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**Target Group:** Year II Semester II-- Students

# CHAPTER ONE

# 1. The Basics of Rural Finance

## 1.1 Meaning and Scope of Rural Finance

Terminologies related to rural finance should be defined to avoid ambiguities in understanding the whole concept of finance in agriculture. In an attempt to be clear with terminology, we use the following definitions for the financial sector to differentiate agricultural finance from the rural finance.

There is great deal of ambiguity among finance, rural finance, agricultural finance and microfinance. However, rural finance is an important subject matter for small scale farmers and modern farming businesses. Recently, rural and agricultural finance have changing and emerging paradigm whereby various facts and opinions are commonly understood and developed as to how to bring about development and decrease poverty in rural areas of least developing countries. Even if, main focus of course is rural finance but we should know about definition of others. Let us define each

**Finance** is narrowly interpreted as capital in monetary form that is in terms of funds lent or borrowed, normally for capital purposes, through financial markets or institutions.

# Agricultural finance is defined as a subset of rural finance dedicated to financing agricultural related activities such as input supply, production, distribution, wholesale, processing and marketing. Agricultural finance is the economic study of the acquisition and use of capital in agriculture. It deals with the supply of and demand for funds in the agricultural sector of the economy. Knowledge of fundamental economic and management principles and analytical procedures facilitates obtaining control over capital and using it efficiently.

**Microfinance** is the provision of financial services for poor and low income people and covers the lower ends of both rural and agriculture finance.

**Rural finance**, as defined by the World Bank, is the provision of a range of financial services such as savings, credit, payments and insurance to rural individuals, households, and enterprises, both farm and non-farm, on a sustainable basis. It includes financing for agriculture and agro processing. At the core of rural finance are the *financial intermediaries* that deliver financial services within rural areas.

## 1.2. Roles of Rural Finance and Financial Systems

What are the roles of finance for growth and development? How does the duty of finance be smoothly operated? Finance and financial systems are highly related concepts. Acquisition of finance for some business objectives will be effective if the acquired finance is managed by appropriate financial systems.

Financial analysis related to farm income, repayment capacity, and risk management indicates the total amount of capital the farm business can profitably and safely use. Information and knowledge on the legal aspects of borrowing, leasing, and contractual arrangements helps the farmer select the means of acquiring and controlling resources that will contribute most to the farming operation.

### 1.2 .1 Role and Functions of Financial Systems

The financial system plays a key role in a market economy because of its importance in mobilizing and allocating resources to finance agricultural investment projects that are necessary for economic development. A poorly functioning financial system can be a major constraint to private investment and entrepreneurship without which growth would be difficult to sustain over the long run. Investment can be constrained by low returns on investment or high cost of finance. In turn, high cost of finance can be traced to bad external finance or bad local finance, while bad local finance can be caused by low savings or poor financial intermediation.

Financial systems ease market frictions and in the process influence the allocation of resources across space and time. The costs of acquiring information, enforcing contract, and making transactions create incentives for the emergence of particular types of financial contracts, markets and intermediaries.

Financial systems have many functions contributing to growth and development of a country. The five key functions of financial systems that are essential to growth can be identified as follows:

1. Produce information about possible investments and allocate capital;
2. Monitor investments and exert corporate governance;
3. Facilitate the trading, diversification, and management of risk;
4. Mobilize and pool savings; and
5. Ease the exchange of goods and services.

### 1.2 .2 Role of Rural Finance (why rural finance?)

From the standpoint of rural development and poverty reduction if and only of when properly implemented, makes a contribution to all three of these roles:

1. **Achievement of economic growth**

Access to a range of financial services is necessary in order to achieve economic growth, including growth in rural areas. Growth in agriculture as well as other rural economic activities can be substantially enhanced if there is reliable and sufficient financing, and sustainable financial intermediation, in addition to many other factors.

Moreover, technological revolution including mechanization, improved varieties, modern chemical pesticides and fertilizers, and new production methods have contributed to the increase in production per acre, per animal, per labor-hour. These technological and structural changes in agriculture have increased the risks of owning and operating a farm business. The increased use of credit in farm business along with narrower profit margins has increased the financial risk of farming. The importance of finance in agriculture has significantly increased over time in accordance with the change in technology and the increase in production.

1. **Inclusion and participation of all members of the rural population in economic development**

In many countries, poor rural populations do not have access to financial services even if there is access for wealthy persons, larger farms and larger rural enterprises. The microfinance “revolution” has demonstrated conclusively that financial intermediaries that serve the poor, as well as better-off populations and enterprises can be successful. Access by the poor to financial services provides them with some of the resources they need to pursue economic opportunities as well as manage their household finances.

In spite of these, policy should be directed at developing a market-based financial system for rural finance, but because of market failures to support disadvantaged groups, a special-priority program may be needed to get credit to women, smallholders and the rural non-formal sector. Subsidizing interest rates is not the way to help marginal borrowers. Instead, they can be helped through fixed-cost subsidies and self-selected targeting. Commercial banks should be encouraged to lend on other bases than the mortgage and passbook system. They should consider lending for such downstream agricultural activities as agro-processing. To improve rural financing, the system of property rights, title and default enforcement must also be strengthened, among other reforms.

1. **Reduction of vulnerability to economic, physical and other shocks**

The poor in general have few resources and are vulnerable to even small swings in income or unexpected expenses due to illness, death of a family member, seasonal liquidity problems related to the agricultural calendar, and a wide variety of other factors. The ability to save even small amounts during good times and keep these sums safely locked away until they are needed is essential. Another financial product that is important to poor rural populations is the ability to receive remittances reliably and at a low cost from migrant workers, especially in rural areas that have poor prospects for economic growth and income generation**.**

While there is no conclusive proof that access to financial services has a significant impact on poverty reduction, there is substantial field-based evidence pointing to the importance of rural finance for economic development. Most households with economic activities above the consumption level and most enterprises in rural as well as urban areas need access to financial services in order to grow and generate income, be they agriculture-based or off-farm. Access to finance is also needed for improvements in rural infrastructure such as telecommunications, energy, irrigation and watershed management, all of which have an impact on the improvement of people’s lives.

## 1.2. Challenges in Rural Finance

Rural finance, despite several efforts by donors, governments and private investors to improve it,

Still remains very challenging and is generally weak in developing countries It is recognized that rural areas and populations remain underserved, yet economic development for these areas and populations are key components in the overall development of a country. The donor community and providers entering the market have shown a renewed interest in economic growth leading to poverty reduction within rural populations. In spite of their renewed commitment, significant challenges to the successful implementation of effective delivery of services and outreach remain prevalent. Given these facts the question remains: what are these challenges and what can institutions do to respond to them to make agriculture credit work?

Some factors unique to rural and agricultural markets that challenge both the supply and demand for finance in those areas could be economic, political, legal, institutional, and weather related.

**Economic challenges:** Rural finance faces varieties of challenges resulting from the economic reality of a country including the following:

1. Transaction costs – High transaction costs for both borrowers and lenders;
2. Economic activities – Often limited economic opportunities available to local populations;
3. Risk – High risks faced by potential borrowers and depositors due to the variability of incomes, exogenous economic shocks and limited tools to manage risk;
4. Concentration of activities/ Portfolio concentration – Heavy concentration on agriculture and agriculture related activities exposes clients and institutions to increase risk and multiple risks;
5. Collateral – Lack of adequate or usable collateral (lack of assets, unclear property rights);
6. Infrastructure – Undeveloped or inadequate infrastructure;
7. Land fragmentation – Land held may be too small to be sustainable in an optimal use; and
8. Sources of income – Individuals may be dependent upon only one crop with no other external sources of income.

**Political, legal and institutional challenges:** The following are some of the political, legal, and institutional challenges faced in rural finance.

1. Institutional capacity – Weak institutional capacity including poor governance and operating systemss, low staff and management skill;
2. Political intervention – Risk of political intervention, which can undermine payment morale through debt forgiveness and interest rate caps;
3. Policy – Inhospitable policy, legal and regulatory frameworks;
4. Legal systems – Undeveloped legal systems, inadequate contract enforcement mechanisms;
5. Information – Lack of reliable information about borrowers; and lack of market information and/or market access

**Cultural and geographical challenge:** Cultural and geographical challenges are the common problems faced in rural finance some of which are listed below:

1. Population density and demand – Generally lower population density and dispersed demand;
2. Repayment culture – History of poor repayment culture, many in the rural populations historically associate poverty reduction efforts with charity from NGO’s and view the microfinance institutions in the same way making it a challenge to develop good repayment behavior; and
3. Accessibility – It is sometimes difficult to gain access to the communities and to get the community to accept credit terms.

**Weather challenges:** Developing countries with a great dependence on rain-fed agriculture are highly influenced by weather related challenges including:

1. Rainfall – Rainfall patterns vary by region resulting in some areas with one growing season and others;
2. Natural disaster – Susceptibility to natural disasters which can cause sudden and severe devastation to livelihoods; and
3. Seasonality – potentially affecting both the client and the institution

Unfortunately, financial services providers in rural markets are not able to choose which challenges they will face. More often than not the various challenges reinforce and compound each other. For example, the high risk inherent in agriculture means increased importance in screening and monitoring of clients and therefore higher transaction costs for both clients and institutions, which are exacerbated by the dispersion of the client base and small loan sizes.

Calvin Miller (2004) has identified 12 key challenges in rural finance. These challenges can be grouped into four as vulnerability constraints, operational constraints, capacity constraints, and political and regulatory constraints in a country.

**Vulnerability constraints:** Vulnerability constraints include systematic risk, market risk, and credit / financial risk arising from the following issues in a country including: (1) weather condition, (2) plagues and diseases, (3) prices, (4) production, (5) useable collateral, (6) demand preferences, and (7) health and family needs.

**Operational constraints:** These constraints are caused by low investment returns, low investment and asset levels, and low geographical dispersions of the rural financial institutions in a country. These constraints include: (1) low growth potential, (2)low velocity of capital, (3)non-competitive technologies, (4) lack of market integration, (5) lack or quality of roads and communication, (6) low efficiencies of business operations, and (7) high operating costs.

**Capacity constraints:** Capacity constraints are related to infrastructural capacity, technical and training capacity, social exclusion, and institutional competency. These are caused by the following constraints: (1)lack of business investment, (2) lack of competitive technologies, (3) lack of roads, (4) lack of communication, (5)lack of education, (6) lack of technical and management skills, (7) lack of institutional capacity, and (8) lack of social representation (civil society).

**Political and regulatory constraints:** These challenges include political and social interference, and regulatory framework. They are related to the following challenges: (1) political interference, (2) NGO donation interference, (3) cultural and gender constraints, (4) land tenure laws, and (5) financial regulations and tax policy.

 Lessons are, nonetheless, continuing efforts to learn about how to effectively provide rural finance and developing different strategies to cop up those challenges.

Moreover, to improve performance in the rural economy and efficiency in financial institutions, rural finance markets must be liberalized. The following reforms are important in an economy:

1. Avoiding produce and price controls;
2. Operation of commercial banks in a competitive environment;
3. Availability of credit to support productivity growth for agricultural smallholders and small producers of the rural non-formal sector, where growth potential of developing countries lies; and
4. Credit availability to women and to the rural poor for consumption-smoothing and for sustainable income-generating activities.

CHAPTER TWO

# 2. Resource Acquisition and Use of Credit in Agriculture

## 2.1. Resource Acquisition in Agriculture

The capital requirements of a farm or ranch business are large and increasing due to inflation, technological change, and increase in farm size. With the need to control land, machinery, livestock, and other resources worth hundreds of thousands of dollars, many prospective young farmers as well as policymakers are asking with increasing concern, "How can the capital needed for a viable farming operation be acquired?"

While the available resources of a farm business are limited in which case an owner of a farm business should try to acquire the optimum size of financial and other resources in order to involve in an optimum size of operation. Credit is one way acquiring additional capital. But the questions related to the amount, type and timing are very important for a farmer's decision in acquiring additional funds/capital/. How should a farmer decide how much credit to use in the farm operation and where to use it? What are the contributions that credit can make? What types of credit are available? How a farmer can work with a lender for successful credit?

These resources have various sources including internal and external sources. Sources of funds used to control capital assets can be classified as equity and non-equity or debt financing. **Equity capital** is the capital owned by the operator while **non equity capital** is the capital gained from debt financing. They include savings and retained earnings, gifts and inheritance, pooling equity capital through a partnership or corporation, leasing, contract farming, and borrowing.

### 2.1.1. Savings and Retained Earnings

Assume you get a certain amount of capital. Let its source be either from your own earnings, or borrowing from your friend or bank. Which source makes you more confident to use? Is there any source which makes you less confident?

Despite the growing financial barriers to farm business entry, ongoing farm business firms can use their own capital sources to improve and diversify their farms. However, accumulating the beginning equity base needed to start farming by saving part of one's earnings from farm or non-farm employment is difficult. Because of this limitation of equity capital, farm operators are required to use non equity capital.

### 2.1.2. Gifts and Inheritances

### Because of the dominance of family farm in most countries' agriculture, much of the owner equity in agriculture can be acquired through gifts and inheritances from the previous generation of farm operators. The disadvantage of this type of source of capital is that such funds are often not received when needed most. The availability of such funds for young farmers depends on the average life expectancy in a country.

### 2.1.3. Pooling Equity Capital

 There are several methods of combining equity capital in a farm business. One of the most common is the case where older farmers furnish capital to younger family members through partnership, incorporation, or some other type of formal or informal agreement. Although these arrangements are usually made among members of the same family, two or more unrelated individuals can pool their equity in a farm business. Formal agreements are not always necessary to use the equity in an existing operation as a base for growth and expansion. Informal arrangements for exchanging labor for machinery or possibly renting land from a successful neighbor or relative can reduce the need for large capital investments and provide management assistance in the early years.

