

Risk in Agricultural Cooperatives: Types and Causes*

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Abstract

The agricultural cooperatives, as a type of financial institution, pose as an attraction to the farmers since they enable the farmers to pool their financial resources and efficiently venture on business activities deemed impossible if independent. As the operation of agricultural cooperatives involves agribusinesses, which are complex and rapidly changing, agricultural cooperatives are exposed to manifold internal and external sources of risks. The external and internal sources are responsible for different types of risks, which constantly influence the financial performance and subsequently the business operations of the agricultural cooperatives.

Due to the high degree of exposure to various types of risks internally and externally, risk management is an essential tool for the effective administration of agricultural cooperatives. The risks can be responsible for significant adverse effect on the operations of the agricultural cooperatives and subsequent loss to the organizations. As a consequence, there is a strong need to understand the risks and the impacts of those risks in order to identify the system, techniques, and tools to manage the aggregate effect of risks enveloping the agricultural cooperatives. From the study, the risk components inherent in the various aspects of operation of agricultural cooperatives are identified as credit risk, liquidity risk, interest rate risk, market risk, foreign exchange rate risk, and operational risk.

Key words: Risk, Risk management, Agribusiness

ความเสี่ยงของสหกรณ์การเกษตร: ประเภทและสาเหตุ*

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บทคัดย่อ

สหกรณ์การเกษตรเป็นสถาบันการเงินหนึ่งที่เป็นแหล่งเงินทุนของเกษตรกร การดำเนินงานของสหกรณ์การเกษตรจะเกี่ยวข้องกับธุรกิจเกษตรที่มีการเปลี่ยนแปลงอย่างรวดเร็ว โดยสหกรณ์การเกษตรจะต้องเผชิญกับความเสี่ยงที่เกิดจากภายในและภายนอกสหกรณ์ ความเสี่ยงทั้งสองอย่างนี้มีความแตกต่างกัน ซึ่งส่งผลกระทบต่อสภาพการเงินและการดำเนินธุรกิจของสหกรณ์

เนื่องจากความเสี่ยงมีผลกระทบที่รุนแรง การบริหารความเสี่ยงจึงเป็นเครื่องมือที่จำเป็นในการบริหารงานของสหกรณ์การเกษตร โดยความเสี่ยงส่งผลกระทบต่อการทำงานของสหกรณ์การเกษตรและนำไปสู่การดำเนินงานที่ขาดทุน ดังนั้น ความเข้าใจในการบริหารความเสี่ยงและผลกระทบของความเสี่ยงในส่วน of ระบบ เทคนิค และเครื่องมือ ในการจัดการความเสี่ยงจึงเป็นสิ่งสำคัญต่อสหกรณ์การเกษตร จากการศึกษาพบว่า ความเสี่ยงของสหกรณ์การเกษตรประกอบด้วย ความเสี่ยงด้านเครดิต ความเสี่ยงด้านสภาพคล่อง ความเสี่ยงด้านอัตราดอกเบี้ย ความเสี่ยงด้านตลาด ความเสี่ยงด้านอัตราแลกเปลี่ยน และความเสี่ยงด้านการดำเนินงาน

คำสำคัญ: ความเสี่ยง การบริหารความเสี่ยง ธุรกิจเกษตร

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1. Introduction

The agricultural business environment has become more complex and challenging to agricultural managers. Farmers and agricultural cooperatives, as producers, are faced with shorter decision times in responding to changes in national agricultural policy, the structure of output and product markets, the technology and industrial organization of the agricultural production, and the structure and regulation of input markets. Additional complications arise by the increase of regional issues such as controlling pest populations and resistance, management of nutrient and pesticide runoff, crop buffers, genetic drift, and tracking and coordinating response to disease.

Amidst the growing complexity and challenges in the agricultural sector, agricultural cooperatives poise a significant status. An agricultural cooperative (agricultural coop) provides agricultural producers the opportunity to process, and market their crops in a joint business venture with other producers. As agricultural coops have to deal with volatile markets, focus on single-commodity, limited capital reserves, and risk-averse membership, the result of those waves of changes increased risk to business operation of agricultural coops. William (1999) and Wateman (2002) have identified the sources of risks, and their influences to business

operations of agricultural coops. Manfredo, Richards, and McDermott, (2003) found out that the mean financial performance of agricultural coops are influenced by risk. Many risk management tools exist to minimize the influence of risks on agricultural coops. However, agricultural coops have been slow in adopting active risk management practices; especially, the small regional cooperatives with commodity specific focuses have been responding slowly. So there is a need to provide education on risk pertinence, and risk management to managers of agricultural coops, and extension educators in the agricultural sector.

