in Figure

5-1. V_t is the area $OP_t d Q_t$ and V_{t+1} is the area $OP_{t+1} b Q_{t+1}$.

The change in value between t and t+1 equals the difference

between these two rectangles. This change in value can be

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[2]Coughlan, John W.; "Applicability of the Realization
Principle to Money Claims in Common Dollar Accounting,"
The Accounting Review, January 1955, p. 113.

[3]The procedure for determining the price rate of
return that follows is similar to that developed by Boyne
in Michigan State University Technical Bulletin 294,
"Changes in the Real Wealth Position of Farm Operators,
1940-1960."

Figure 5-1:   Price and Quantity Components of a Change
in Value

55
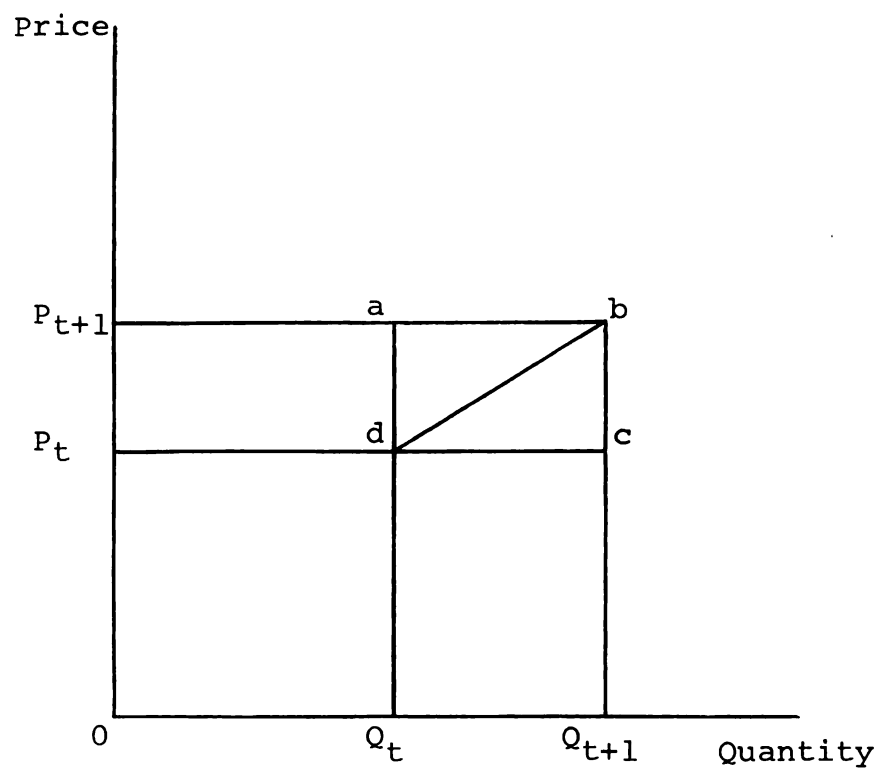
broken into three portions: $P_t (Q_{t+1} - Q_t)$, $Q_t (P_{t+1} - P_t)$ and $(P_{t+1} - P_t) (Q_{t+1} - Q_t)$ respectively represented by areas $Q_t Q_{t+1} cd$, $P_t P_{t+1} ad$ and abcd.

The price component of a change in value is defined as the portion of the change in the value of the asset that is due to a change in price. Similarly the quantity component of a change in value is defined as that portion of the change in value that is due to a change in quantity. Thus, the price component includes the term $Q_t (P_{t+1} - P_t)$ and the quantity component includes the term $P_t (Q_{t+1} - Q_t)$. Since the price component plus the quantity component must equal the change in value the term $(P_{t+1} - P_t)(Q_{t+1} - Q_t)$ must be allocated between these two components. It is neither wholly a price component nor a quantity component since it consists of both a change in price and a change in quantity. By assuming that the rate of change of price and quantity is constant, but not necessarily equal, between period t and t+1 this remaining term of equation (5-2) can be distributed equally between the price component and the quantity component.[4] Thus:

$$(\text{Price component})_t = Q_t (P_{t+1} - P_t) + \tfrac{1}{2} (P_{t+1} - P_t) (Q_{t+1} - Q_t) \tag{5-3}$$

[4]For a proof of this see Boyne, *Ibid.*, p. 70-71.

and

$$(\text{Quantity component})_t = P_t\ (Q_{t+1} - Q_t) \qquad (5\text{-}4)$$
$$+ \tfrac{1}{2}\ (P_{t+1} - P_t)(Q_{t+1} - Q_t).$$

In terms of Figure 5-1, the price component is represented
by $P_t P_{t+1}$abd and the quantity component by $Q_t Q_{t+1}$cbd.

Only the price component can be utilized in obtaining
the price rate of return. If the quantity component is
included it essentially allows the investor to count any
increased investment as part of his real wealth gain.
Therefore, including the quantity component would cause the
price rate of return to be overstated.

The price component defined above cannot be calculated
unless certain assumptions can be made about the physical
quantities of the two assets. How can these quantities be
measured? If it is assumed that the number of acres and
the number of common shares are good measures of the respec-
tive quantities, then equation (5-3) can be used to compute
the price components. This is not a realistic assumption.
It would not allow for farm real estate changing from one
land use class to another or for the real assets of a cor-
poration increasing without a corresponding increase in
the number of common shares. Changes in the quality of an
investment are not necessarily reflected as corresponding

changes in quantity.

However, the price components can be calculated by using two types of data for each type of investment: a current dollar value series and a constant dollar value series. Since price is constant in the constant dollar value series, it is in reality a measure of the quantity of the investment in dollar terms. In order to calculate the price components by this method, they must be computed as a residual so the problem of defining a base period quantity can be eliminated. Thus, the price component is defined here as the total change in value less the quantity component.

First, two price components are defined: one including and one excluding the term $(P_{t+1} - P_t)(Q_{t+1} - Q_t)$. These two price components are:

$$(\text{Price component})_t^* = (V_{t+1} - V_t) - P_t(Q_{t+1} - Q_t)$$

$$= (V_{t+1} - V_t) - P_t Q_t \left[\frac{Q_{t+1} - Q_t}{Q_t}\right]$$

$$= (V_{t+1} - V_t) - V_t \left[\frac{P_b Q_{t+1} - P_b Q_t}{P_b Q_t}\right]$$

$$= (V_{t+1} - V_t) - V_t \left[\frac{\bar{V}_{t+1}}{\bar{V}_t} - 1\right]$$

(5-5)

and

$$
\text{(Price component)} \, {}^{**}_t = (V_{t+1} - V_t) - \left[P_t(Q_{t+1} - Q_t) + (P_{t+1} - P_t)(Q_{t+1} - Q_t) \right]
$$

$$
= (V_{t+1} - V_t) - P_{t+1}(Q_{t+1} - Q_t)
$$

$$
= (V_{t+1} - V_t) - P_{t+1}Q_{t+1} \left[\frac{Q_{t+1} - Q_t}{Q_{t+1}} \right]
$$

$$
= (V_{t+1} - V_t) - V_{t+1} \left[\frac{P_b Q_{t+1} - P_b Q_t}{P_b Q_{t+1}} \right]
$$

$$
= (V_{t+1} - V_t) - V_{t+1} \left[1 - \frac{\bar{V}_t}{\bar{V}_{t+1}} \right] ,
$$

(5-6)

where P_b equals the price in the base period and $\bar{V}_t$ equals

the constant dollar value for period t. The method of con-

structing these constant dollar value series is presented

in Appendices I and II.

The price component of equation (5-3) can now be de-

fined as the average of the above two price components:

$$
\text{(Price component)}_t = \frac{1}{2} \left[\text{(Price component)} \, {}^{*}_t + \text{(Price component)} \, {}^{**}_t \right] . \quad (5\text{-}7)
$$

In determining the price rate of return for farm real estate

V_t does not represent the value of farm real estate owned by

landlords as was the case while computing the income rate of return. It represents the value of all farm real estate. It will be assumed that the price rate of return for land-lords is the same as that for all farm real estate owners. As before, V_t for common stock represents the market value of the common stock in period t.

The price component, the change in value due to a price change, must then be adjusted for changes in the pur-chasing power of money. To do this, the percentage change in the Consumer Price Index is multiplied by the value of the asset at the beginning of each period. This is

$$V_t \left[\frac{CPI_{t+1} - CPI_t}{CPI_t} \right] = V_t \left[\frac{CPI_{t+1}}{CPI_t} - 1 \right] , \qquad (5\text{-}8)$$

where CPI_t equals the Consumer Price Index for period t. This gives the amount by which the current dollar value of the investment must change to maintain its original pur-chasing power.