The primary advantages of pooling equity capital are to take advantage of economies of size and to distribute risk among two or more persons. Generally, the participants in a farm business venture should share profits in direct proportion to their respective contributions of labor, management, and capital. Failure to recognize this basic rule is almost certain to result in an unsatisfactory arrangement. Other essentials of a successful business organization involving two or more farmers include the following:

* The goals of all participants should be compatible;
* They should be capable of getting along together and respecting each other's judgment;
* The business must be large enough to provide an adequate living for all parties; and
* Good records, sound farm management, and common sense in the handling of money will help to avoid disagreement.

The pooling of equity capital follows various organizations including partnerships, and incorporation to pool capital from family members, and non-farm equity capital from nonfarm investors.

**Partnerships:** A partnership exists whenever two or more persons associate to conduct a non corporate business. Partnership may operate under different degrees of formality, ranging from informal, oral understandings to formal agreement. In forming a partnership, the participants should know and understand what is involved and give proper attention to legal aspects. Each person entering into a partnership assumes considerable responsibility for actions of the other partners.

**Corporation:** Acorporation is a legal entity authorized by law and is capable of doing business, making contracts, borrowing money, and the like, just as an individual proprietor. For this and other reasons, the services of a qualified attorney/lawyer/ are essential for incorporating a farm business. The advantage of a corporation from a financing stand point is that the owners have limited liability. There are also a number of disadvantages associated with incorporating a farm business, and they should be carefully and thoroughly considered. Management of the farm not in line with the interest of minority owners, and additional time, expenses, and taxes paid unlike other farm business organizations are some of the major disadvantages.

### 2.1.4 Leasing

A lease is basically a capital transfer agreement that gives the lessee (the user farmer) control over assets owned by the lessor for a specific period of time for an agreed-upon payment or rent. Leasing is an alternative to purchase an asset in order to acquire the services of that asset. By leasing an asset the lessee essentially acquires its use value from the lessor, who actually purchased and owns the asset.

There are various types of leasing facilities. The major types of leasing common in agriculture include financial lease, operating lease, and leverage lease.

**Financial lease** is a contract that is non-cancelable and the lease period is usually shorter than the useful life of the asset being leased. During the life of the contract all of the cost of the property plus financing and servicing charges should be recovered through periodic payments. The lease assumes complete financial responsibility for the leased asset; and, if operated successfully, the lessor or owner will recover original investment.

**Operating lease** is a service available for which there is an established leasing and second-hand market. Assets are leased over periods from around six months, shorter periods being more in the nature of plant hire, up to three years for most types of equipment and machinery. An operating lease may be alternative when a firm requires a machine for a relatively short period. The operating lessor's function in assuming the obsolescence risk in uncertain circumstances is comparable to an insurance contract.

**Under leverage lease** the lessee assigns his interest in a purchase order to lessor who agrees to advance only a portion of the total asset cost, and arranges to borrow the remaining portion from institutional lenders.

Leasing covers various assets including real estate, machinery, and livestock leasing.

**Real-estate leasing:** Leasing is a common way for farmers to obtain control of additional land. Real estate leases can be the share lease or the cash lease. With a share lease part of a crop or livestock production is paid to the lessor as rent. With cash leasing arrangements, the lessor is paid a specified cash payment and usually furnishes the land, building, and other improvements. The concepts of cash and share rent are sometimes combined in what is called standing rent. In this case, in place of cash, the rental payment is made in a fixed measure of products, i.e. the dollar amount of rent the lessor receives varies with the price of the product, as it would with share rent, but the amount of product he will receive is known in advance.

**Machinery leasing**: Purchase of machinery often with borrowed funds is the traditional method of acquiring control over farm machinery. However, rapidly rising machinery prices have prompted many farm operators to consider leasing as an alternative to ownership of farm equipment. It can be operating lease, or financial lease. An operating lease is a short term contract in which case the farm operator leases the equipment by the hour, day, week, and month, etc. The lessor is responsible for insurance, taxes, and major repairs, and the lessee covers variable expenses such as fuel, lubricants, and routine maintenance.

However, there are many variations of operating lease including custom hiring, an operating lease arrangement whereby the owner of the equipment furnishes the machine operator in addition to covering all operating expenses, and a full-service lease, an operating lease contract under which the lessor assumes total responsibility for all repairs and maintenance costs. The financial lease, in contrast to the operating lease, is a long term contract under which the lessor essentially provides financing to the lessee. Usually the lessee is responsible for all repairs and maintenance just as if he had purchased the equipment outright.

**Livestock leasing:** The typical livestock-share lease contract usually covers land, buildings, and livestock. These contracts cover basic herd livestock such as dairy cows, beef cows, and sows. The lessor assumes fixed ownership costs including depreciation, taxes, and interest on investment, while the lessee is responsible for variable costs such as feed, housing, veterinary services, and labor.

**Advantages of leasing to the lessee:** Some of the merits of leasing from a lessee's point of view are the following:

1. Asset procurement: Leasing may be the cheapest means of obtaining the use of the most suitable machinery or equipment because of import or export controls or patent rights.
2. Additional source of finance: By leasing, the use of asset is obtained without capital outlay. It also raises debt capacity of the firm as additional source of finance.
3. Certainty: It has the fixed nature of a leasing contract to the lessor and to the lessee. This assures the availability of an asset with certainty.
4. Flexibility: Leasing arrangements are very flexible.
5. Convenience: Leasing is regarded by lessees as a simple and convenient method of financing the acquisition of capital assets.
6. Disposal problem: There is no disposal problem associated with leasing.
7. Higher incomes: An operating lease tend to inflate the incomes of early years of life compared with the expenses resulting from buying the asset.
8. Step-by-step financing
9. A well-defined cost
10. Maintenance is cheap and certain: With leasing the maintenance may be contracted and this contract may be attractive.

**Disadvantages of leasing to the lessee:** The advantages of leasing over other forms of finance in any given circumstances need to be weighted against the possible disadvantages listed below:

1. Ownership flexibility: A purchaser of asset avoids any of the restrictions found in leasing agreements concerning the operation of the asset and the requirement to obtain the lessor's approval to the insurance arrangements.
2. Residual value: A lessee gives up some or all of the benefit of the residual value of the asset at the end of lease period.
3. Security value: A lessee is unable to include the leased asset in a pool of assets which is then available as security for general borrowing.
4. Understatement of assets: The right to use asset for a major part of its useful life is an intangible asset which is not shown on a lessee's balance sheet unless leased assets are capitalized at economic value.
5. Prestige: Ownership may be thought to be prestigious and to give an emotive sense of satisfaction denied to lessees

### 2.1.5. Contract Farming

An increasing amount of resources used in the farming sector can be furnished by farm input suppliers, processors, and distributors under various types of producer contracts. Contract faming is, therefore, a way for an operator to obtain additional funds.

Forward contract refers to a futures contract to buy or sell a specific physical commodity at some time in the future. There are three basic types of forward contracts used in farming namely market specification contracts, production-management contracts, and resource-providing contracts. When the traditional open-market form of market coordination fails to provide the needed market outlet for input suppliers or farm products of the proper specification at reasonable prices for marketing firms, market specification contracts can be used. It is an agreement under which farm inputs or products will be exchanged at some specified future date at an agreed-upon price (or basis for calculating price). This contract specifies the acreage to be grown, the price per ton, and in some cases the delivery schedule.

Production-management contracts provide the same features as market specification contracts, but in addition the farmer receives technical advice and management services from the input supplier or processor. Market specification and production-management contracts typically do not provide any financing per se; however, they do have financial implications for the farmer because lenders tend to look more favorably on a loan application if marketing arrangements are guaranteed by a producer contract. Under resource-providing contracts the farmer receives financing from the marketing firm as well as guaranteed market outlet and production-management assistance.

As with any method of acquiring control of assets, contracting has its weaknesses and strengths. The most important advantage is the financing the farmer receives both directly from the contracting firms and indirectly through other lenders, who are more assured of loan repayment when a contract is in existence. In addition to financial help, the farmer usually receives managerial advice and technical assistance such as production scheduling, high-quality breeding stock and seed varieties, fertilizer recommendation, veterinary services, custom-blend feed, the latest equipment, and other supplies and services that might not otherwise be available. Contracting also leads to better coordination of production and marketing phases, thereby resulting in higher profits and reduced risk for both farmers and contracting firms.

Perhaps the most obvious disadvantage of contract production is the loss of managerial control. The farmer may become little more than a hired hand and may also have to accept lower net returns to compensate the contracting firm for providing financing and sharing production and marketing risks. Finally the farmer loses the opportunity to benefit from higher market prices if forward prices are specified in the contract.

### 2.1.6. Borrowing

Borrowing constitutes the remaining method of farmers use to acquire funds. The word 'borrow' means to receive some thing with the understanding that it or its equivalent will be returned as agreed upon. Stated another way borrowing means the ability to command capital or services currently for a promise to repay at some future time. In terms of money, borrowing involves obtaining a certain amount of funds to be repaid as specified in the note. Borrowing is not the exact synonym of credit.

## 2.2. Concept, Role and Classification of Credit

### 2.2.1 Concept of credit

According to the free on line dictionary, credit means Faith/believe/ and it comes from the Latin credito. An agreement, by which something of value-goods, services, or money-is given in exchange for a promise to pay at a later date. Credit is a transaction between two parties in which one, acting as creditor or lender, supplies the other, the debtor or borrower, with money, goods, services, or securities in return for the promise of future payment. As a financial transaction, credit is the purchase of the present use of money with the promise to pay in the future according to a pre-arranged schedule and at a specified cost defined by the interest rate

It was also defined by Ellis (1992) that credit is a sum of money in favor of the person to whom control over it is transferred, and who undertakes to pay it back. Moreover, Beckman and Forster (1969), defined credit as the power or ability to obtain goods or services in exchange for a promise to pay later. Similarly, it is a power or ability to obtain money by the borrowing process, in return for a promise to repay the obligation in the future.

Credit does not necessarily require [money](http://en.wikipedia.org/wiki/Money). The credit concept can be applied in barter economies as well, based on the direct exchange of goods and services. However, in modern societies credit is usually denominated by a [unit of account](http://en.wikipedia.org/wiki/Unit_of_account). Unlike money, credit itself cannot act as a unit of account

Since credit is a resource that can be used or held in reserve, borrowers and non borrowers alike are concerned with several questions. For example, a farmer might ask: How much credit is available, and how much should be used? What are the costs of credit? What are my legal obligations as a borrower? Which lender is most likely to be able to serve my credit needs?

**How much credit?** Credit use will increase return to equity and firm growth rates as long as the rate of return on capital invested exceeds the cost of borrowing. However, financial risk limits the amount of credit one can actually use without jeopardizing the survival of the business. The question can be answered by understanding the factors that lenders consider in evaluating loan application.

**Credit costs:** Borrowing involves several costs, including finance charges, legal fees, closing costs, etc., and it is sometimes difficult to identify and compare these costs. The only meaningful way of measuring the cost of credit is to express all charges and fees in terms of a compound annual rate of interest.

**Legal aspects:** Since widespread access to reasonably priced credit is vitally important in the growth and development of a market economy, a standardized set of laws, regulations, and procedures has evolved that protects the rights of borrowers and lenders.

**Sources of credit:** If there is widespread use of credit, there will be many borrowers with different needs and characteristics. As a result, specialization among lenders will be developed so that all borrowers will be served efficiently.

### 2.2.2 Bases of Credit

Numerous factors influence the creditworthiness /considered suitable to receive commercial credit/Credit is in turn dependent on the reputation or [creditworthiness](http://en.wikipedia.org/wiki/Creditworthiness) of the entity which takes responsibility for the funds/of a farmer. Lenders, especially bankers, use a formula known as the seven C's of credit when evaluating a credit application. Understanding them will help you make your applications as attractive as possible. Which mean credit managers usually talk of the C's of credit: character, capacity, collateral, capital, condition, courage, and competition?