The goal of this literature review is to explore the types of risks faced by agricultural coops and the influence of those risks to the performance of agricultural coops, and identify the process to manage the complete sets of risks that agricultural coops face. This paper considers two main topics: (i.) the concept of risk, and (ii.) the risk management in agricultural coops. Firstly, for the concept of risk in agricultural coops, the paper reviews the existing types of risks, and their negative influences to business operations of agricultural coops. Secondly, for the risk management in agricultural coops, the paper identifies the practical process and methods that can be used in managing risk. The

literature and findings of this research provides insight into the system and methods of risk management for agricultural coops, by starting from the risk component and the influence of risks on the performance of agricultural coops.

2. Purpose and service of agricultural cooperatives

A cooperative is an organization that is owned and controlled by people who use its products, supplies or services (Anschel, Brannon and Smith, 1996). Further, a cooperative is a private business organized and joined by members to fulfill their mutual economic needs as patrons of the business, with the key control, ownership, and income distribution decisions based on patronage proportions; namely, member voting, equity capital investment by patrons, and distribution of net income to patrons proportional to the use of the cooperative (Barton, 1989). Barton has outlined three principles embodied in cooperatives related to business decision-making. Firstly, those that use the cooperative are owners and financiers. Secondly, because only owners use the cooperatives, they maintain the control. Thirdly, those user-owners receive distributed benefits from the cooperative. These three principles distinguish cooperatives from all other forms of businesses.

3. Risks of agricultural cooperatives

According to Cobia (1989), in financial institutions inclusive of agricultural coops, numerous risks influence on the profitability. The multiple sources of risks raise definition issues. Each type of risk has to be carefully defined, and such definitions would provide the primary basis for analyzing risk in order to aid in the implementation of risk management.

As agricultural coops are directly related to agribusiness, agricultural coops have to confront the entire economic and agricultural risks of marketing. Additionally, agricultural coops face various risks existing within their organizations. Risks have impacts on financial performance and business operation of agricultural coops, such as cost increase and profitability decrease. Managing risks pose a challenge to managers who are responsible for business administration. However, to adopt the active risk management, it is important for them to understand about risks, the degree of their impact for cooperatives, the risk management processes and the rewards of alternative risk management methods on ultimate financial performance of cooperatives.

3.1 Definition and type of risk

Different authors have defined risk in different ways. "Risk" is usually defined by the

adverse impact on probability of several distinct sources of uncertainty (Santomero, 1995). Further, “risk” is defined as the potential for loss by limiting an organization’s ability to conduct its ongoing business or take advantage of opportunities to enhance its business (The Financial Services Roundtable, 1999). In general terms, people often think of risks as the chances of occurrence of bad incidents. “Bad” and “Chance” are the two key elements of risk. In financial terms, risk is the possibility of financial loss. “Bad” is the first element of risk, and it refers to an event or outcome that is adverse, such as operational failure. “Bad” also indicates a relative situation, whereby losing more money is considered worse than losing less money. “Chance” is the second element as indicated by risk being involved with the uncertainty that an

adverse event may occur (United States Department of Agriculture: USDA, 2000).

From the aforementioned definitions “risk” can be identified as the possibilities of loss that can materialize. Further, risk is the factor that can jeopardize an organization’s operation or undermine its financial condition and capital adequacy.