Thus, the real wealth change in the value of the invest-ment is defined as

$$(\text{Real wealth change})_t = (\text{Price component})_t$$

$$- V_t \left[\frac{CPI_{t+1}}{CPI_t} - 1 \right] . \qquad (5\text{-}9)$$

This real wealth change is that portion of the change in value that is attributed to changes in investors' expectations of future income streams, future discount rates and future changes in prices. By adjusting the price component for changes in purchasing power the investment is forced to become a 100 percent hedge against inflation.

The price rate of return is then defined as

$$r_{p_t} = \frac{(\text{Real wealth change})_t}{V_t} , \qquad (5-10)$$

where r_{p_t} equals the price rate of return for period t.

The investment's total rate of return can now be computed:

$$r_t = r_{y_t} + r_{p_t} , \qquad (5-11)$$

where r_t equals the total rate of return for the investment in period t. The income rate of return and the price rate of return, and, therefore, the total rate of return, are calculated on the basis of current market values for the underlying assets.

The total rate of return as defined in equation (5-11) is based on the assumption that one dollar received in current income is equivalent to a real wealth gain of one dollar. As was discussed in the previous chapters, this was not necessarily the case. How an individual ranks current

income gains or losses with real wealth gains or losses
depends upon his investment goals and objectives. A more
general formulation for an investment's total rate of return
is

$$r_t = r_{y_t} + \lambda r_{p_t} , \qquad (5-12)$$

where λ is the relative importance of income in the form of
real wealth gains or losses compared to current income gains
or losses. Thus   will be a subjectively determined parameter
and may be different for every investor. In this study it
will be assumed that $\lambda = 1$ and equation (5-11) will be used.
In general, however, λ may be either greater than or less
than one depending on the relative weight one attaches to
the two sources of income.

Computation of the rates of return on farm real estate
is based on United States Department of Agriculture Census
of Agriculture aggregate data. The rates of return for
common stock are based on data obtained from Moody's
Investors Service, Incorporated. The common stock data are
for a random sample of one hundred common stocks listed on
the New York Stock Exchange. This constitutes a 7.9 percent
sample of all common stocks listed on the Exchange. A list
of the one hundred stocks in the sample is in Appendix III.[5]

[5]Using Moody's classification, this sample is com-
posed of 76 industrial, 11 public utility, 8 transportation
and 5 bank and finance common stocks.

Because aggregate United States data are used, just one rate of return for farm real estate for each year will be obtained. However, for common stock a rate of return will be available for each of the one hundred stocks. The aggregate rates of return for common stock will be calculated as a simple average of the one hundred individual common stock rates of return. This is akin to the investor allocating an equal amount to each common stock in the sample. These aggregate rates of return are those that would be available to an investor who randomly selected stocks from the New York Stock Exchange.

An alternative method of aggregation would be on the basis of the proportion of the current value of the common stock of each corporation to the current value of the complete sample of common stocks. This method would indicate the rate of return appropriate for all the investors of the sample common stocks viewed as a group.

The former aggregation method is used in this study because this is the same method that is used by Fisher and Lorie and there will thus be a check on the validity of this study's results.[6]

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[6]Fisher, L. and J. H. Lorie, "Rates of Return on Investments in Common Stocks," The Journal of Business, Vol. XXXVII, No. 1, January 1964.

CHAPTER VI

A COMPARISON OF COMMON STOCK AND
FARM REAL ESTATE INVESTMENTS

The previous chapter presented the theoretical frame-

work by which comparable rates of return for common stock

and farm real estate were calculated. This chapter will be

concerned with a comparison of the calculated rates of return

for the period 1950-1963.[1]

Comparable rates of return for
common stock and farm real estate

The mean, used in this study to represent the aggregate

rates of return for common stock, was compared with the median

to determine its value as a measure of central tendency.

In the three cases; for the income rate of return, the price

rate of return and the total rate of return; the null hypo-

thesis that both samples come from the same population, or

from equal populations, was accepted at the .01 level rather

than the alternative hypothesis that the two samples come

---

[1]Only the final results are presented here. Raw data
and intermediate calculations can be obtained from the
author for farm real estate and for each of the corpora-
tions in the random sample.

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from different or unequal populations. A nonparametric

test, the U-test, was used. This test is also known as the

Mann-Whitney test or the Wilcoxon test.[2] This result implies

that the mean is not biased as a measure of central tend-

ency by either extremely high or extremely low rates of

return.

Income rates of return. Table 6-1 and Figure 6-1 pre-

sent the results for the income rates of return for 1950-

1963. Both the mean and median rates of return for common

stock are shown. The mean income rate of return for the

fourteen year period for common stock is 9.31 percent and

is 4.41 percent for farm real estate. Not only is this mean

income rate of return higher for common stock but it is

higher in each of the fourteen years. A nonparametric,

U-test was conducted and the alternative hypothesis that

the mean (rather than the median) income rates of return

for common stock were greater than the income rates of

return for farm real estate was accepted at the .05 level

rather than the null hypothesis that the rates of return

were the same for the two investments. Both income rates

of return are stable when compared to the price and total

[2]Freund, John E., Mathematical Statistics, Prentice-
Hall, Inc., Englewood Cliffs, New Jersey, 1962, p. 290-
294.

Table 6-1:   Income Rates of Return for Common Stock
              and Farm Real Estate, 1950-1963

Year	Common Stock Median	Common Stock Mean	Farm Real Estate
1950	14.46%	17.67%	6.44%
1951	11.82	13.24	6.23
1952	10.54	12.33	5.63
1953	11.23	13.29	4.87
1954	9.58	8.78	4.86
1955	9.07	8.81	4.37
1956	8.78	8.07	4.44
1957	9.04	9.63	3.86
1958	7.15	7.44	4.12
1959	6.67	7.09	3.32
1960	6.97	5.56	3.23
1961	5.22	4.90	3.44
1962	6.55	6.59	3.52
1963	6.94	6.96	3.34
Mean		9.31	4.41

Figure 6-1: Income Rates of Return for Common Stock and Farm Real Estate, 1950-1963
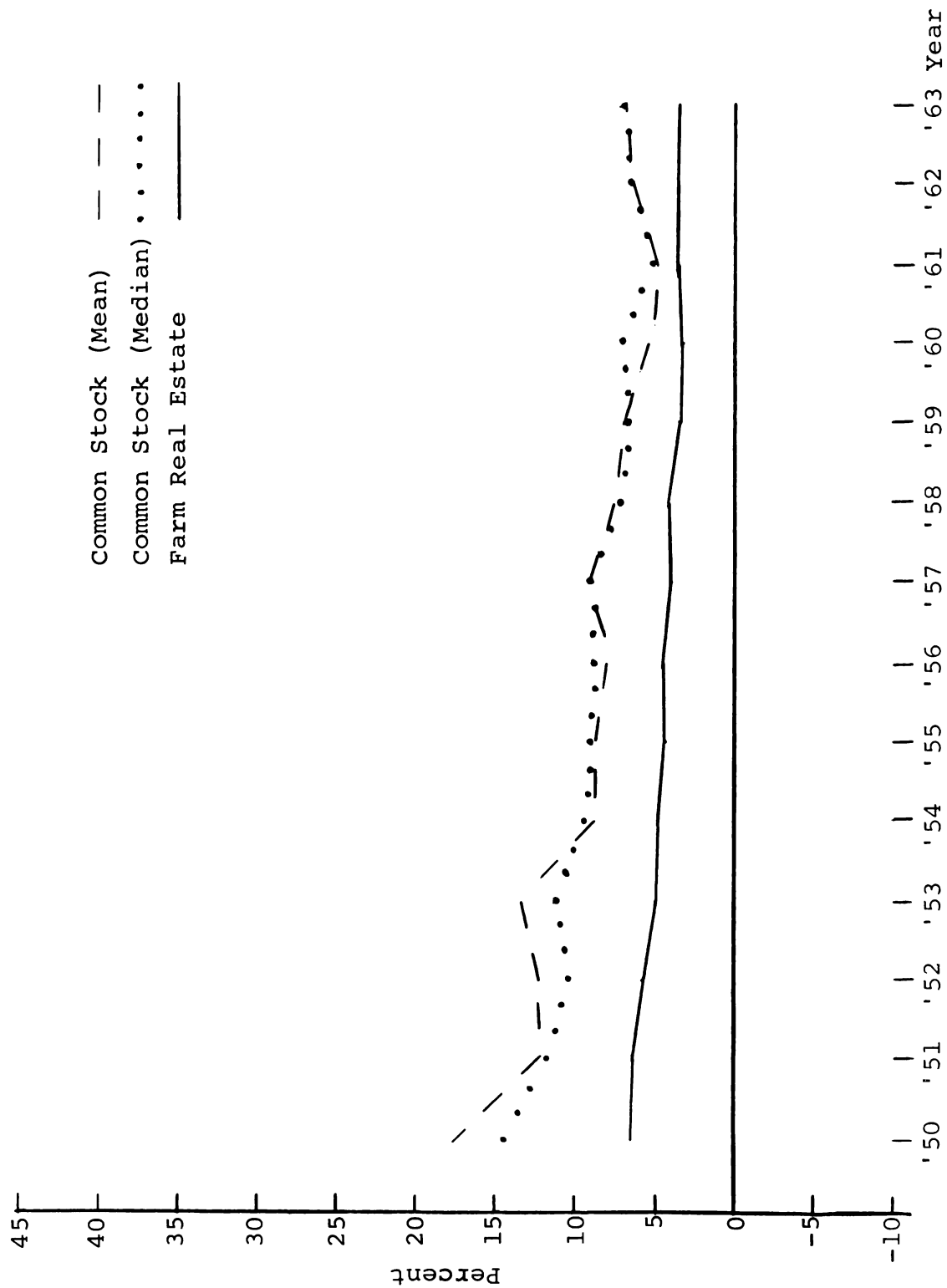
rates of return; however the income rate of return for common stock varies more than that of farm real estate. The standard deviation of the income rate of return for common stock is 3.59 and is only 0.95 for farm real estate. This greater stability for farm real estate may be due in part to the success of governmental income stabilization policies for agriculture. A least squares, trend line was computed for both rates of return. Both showed a negative trend in the income rate of return: -0.76 percent and -0.24 percent per year for common stock and farm real estate respectively.