1. **Character**: Character or integrity is the most important factor of confidence. This is essentially a summary of the individual. Creditors look for people who appear to be trustworthy and reliable, and who are willing and able to meet their financial obligations. The first step in selling one's credit to a lender is to be honest in all business and personal dealings, because the confidence factor is vitally important.
2. **Capacity (or risk-bearing ability**: Risk-bearing ability measures whether the farm operation can withstand financial losses without being forced into liquidation or insolvency. If production and prices decline and losses occur, they must be absorbed or covered by equity capital or net worth. The basic document used to measure the risk-bearing ability of the farm business is the balance sheet. The key ratios used in the analysis of risk-bearing ability are those related to total assets, or debt to equity. These ratios show the proportion of the business financed with debt compared to owner's equity and thus indicate the claims by others on the asset if liquidation should occur. This simply means the individual's ability to repay the loan; it is based on present and anticipated earnings balanced against existing debts.
3. **Collateral**: Collateral security is any security (other than personal security such a guarantee) taken by a bank or lender when it tends to make an advance to a borrowing customer, and which it is entitled to claim in the event of default. Hence, the presence or absence of collateral matters to get credit. The item pledged by the borrower as security for the loan, which may be real state, stocks, savings, a mortgage, etc.
4. **Capital (or repayment capacity):** A lender wants to be paid in cash; he has little interest in repossessing the security or collateral as satisfaction of the debt obligation. The ability to repay a loan is consequently an important determinant of whether credit should be extended and is influenced by the income-generating capacity of the business; the liquidity of the farm as indicated by the balance sheet, and the cash flow of the firm. In short run an indication of repayment capacity is that if current assets are not sufficient to pay current liabilities a repayment problem will very likely occur as an indication of repayment capacity in short run. In long run the key issue is whether there is sufficient revenue after paying for operating expenses, family living, and farm expansion to repay any debt obligation. This is the net worth on an individual as indicated by a personal financial statement
5. **Condition (or return)**: It is a combination of all the relevant facts about an agribusiness firm and its situation in the existing economic environment.The basic question with respect to returns is whether or not the use of credit will add to potential profits. Only if the profits of the business will be increased will there be additional income available to make principal and interest payments on the borrowed capital. Two questions are of interest in evaluating income or returns. The first is the issue of whether the planned use of credit is the most profitable use in the farm business. The second question with respect to the returns is whether the farm business is generating an adequate income to compensate for contributions of family labor and management as well as for equity accumulation. The profitability of the entire farm operations must be evaluated to assess the possibility of income generated from profitable enterprises to cover losses on unprofitable ones. Both regulatory and economic conditions are considered. Regulatory conditions apply to the lenders individual circumstances; for example, when banks are not lending in specific areas. Economic conditions determine the lender's general policy towards loan. Both are affected by the current economic cycle.
6. ***Credit*:** this is the individual's credit history
7. **Competition**: The extent of competition to extend credit also matters to get credit. If there is no sufficient number of competitors involved in the financial market (in credit extension), getting credit may be difficult and vice versa

### 2.2.2. Role of Credit

At a certain stage in agricultural development, agricultural credit clearly does become a strong force for further improvement –when a man with energy and initiative who lacks only the resources for more and more efficient production is enabled by the use of credit to eliminate the one block on his path to improvement. Financial credit is the most flexible form of transferring economic resources to the poor. One can buy anything that is for sale with cash obtained through credit

According to Kebede (1995), credit makes traditional agriculture more productive through the purchase of farm equipment and other agricultural inputs, the introduction of modern irrigation system and other technological developments. Credit can also be used as an instrument for market stability. Rural farmers can build their bargaining power by establishing storage facilities and providing transport system acquired through credit. Credit plays a key role in covering consumption deficits of farm households. This would, in turn, enable the farm family to work efficiently in agricultural activities. Credit can further be used as an income transfer mechanism to remove the inequalities in income distribution among the small, middle, and big farmers. Moreover, credit encourages savings and savings held with rural financial institutions that could be channeled to farmers for use in agricultural production. Credit also creates employment opportunities for rural farmers.

Additionally, credit is important and necessary in nearly all commercial and individual farm businesses. The potential to improve net farm income should be one of the determining factors in the decision of whether to use credit. Credit can contribute in the improvement of net income in several ways:

1. Create and maintain an adequate size. Most farms exhibit decreasing costs as the size of the business increases because of economies of size;
2. Increase efficiency. Use of credit increases substitution, utilization of idle resources, and intensity of production to secure efficient use of resources;
3. Adjust to changing economic conditions of technology and market;
4. Meet to seasonal and annual fluctuations in income and expenditures;
5. Protect against adverse conditions of weather, disease, and price; and
6. Provide continuity of business during transfer.

2.2.4 Types of rural credit

There is typically a dual rural credit market in developing countries, formal and informal credit. In the formal credit markets institutions provide intermediation between depositors and lenders charge relatively low rates of interest that usually are government subsidized. In informal credit markets money is lent by private individuals, professional moneylenders, traders, commission agents, land lords, friends and relatives.

Formal and informal credits are imperfect substitutes. In particular, formal credit, whenever available, reduces, but not completely eliminates, informal borrowing. This suggests that the two forms of credit fulfill different functions in the household’s inter-temporal transfer of resources.

 Informal credit is used perhaps for consumption-smoothing purposes, while formal credit is sought and used mostly for agricultural production purposes and investment in non-farm income generating activities. The empirical evidence also suggests that the imperfect substitutability between formal and informal credit reflects to some extent the existence of due dates and conditionality on informal loan contracts.

**2.2.3. Features/characteristics/ of Successful Agricultural Credit Provider**

An institution that is successfully providing agricultural credit; amongst other financial services should have the following key features of success:

1. Household as a financial unit: Treating the farm household as a financial unit integrating a variety of economic activities, and basing lending decisions on repayment capacity rather than how funds are utilized;
2. Managing systemic risk: Managing systematic risk in agriculture by three levels of diversification: (1) across rural and urban branches; (2) across both agricultural and non-agricultural activities in rural branches; and (3) across diverse household economic activities;
3. Long term relationships: Long-term relationships to lower transaction costs for both lenders and borrowers;
4. Various types of collateral: Using various types of collateral, including collateral from poorer households;
5. Decentralized decision making: Delegated and decentralized decision making by well trained loan officers;
6. Regular monitoring: Regular monitoring of clients to ensure that repayment capacity is not jeopardized, opportunities are realized, and the borrower-lender relationship is strengthened;
7. Management and information system: An effective management and information system and a commitment to high loan recovery (including seizure of collateral where necessary as a signal to other clients); and
8. Adapting more flexible rural services: Adapting rural services to become more flexible in timing, amounts disbursed and repayment schedules – (bi-monthly, trimester, semester, annual, end of crop cycle and irregular repayment schedules).

### Classification of Credit

There are many different types of business credit, and proper classification will facilitate communication and financial analysis. Primary classifications are presented here based on time and purpose

**Classification by time:** Based on the length of the terms of loans, credit can be classified into three:

1. Short-term credit (production credit):
	* Monthly credit (0-3 months);
	* Seasonal credit (3-9 months); and
	* Annual credit (9-1 year).
2. Intermediate-term credit: 1-10 years.
3. Long-term credit: Real-estate credit (more than 10 years).

**Classification by purpose**: This classification can facilitate analysis of the profitability of a specific loan if records as to income and expenses are kept.

1. Production loans (short-term and intermediate-term loans): Used to buy inputs, pay operating expenses, buy feeder livestock, range livestock, dairy cattle, machinery, and finance storage.
2. Real-estate loans (long-term loans): Used to purchase a farm, additional land, finance buildings, drainage, irrigation, and other permanent or long-life improvements.

## Advantages and Disadvantages of Credit

### 2.5.1. Advantages of Credit

Modern economy is said to be a credit economy. Credit is of vital importance for the working of an economy. It is the oil of the wheel of trade and industry and helps in the economic prosperity of a country in the following ways:

1. **Economical**: credit is used as an engine/motor/ of the economy
2. **Increases productivity of capital**: Credit increases the productivity of capital. People having idle money deposit it in banks and with non-bank financial institutions which is lent to trade and industry for productive uses.
3. **Convenient:** Credit instruments are a convenient mode of national and international payments. They help in transferring payments with little cost and without the use of actual money from one place to another quickly.
4. **Internal and external trade:** As a corollary to the above by facilitating payments quickly, credit helps in the expansion of internal and external trade of a country.
5. **Encourages investment**: Credit is the payment along which production travels, and that bankers provide facilities to manufacturers/farmers/ to produce to full capacity. Credit encourages investment in the economy. Financial institutions help mobilizing savings of the people through deposits, bonds, etc. These are, in turn, given as credit to trade, industry, agriculture, etc. which lead to more production and employment.
6. **Increases demand:** A variability of cheap and easy credit increases the demand for goods and services in the country. This leads to increase in the production of such durable consumer goods. These raise the standard of living of the people when they consume more goods and services. Consumption loans by banking and non-banking financial institutions coupled with the use of credit cards have made these possible.
7. **Utilizes resources**: Credit helps in the proper utilization of a country's manpower and other resources. Cheap and easy credit encourages people to start their own businesses which provide them employment. Agriculture develops when farmers get seeds, fertilizers, pumping sets, tractors, etc. on credit. Similarly transport, communications, industry, mines, plantations, power, etc. develop with the help of credit.
8. **Price stability:** Credit helps in maintaining price stability in a country. The central bank controls price fluctuations through its credit control policy. It reduces the credit supply to control inflation and increases the supply of credit to control deflation.
9. **Helpful to government:** Credit helps the government in meeting exigencies or emergencies when the usual fiscal measures fail to fill the financial needs of the government. Government resorts to deficit financing for economic development by creating excess credit.

### Disadvantages of Credit

Credit is a dangerous tool if it is not properly controlled and managed. The following are some of the defects of credit:

1. **Too much and too little credit harmful**: Too much and too little of credit are harmful for the economy. Too much of credit leads to inflation which causes direct and immediate damage to creditors and consumers. On the contrary, too little of credit leads to deflation which brings down the level of output, employment and income.
2. **Growth of monopolies**: Too much of credit leads to the concentration of capital and wealth in the hands of a few capitalists. This leads to growth of monopolies which exploit both consumers and workers.
3. **Wastage of resources**: When banks create excessive credit, it may be used for productive and unproductive purposes. If too much of credit is used for production, it leads to over capitalization and over production, and consequently to wastage of resources. Similarly, if credit is given liberally for productive purposes, it also leads to wastage of resources.
4. **Cyclical fluctuations**: When there is an excess supply of credit, it leads to a boom. When it contracts, there is a slump. In a boom, output, employment and income increase which lead to over production. On the contrary, they decline during a depression thereby leading to under consumption. Such cyclical fluctuations bring about untold miseries to the people.
5. **Extravagance**: Easy availability of credit leads to extravagance on the part of people. People indulge in conspicuous consumption. They buy those goods which they do not need. With borrowed money, they spend recklessly on luxury articles. The same is the case with businessmen and even governments who invest in unproductive enterprises and schemes.
6. **Speculation and uncertainty:** Over issue of credit encourages speculation leading to abnormal rise in prices? The rise in prices, in turn, brings an element of uncertainty into trade and business. Uncertainty hinders economic progress.
7. **Black money:** Excessive supply of credit encourages people to amass money and wealth. For this they tend to adopt underhand means and exploit others. To become rich, they evade taxes, conceal income and wealth and thus, hoard black money.
8. **Political instability:** Over issue of credit leading to hyper-inflation leads to political instability and even the downfall of government.

CHAPTER THREE

# 3. Credit Instruments and Financial Markets

The financial institutions serving agriculture are part of the national and international capital markets and must operate within legal constraints and regulations developed by various state and federal government agencies. The national and international dimensions of the financial market suggest that agriculture and farmers are not immune to changes in economic and financial conditions in other sectors of the economy. Likewise, changes in government monetary policy that result in money or credit contraction or expansion will influence the availability and cost of funds to farmers. So to understand the operations and problems of local financial institutions that serve farmers, it is also necessary to know how these institutions are impacted by market forces and policy decisions in the financial markets.

## 3.1. Credit Instruments and Contracts

The use if credit involves what might appear to be a bewildering array of laws, regulations, and forms. Borrowers and lenders should recognize that proper legal documentation is necessary to define the right and obligations of both parties. The very existence of an efficient financial market depends upon a solid legal foundation. It is most important that all legal documents involved be studied carefully, and qualified legal counsel should be sought where necessary.

 **Characteristics of contracts**

Nearly all business transactions such as buying and selling, leasing, lending and borrowing, etc., constitute a contract, which is merely a legally binding agreement between two or more parties. These are known as basic characteristic of contracts. The four basic and essential elements of any contract are:

1. Legally competent parties: The parties to a contract must be legally competent. Generally, minor children and the insane or mentally retarded cannot enter into a contract because they are assumed to be incapable of fully understanding the implications.
2. Legal and proper subject matter: The subject matter of the contract must be legal and proper. Contracts that are themselves illegal (e.g., a price fixing agreement in a free marker economy) or require one or more parties to commit an illegal act are not legally enforceable in a court of law.
3. Offer and acceptance of the contract: There must be evidence that all parties willingly consented to the agreement, as evidenced by an offer and an acceptance.
4. Consideration: There must be consideration, which in essence means that something of value must be received and/or given up by both parties.

With some exceptions, contracts do not have to be in writing to make them legally enforceable. However, virtually all loan contracts are in written form. As a practical matter all contracts should be written to minimize the possibility of misunderstanding.

**Credit instruments**

Credit plays a significant role in modern business and that is represented by credit instruments. Credit instruments are written or printed or typed financial documents that serve either as promises to pay or as orders to pay. They provide the means by which funds are transferred from one party to another. There are many credit instruments used in farm credit transactions of which the most important are:

* Promissory notes,
* Bill of exchange
* bank notes
* Credit cards
* cheques
* Draft

**Promissory note:** is earliest type of a credit instrument. It is an I.O.U, a written promise by a debtor to pay to another person a specified sum of money by an agreed given date, usually within three days of grace. Such notes are issued by individuals, corporations and government agencies. When advancing loan funds, the lender receives in exchange a note signed by the borrower promising to pay the lender a certain stated principal amount with interest on a certain date or dates as specified in the note. A promissory note can also be for a long period.

**Bill of exchange or commercial bill:** A bill of exchange is an order drawn by the creditor to the debtor instructing the latter to pay a specified sum of money to the former, or to the bearer or to his nominee. The payment is to be made after fixed date, usually 90 days with three days of grace.

**Bank notes**: the central bank of a country issues currency notes. All notes carry the promise of the governor of the central bank to pay on demand to the bearer of the note an amount mention on it.

**Credit cards**: a recent addition to credit instruments is the issue of credit cards by banks. Credit card holders are allowed credit facilities by the concerned bank for a specified period of time without any security from them. They can also purchase commodities and pay for services without making cash payments. There are national and international credit cards.

**Cheques:** a cheque is an order on the bank, written by the drawer who has his deposit with that bank, to pay on demand the stated sum of money to the person named in the cheque.

**Draft:** a draft, also called demand draft is in the form of a cheque and is an order of a bank to its branch in some other city for making payment of the amount specified in it to the person or firm or organization. Besides reserving the amount of the draft, the bank charge commission for preparing the draft.