3.2 Types of risks

As a financial institution, agricultural coops are impacted to varying degrees by risks depending on the size and the nature of business (Gardner and Mills, 1994). As stated by different authors and researchers, there are different types of risks for financial institutions or banks, summarized in Figure 1, 2 and 3. Bessie (1998) grouped banking risks into 6 types as shown in Figure 1:

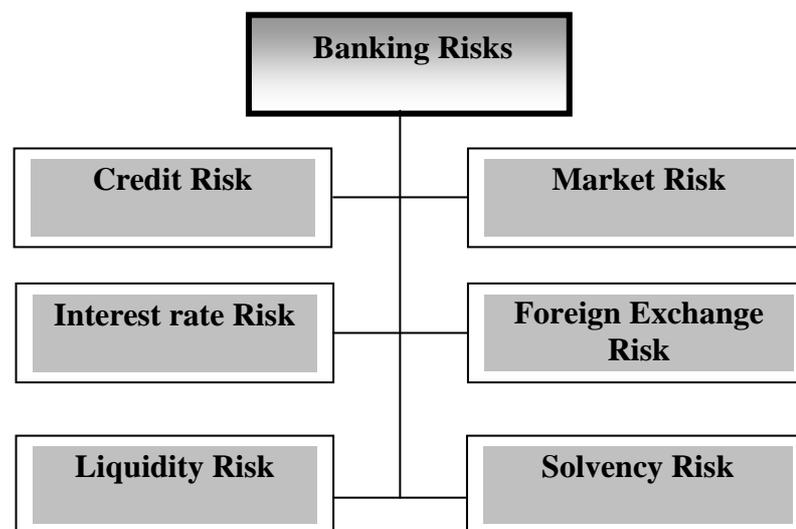


Figure 1 Classification of Banking Risks by Bessie, 1998

According to Greuning and Bratanovic (2000), banking risks can be classified into 4 types as shown in Figure 2:

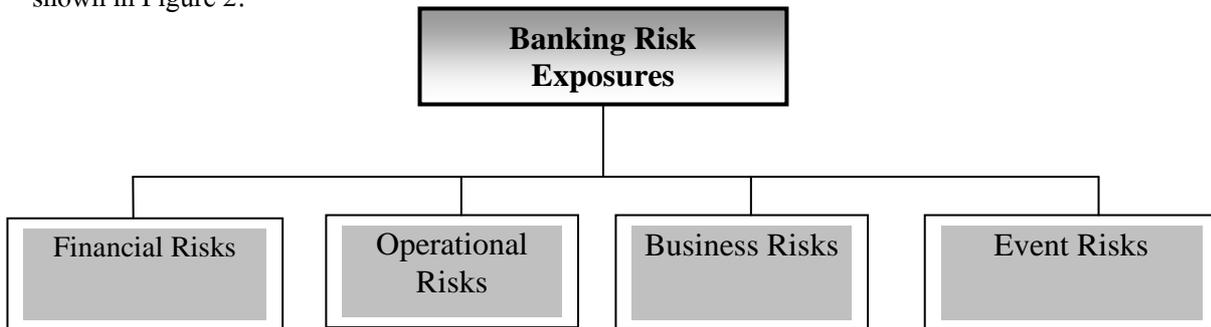


Figure 2 Classification of Banking Risk Exposures by Greuning and Bratanovic, 2000

In Thailand, Bank of Thailand (BOT, 2002) has identified 5 types of risks of financial institutions as shown in Figure 3:

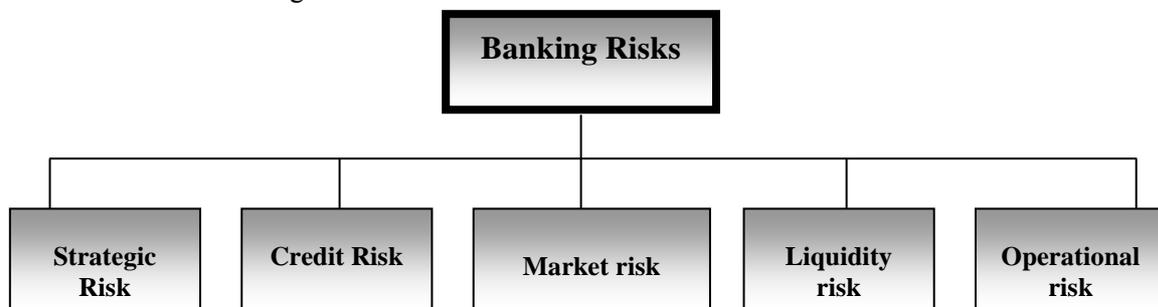


Figure 3 Classification of Banking Risks by BOT, 2002

The findings of several researches identify and categorize the types of risks of agricultural coops in different ways. Willett, (1998), has categorized the principal risks of agricultural coops into 4 types as 1) Credit risk, 2) Liquidity risk, 3) Market risk, and 4) Operational risk. According to Stefanson and Fulton (1997), risk component of agricultural coops can be distinguished into 5 types as 1) Credit risk, 2) Liquidity risk, 3) Interest rate risk, 4) Operation risk, and 5) Foreign exchange rate risk. Similarly, based on USDA (1997), risk components of agricultural coops can be categorized into 5 types, namely 1)

Credit risk, 2) Liquidity risk, 3) Interest rate risk, 4) Market risk, and 5) Operation risk.