Price rates of return. The results for the price rates of return for common stock and farm real estate for 1950-1963 are presented in Table 6-2 and Figure 6-2. The mean price rate of return for the whole period for common stock and farm real estate is 8.64 percent and 4.85 percent respectively. Again, a U-test was conducted and, at the .05 level, the null hypothesis that the rates of return from the two investments were the same was accepted against the alternative hypothesis that the common stock price rates of return were higher than those for farm real estate. The price rate of return for farm real estate was greater than the mean and median price rates of return for common stock in seven and nine years respectively out of the fourteen years studied. Both price rates of return show more

Table 6-2:   Price Rates of Return for Common Stock
and Farm Real Estate, 1950-1963

| | Common Stock | | Farm Real |
Year	Median	Mean	Estate
1950	1.53%	3.19%	13.53%
1951	- 2.38	- 1.23	9.42
1952	- 5.93	- 4.14	- 0.04
1953	13.10	16.03	- 2.55
1954	21.05	24.00	4.33
1955	- 0.90	9.53	3.98
1956	-10.19	- 7.67	6.92
1957	4.92	10.47	4.75
1958	19.44	34.72	7.29
1959	- 9.30	2.00	4.46
1960	18.88	35.53	0.88
1961	-10.38	-10.61	4.80
1962	1.47	2.41	4.22
1963	1.49	6.78	5.93
Mean		8.64	4.85

Figure 6-2: Price Rates of Return for Common Stock and Farm Real Estate, 1950-1963
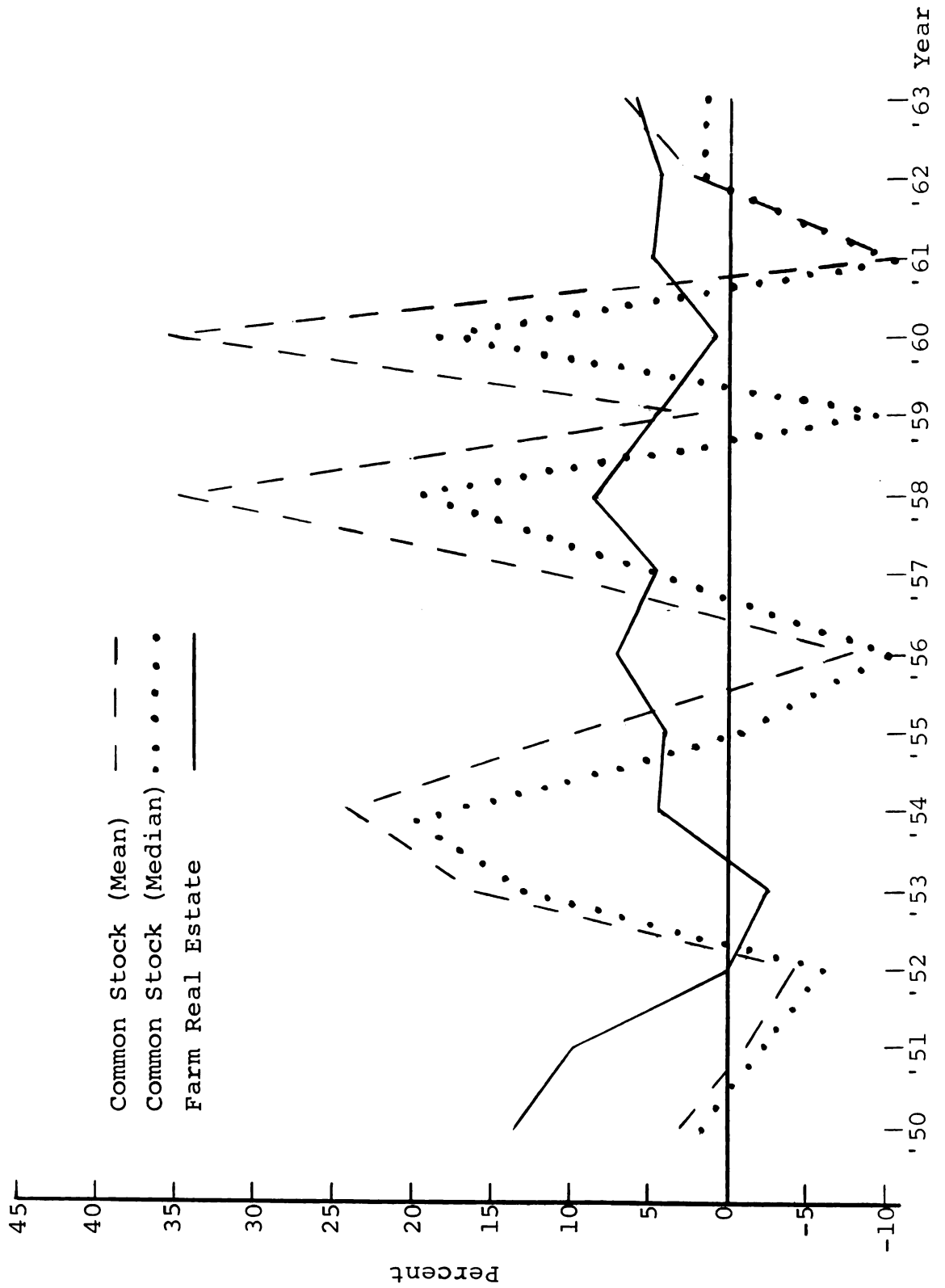
variation than the income rates of return. The standard
deviation for the common stock price rate of return is
14.45 and is 3.96 for the farm real estate price rate of
return. Since the hypothesis was accepted that the mean
price rates of return for the two investments were equal
at the .05 level another U-test could be conducted to test
the null hypothesis that the two price rates of return have
the same, or identical, populations against the alternative
hypothesis that the variation for common stock is greater
than that for farm real estate. The null hypothesis was
accepted at the .05 level. As above, a least squares, trend
line was fitted to the data. The regression showed a posi-
tive trend in the price rate of return for common stock of
0.33 percent per year and a negative trend for farm real
estate of -0.18 percent per year.