## Financial Markets and Intermediation

 **3.2.1 Financial market**

The financial market referred to as the capital, credit, funds, or money market in its broadest sense includes all transactions in financial instruments. These financial instruments include currency, bank deposits, charge accounts, loans, mortgages, bonds, and shares of corporate stock. Farmers and farm lenders are participants in this market. When buying supplies or equipment on credit, borrowing or repaying a loan, or buying a stock or bond, a farmer is participating in the financial market. Similarly, a farm lender who obtains funds by selling bonds or deposits and lends them to farmers is directly involved in this market. As we see in the above financial market means market for capital, money, funds etc but for now we discuss only two markets which is capital and money market. Let us see one by one

**The money market:** is a market for short term instruments that are close substitutes for money. The short term instruments are highly liquid, easily marketable, with little chance of loss. It provides for the quick and dependable transfer of short term debt instruments maturing in one year or less, which are used to finance the needs of consumers, business, agriculture and the government. Money market is not one market but is a collective name given to the various forms and institutions that deal with the various grades of near-money.Money market consists of commercial bills market, commercial paper market, treasury bills market, inter-bank market and certificates of deposit market. All these markets are closely interrelated so as to make the money market. It is a wholesale market where large numbers of financial assets or instruments are traded.

**The capital market** is the market which deals in long-term loans. It supplies industry with fixed and working capital and finances medium-term and long-term borrowings of the central, state and local governments. The capital market deals in ordinary stocks, shares and debentures of corporations and bonds and securities of governments. The funds which flow into the capital market come from individuals who have savings to invest, the merchant banks, the commercial banks and non-bank financial intermediaries. The capital market functions through the stock exchange market. It is not only a market for old securities and shares but also for new issue shares and securities. In fact, the capital market is related to the supply and demand for new capital, and the stock exchange facilitates such transactions. Thus the capital market comprises the complex of institutions and mechanism through which medium-term funds and long term funds are pooled and made available to individuals, business and governments.

The capital market plays an important role in mobilizing savings and channeling them into productive investments for the development of commerce and industry. We discuss below the importance of capital market including:

* Link between surplus units and deficit units
* Stability in the value of stock and securities
* Capital formulation and economic growth

 **Function of financial markets**

Financial markets have two basic functions:

1. To transfer funds from suppliers to users, and
2. To ration funds among users.

The return of funds from users to suppliers also is a function of the financial market, but it comprises an auxiliary/additional/ service function and is not dealt with here.

### Transfer of Funds

The transfer of funds from suppliers to user is essential to the functioning and growth of a market economy. Without this function every economic unit would be of necessity financially self-sufficient. Expenditures of each unit would be limited to internal funds. Moreover, there would be no outlet for unused savings.

Two basic economic functions are involved in the transfer of funds that in turn are:

* Primary market activities, and
* Secondary market activities.

**Primary market activities:** The funds may be acquired, as from an individual who deposits funds in a bank, or they may be acquired by selling a new issue of a financial instrument in which case an intermediary is involved. These transfers are often referred to as primary market activities because they involve the acquisition of new funds and the issuing of new financial instruments.

**Secondary market activities:** The second transfer function consist of the allocation of outstanding financial instruments among financial units, such as those reflected by quotations in financial papers. This function does not involve the issuing of new instruments but the buying and selling of instruments that are already in the market. The transfers usually involve the services of an agent such as a broker or dealer in securities. Transactions of this type, generally referred to as secondary market activities, are essential to provide liquidity.

Without a secondary market the original purchaser of a financial instrument would have to hold it to maturity. Under such circumstances financial instruments would need to have very short maturities, or portfolios would become frozen because a purchaser of a long-term instrument could not sell it to move funds elsewhere. Either alternative would seriously limit the usefulness of financial instruments and the functioning of financial markets. Moreover, short maturities for financial instruments related to fixed instruments such as land would reduce the inclination to borrow and might at times endanger the stability of the financial market. If financial instruments were not transferable or negotiable, fewer buyers would be willing to participate in the market, and thus the volume of new issues would be reduced and interest rates would increase.

### Rationing Funds

A second basic function of financial markets, as of any market, is to allocate scarce resources among competing ends. Through the operation of financial markets, the limited supply of available funds is allocated to farmers and other economic units that need them. If the markets function well, the funds will be allocated to uses yielding the highest returns for a given level of risk. The allocation will be optimized when the marginal productivity of funds is equal for all uses.

The market mechanism for rationing funds among users is based on the concepts of demand and supply. The demand function or curve for funds indicates the amount that buyers or users desire at various interest or yield rates and repayment terms at a given time. As indicated in Figure 6.1, the demand curve (D) is downward sloping in traditional fashion. The supply function or curve (S) provides comparable information regarding the amount suppliers are willing to provide and is upward sloping, indicating the increased cost that is necessary to supply increasing amounts of funds to the market. The intersection of the two curves indicates the equilibrium quantity Q of funds that are transferred from suppliers to users (demanders) and the equilibrium interest rate i or yield and terms. The demand and supply functions or curves for the various financial instruments in various markets are closely interrelated, but they are not the same.

Figure 3.1: The allocation or rationing mechanism in the capital markets.

Interest rate

Quantity of funds

 S

Availability of funds in various financial markets depends on the direct flow of funds into them and also on the ability of financial instruments to obtain funds in one market and make them available in another.

### 3.2.2 Financial Intermediation

A financial intermediary is a financial institution that acts as the middleman or connects surplus and deficit agents or investors and firms raising funds. A financial intermediary is typically an institution that facilitates the channeling of funds between lenders and borrowers indirectly. That is, savers (lenders) give funds to an intermediary institution (such as a bank), and that institution gives those funds to spenders (borrowers).Financial intermediaries are firms whose assets are comprised primarily of claims on others and whose liabilities consists primary of obligations to others. For example, assets of a commercial bank consist primarily of loans and investments in government securities, both of which are claims on others; its liabilities consist primarily of deposits that are obligations to the depositors. Some examples of financial intermediary are list as below

* Commercial banks
* insurance companies,
* thrift institutions such as savings, and loan associations and credit unions,
* investment bankers
* government sponsored and owned credit institutions,
* mutual funds, and
* Firms that participate in stock and bond exchanges.

 In addition to the suppliers and users of funds, intermediaries are the principal participants in financial markets. The position of intermediaries in the financial markets is illustrated in

Figure 3.2. They occupy an intermediate position between suppliers and users of funds. They provide the linkage between suppliers and users as, for example, a rural commercial bank links depositors and farm borrowers.

Figure 3.2: Flow of capital from suppliers to users with and without intermediaries

Capital

Suppliers

Financial Intermediaries

Capital

Users

Key: Flow of funds

 Offsetting flow of securities

The role of financial intermediaries is to carry out the transfer and rationing functions of the financial market. They do this by creating various utilities of funds including time utility, place utility, form utility, and other characteristics of funds supplied by suppliers to make them available for users.

## 3.2.3. Problems in Rural Financial Market Development

The rural finance market strategies should focus on how to improve access to three specific financial services: credit, deposits, and insurance. The primary but not exclusive target groups are small scale agricultural producers and business operators. In order to do so, several problems must be resolved:

* Imperfect information,
* High levels production risk,
* High transaction costs,
* Inadequate contract enforcement,
* The legacy of urban biased economic policies, and
* Weak intermediary institutional capacity

If appropriate policies, technologies, and partnerships can be adopted to relieve these problems, rural financial intermediation will become more profitable and a greater number of rural residents will gain access to financial services. Rural financial markets are a subset of a country's larger financial system. Both the larger, mostly urban based financial markets and the smaller, rural ones involve promissory contracts, intertemporal valuations of cash flows, and trading of claims on assets for cash. What distinguish the two markets (rural and urban market) are:

1. differences in density of clients,
2. reliability and cost of gathering information, and
3. The arsenal of risk evaluation and management techniques.

Due to greater spatial dispersion of clients, higher heterogeneity of production conditions, the marked seasonality of income flows, and a larger number of missing or incomplete complementary markets in rural areas, rural financial market is a more challenging proposition than urban finance.

## 3.2.4. Preconditions for Development of Rural Financial Markets

A fundamental responsibility of governments is in the creation of an enabling policy environment that will allow a complete, competitive, and deep rural financial market to emerge. To overcome this responsibility, the following favorable conditions should be fulfilled:

1. The establishment and maintenance of macroeconomic stability;
2. The pursuit of sectorally neutral economic policies;
3. Clarification of property rights;
4. The establishment of an appropriate legal and regulatory framework; and
5. The development of a competitive rural financial intermediary environment.

**Macroeconomic stability**

The existence of a stable macroeconomic environment, marked by price and exchange rate stability is a necessary but not sufficient condition for the orderly and sound development of a financial market. Consistent and rational economic policies foster investor and consumer confidence. In rural areas, the production of agricultural goods, many of which are tradable, makes the sector very susceptible to foreign exchange movements, both in nominal and real terms. An improper management of the foreign exchange rate can have adverse effects on the soundness of rural financial intermediaries, especially if inflationary and recessionary effects swamp the demand boost for rural export and import substitute products. Massive devaluations can lead to repayment crises. On the other hand, the maintenance of an overvalued currency acts as a tax on agricultural export producers, making them less profitable and less bankable clients. The result is that farmers will tend to plant less of the taxed export crop, which is likely to have much better established marketing distribution channels and thus represents an investment of lower default risk for the banker to finance. In another scenario, where the commodity is domestic staple, an overvalued currency dampens export demand but stimulates urban import demand for foreign foods that are substitutes, thereby reducing farm income, and increasing bank default risk. In comparison, processed or transformed agricultural commodities (textiles or canned food) can benefit from devaluation if the product is exported and most inputs are domestically sourced. In an overvalued regime, when the outputs are import substitutes, demand for the good will fall. Rural, off-farm service enterprises and rural municipalities, are directly linked to the vagaries of agricultural price and yield movements, and tend to see demand for their services and tax bases move accordingly. If the fiscal management of the economy is weak, the use of tight monetary policy to control inflation, stifles rural loan demand, lowers investments in productive assets, and creates adverse selection risks.

**Appropriate sectoral economic policies**

The rural sector of most developing countries has historically suffered a legacy of urban biased polices, namely, administratively set low food prices and investments in infrastructure, health, and education skewed to urban areas. As a result, profitably investment opportunities in rural areas were restricted, making fewer rural residents commercially bankable. The rapid creation of non-farm jobs hinges on favorable infrastructure and a pool of well educated workers. Improvements in on-farm productivity and profitability depend on the quality and density of infrastructure and investments in agricultural crop research and post harvest handling technologies.

**Land titling and other clearly defined property rights**

The absence of clear and legally recognized ownership or access (note that farmers in Ethiopia have the right to use) contributes to underinvestment and unsustainable exploitation of the natural resource base. Farmers without title are less likely to invest in productivity enhancing technologies and are less likely to adopt soil and water conservation practices due to a variety of reasons. One of those reasons, however, is the financing constraint. Financial institutions are reluctant to lend for long gestating projects (e.g. perennial crops, soil and water conservation) without real collateral. Thus, the lack of land title, the most valuable asset a farmer usually possesses, makes long term agricultural financing very problematic. A clear challenge is to promote the clarification of property rights as means to strengthen and improve the functioning of financial markets.

**Legal and regulatory framework**

Adequate contract enforcement and bank supervision are important for the development of a sound and vital rural financial market. The legislation that governs the entry to banking, capital adequacy, legal lending limits, risk classification standards have a direct bearing on the competitiveness and the solvency of rural finance. If the delays and transaction costs are high in executing guarantees, transferring title, presenting a claim in the courts for breach of a contract, etc. are high and unreasonable, this represents a barrier to financial institutions to lend to rural residents and to innovate and develop new financial instruments or products.

The systematic and professional oversight of deposit taking financial institutions is crucial to protect the interest of small depositors and contain systemic risk to the entire financial system. The regulatory framework should clearly delineate the rights and obligations of parties engaging in financial transactions, and assure adequate disclosure, transparency, and protection for small and unsophisticated depositors and investors. Consolidated supervision of financial groups should also exist to eliminate regulatory arbitrage. The challenge, however, is finding the right balance of protection to depositors and maintenance of system integrity without imposing onerous and uneconomic burdens on financial intermediaries.

**Competitive environment**

In order to develop deeper, more efficient and more complete markets, competitive forces have to be unleashed. In most parts of Ethiopia and other African countries, competition in rural financial services is absent. The predominant actors are publicly owned specialized intermediaries, credit granting non-governmental organizations, and informal suppliers. The clientele of each is segmented. The terms and conditions for each typical provider range tremendously. Financial costs are lowest for the publicly owned institutions but the transaction costs are the highest. The reverse is true for the informal lender. Each private intermediary (non-regulated or informal) has a very limited range of products to offer, usually one or two. Part of the solution requires a detailed analysis of barriers to entry, restrictions on foreign financial institutions, and other legal or regulatory restrictions that may impede competition. Another part of the solution requires building and strengthening trade finance. Savings and loan institutions are not the only and predominant actors in rural finance—supplier finance and interlinked contracts also have a significant role to play.

CHAPTER FOUR

# 4. Financial Analysis of a Farm Business

Assuming that you have a basic understanding of accounting fundamentals, the next step is to create a complete set of farm financial statements. These are the backbone of farm business analysis.

Financial analysis involves maintaining and using records and other information needed to measure the financial performance of the business. A farmer cannot possibly make the intelligent decisions on the allocation and use of capital unless adequate information regarding the current financial condition and past progress of the operation is at hand.

Financial statements also are used by farmers in record keeping and making out income tax reports and may be used by landlords in interviewing prospective tenants. Financial statements report both on a farm's position at a point in time (the balance sheet) and on its operations over some past period (the income statement and statement of cash flows). However, the real value of financial statements lies in the fact that they can be used to help predict future earnings. From an investor's standpoint predicting the future is what financial statement analysis is all about, while from management's standpoint, financial statement analysis is useful both to help anticipate future conditions and, more important, as a starting point for planning actions that will affect the future course of events.

The most widely used financial statements are;

* The balance sheet
* Income statement, and
* Cash flow statement

## 4.1 Balance Sheet

 The balance sheet is one of the most common financial statements used in business today. It provides “a snapshot” view of financial health of the farm business at given point in time. Maintaining accurate asset and liability listing is integral to balance sheet development. Net worth statement is one which lists all the assets of a business at fair market value, records all the liabilities of a business and shows the net worth (owners’ equity) at a specific point in time (net worth statement). Moreover, it is a summary of the assets and liabilities of the business. Its primary function is to measure risk-bearing ability or financial solvency. It shows the margin by which debt obligations would be covered if the business was terminated and all assets sold. The balance sheet is a comparatively simple statement commonly used in the business world.

Lenders usually obtain a balance sheet as part of every loan application and keep an up-to-date statement of the financial condition of each borrower on file.

**Structure of the net worth statement**

The first area found in the net worth statement is the **Title** which indicates the name of the business or individual for whom it was prepared and the **date** on which it was prepared.

The structure of the balance sheet is obtained from the basic accounting equation

  (4.1)

This relationship essentially indicates that the value of the claims /earning/ on assets by the owner and creditors is equal to the value of the assets. Thus the balance sheet is always divided into three parts:

1. The assets or value of things owned;
2. The debts owed (liabilities); and
3. The difference between items 1 and 2, which is the owner's equity. This last item makes the statement balance.

The net worth statement is divided vertically into two columns with assets and liabilities occupying the left and right columns respectively. Each of these two components is broken down in to their three classifications; current, intermediate and long term (fixed).

Table 4.1: Balance sheet for Highland Farms, January 1, 2006

|  |  |
| --- | --- |
| Assets |  Liabilities and owner equity |
| Cash | 10,000 |  Accounts payable |  1.600 |
| Grain and hay | 50,578 |  Bank note | 56,290 |
| Livestock | 55,565 | Real-estate contract | 118,300 |
| Machinery | 80,675 |  Total liability  | 174,592 |
| Insurance | 22,700 | Owner equity | 44,926 |
|  Total Assets | 219,518 |  |  |

The general form in Table 4.1 is the conventional one used in accounting. The assets or items owned on January 1, 2006, are listed on the left side of the statement. The total of these assets as shown is birr 219,518. This is the amount that would be received if the farm business was sold or liquidated, given a reasonable amount of time. On the right side of the statement are the debts owed, totaling birr 174,592. The difference between the assets and the debts outstanding is birr 44,926 which represents the equity or net worth of Highland Farms. The amount of net worth, not assets, and the relationship between assets and liabilities indicate the solvency of the business.

When the amount of debt/liability/ outstanding is greater than the value of assets, the difference is called the **net deficit** and the farmer is **insolvent to the extent**. A net deficit is placed on the assets side of the balance sheet because it represents a shortage of assets. Thus when the assets or shortage of assets are added, they will equal the total liabilities and the two sides of the balance sheet really balance.

**Components of the net worth statement**

**Asset**; assets are the owned resources of the farm business or a thing of value owed to the business. A business can only acquire assets through its equity or liabilities. For example, if you were to buy a new tractor, you may make a down payment with cash from savings (equity) and finance the balance of the purchase price with a loan (a liability). Therefore, it makes sense that the value of liabilities and equity added together must exactly equal the value of the assets of the business. Therefore, the net worth statement is based on this accounting equation:

 Asset = liability + net worth

Liabilities

Net worth

Assets

This above equation and figure indicates that the asset of business is financed by either creditor (through liabilities) or the owners of the business through their net worth (equity). Asset, liabilities and net worth have been identified as the components of the net worth statement. Let’s look at how assets and liabilities are broken down into smaller categories that are used in net worth statement preparation and analysis.

Assets can be broken down into three classifications depending upon how they are utilized by the business- current, intermediate and fixed assets.

**Current assets**: are the most liquid assets (cash, or near cash items). They can be easily converted into cash without disrupting the business. They usually represent the production of the farm such as grain and market livestock inventory held for sale. Most current assets will be used up (fertilizer and chemicals) or converted into cash within one year of the net worth statement date. Current assets should be valued at fair market value. The following items would normally be considered current assets for net worth statement purposes; cash on hand, bank deposits, account receivable, product inventory, feeder and market livestock, cull breeding stock, livestock products, supplies inventory, fall applied fertilizer and chemicals, prepaid expenses, marketable securities, personal assets (cash surrender value of life insurance etc) and cash investment in growing crops.

**Intermediate assets**: are working assets used to support farm production. Normally they have a useful life of between one and ten years. Since they represent a part of the productive plant of the business, sale of intermediate assets could drastically change the nature of the farm. Intermediate assets should be valued at fair market value. Intermediate assets may be subject to depreciation.

The following items would be normally considered intermediate assets for net worth statement purposes; machinery, and equipment, breeding stock, perennial crops, government accounts, stock and bonds, marketable securities, personal vehicles, recreational assets, household goods and effects and non -farm assets.

**Fixed assets**: are the most permanent production assets whose useful life generally exceeds ten years. They represent the best security in the business. Like all assets, fixed assets are valued at market value for purposes of the net worth statement. Fixed assets may be subject to depreciation, as is the case with building or appreciation, as may be the case with land.

**Liabilities**: can also be broken down into three classifications depending upon the time frame of their claims against the farm resources; current, intermediate and long term liabilities.

**Current liabilities**: are debts that are due now or will come due within one year. They are generally used to finance production; current liabilities indicate the claim on available cash and saleable production within the year. The following items would be considered current liabilities for net worth statement development purpose: operating loans, revolving lines of credit, cash advances, and accounts payable (to suppliers), loan arrears, accrued taxes, accrued rent, lease payments, contract payments, deferred taxes. The principal portion of term debt due in the coming year (the current portion) is part of current liabilities.

Term debt

Current portion

Portion not due

**Intermediate liabilities**: are those debts that have an original principal repayment schedule of between one and ten years. These loans are generally used to finance the purchase of intermediate assets but could also be a result of a consolidation of current liabilities (spreading repayment of current liabilities such as operating loans or accounts payable over a long period of time to improve working capital). When preparing net worth statement, intermediate liabilities are broken down in two portions- the principal due in the current year (current portion) and the principal portion reaming (portion not due). For example, a tractor loan with a present principal balance remaining of $ 24,000 and annual principal payments of $ 8,000 would be entered on the net worth statement. The following items would be considered intermediate liabilities for net worth statement development purpose: machinery and equipment loans, breeding stock loans, and debt consolidation loans.

**Long term liabilities**: are those debts that have an original principal repayment schedule of greater than ten years. These term debts are used most often for the purchase of fixed assets such as land and buildings but could also be the result of current debt consolidation. When preparing a net worth statement, long term liabilities are broken down into two portions- the principal portion due in the current year (current portion) and the principal portion remaining ( portion not due). A new land loan for $ 100000 with annual principal payments of $ 5000 would be entered in the net worth statement. The following items should be normally considered long term liabilities for net worth statement development purposes: land loans, building loans. Debt consolidation loans, agreements for sale, and loans for improvements.

Although you can prepare a net worth statement at any time throughout the year, it is advisable to prepare at least one net worth statement on the same date each year (preferably January 1). This gives the manager a better basis for business for business analysis. Preparing a net worth statement is straight forward once you have complete and accurate listings of all your assets and liabilities and values for each. It is developing the listings and determining the value that present the challenge. Developing and maintain assets and liabilities are integral to net worth statement preparation. These listings also provide information as to the type, quality and quantity and value of the resources available to the business and of the claim of liabilities on those resources.

**Net Worth**: net worth or owner equity is the difference between the fair market value of the assets and the value of the liabilities. It is the amount of money that would be left if you sold all your assets and paid all your liabilities on a specific date. Net worth measures the amount of equity in the business.

A high net worth relates to good financial strength and ultimately good credit rating of an individual or a company. Similarly a low or negative net worth will relate to a weaker financial strength and a lower credit rating, thus directly affecting the individual's or the company's ability to raise funds from the market.

**Preparation of the net worth statement**

Although you can prepare a net worth statement at any time throughout the year, it is advisable to prepare at least one net worth statement on the same date each year (preferably January 1). This gives the manager a better basis for business for business analysis. Preparing a net worth statement is straight forward once you have complete and accurate listings of all your assets and liabilities and values for each. It is developing the listings and determining the value that present the challenge. Developing and maintain assets and liabilities are integral to net worth statement preparation. These listings also provide information as to the type, quality and quantity and value of the resources available to the business and of the claim of liabilities on those resources.

Balance sheet for Highland Farms, January 1, 2004

|  |  |
| --- | --- |
| Assets | Liabilities and owner equity |
| Current |  | Current |  |
|  Cash |  1,000 |  Accounts payable |  1,472 |
|  Corn, 6800 ton | 17,000 | Bank note, feeder cattle | 7,800 |
|  Oats, 400 ton | 560 | Bank note, operating | 25,121 |
|  Soybeans, 2100  | 9,660 | Portion of intermediate-term due this year | 1,040 |
|  Silage, 130 ton | 2,730 | Portion of long-term due this year  | 6,600 |
|  Hay, 45 ton | 1,925 |  Total |  42,033 |
|  Feeder cattle, 81, head | 11,692 | Intermediate |  |
|  Market hogs, 208 head | 10,400 |  Tractor and machinery |  1,040 |
|  Total  |  54,967 | Long-term |  |
| Intermediate |  |  Real-estate contract  | 118300 |
|  Beef cows, 33 head  |  7,260 | TOTAL LIABILITIES | 161,373 |
|  Bulls, 2 head | 1,000 | OWNER EQUITY | 138845 |
|  Sows, 31 head | 4,960 | TOTAL LIABILITIES AND OWNER EQUITY | 300,218 |
|  Boars, 2 head | 400 |  |  |
|  Machinery, trucks, auto | 12,931 |  |  |
|  Total | 26,551 |  |  |
| Fixed |  |  |  |
|  Real-estate and buildings,  320 acres (cost – birr 184,000) | 216,000 |  |  |
| Other |  |  |  |
|  Cash value of life insurance |  2,700 |  |  |
| TOTAL ASSETS | 300,218 |  |  |

 Net worth statement

Table 4.2 Name: Teshome Yilma Farm Date: January 1, 20X1

|  |  |
| --- | --- |
| Assets | Liabilities |
| **Current** | **Current** |
| Cash on hand $ 1 ,750 | Operating loan $ 10,000 |
| Seed and feed inventory $ 4, 425 | Cash advances $ 5,000 |
| Grain and feed inventory $ 26,325 | Account payable $ 15,000 |
| Market livestock inventory $ 21, 000 | Intermediate principal due $ 3,000 |
| Supplies inventory $ 3,663 | Long term principal due $ 4,000 |
| Notes and accounts receivable $ 10,000 | Intermediate accrued interest $ 50,000 |
| Personal and other $ 20,000 | Long term accrued interest $ 13,000 |
| Total current assets $ 87,163 | Total current liabilities $ 100,000 |
| **Intermediate** | **Intermediate** |
| Breeding stock $ 11,875 | Breeding stock loans -------- |
| Machinery and equipment $ 18,000 | Machinery and equipment loans 6,000 |
| Personal $ 7,000 | Personal loans --------- |
| Stocks and bonds $ 30,000 | Consolidation loans --------- |
| Other $ 10,000 | Other -------- |
| Total intermediate assets $ 76,875  | Total intermediate liabilities 6,000  |
| **Fixed** | **Long term** |
| Land $ 202,680 | Building loans 49,574 |
| Building $ 124,500 | Land loans 99,706  |
| Co-operative equity $ 2, 281 | Other --------- |
| Total fixed asset $ 329, 461 | Total long term liabilities 155,280 |
|  Total Assets $ 413,499 |  Total Liabilities 261,280 |
|   Net worth (owners’ equity) $ 152,219 |

**Net worth statement analysis**

Application of the information contained in the net worth statement is accomplished by the analysis of the various relationships between its three components. Assets, liabilities and net worth. This allows you to develop a detailed picture of the financial health of the farm business at a specific point in time. Proper use of these financial health indicators will help you make sound farm business management decisions.

**Liquidity**

Liquidity measures the farms ability to meet its financial obligations (debts) as they come due without disrupting normal business operations. In the previous section, you learned that the net worth statement measures debt coming due within the year in the current liabilities section and that the current asset section included liquid assets that could easily be converted into cash. Therefore, liquidity is a measure of the relationship between current assets and current liabilities. The key portion of the liquidity definition is- to meet its financial obligation as they come due without disrupting normal business operations. A farm may have more total assets than total liabilities (a positive net worth) but till not be liquid. Funds for debt repayment need to be generated from farm production not from the sale of production assets (machinery and land) that would disrupt business operation. Liquidity cannot totally evaluate the farms ability to meet all cash commitments. Liquidity is only measured on the date that the net worth statement is created. It does not measure or predict timing or adequacy of future inflows in relation to outflows.

**Working capital**

Working capital is simply the monetary difference between current assets and current liabilities. It is the amount available to finance upcoming production after the sale of current farm assets and payment of all current farm liabilities. The greater the amount of working capital, the more liquid the business.

 Working capital= current assets –current liabilities

Let’s review the example of the Teshome Yilma farm and determine working capital for that operation.