Total rates of return. Total rate of return results
are presented in Table 6-3 and Figure 6-3. For common stock
the mean total rate of return for the 1950-1963 period is
17.94 percent and for farm real estate it is 9.26 percent.
The U-test's null hypothesis that the two investments' total
rates of return are the same was rejected at the .05 level
against the alternative hypothesis that the total rates of
return for common stock were greater than the total rates
of return for farm real estate. The total rate of return

Table 6-3: Total Rates of Return for Common Stock and Farm Real Estate, 1950-1963

| | Common Stock | | Farm Real |
Year	Median	Mean	Estate
1950	17.37%	20.64%	19.97%
1951	12.16	12.01	15.65
1952	7.66	8.06	5.59
1953	27.04	29.32	2.32
1954	30.26	32.79	9.19
1955	8.02	18.34	8.35
1956	- 1.43	0.41	11.36
1957	15.15	20.10	8.61
1958	29.16	42.19	11.41
1959	- 2.60	9.09	7.78
1960	25.04	41.09	4.11
1961	- 6.67	- 5.76	8.24
1962	6.48	9.09	7.74
1963	7.90	13.74	9.27
Mean		17.94	9.26

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Figure 6-3: Total Rates of Return for Common Stock and Farm Real Estate, 1950-1963
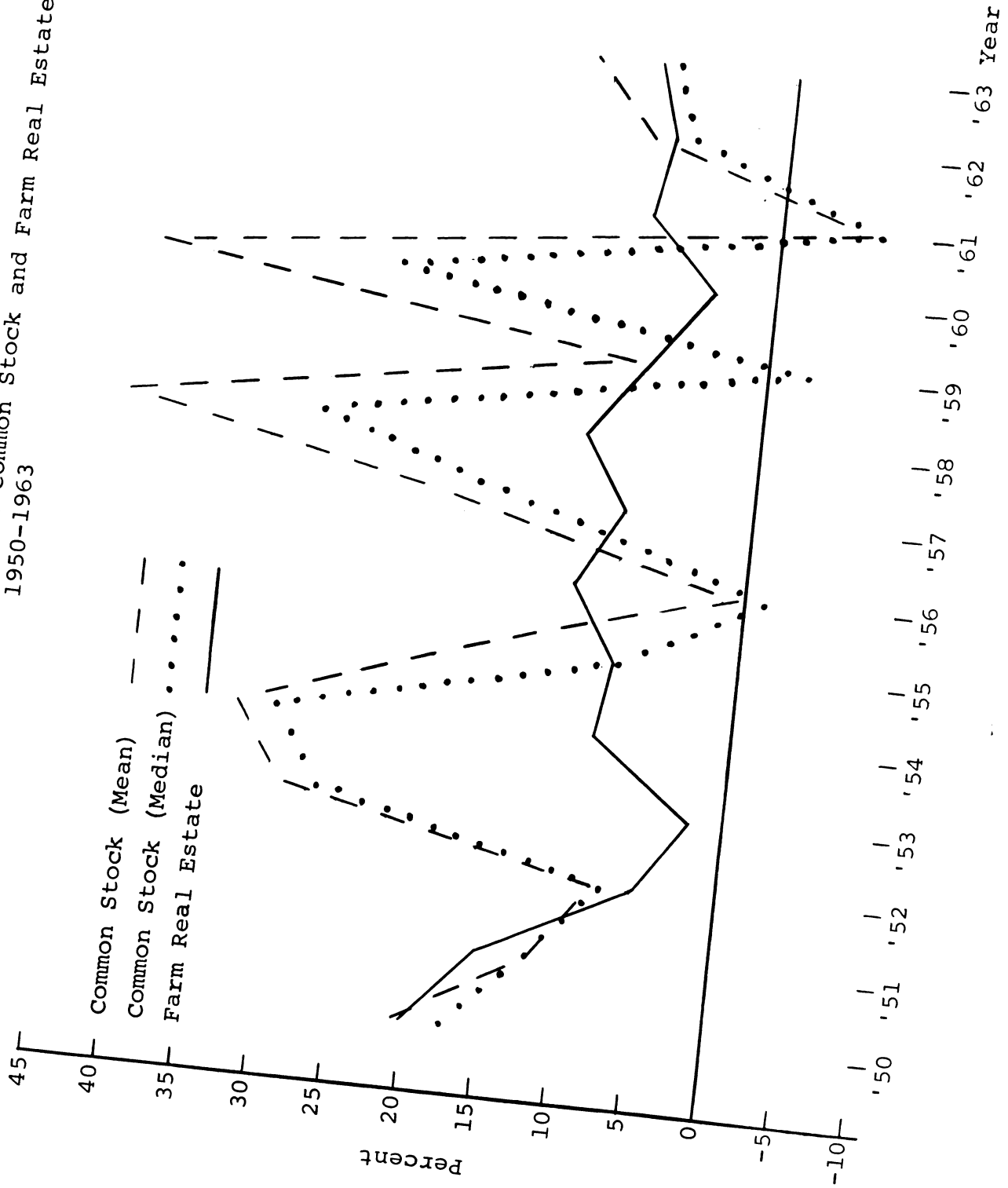
for farm real estate was greater than the mean total rate of return for common stock three years out of fourteen and greater than the median total rate of return for common stock eight years during the period. The standard deviation for the common stock total rate of return was 14.31 and 4.47 for the farm real estate total rate of return. Looking at Figure 6-2 and 6-3 it can be seen that the variations in the total rate of return are almost completely dominated by variations in the price rate of return. Again a least squares, trend line was estimated and both common stock and farm real estate showed a negative trend of -0.42 percent per year. However, the level of the common stock total rate of return trend line is higher than that of farm real estate.

A summary of the trend statistics for the different rates of return and different investments is presented in Table 6-4.

Disaggregation of common stock rates of return

The rates of return for common stock in this study are based on a random sample of one hundred stocks from the New York Stock Exchange. A question can be raised about these data. Is there a difference between the major classifications of the common stock? Since the rates of return were calculated for each individual common stock it was

Table 6-4: A Summary of the Rates of Return for Common
Stock and Farm Real Estate, 1950-1963

	Income Rate of Return		Price Rate of Return		Total Rate of Return	
	Common Stock	Farm Real Estate	Common Stock	Farm Real Estate	Common Stock	Farm Real Estate
Mean	9.31	4.41	8.64	4.85	17.94	9.26
Standard Deviation	3.59	0.95	14.45	3.96	14.31	4.47
$\hat{\alpha}^1$	15.01	6.21	6.17	6.20	21.09	12.41
$\hat{\beta}^1$	- 0.76	-0.24	0.33	-0.18	- 0.42	- 0.42

[1]Estimates of the parameters of the trend equation,
$r = \alpha + \beta t$, where r equals the appropriate rate of return
and t equals the year (1950 = 1, 1951 = 2, . . .).

possible to divide these one hundred common stocks into

four samples: five bank and finance, seventy-six industrial,

eleven public utility and eight transportation common stocks.

This classification corresponds to that used by Moody's

Investors Service. The method of aggregation was the same

as that used above. Results of this subclassification of

common stocks are presented in Tables 6-5, 6-6, 6-7, and

6-8 and Figures 6-4, 6-5, and 6-6. U-tests were conducted

at the .05 level to determine whether the different samples

belonged to the same population or different populations

with equal means. It was found that the income rate of

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Table 6-5:   Income Rates of Return for the Four Classes
              of Common Stock, 1950-1963

Year	Bank and Finance	Industrial	Public Utility	Transportation
1950	10.07%	18.37%	11.21%	27.26%
1951	8.75	13.09	9.94	23.84
1952	7.85	12.14	8.75	21.96
1953	8.80	13.17	8.53	26.31
1954	7.01	8.04	8.18	19.27
1955	6.02	8.45	8.02	16.19
1956	6.13	7.33	8.23	16.13
1957	6.47	9.54	8.74	13.66
1958	5.10	7.31	7.83	9.39
1959	4.98	7.11	7.21	7.84
1960	6.23	5.37	7.22	4.50
1961	4.43	5.11	6.15	1.15
1962	5.40	6.05	6.98	11.89
1963	5.96	6.74	6.44	10.33
Mean	6.66	9.13	8.10	14.98

Figure 6-4: Income Rates of Return for the Four Classes of Common Stock, 1950-1963

Table 6-6: Price Rates of Return for the Four Classes
of Common Stock, 1950-1963

Year	Bank and Finance	Industrial	Public Utility	Transportation
1950	2.12%	2.30%	3.70%	12.23%
1951	14.01	- 5.68	12.47	10.93
1952	- 0.88	- 4.83	7.26	-19.46
1953	30.59	14.69	20.81	12.33
1954	29.69	25.21	16.26	21.09
1955	0.97	11.56	6.62	- 1.88
1956	- 7.55	- 6.42	-10.42	-24.10
1957	12.59	10.39	15.44	2.21
1958	6.49	35.74	13.90	73.24
1959	1.81	3.95	3.51	-21.41
1960	79.00	38.10	16.89	5.94
1961	-14.36	-13.09	- 7.89	- 5.86
1962	1.18	- 1.18	9.59	27.49
1963	- 1.22	6.33	0.21	23.43
Mean	11.03	8.36	7.74	8.30

Figure 6-5: Price Rates of Return for the Four Classes of Common Stock, 1950-1963
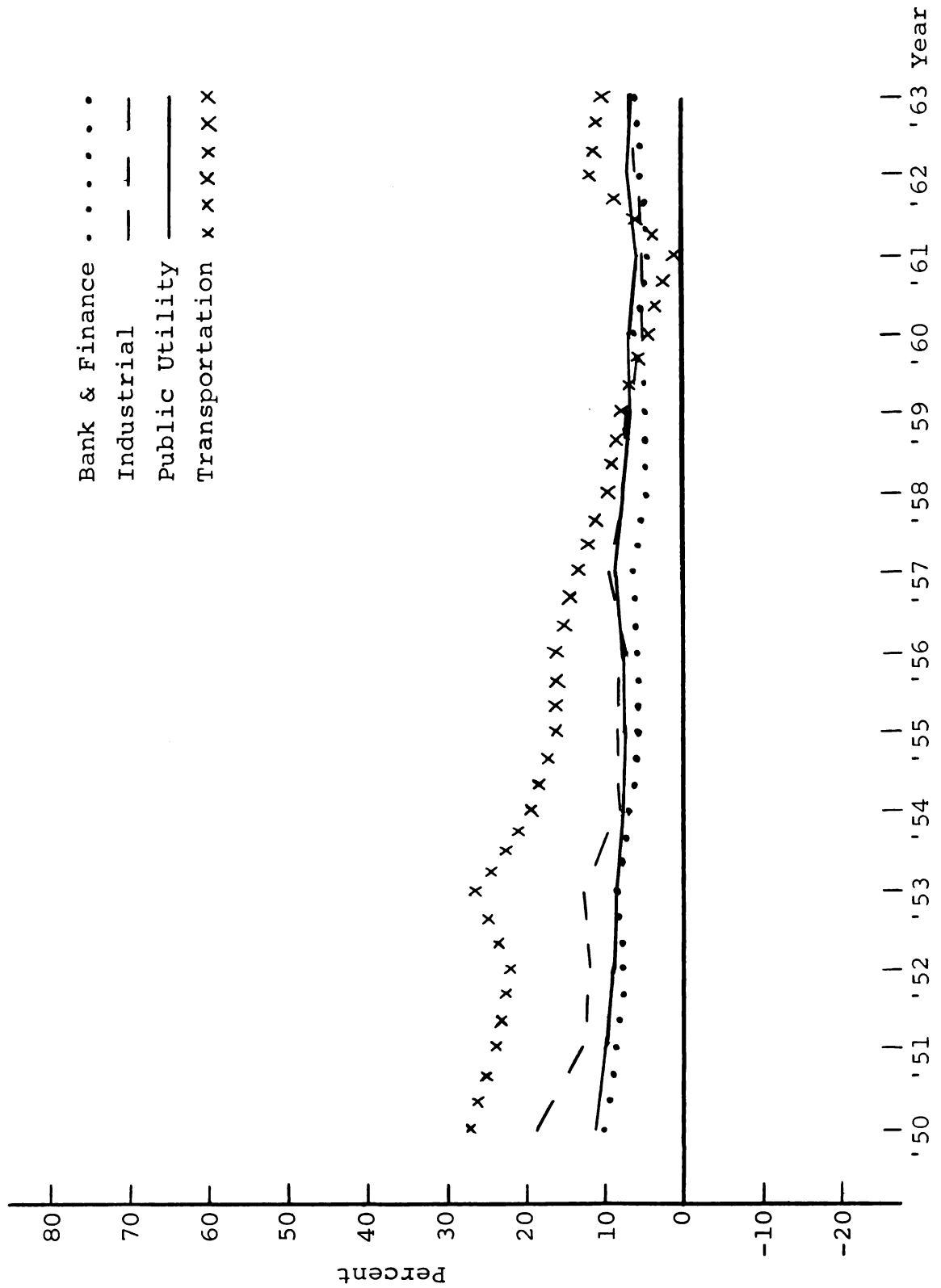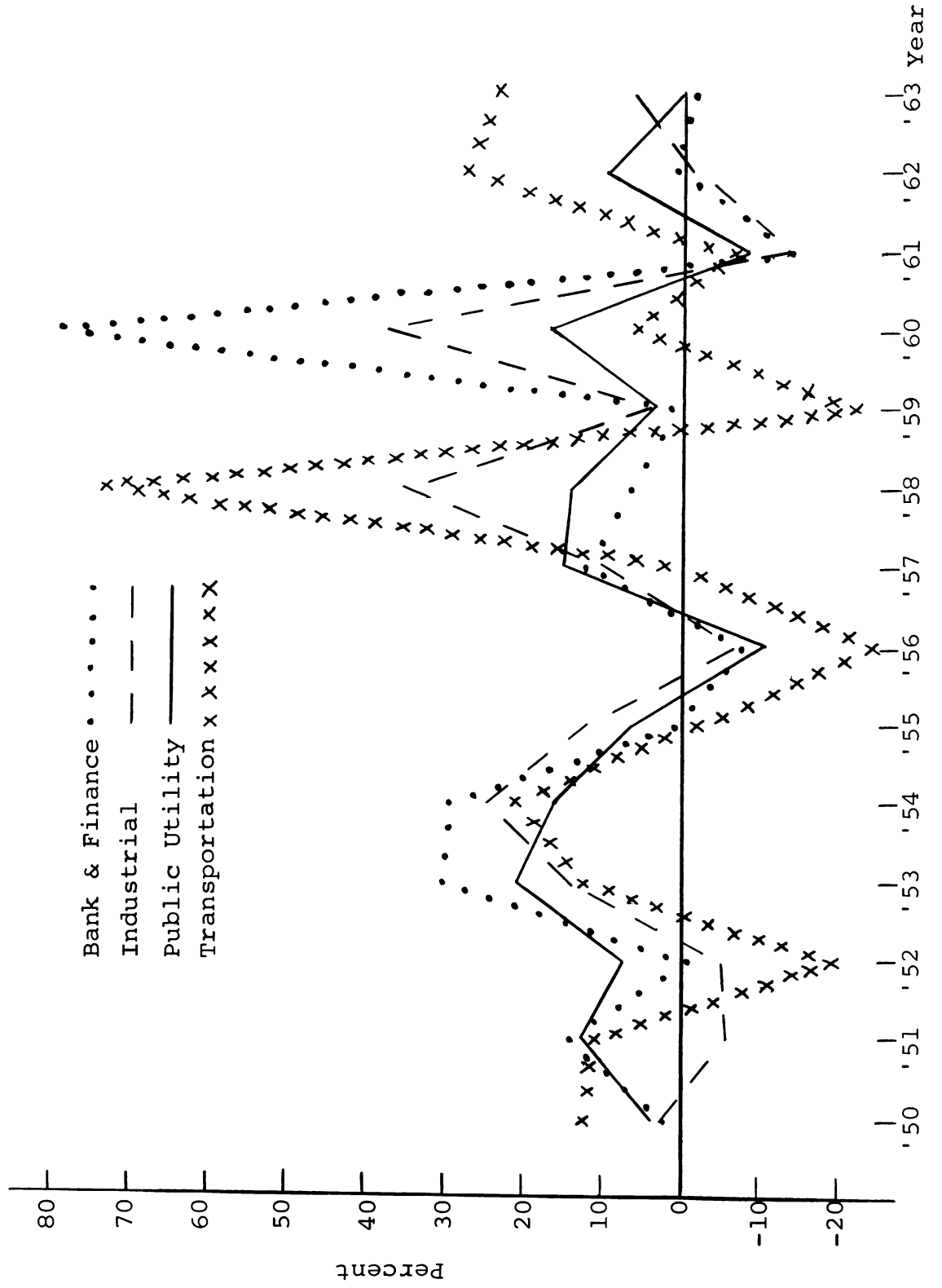
Table 6-7:   Total Rates of Return for the Four Classes
              of Common Stock, 1950-1963

Year	Bank and Finance	Industrial	Public Utility	Transportation
1950	12.19%	20.38%	14.91%	39.49%
1951	22.76	7.42	22.43	34.77
1952	6.97	7.31	16.01	2.51
1953	39.39	27.86	29.34	38.64
1954	36.70	33.25	24.43	40.36
1955	7.11	20.00	14.64	14.32
1956	- 1.42	1.78	- 2.19	- 7.82
1957	19.05	19.94	24.18	15.87
1958	11.59	43.09	21.73	82.64
1959	6.79	11.07	10.68	-13.57
1960	85.23	43.47	24.11	10.44
1961	- 9.93	- 6.16	- 1.74	- 4.71
1962	6.59	4.93	16.57	39.38
1963	4.74	13.20	6.64	33.77
Mean	17.70	17.68	15.84	23.29