**Table 4.3 Name: Teshome Yilma date: January 1, 20X1**

|  |  |
| --- | --- |
| Assets | Liabilities |
| Current | Current |
| Cash on hand $ 1 ,750 | Operating loan $ 10,000 |
| Seed and feed inventory $ 4, 425 | Cash advances $ 5,000 |
| Grain and feed inventory $ 26,325 | Account payable $ 15,000 |
| Market livestock inventory $ 21, 000 | Intermediate principal due $ 3,000 |
| Supplies inventory $ 3,663 | Long term principal due $ 4,000 |
| Notes and accounts receivable $ 10,000 | Intermediate accrued interest $ 30,000 |
| Personal and other $ 20,000 | Long term accrued interest $ 13,000 |
| Total current assets $ 87,163 | Total current liabilities $ 80,000 |

Working capital = current assets – current liabilities= $ 87,163- $ 80,000=$ 7,163

Working capital needs to be positive for the business to be liquid. However, there is no hard and fast rule as to the ideal amount. Acceptable working capital will vary from farm to farm depending upon the type of farm, its size and the amount of risk associated with its production enterprises. Since working capital is an absolute measure of liquidity –that is, it is measured as a specific dollar amount; the amount calculated will vary from farm to farm. Therefore, it is not useful in comparing one farm to another or to a benchmark for management decision making purpose.

**Current ratio**

The current ratio is another method to determine liquidity. This is relative measure (a ratio) that examines the proportional relationship between current asset and current liabilities.

 $current ratio =\frac{current assets }{current liabilities}$

If the ratio calculated is greater than 1, then the business is liquid. A ratio less than 1 indicates that current assets are less than current liabilities and business would not be able to meet is financial obligations from sales of current assets.

**Debt structure ratio**

The debt structure ratio measures the proportional relationship between current liabilities and total liabilities and is often used in conjunction with working capital or current ratio when assessing business liquidity.

$$debt structure ratio=\frac{current liabilities}{total liabilities }$$

Lets determine the debt structure ratio for the Teshome Yilma farm as illustrated by the liabilities section of its net worth statement:

 $debt structure ratio=\frac{\$ 40147}{\$ 195427}$ = 0.21

A debt structure ratio of 0.21 would indicate that 21% of total liabilities of business covered by current asset or 21% of total business debts are in the current position (current liabilities). A high debt structure ratio is desirable if the business has positive working capital (a current ratio greater than 1). This would indicate that debt is being paid back in a relative short time period.

**Solvency**

Solvency refers to the ability of the business to meet its total debt obligations determined by comparing the amount of borrowed capital used to the amount of owners equity invested in the business. It is a measure of the risk bearing ability of the farm to carry on business after financial adversity. Also, solvency dose not measure how wisely debt is being used. If the solvency position is strong, the possibility of paying off debt should be examined to reduce interest costs. An acceptable solvency position depends upon the size of the farm and the enterprises associated with it and also upon management ability of the farmer and the measures he/she shield the farm from risk.

Like liquidity, solvency may be measured in two ways-absolutely (monetary amount) by net worth and relatively (ratio) by debt ratio.

 **Net worth** is a quick and simple method to determine solvency is to examine the value of net worth. It was discussed that net worth was determined by subtracting total liabilities from total assets. Therefore, it really is a measure of solvency because it compares owner’s equity (net worth) to borrowed capital (liabilities). If net worth is positive (total assets greater than total liabilities), the business is solvent. If net worth is negative (total assets are less than total liabilities) then the business is insolvent or bankrupt. However, since this is an absolute measure, it is not useful for comparing different farms.

Debt ratio (sometimes called the solvency ratio or debt to asset ratio) examines the proportional relationship between total liabilities and total assets.

 $Debt ratio=\frac{Total Liabilities}{Total Assets}$

If the debt ratio is less than1, the business is solvent. A ratio greater than1 indicate that total liabilities are greater than total assets and therefore the business is insolvent.

Accordingly, the debt ratio for the Teshome Yilma farm is

 $Debt ratio=\frac{261,280}{413,499}$=0.63

Debt ratios of 0.63 indicate that 63% of the business assets are debt financed.

## 4.2 Return analysis

### Income statements

An income statement summarizes income and expense and the result net income for an operation. It is sometimes called an operating statement, profit and loss statement or statement of income and expenses. The purpose of the income statement is provide information, in summary form, on the results of the business operations for a given time period, for example, a fiscal year. A fiscal year is an accounting period of 12 consecutive months. Most fiscal years correspond to the calendar year although some businesses use a non-colander fiscal year to match their production cycle or income tax strategy. A business usually completes an income statement at the end of its accounting period. Some large businesses will complete a quarterly or even monthly statement, as well. Accounting software can help provide statements at any time.

An income statement, also called a profit and loss statement, is a measure of receipts and gains during a specified period, usually year, less expenses and losses during the same period, with net income or loss as a result.

 Cash income statement

Table 4.4 Name : Teshome Yilma Farm Period covered: Jan.1 to Dec, 31,20X1

|  |  |
| --- | --- |
| Receipt /income | Expense |
| Grain sales $ 30,000 | Seeds and cleaning $5000 |
| Forage sales 5000 | Fertilizer and chemicals 3000 |
| Other crop income 7000 | Machinery repairs and maintenance 5000 |
| Market livestock sales 20000 | Marketing and trucking 1000 |
| Livestock product sales 3000 | Breeding stock purchases 30000 |
| Custom work 12000 | Land rental 5000 |
| Gov’t equity program earned 3000 | Property tax 10000 |
| Breeding stock sales 10000 | Utilities 1000 |
| TOTAL FARM INCOME 90,000 | TOTAL FARM EXPENSE 60,000 |
|  NET FARM INCOME 30,000 |

**Receipts**

Receipts are derived from sales of crops, livestock, and livestock products during the year and also from government payments and miscellaneous sources. On Teshome Yilma farm, receipts from these sources totaled birr 90,000 in 20X1. Any farm products used in the home should be valued and also included in receipts. The objective of the receipts section in the income statement is to show as accurately as possible the gross production of the farm, in monetary terms, during the year. This facilitates comparison of a given farm with others in the area as well as analysis of the trend in income on that farm over a period of years

For purposes of financial analysis, receipts from the sale of assets such as real-estate or machinery are generally not considered as income, since such income is not really produced or earned during the period. However, for tax purposes income is adjusted for any gains (or losses) resulting from the sale of capital assets. A gain, for example, would be realized if the amount received from the sale of a capital item exceeds it depreciated or book value. This gain may be reported for tax purposes; or if the capital item is replaced by a similar asset, the potential gain could be subtracted from the basis of the new asset.

**Expenses**

All expenses or costs involved in the operation of the business during the period covered by the income statement should be included. Thus all operating and fixed expenses are entered. However, capital expenditures to purchase fixed and working assets such as real-estate, machinery, milk cows, and breeding stock are excluded, since such items usually are used in the business for several years. The depreciation that occurs on these items during the period covered by the income statement is an expense, however, and should be included.

Operating expenses or costs include items such as seed, fertilizer, and fuel, which vary with the level of production. Fixed expenses such as depreciation, taxes, insurance, and interest on intermediate-term and long-term debt remain relatively constant regardless of the level of production.

 Table 4.5: Income statement for Highland Farms, for year ended December 31, 2004.

|  |  |  |  |
| --- | --- | --- | --- |
| RECEIPTS |  |  |  |
|  Livestock sales |  |  |  |
|  Cattle | 28,045 |  |  |
|  Hogs | 36,173 |  |  |
|  Total |  | 64,218 |  |
|  Crop sales |  | 9,450 |  |
|  Government payments |  | … |  |
|  Miscellaneous income  |  | 830 |  |
|  Gross cash receipts |  |  | 74,498 |
|  Increase in current inventory |  |  | 3,8555 |
|  Less Livestock purchased |  | 10,381 |  |
|  Feed purchased |  | 12,675 | 23,056 |
|  Gross income/net income/ |  |  | 58,999 |
|  |  |  |  |
| OPERATING EXPENSES |  |  |  |
|  Machinery and power (fuel, lubricant, repairs) |  |  8,630 |  |
|  Hired labor |  | 1,476 |  |
|  Livestock (feed, veterinary, expenses, etc.) |  | 1,416 |  |
|  Seed, fertilizer, herbicides, lime, etc. |  | 8,546 |  |
|  Interest on operating loans |  | 2,635 |  |
|  Utilities |  | 958 |  |
|  Miscellaneous |  | 820 |  |
|  Total operating expenses |  |  | 24,481 |
|  |  |  |  |
| NET OPERATING INCOME |  |  | 34,518 |
|  |  |  |  |
| FIXED EXPENSES |  |  |  |
|  Property taxes |  |  2,401 |  |
|  Interest on intermediate- and long-term debt |  | 9,299 |  |
|  Repairs and insurance  |  | 2,401 |  |
|  Depreciation on intermediate assets |  | 4,233 |  |
|  Depreciation on fixed assets |  | 1,000 |  |
|  Total fixed expenses |  |  | 19,334 |
|  |  |  |  |
| NET FARM INCOME |  |  | 15,184 |

**Net income**

Three net income (loss) figures are useful in analysis of the business:

* net cash income;
* net operating income; and
* net farm income

**Net cash income** equals cash receipts less cash expenses during the period covered by the income statement, excluding purchases and sales of capital assets. The net cash income figure provides an indication of the annual net cash flow of the business. It also is useful in preparing the income tax return when it is made on the cash basis. The net income of Highland Farms was birr 58,999 in 2004 as indicated in Table 4.5

**Net operating income** is computed by subtracting operating expenses from gross income. The net operating income of Highland Farms was birr 34518 in 2004 as indicated in Table 4.5. This measure of income facilitates comparison of farms with various fixed-cost structures such as different mortgage debt and depreciation schedules. It also facilitates comparing operating income on the same farm over a period of years, even though fixed costs change due to changes in mortgage indebtedness, etc.

**Net farm income** is computed by deducting fixed costs from net operating income. The net farm income of Highland Farms amounted to birr 15,184 in 2004. Net farm income represents the income accruing to operator and family labor, management, and equity capital. Of the three measures of income it is perhaps the most useful. It represents more accurately than the other two the true return of the business during the period covered by the income statement. Provided the data used in its depreciation are accurate and realistic, net farm income approximates the amount available for family living, income taxes, and savings. Principal payments on debts (which are not accounted for in expenses) such as loans incurred to purchase land must be paid out of net income.

**Analysis of Income Statements**

Analysis of financial relationships in the income statement provides information concerning performance of the farm business in addition to that obtained directly from the statement. Without a basis for comparison such as a summary of like relationships for similar farms in the area or similar information for the subject farm over a period of years, such ratios have little value. However, when a basis for comparison is available, pertinent ratios provide useful information. Progressive lenders generally use financial tests of various kinds in loan analysis. Working with a large number of farms, they are in a position to develop ratio standards, formally or otherwise, to provide the basis for comparison needed to effectively use this type of information. Income statement ratios can be divided into two categories:

1. Expense-to-income ratios
2. Income-to-investment ratios

**A. Expense-to-income ratios**

Expense-to-income ratios are used to measure the input-output efficiency of the business; i.e., they measure the margin by which the value of total production exceeds production costs. Controlling expenses in relation to income is one of the keys to a profitable farm operation. To more accurately reflect the value of production and to permit comparisons among different types of farms, adjustments are required for purchased feed and feeder livestock in computing expense to income ratios.

**Operating ratio:** The operating ratio (OR), as the name implies, relates variable or operating expenses to gross income:

 

**Example:** Consider the income statement in Table 4.5. Based on the table, compute and interpretthe operating ratio

**Solution**

The operating ratio is computed as

 

 $OR=\frac{24,481}{58,999}$ = 0.41

In 2004 Highland Farms had an operating ratio of 0.41. This means that total operating expenses amounted to 41 cents per birr of gross income.

**Fixed ratio:** The fixed ratio relates fixed expenses to gross income. The fixed ratio is computed as

 

**Example:** Consider the income statement in Table 4.5. Based on the table, compute and interpretthe fixed ratio

  =0.33

In 2004 Highland Farms had a fixed ratio of 0.33 which means that fixed or overhead expenses such as property taxes, insurance, depreciation, and interest on debt amounted to 33 cents per birr of gross income.

**Gross ratio:** The operating and fixed ratios comprise the gross ratio (GR):

 

**Example:** Consider the income statement in Table 4.5. Based on the table, compute and interpretthe gross ratio. The gross ratio is computed as

 

 

 

## *4.3 Repayment Analysis*

### 4.3.1. The Cash Flow Statement

The cash flow statement, also known as a sources and uses of funds or flow of funds statement, summarizes all cash transactions affecting the business during a given period such as a month, quarter, or year. The balance sheet and income statement are important tools for measuring the financial position and progress of the business. However, many farm lenders have experienced situations where a borrower has a good balance sheet and a high net farm income but is constantly slow in meeting financial obligations. This rather perplexing situation can frequently be diagnosed and resolved by analyzing the cash flow of the business.

The income statement is the starting point for the cash flow statement; however, the two statements differ in their treatment of several important accounting entries. A complete cash flow statement or budget will include several nonfarm business items such as taxes, nonfarm income, and living expenses. Cash withdrawals for management salary and stock dividends would correspond to family living expenses in an incorporated farm business. Cash flow analysis also gives a more complete accounting of debt transactions by showing principal payments and interest payments. The cash flow statement or budget reflects the cash transactions that occur with the purchase and/or sale of capital items such as breeding livestock, machinery, and real-estate.