Figure 6-6: Total Rates of Return for the Four Classes of Common Stock, 1950-1963
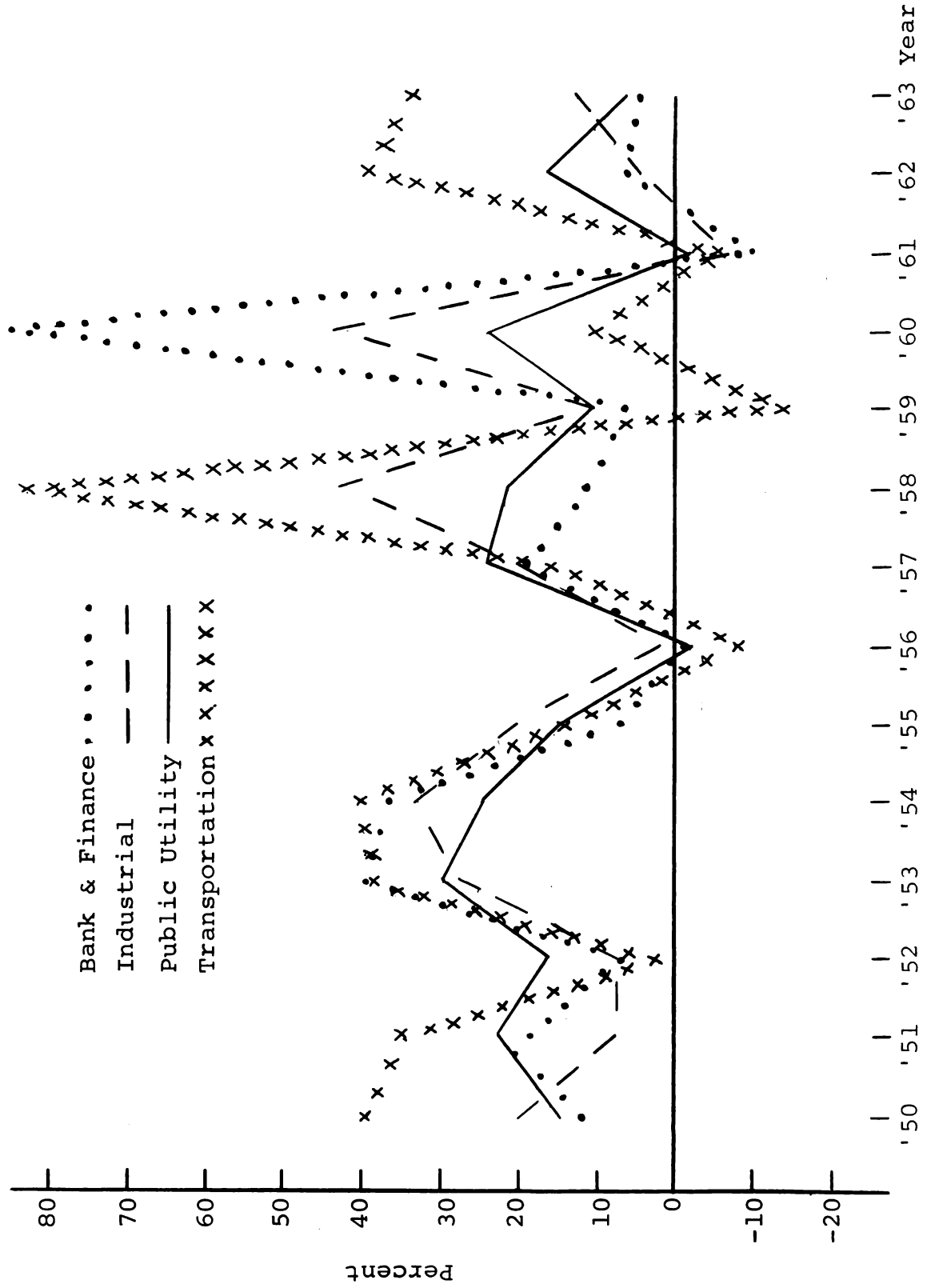
Table 6-8:   A Summary of the Rates of Return for the
             Four Classes of Stock, 1950-1963

	Income Rate of Return	Price Rate of Return	Total Rate of Return
Mean			
Bank and Finance	6.66	11.03	17.70
Industrial	9.13	8.36	17.68
Public Utility	8.10	7.74	15.84
Transportation	14.98	8.30	23.29
Standard Deviation			
Bank and Finance	1.65	23.25	25.92
Industrial	3.77	15.62	15.03
Public Utility	1.35	9.27	11.15
Transportation	8.06	24.90	25.80
$\hat{\alpha}$ [1]			
Bank and Finance	9.13	12.16	21.37
Industrial	14.91	5.51	20.23
Public Utility	10.35	12.02	23.19
Transportation	27.73	0.95	28.69
$\hat{\beta}$ [1]			
Bank and Finance	- 0.33	- 0.15	- 0.49
Industrial	- 0.77	0.38	- 0.34
Public Utility	- 0.30	- 0.57	- 0.98
Transportation	- 1.70	0.98	- 0.72

[1]Estimates of the parameters of the trend equation,
$r = \alpha + \beta t$, where r equals the appropriate rate of return
and t equals the year (1950 = 1, 1951 = 2, . . .).

return on transportation common stocks was the largest of the four classifications and the rate of return on bank and finance common stocks was the lowest. There was no significant difference between the income rate of return for public utility and industrial common stock. There was no significant difference between the four classifications for either the price rates of return or the total rates of return.

Comparison with the Fisher
and Lorie rates of return

It was mentioned above that the rates of return for common stock calculated in this study could be compared with those computed by Fisher and Lorie. A comparison of the rates of return computed in both studies is presented in Table 6-9. Only the total rates of return are presented as these are the only rates of return that are comparable A U-test was conducted and the null hypothesis that the two rates of return are the same was rejected at the .05 level against the alternative hypothesis that this study's total rates of return are larger than Fisher and Lorie's. A possible reason for this is suggested in below.

Biases in the calculated rates of return

Certain biases may be present in all of the rates of return calculated in this study. These rates of return are

Table 6-9:   A Comparison with the Fisher and Lorie Total
Rates of Return on Common Stock, 1950-1960

Year	Total Rate of Return	
	Kost's[1]	Fisher and Lorie's[2]
1950 - 1952	13.57%	12.5%
1950 - 1954	20.56	17.9
1950 - 1956	17.37	17.0
1950 - 1958	20.43	16.5
1950 - 1960	21.28	14.8
1955 - 1956	9.38	6.4
1955 - 1957	12.95	- 3.7
1955 - 1958	20.26	13.0
1955 - 1959	18.03	14.0
1955 - 1960	21.87	11.2

[1]The rates of return presented here are the means of
the yearly rates of return for the appropriate time period.

[2]Fisher, Lawrence and James H. Lorie; "Rates of
Return on Investments in Common Stocks," The Journal of
Business, Vol. XXXVII, No. 1, January 1964.

The rates of return presented here are rates of return
on investment in common stocks listed on the New York Stock
Exchange with reinvestment of dividends.   The figures are
percent per annum compounded annually rates for tax exempt,
cash-to-portfolio portfolio.

not net rates of return. They do not reflect any commission

charges nor any tax deductions on the investment income.

The only way that taxes and commission charges could have

been considered was to follow a cash-flow type analysis for

differing income classes as was done by Fisher and Lorie in

their study. This could be a partial explanation of why the

total rate of return calculated in this study was greater

than that calculated by Fisher and Lorie.

The common stock rates of return may also show an up-

ward bias that is not present in the farm real estate rates

of return. Farm real estate rates of return are based on

aggregate United States data while common stock rates of

return are not based on data from the whole population of

common stocks. Common stock rates of return are based on

a random sample of stocks taken from a larger, nonrandom

sample of common stocks. The sample consists of only common

stocks listed on the New York Stock Exchange. The New York

Stock Exchange tends to have the common stocks of the larger,

older and stronger corporations. Because the stocks in this

study are listed on a stock exchange they must also meet the

requirements of the Securities Exchange Commission. To the

extent that these corporations have higher rates of return

the rates of return computed in this study are biased upward.

This is not a serious bias, however, as the average common

stock investor will seldom consider unlisted common stocks.
Therefore, while this study's rates of return may not reflect
the average for the whole population, they may reflect the
most relevant portion of the population for the average
investor.

For the same reason there will be a downward bias in
the farm real estate rates of return. The rates of return
for farm real estate are based on data from all farm real
estate. This includes the best to the most marginal agri-
cultural lands. To the extent that the inclusion of all
the marginal, low return farms lowers the increases in the
value of farms and the net rents the farm real estate returns
are underestimated. Above it was said that the "listed bias"
for stocks was not a serious bias because the listed common
stocks reflected the most relevant portion of the population.
In the case of farm real estate the relevant portion for the
investor in farm real estate should not be the whole popu-
lation but that portion of farm real estate equivalent to
the listed common stocks: the "better" farms.

A fourth possible bias may exist in the common stock
rates of return--a "success" bias. The random sample of
common stocks was chosen from those common stocks listed
on the New York Stock Exchange in 1964. Therefore, no
corporation that went bankrupt in the 1950-1964 period was

included in this sample--only successful corporations were included in the random sample. This does not mean that new corporations were excluded however. In fact several new or newly listed corporations were included in the one hundred common stocks chosen. Will this "success" bias alter the results? This will depend on the number of corporations listed on the New York Stock Exchange going bankrupt during the period of this study. This has been negligible in the past fifteen years.

A final point should be mentioned concerning the common stock data. No adjustments were made in the data to account for different accounting practices used by different corporations. Data were taken from the corporate accounting statements without alterations. Any attempt to render the corporate data more comparable would have involved many subjective decisions and was beyond the scope of this study.

CHAPTER VII

SUMMARY AND CONCLUSIONS

Advantages and disadvantages of farm real estate and common stock were discussed in Chapters III and IV. Since they are both equity investments, these two classes of investments have many similar characteristics. Both are earning assets and are subject to business, market and purchasing power risk.

There are only three major differences between these two investments. The first concerns the relative marketability of the two. Farm real estate is an immobile and unstandardized product and is therefore traded in relatively unorganized, low volume, local markets. On the other hand, common stocks, which are more standardized, are sold on large, well organized, national, or at least regional, markets in large numbers. This difference in marketability affects relative price fluctuations and collateral values of the two assets.

The two investments are also differentiated by the differing degree of ownership. Farm real estate is generally wholly owned by an investor while the investor in common

stock is normally a fractional owner. This, in large part,
is due to industry being organized in a corporate form
which, in turn, is due to the relatively large amount of
capital necessary to organize and operate a business in the
nonfarm sector of the economy over that needed for a farm
business. This capital can be raised easier by allowing
multiple ownership and the most efficient method for achieving
this is the corporate form of business. A by-product of this
form of organization is the limited liability aspect of com-
mon stock. Theoretically this form of organization can also
be utilized for farm real estate investments; however, it
has seldom been done. Also, a corporation may be wholly
owned by a single investor and any farm real estate advant-
ages due to full ownership would then accrue to the common
stockholder. This difference determines the investor's
diversification policy and the size of his minimum investment.

Finally, investors' attitudes toward these two types
of investment differ. There still exists, in many minds,
an agricultural fundamentalistic image for farm real estate.
In fact most individuals have a fairly distinct bias either
for or against farm real estate. In general, a comparable
influence doesn't exist for common stock.

The investment decision process is divided into two
parts: the formulation of investment goals and the analysis

and selection of the equity asset portion of the investor's
portfolio. The investor must have goals that are compatible
with his investment philosophy, temperament and personality.
On the basis of these goals the investor must decide on an
investment policy ranging between the extremes of current
income only and only growth or capital gains.

Both investments should be evaluated in terms of their
discounted present value. This capitalization process should
be conducted separately for the expected future stream of
income and for the expected future real wealth changes.
These are computed separately to allow the investor to adjust
for his differing preferences for these two features of both
investments.

These discounted present values determine the invest-
ments' subjective value. This subjective value tells the
investor what the investment is "worth" to him. He then
must compare this with the market value of that same invest-
ment, what must be paid to have the ownership transferred
to him, to determine whether this asset should be added to
his portfolio.

The investor may follow a model of satisficing behavior,
rather than one of maximizing behavior, in determining which
specific farm or stock to add to his portfolio. To follow
a maximizing policy the investor would invest, <u>ceteris</u> <u>paribus</u>,

when the difference between the subjective value and the market value is maximized. This would necessitate analyzing all relevant alternatives which, because of uncertainty and the costs of information and learning, may be impractical. Instead an investor that follows a satisficing model starts with a first approximation list of prospective investments and conducts more extensive analysis to determine their subjective values. Investment alternatives are analyzed until an investment is found in which the difference between the subjective value and the market value is positive. The investor has then found an asset that to him "is worth more than it is selling for" and will, therefore, invest in it. Because of the added costs involved in attempting to find better investments he will stop searching and be "satisfied" with this investment.

Now that the investment characteristics and investing policies for the two types of equities have been discussed, a final question remains to be answered. Is there a significant difference in the rates of return for the two equity classes?

In order to answer this question three rates of return were calculated for farm real estate and common stock for the period 1950-1963. The total rate of return was composed of two separate components: an income rate of return and a price rate of return.

The income rate of return for farm real estate and common stock is the ratio of net earnings to the value of the investment. For common stocks this means that net corporate earnings are used instead of dividends. This is necessary to make the common stock income rate of return comparable to that for farm real estate. The average income rate of return for farm real estate over the fourteen year period is 4.41 percent and 9.31 percent for common stock. A U-test showed that the income rate of return for common stock was significantly higher than that for farm real estate. In fact the income rate of return for common stock was larger than that for farm real estate in each of the fourteen years. Both income rates of return showed a negative trend over the period with the largest negative trend for common stock. Common stock income rates of return also showed a larger variation than farm real estate.

The price rate of return is a measure of the change in the real wealth or purchasing power of the investment. It is computed by dividing a change in the value of an investment into its two component parts: that change in value that is due to a change in the quantity of the investment and that portion that is due to a change in the price of the investment. This price component, adjusted for changes in the purchasing power of money, divided by the value of the investment is the

price rate of return for the investment. Adjusting the price
component for changes in the purchasing power of money yields
price rates of return that an investor who does not have money
illusion would consider relevant. If investors did have money
illusion this adjustment would not have been made and the com-
puted price rates of return would have been larger than reported
in this study. The average price rate of return for farm real
estate and common stock was 4.85 percent and 8.64 percent respec-
tively. A U-test showed that there was no significant differ-
ence between the rates of return for the two equity classes.
The variation in price rates of return was larger than that
for the income rates of return, but there was no significant
difference in the standard deviations of the two price rate
of return series. A slight negative trend was apparent for
the farm real estate price rate of return and a small positive
trend was found for common stock.

The total rate of return calculated in this study was
the sum of the corresponding income and price rates of return.
The average total rate of return for common stock was 17.94
percent and 9.26 percent for farm real estate. A U-test
showed that the common stock total rate of return was sig-
nificantly larger than that of farm real estate. Both total
rates of return showed identical trends but common stock had
a larger variation around this trend line.

These three rates of return are presented separately so that investors may compare the relative merits of income and capital gains. On the basis of tax considerations alone an equal return in the form of price rate of return has more utility than that same return in terms of income rate of return. This is due to differences in the income and capital gains tax rates. On this basis people in different income classes will place differing relative importances on the two types of re-turns. Above, however, it was assumed that one dollar received in current income is equivalent to a one dollar real wealth gain.

In summary, the rates of return for common stock are larger than comparable rates of return for farm real estate. However, common stock returns have larger fluctuations or greater risk than returns from farm real estate. Also the discussion in the previous chapter would indicate that the spread between the farm real estate and the common stock rates of return is not as great as calculated. These results are for the 1950-1963 period and are not meant to be predictions for the future. Results in the future will depend on future economic conditions.

Will the rational investor then consider farm real estate investments when they yield a lower rate of return? Again the answer is "that depends." There are two situations

in which the investor may be willing to accept a lower net
return on his investment. The first concerns the degree of
leverage one can achieve with the two classes of equities.
If the investor is not allowed to invest borrowed money, the
investor would not invest in farm real estate given this
study's results. However, since an investor's leverage factor
may be greater for farm real estate, he may be willing to
accept a lower rate of return on the value of the total in-
vestment in order to obtain a higher rate of return on his
invested capital. Secondly, the investor may invest in the
lower yielding farm real estate if there are nonmonetary
considerations. As discussed before, he may allow noneconomic
factors to influence his investment decisions.

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APPENDICES

CONSTRUCTION OF THE CONSTANT DOLLAR VALUE
SERIES FOR FARM REAL ESTATE

The constant dollar value series for farm real estate
is composed of two parts: a constant dollar value series for
farm land and a constant dollar value series for farm buildings.

The constant dollar value series for farm land was com-
puted for each census year for each state. The intercensus
year values were estimated on the basis of a linear interpola-
tion between the census years.

Farm land was separated into five groups: (1) cropland
not irrigated, (2) cropland irrigated, (3) pasture irrigated,
(4) pasture not irrigated and (5) other land. Relative price
weights for the base period were computed in terms of the price
of pasture not irrigated. The sum of these relative prices
times the number of acres in each land group will thus give
the number of pasture acre equivalents. These pasture acre
equivalents represent the number of acres of farm land in a
state in terms of the amount of acres of nonirrigated pasture
land they represent. By converting to a common denominator,
nonirrigated pasture acres, the problem of quality differences
is circumvented. The pasture acre equivalents are computed
as follows:

$$N_{jt} = \sum_{i=1}^{5} \frac{P_{ijb}}{P_{4jb}} Q_{ijt}, \qquad (I\text{-}1)$$

where i represents the farm land group defined above, j equals

the state, t equals the census year and b equals the base year.