On the income statement, expenses associated with capital items are determined by allocating the money outlay for a capital item over its useful life through the use of a relatively constant annual depreciation allowance. Furthermore, the income statement includes changes in inventories, whereas a cash flow includes sales and purchases as they occur, with no adjustment for inventory changes. The cash flow statement has three components:

- Cash flow from operating activities

- Cash flow from financing activities

- Cash flow from investing activities

**1. The cash flow from operating activities**

Composed of actions related to the sale of products or services, it records expenses for raw materials acquisition, marketing expenses, sale expenses, tax payments and more…

**2. The cash flow from financing activities** is composed of debentures, shares, notes, payments of dividends, interest on debts and loans (either long term or short term debts)

**3. The cash flow from investing activities** usually reflects the change in company’s net fixed assets. It deals with actions such as: the sale of financial or real assets, repayments for long-term loans, investments in equipment or assets acquisition.

**Sample cash flow statement using the direct method**

|  |
| --- |
| **Cash flows from (used in) operating activities** |
|   Cash receipts from customers | 9,500 |  |  |  |
|   Cash paid to suppliers and employees | (2,000) |  |  |  |
|   Cash generated from operations (**sum**) | **7,500** |  |  |  |
|   Interest paid | (2,000) |  |  |  |
|   Income taxes paid | (3,000) |  |  |  |
|   Net cash flows from operating activities |  | 2,500 |  |  |
| **Cash flows from (used in) investing activities** |  |  |
|   Proceeds from the sale of equipment | 7,500 |  |  |  |
|   Dividends received | 3,000 |  |  |  |
|   Net cash flows from investing activities |  | 10,500 |  |  |
| **Cash flows from (used in) financing activities** |  |  |
|   Dividends paid | (2,500) |  |  |  |
|   Net cash flows used in financing activities |  | (2,500) |  |  |
| . |  |  |
| Net increase in cash and cash equivalents |  | 10,500 |  |  |
| Cash and cash equivalents, beginning of year |  | 1,000 |  |  |
| Cash and cash equivalents, end of year |  | $11,500 |  |  |

#  UNIT FIVE

# 5. Financial Management in Agriculture

A farmer maximizes his utility if the expected returns are maximized and the risk is minimized. The theory of financial management defines the manager's role as maximizing the utility of the owner of the business, where utility is assumed to be a function of return and risk. Most business decisions can be thought of as a problem of selecting a portfolio of risky assets. Principles of financial management in agriculture are the main subject matters of this unit.

## 5.1 Definition, Function and Scope financial management

Financial management can be defined as the management of capital sources and uses so as to attain the desired goals of the firm, i.e. maximization of owner's wealth/profit/. The firm's capital consists of items of value that are owned and used, and items that are used but not owned. Examples of the use of the capital of the firm are receivables, inventories, and fixed assets.

As an area of study, financial management has two distinct functions: financing function and investing function. The financing function represents the management of the sources of capital, whereas the investing function indicates the type, size, and percentage of composition of capital uses. Investing function deals with the question "how much of the total capital provided by the financing sources should be invested in receivables, marketable assets, inventories, and fixed assets?" The specialized set of management duties and responsibilities that center the financing and investing functions are referred to as financial management.

The problems and opportunities that a financial manager faces and the business decisions he makes entirely depend on the goals of his organization. Profit seeking firms should behave in a way they maximize the wealth of the owners. It is also important to distinguish between wealth maximization and profit maximization as goals of business firms.

Finance, in general, consists of three interrelated areas: money and capital markets, investments, and financial management. The money and capital markets are deals with asset markets and financial institutions. To succeed in doing such jobs, we need to have a general knowledge on all aspects of farm business administration, because the management of financial institutions involves accounting, marketing, personnel management, as well as financial management. The investments area deals with the decision of both individual and institutional investors as they choose among enterprises for their investment portfolios.

Financial management involves the actual management of business firms. The types of decisions encountered in agricultural financial management range from farm plant expansion to choosing what type of enterprises to include to financial expansion of the farm business. Financial management has three objectives:

* Determining the size and growth rate: Financial management aims at determining how large the business firm should be and how fast should it grow.
* Determining asset composition: Financial management aims at determining the best percentage composition of the firm's assets.
* Determining the composition of liabilities and equity: Financial management aims at determining the best percentage composition of the firm's combined liabilities and equity decision related to capital sources.

## Economic Activities of a Farm Business

The manager of a farm business is responsible for planning, implementing, and controlling three types of economic activities: production, marketing, and financing. Every activity requires set of decisions to be made. Production activities require decisions on what to produce, how to produce, and how much to produce. Marketing activities involve managerial decisions on matters such as procurement of inputs and pricing and distribution of outputs. Financial activities require management decisions on capital acquisition and use.

The scope of the finance function overlaps production and marketing activities. Decision on what to produce and how much to produce, for example, determines in part the amount of capital the business needs. Similarly, marketing and finance are interrelated because the selection of input suppliers and product marketing outlets as well as the timing of purchase and sales are often dictated by the amount and terms of available finance.

**Managerial process:** The manager's job is to make decisions in an environment of risk and uncertainty. No one knows exactly what the future will bring. The prices, yields, costs, and the institutional structure within which the business operates may change bringing about unexpected results. These and many other uncertainties that characterize the real world require management.

The managerial process can be defined in terms of a step-by-step procedure. The financial manager is responsible for formulating goals, recognizing and analyzing problems, making decisions, taking actions, and accepting the responsibility for actions taken with regard to the financial affairs of the farm business.

**Defining goals:** Financial management is not an end in itself, but a means of accomplishing goals and objectives. The first step in financial management is to determine individual and family goals that grow out of needs and interests, past experiences, and values. These goals are the ends toward which individuals and families work.

Goal setting is a continuous process whose establishment involves weighing interests and needs, and modifying either the goals or the methods of attaining them. Goals ordinarily define specific objectives. Since they indicate investments that will be called for, expenses to be met, and income to be realized, goals are important in financial management. They should be formulated with these resources in mind and sufficiently explicit and non duplicating so that associated finances can be estimated. The timing of goals should be recorded to indicate when funds will be needed and/or when income will be forthcoming.

**Profit Maximization as a goal:** Profit maximization is usually assumed to be the overriding/ more important/ goal of management. However, this assumption has two short comings:

* It fails to account for the timing of earnings, and
* It fails to account for risk and uncertainty

Although the terms "risk" and "uncertainty" are frequently used interchangeably, there is a classical distinction between them. Both define a situation in which a number of outcomes are possible. Riskdescribes a situation in which these outcomes follow a known probability distribution, while uncertainty refers to cases where the probabilities of different outcomes are unknown. The two major sources of risk are business risk and financial risk.

Business risk is the variation in net earnings arising from the nature of the kinds of enterprises in which the firm is engaged, including weather, disease, and price changes.

The profit maximization rule, which compares mean or average returns, could be used to select superior projects with more profit, while standard deviation is used to select projects with less risk. A project with higher return and low risk can be considered as a profitable project. However, the choice is largely subjective depending on personal preference for risk versus returns as well as on financial ability to carry the greater degree of risk involved.

Financial risk determines how much capital should be acquired. Financial mangers really have only two basic capital sources: their own equity capital and non equity capital. However, the use of non equity capital creates a fixed financial commitment in the form of principal, interest, rent, or other obligations. This commitment to the supplier of non equity capital results in financial risk. As leverage, the amount of non equity capital relative to equity capital, increases, the financial commitment increases, so that the risk increases also.

##  5.2 Risk and Return as Goals

The primary objective of a farm business may be profit maximization. However, profit maximization is associated with a variety of risks involved in every business. While we are planning to maximize our returns from a farm business activity, we are planning to face risk and uncertainty. How can we measure risk and uncertainty in agriculture? What are the major decision rules applicable to select an optimal portfolio of enterprises? The major problem of agricultural investment is the high variability in returns associated with various factors and constraints prevalent in the sector. It is also difficult to measure the risk associated with the environment and individual enterprises. In this section, returns and risk are set as goals of a business, and the principles of diversification to maximize returns and to minimize risk from an investment are introduced with relevant applicability in agriculture.

Before we go to the details of return and risk, it is important to explain what risk is. Risk can be defined in terms of variability of returns. It is the potential for variability in returns. Risk refers to the chance that some unfavorable event will occur. An investment whose returns are fairly stable is considered to be a low-risk investment, whereas an investment whose returns fluctuate significantly is considered to be a high-risk investment.

The measures of profitability and risk can be used in two cases of analyses. Assets, businesses, investments, or enterprises can be analyzed:

1. On a stand-alone basis, where the enterprise is considered in isolation to estimate the expected return and risk involved in a single business; and
2. On portfolio basis, where the enterprise is held as one of a number of enterprises in a portfolio to select among alternative enterprises or investments

Thus, an enterprise’s stand-alone risk is the risk an operator would face if he held only this one enterprise. Most enterprises are held in portfolio, but it is necessary to understand stand-alone risk in order to understand risk in a portfolio context.

In financial management, the profit maximization goal can be modified to account for the fact that decision makers actually consider both expected return and risk. The financial manager is assumed to have a goal of maximizing the utility of the owner of the business, where utility is a function of both risk and expected returns. In this case, utility is the capacity of the business to satisfy the profit wants of the owner, i.e. maximum return and minimum risk. It is generally assumed that the manager prefers a higher return (or profit) over a lower value. It is also assumed that the manager is risk-avert in which case lower amount of risk is preferred. The general utility function for a profit-maximizing, risk-averse decision maker is given by

  (5.1)

Profit maximizing: ; (5.2)

Risk-aversion:  (5.3)

Where Utility,

 Expected return, and

 Risk

The position of the manager can be represented on a two-dimensional diagram such as Figure 3.1, which characterizes the risk-return utility function as a pair of indifference curves I1 and I2.  These curves indicate that the decision maker is indifferent to (or derives the same utility from) all combinations of risk and return along any given indifference curve. Along curve I1, for example, the decision maker is assumed to be indifferent to combinations of risk and expected returns denoted by e1v1, e2v2, e3v3, and e4v4. To assume more risk (e.g., 0v2 instead of 0v1), the decision maker must be compensated by higher expected returns, in this case oe2 instead of 0e1.

Figure 5.1: Indifference curves describing the risk-return utility function.

Expected return

E4

 E3

 E2

 E1

 0

 V1 v2 v3 v4

 Risk

Figure 3.1 also illustrates the utility increases with movements up and to the left to higher indifference curves. Such a shift represents less risk for any amount of expected return or greater expected return for any given amount of risk.

## 5.2.1 Measuring Expected Return and Risk

Thus far the analysis of the risk-return or E-V trade-off has been in terms of undefined units. The basic issue in analyzing the benefit of investments is how to measure the expected returns and the risk associated with returns. Before proceeding, we must define units for measuring both return and risk

### Expected Return

The expected return of an investment is the probability weighted average of all the possible returns. The concept of return provides operators with a convenient way of expressing the financial performance of an investment or business. There are two measures of returns: monetary terms and rate of return. The monetary return is the amount received less the amount invested. Although expressing return in monetary terms is easy, two problems arise

1. To make a meaningful judgment about the adequacy of the return, you need to know the scale (size) of the investment; and
2. You also need to know the timing problems of monetary returns. A $100 return on a $110 investment is a very good return if it occurs after one year, but the same return after 20 years would not be very good.

The solution to the scale and timing problems of monetary returns is to express investment results as rates of return, or percentage returns. The rate of return is the monetary returns per unit of investment. The rate of return standardizes the return by considering the return per unit of investment.

The expected return for a possible return is estimated as

 

Where Expected return

 Possible outcome of return in period (or situation) i

 Probability of occurrence of return Ei.

 

The mean or average value of returns is used as a measure of expected reruns estimated as

 

Where Return in year i;

 Number of observations.

### Risk

Risk can be measured in different ways, and different conditions about an asset’s riskiness depending on the measure used. This can be confusing, but, it will help if you remember the following five issues:

**Cash flow risk**: All financial assets are expected to produce cash flow, and the riskiness of an asset is judged in term of the riskiness of its cash flow;

**Stand-alone risk versus Portfolio risk**: The riskiness of an asset can be considered in two way: on a stand-alone basis, where the asset’s cash flows are analyzed by themselves, or in a portfolio context, where the cash flows from a number of assets are combined and then the consolidated cash flows are analyzed;

**Diversifiable risk versus market risk**: In a portfolio context, an asset’s risk can be divided into two components: a diversifiable risk component, which can be diversified way and hence is of little concern to diversified investors, and a market risk component, which reflects the risk of a general asset market decline and which cannot be eliminated by diversification, hence does concern investors. Only market risk is relevant, diversifiable risk is irrelevant to most investors because it can be eliminated;

**High risk and high return**: An asset with a high degree of relevant (market) risk must provide a relatively high expected rate of return to attract investors. Investors in general are averse to risk, so they will not own risky assets unless those assets have high expected returns;

Financial assets and physical assets: Financial assets such are socks and bonds, are different from physical assets such as machines, crops, land, and livestock. However, the basic concepts apply to both types of assets.

The variance and the standard deviation measure the extent of variability of possible returns from the expected return. The variance is computed as

 

Where The variance of the return, and

 The standard deviation.

**Example 5.1:** Assume a single crop A and its hypothetical possible returns (in monetary terms) and the associated probability of occurrence of these returns as indicated in the first two columns of Table 3.1. Compute the expected return, standard deviation, and variance of the returns.