Thus, N_{jt} represents the number of pasture acre equivalents

for state j in census year t; P_{ijb} equals the average price

per acre for the farm land group i in state j for the base

year b; and Q_{ijt} depicts the number of acres in farm land group

i in state j and census year t.

The price per pasture acre equivalent in the base period

for each state can be defined as:

$$P_{jb} = \frac{L_{jb}}{N_{jb}}, \qquad (I-2)$$

where L_{jb} is the current dollar value of farm land in state j

in the base year. Now utilizing this constant pasture acre

equivalent base period price and the pasture acre equivalents,

the constant dollar value of farm land for each state for the

census years can be determined:

$$\overline{L}_{jt} = P_{jb}N_{jt}. \qquad (I-3)$$

After the constant dollar value series for farm land for each

state and each year is determined it can be summed over all

states to determine the constant dollar value series for the

United States:

$$\overline{L}_t = \sum_{j=1}^{48} \overline{L}_{jt}. \qquad (I-4)$$

The constant dollar value series for farm buildings is

built on a perpetual inventory type construction. To the

value of the farm buildings in the base year is added the sum

of the deflated net investment in farm buildings for the inter-

vening years. This gives the constant dollar value series for

farm buildings in period t:

$$\bar{B}_t = B_b + \sum_{k=1}^{t} \frac{I_k}{BMPI_k}, \qquad (I-5)$$

where B_b equals the value of farm buildings in the base period,

I_k represents the annual net investment in farm buildings in

current dollars in period k and $BMPI_k$ represents the Building

Materials Price Index for period k (k=1...t).[1]

The constant dollar value series for period t for farm

real estate can now be defined as:

$$\bar{V}_t = \bar{L}_t + \bar{B}_t. \qquad (I-6)$$

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[1]Net investment in farm buildings is defined as the
gross capital expenditures on farm operator's dwellings,
service buildings and other structures less depreciation of
these structures and an allowance for accidental damage and
the Buildings Materials Price Index is the mean of the House
Building Materials Price Index and the Service Buildings and
Other Structures Materials Price Index.

APPENDIX II

CONSTRUCTION OF THE CONSTANT DOLLAR
VALUE SERIES FOR COMMON STOCK

The constant dollar value series for common stock is a
type of perpetual inventory series. It will be assumed that
the value of the outstanding common stock in the first year
of this study is a good estimate of the "real" value of the
investment in the corporation in that year. To convert this
value to constant dollar terms it will be deflated by the
Wholesale Price Index for that year. The constant dollar
value of the common stock investment in any succeeding year
will be this deflated value of the outstanding common stock
in the first year plus the sum of the deflated changes in
retained earnings for the corporation for the intervening
years. That is:

$$\overline{V}_t = \frac{V_1}{WPI_1} + \sum_{k=1}^{t-1} \frac{R_k}{WPI_k} , \qquad (II-1)$$

where $\overline{V}_t$ equals the constant dollar value of common stock in
period t, V_1 equals the current dollar value of the oustanding
common stock in period one, WPI_k represents the Wholesale
Price Index for period k and R_k equals the retained earnings
of the corporation for period k $(k=1 . . . t-1)$.

APPENDIX III

CORPORATIONS INCLUDED IN THE RANDOM
SAMPLE OF COMMON STOCKS[1]

1. Aeroquip Corporation (Aeroquip)

2. American Investment Co. (Am Inves)

3. American Machine & Foundry Company (Am M Fd)

4. American Sugar Company (Am Sugar)

5. Ametek, Incorporated (Ametek)

6. AMP Incorporated (AMP Inc.)

7. Arvin Industries, Inc. (Arvin Ind)

8. Associated Spring Corp. (Assd Sprg)

9. Atlantic City Electric Co. (At City El)

10. Avco Corporation (Avco Corp)

11. Baxter Laboratories, Inc. (Bax Lab)

12. Boeing Company (Boeing)

13. Briggs Manufacturing Co. (Briggs Mfg.)

14. Bulova Watch Co., Inc. (Bulova)

15. Carrier Corporation (Carrier)

16. Chemway Corp. (Chemway)

17. Chicago Great Western Railway Co. (Chi Gt Wn)

18. Chris-Craft Industries, Inc. (Chris Crft)

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[1]The symbols in the brackets are the corporation
abbreviations used in The Wall Street Journal.

19. The Columbia Gas System, Inc. (Col Gas)

20. Commercial Credit Co. (Coml Cre)

21. Continental Air Lines, Inc. (Cont Air)

22. Continental Motors Corporation (Cont Mot)

23. Controls Co. of America (Controls)

24. Deere & Company (Deere)

25. Duffy-Mott Co., Inc. (Duffy Mott)

26. Food Giant Markets, Inc. (Fd Gt Mkt)

27. General Electric Company (Gen Elec)

28. Gerber Products Co. (Gerber Pd)

29. Globe-Union Inc. (Globe Un)

30. Goodyear Tire & Rubber Company (Goodyr)

31. The Great Atlantic & Pacific Tea Company, Inc. (Gt A & P)

32. Hallicrafters Co. (Hallicraft)

33. Hayes Industries, Inc. (Hayes In)

34. Helene Curtis Industries, Inc. (Hel Curt)

35. Helme Products, Inc. (Helme Prod)

36. Heublein, Inc. (Heublein)

37. Holt, Rinehart & Winston, Inc. (Holt R & W)

38. Hudson Bay Mining and Smelting Co., Limited (Hudsn Bay)

39. Interstate Department Stores, Inc. (Inters DS)

40. Jewel Tea Co., Inc. (Jewel T)

41. The Kendall Company (Kendall)

42. Kinney Service Corp. (Kinney S)

43. Livingston Oil Co. (Livings O)

44. Loral Electronics Corp. (Loral Corp)

45. Marshall Field & Company (Marsh Fd)

46. Masonite Corp. (Masonite)

47. The Maytag Company (Maytag)

48. McCrory Corporation (McCrory)

49. McDonnell Aircraft Corporation (McDon Air)

50. McIntyre Porcupine Mines, Limited (McIntyre P)

51. Arthur G. McKee & Co. (McKee)

52. McNeil Corp. (McNeil)

53. Minnesota Power & Light Company (Minn P L)

54. Mueller Brass Co. (Mueller)

55. National Airlines, Incorporated (Nat Airl)

56. National Aviation Corp. (N Aviat)

57. National Fuel Gas Company (Nat Fuel)

58. National Steel Corporation (Nat Steel)

59. National Tea Co. (Nat Tea)

60. Niagara Share Corp. (Niag Shr)

61. New Jersey Zink Co. (N J Zink)

62. New York Shipbuilding Corporation (N Y Shipbldg)

63. North American Coal Corp. (N Am Coal)

64. Norwich Pharmacal Co. (Norwch)

65. Ohio Edison Company (Ohio Edis)

66. Oklahoma Natural Gas Company (Ok N Gas)

67. Owens-Illinois, Inc. (Owens Ill)

68. Oxford Paper Co. (Oxfd Pap)

69. Pacific Petroleums Ltd. (Pac Petrol)

70. Phillips-Van Heusen Corp. (Phil VH)

71. Plough, Inc. (Plough)

72. Puget Sound Power & Light Company (Pug SPL)

73. Rayonier, Incorporated (Rayonier)

74. Rheem Manufacturing Co. (Rheem Mf)

75. Richfield Oil Corporation (Riche Oil)

76. Rochester Gas & Electric Corporation (Roch GE)

77. Ronson Corp. (Ronson)

78. Ryan Aeronautical Co. (Ryan Aero)

79. Ryder Systems, Inc. (Ryder Syst)

80. Seaboard Air Line Railroad Company (Seab Al)

81. Seagrave Corp. (Seagrave)

82. Seeburg Corp. (Seeburg)

83. Seiberling Rubber Co. (Seiber Rub)

84. Soo Line Railroad Company (Soo Line)

85. Southern Natural Gas Company (Sou Nat G)

86. Southern Railway Company (South Ry)

87. Standard Kollsman Industries Inc. (Std Kollsman)

88. Standard Oil Company (New Jersey)(Std Oil NJ)

89. Suburban Gas (Subur Gas)

90. Sunbeam Corporation (Sunbeam)

91. Sunshine Mining Co. (Sunsh M)

92. Texas Eastern Transmission Corporation (Tex East T)

93. Trans-World Financial Co. (Tra W Fin)

94. Udylite Corporation (Udylite)

95. United Fruit Company (Un Fruit)

96. United States Tobacco Company (US Tob)

97. Universal Oil Products Co. (Univ Oil Prod)

98. Waldorf Systems Inc. (Waldorf Syst)

99. Washington Gas Light Company (Wash Gas)

100. Wheeling Steel Corporation (Wheel Stl)