Table 5.1: Estimation of expected return (pay-off matrix) and risk for a single enterprise.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Possible returns, Ei ($) | Probability, (%)P(Ei) | Deviation, ($)(Ei-E) |  | Product(Ei-)2P(Ei) |
| 30 | 0.10 | -18 | 324 | 32.4 |
| 40 | 0.30 | -8 | 64 | 19.2 |
| 50 | 0.40 | 2 | 4 | 1.6 |
| 60 | 0.10 | 12 | 144 | 14.4 |
| 70 | 0.10 | 22 | 484 | 48.4 |

**Solution:** Here, the sum and the mean of the returns are 250 and 50, respectively. The expected return from the business is estimated to be 48. However, expected return will not indicate the variability of the return or the risk associated to the expected return. The expected returns, the variance, and the standard deviation are 48, 116 and 10.8, respectively. These figures will enable to know the absolute magnitude of returns and variability for a single business.

This widely used approach for assessing risk is known as mean-variance approach. However, variance or standard deviation provides a measure of the total risk associated with an enterprise or business. The total risk comprises two components, namely systematic risk and unsystematic risk. Systematic risk is the variability in business returns caused by changes in the economy or the market, whereas unsystematic risk is the risk which is specific or unique to a business firm. Unsystematic risk associated with an enterprise can be reduced by combining it with another enterprise having opposite characteristics. This process is kwon as diversification.

 Table 5.2: Selection of alternative enterprises (portfolio selection) using expected returns and standard deviation.

|  |  |
| --- | --- |
| Year | Net returns above fixed costs (birr per acre) |
| Return for crop A  | Return for crop B  |
| 1 | 136 | 86 |
| 2 | 88 | 64 |
| 3 | 104 | 92 |
| 4 | 148 | 102 |
| 5 | 62 | 82 |
| 6 | 176 | 78 |
| 7 | 192 | 62 |
| 8 | 142 | 90 |
| 9 | 48 | 94 |
| 10 | 34 | 60 |
| Mean return (E) | 113 | 81 |
| Variance () | 2953.11 | 215.33 |
| Standard deviation () | 54.34 | 14.67 |

**Solution:** This example illustrates the general problem of selecting a portfolio of risky assets when resources are limited. The limited resource is land, and the risky assets are crops A and B. As shown in the table, the mean annual returns are 113 for crop A and 81 for crop B. Using this measure, crop A is more profitable on average. However, the standard deviation is 54.34 for crop A and 14.67 for crop B indicating that crop A is more risky business with a greater degree of year-to-year variability.

# Decision Rules for Risk-return Trade-off

If a producer is assumed to produce only one crop, there are several decision rules to follow when choosing between A and B on the basis of expected return and risk

However, if a choice must be done between two investments which have the expected rate of return but different standard deviation, most people would choose the one with lower standard deviation, and therefore, the lower risk. Similarly, given a choice between two investments with the same risk (standard deviation) but different expected rates of returns, investors would generally prefer the investment with the higher expected rerun. But, how do we choose between two investments when one has the higher expected rate of return but the other has the lower standard deviation? To help answer this question, we use other measures of risk known as coefficient of variation and highest lower bound.

### Coefficient of Variation

It may be desirable to select the alternative that offers the least amount of risk per dollar of net return. The measure for this decision rule is given by the coefficient of variation. The coefficient of variation shows the risk per unit of return, and it provides a more meaningful basis for comparison when the expected returns on two alternatives are not the same. The coefficient of variation is estimated as the percentage of the standard deviation to the expected return as

 

Where  Coefficient of variation.

The CV is 48% for crop A and 18% for crop B indicating that crop B offers less risk per dollar of expected return and would be preferred over A.

### Highest Lower Bound

Another decision rule would involve selecting the alternative with the highest lower bound. This rule is useful in a situation where the decision maker feels that net return below a certain level would be insufficient to meet financial obligations. One statistical measure of the lower bound is two standard deviations below the mean computed as

 

Where The highest lower bound.

For our hypothetical crop data the lower bounds (in birrs) are

* For crop A: 113-2(54.34) = 4.32;
* For crop B: 81-2(14.67) = 51.66.

According to the highest lower bound rule, the decision maker would select crop B in Example 3.2 because its lower bound is birr 51.66 compared with birr 4.32 for crop A. Note that both the coefficient of variation and the highest lower bound have resulted in selection of the same crop B. It is also sometimes possible that the two measures may end with different results. However, neither rule accounts for the risk-return trade-off shown by the decision maker's risk-return utility function, because it is difficult to get numerical estimates of utility functions. Nevertheless, the concept of risk-return indifference curves is useful for explaining why some decision makers would rationally choose to grow crop A while others would prefer crop B.

# UNIT SIX

# 6. Risk Management Strategies and Insurance in Agriculture

Business firms encounter two kinds of risk—business and financial. Business risk refers to the variation in net income resulting from the type of business (product line, enterprise combination, etc.) in which the firm is engaged. Financial risk refers to the relatively greater loses that occur under unfavorable business conditions when financial leverage is high. The combined effects of business risk and financial risk are embodied in the principle of increasing risk.

## 6.1 Sources of Risk and Uncertainty in Agriculture

Risk-bearing ability and the capability to mange risks are necessary because of five different kinds of change or uncertainty faced by farmers. These are:

* production uncertainty,
* price uncertainty,
* causality risk,
* technological uncertainty,
* uncertainty caused by actions of others, and
* personal uncertainty,

### Production Uncertainty

Production uncertainty is caused by variations in weather and by diseases, insects and other biological pests. Production uncertainty in crops is concentrated particularly in those areas where weather is unstable. These are high-risk areas because of their great variability of production. When yields are below normal, income may be inadequate to cover costs and, as a result, cash deficits accumulate. The risk would not be so great if a poor year were followed by one that was average or above. However, two or more years of drought often occur together. Other risks include disease and adverse weather conditions including freezes, windstorms, hail, excessive or too little moisture, floods, etc.

Livestock enterprises also involve production uncertainty. Death losses from diseases and adverse weather conditions are common. Losses from contagious disease may strike an individual farmer unusually hard. Losses from bad weather conditions at furrowing, calving, or lambing time also affect production.

Generally, natural hazards in all types of production are great. These factors need to be given full recognition in financial planning.

### Price Uncertainty

Closely associated with weather and other natural hazards is the risk of price fluctuations. Low levels of production are generally associated with higher prices; however, this generalization may not hold for the individual farmer. Price uncertainty always has been a major consideration in farming, and farm commodity prices have fluctuated dramatically in recent years.

Many forces cause prices to fluctuate, such as

* the level of national prosperity,
* production of other farmers, and
* Changes of consumer tastes.

Prices change from week to week, from month to month, and from year to year. These short-term and long-term price variations must be incorporated in financial plans. Government price support programs have been introduced by considerable public attention to minimize price fluctuations. These support programs have helped reduce price uncertainty, but input and product price fluctuations are still part of farming. The combined effect of such forces as narrow margin in farming, purchase of more inputs due to technological advancement, and processing of some outputs is that a high proportion of gross income is required to pay for purchased inputs. As a result, the farmer is particularly vulnerable to fluctuations in farm input and product prices.

### Causal Risk

Property losses due to fire, flood, windstorms, theft, etc., are a source of risk in any business. The magnitude of property losses in agriculture has been increasing steadily due to inflation in asset values and because of technological advances that have led to large investments in machinery and buildings. Causality losses can generally be covered by insurance; however, income may still be reduced by the interruption of normal business activity that often follows a major loss

### Technological Uncertainty

Another type of uncertainty arises from the development and adoption of new techniques or methods of production. New crop varieties, chemicals, feed combinations, models of machines, and the like are continually being developed by research workers and business concerns. While these new developments usually are based on approved experimental procedures, the results realized may be different on a given farm from those expected. However, for various reasons a given farmer may not realize an increase. This type of technological uncertainty may increase the farmer’s risk if the new practice does not work out as anticipated.

The rapidity of technological change can also continue to uncertainty. A new method may be adopted, but still better method may follow close behind, making the first investment obsolete. In such cases a substantial portion of the value of a machine disappears as soon as new model comes on the market, and risk-bearing ability is needed to stand the loss.

A third type of uncertainty associated with change stems from the possibility of being left behind by not adopting new techniques and adjusting the business to make full use of them. Many farmers who a decade or so ago had sufficient earning capacity and risk-bearing ability to use credit successfully now have become questionable credit risks. They have been slow to adopt new and improved practices and are operating the same size of units as formerly.

### Personal Uncertainty

No one knows what the future health of family members will be, i.e., when a serious illness may occur or when death will take family members who are important to the farm business operation. Medical and hospital expenses caused by a major illness may be substantial. When the farm operator is incapacitated, income suffers from loss of labor and management in the business. Uncertainty arising from family health is of a major importance in the farm business and should be fully recognized in considering risk-bearing ability.

## 6.2 Evaluating and Reducing Risk and Uncertainty

## 6.2.1 Analyzing Risky Situations/ risk assessment/

Although being aware of a risk is clearly important, before one can consider managing it, one must actually assess the risk being considered. Risks (and their impacts) are assessed by quantifying three main variables: hazard, vulnerability and exposure.

**1. Hazard** is categorization of the type of risk being considered- for example, weather, price, pest and policy. The qualification of the hazard is then undertaken by assessing three variables:

Frequency: how often or likely is the risk to occur?

Severity: what are the likely fiscal impacts of such risk is occurs?

Spatial extent: how widespread would the impact of the risk be- one person?

2. **Vulnerability** is an estimation of what the impact of the realized risk would be given the assets affected by event and taking into account the current ability to manage the impact.

3. **Exposure** is the identification of the location of the crops, livestock and farm holdings that may be directly impacted by the hazard.

### 6.2.2 Agricultural Risk Management Approach

Having first become aware of risk and then assesses it, the next issue is how the party at risk can seek to manage that risk. It should first be noted that risk management should be planned on an ex-ante basis (before realization of an event). For purposes of the Agricultural Risk Management Team (ARMT) at World Bank, **three** clear approaches to risk management are considered:

**Mitigation** is the lessening or limitation of the adverse impacts of hazards and related disasters. Risk mitigation options are numerous and varied (for example, crop and livestock diversification, income diversification, soil drainage, mulching, use of resistant seeds, avoidance of risky practices).

**Transfer** refers to the transfer of the potential financial consequences of particular risks from one party to another. While insurance is the best-known form of risk transfer, in developing countries the use of informal risk transfer within families and communities is extremely important.

**Coping** refers to improving the resilience to withstand and manage events, through ex-ante preparation and making use of information and formal mechanisms in order to sustain production and livelihoods following an event. Although we have noted that coping is an ex-post activity, it is possible to plan and to prepare for coping activities on an ex-ante basis. This is often fiscally beneficial, as the ability to quickly respond to events often reduces losses.

A fourth approach is that of risk **avoidance or risk prevention**. However, this is rarely possible in agricultural production, especially in developing countries where there are very few alternative sources of nonfarm employment;

### 6.2.3 Strategies to Reduce Risk and Uncertainty

Risk and uncertainty cannot be totally eliminated. However, risks can be reduced, and there are several strategies for improving one’s ability to withstand adverse business conditions. There are many strategies that can be used to reduce risk and uncertainty. These include the following:

* financial strategies,
* marketing strategies, and
* Production strategies

**Financial Strategies:** these strategies include:

* cash reserves,
* non-cash reserves,
* reserve borrowing capacity, and
* Investing in high-yielding investment alternatives.

**Marketing Strategies**: these strategies include:

* Hedging
* Commodity options
* Forward contracting
* Spreading sales

**Production Strategies**: these strategies include:

* Diversification
* Flexibility

**6.3 Insurance in Agriculture**

**6.3.1 Definition of insurance**

Insurance is one of the tools that farmers and other stakeholders can use to manage risks that are too large to manage on their own (risk layering). Part of that risk is transferred to another party, who takes it in return for a fee (premium). Where available and affordable agricultural insurance (crop or livestock) can provide great benefits to farm households.

### 6.3.2 Insurable and Non-insurable Risks

Some risks are more easily insured than others. Why it is so? We will discuss these factors.

**Predictability:** An event is insurable if the probability of its occurrence can be predicted and the cost of the event to the insured party can be determined.

**Size of loss:** Generally, the loss must be important enough to cause economic hardship to the insured. For this reason most insurance policies have deductive amounts to avoid the expense of processing small claims. At the same time very large or catastrophic losses are not generally insurable because a relatively small number would jeopardize the liquidity of the insurer.

**Moral hazard:** There must also be little or no “moral hazard”, i.e., the risk must generally be accidental in nature, and the availability of insurance coverage should not reduce the incentive of the insured to prevent the loss or induce the insured to cause the loss to occur to collect the insurance fraudulently. The degree to which these conditions hold determines in large measure whether the risk can be feasibly covered by insurance.

**Isolated risk:** Natural hazards vary in their insurability. Where the occurrence of the risk is isolated, as with the usual farm fire, a local insurance company covering a county can handle most of the risks. But where the occurrence might be widespread, a state or nationwide unit is better able to handle the risk. Crop failures due to drought that may cover wide areas are difficult to predict. As a consequence neither local nor state units are big enough to do the insuring. Only a nationwide agency can cope with this type of risk.

**Predictable frequency and volume of cases:** Personal hazards such as illness, accidents, and death lend themselves to insurance because they occur with predictable frequency when large numbers are included. It is unlikely that all individuals in any one area will be affected. It is, however, essential that the agency doing the insuring have a large volume of cases so it can be assured of experiencing about average frequency of loss.

**Widespread and unpredictable risk:** Price fluctuations do not lend themselves to insurance as well as natural hazards because they are not as predictable and are likely to affect wide areas or even the whole nation at the same time. Prices do not oscillate about a predictable average because they are the result of unpredictable factors such as weather conditions and other natural hazards as well as regulations, and the like. It is true that normal prices are estimated, but there are no forces that make prices average this normal over time. Hence any agency that attempts to insure against low prices has little actuarial basis on which to operate. Therefore, central governments are the only agencies with a large enough resource base to attempt any sizable program of price insurance.