The above-mentioned references provide ample support that agricultural coops are exposed to many different kinds of risks, which are similar, in general, to the risks of financial institutions. The categorization of risk components depends on the views and the experiences of the individual author and researcher. The following Figure 4 is an integrated representation of the risk components of agricultural coops based on the views of the different authors mentioned above.

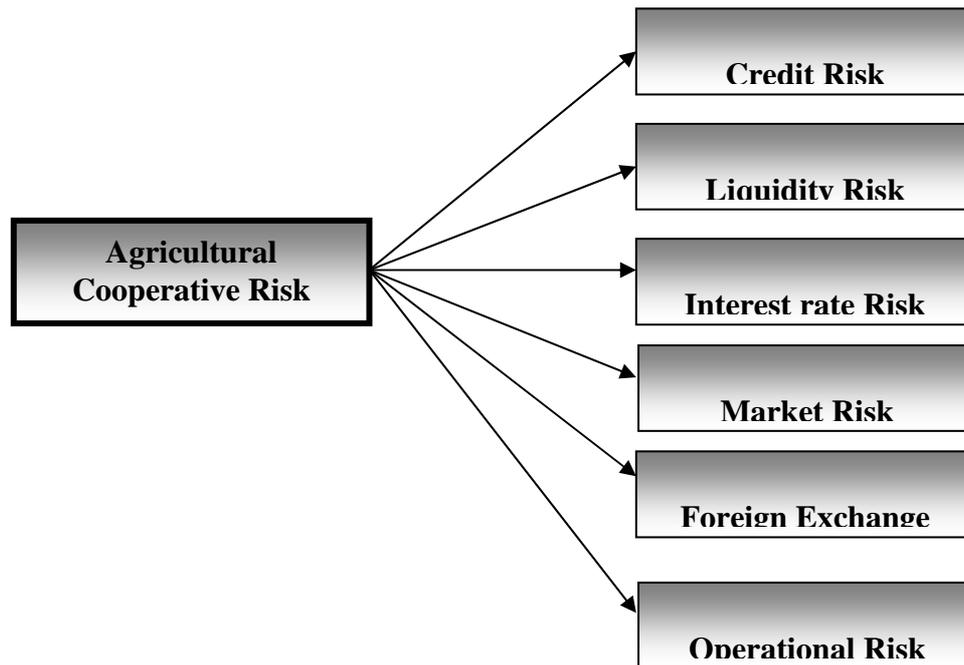


Figure 4 Risk Components of Agricultural Coops

3.3 Sources of risk

3.3.1 Credit risk

Credit risk is of paramount importance in terms of the potential losses it may cause. Credit risk is the risk related to the customers' default; as a result, credit risk arises due to the customers who fail to comply with their obligation to service debts (Wilson, 1988). Troughton (1986) has also indicated that credit risk is the risk of decline in credit standing of counter party. Such deterioration does not imply default, but denotes that the probability of default increases capital markets value of the credit standing of firms through higher interest rates on the debt issues of these firms, or a decline in the value of their shares, or a downgrading of agencies' rating, which is an

assessment of the quality of their debt issues.

The source of credit risk arises from bad debt.

3.3.2 Liquidity risk

Liquidity risk stems from the failure to meet obligations when they are due because of the inability to convert asset into cash or to obtain sufficient funds to meet the cash needs with appropriate costs within limited time periods (Kasikorn Bank, 2003).

Agricultural production remains the most prominent economic activity in rural areas, which makes rural finance more difficult and complex than finance in other business sectors. As most of the members are agricultural producers, agricultural coops prefer to apply for short, medium, and long-term loans. In order to provide long-term loans

for agriculture, lending institutions need sophisticated asset and liability management skills, which depend on effective management information systems and computerized operations. Since the analyzing and processing of the loans increase the transaction cost and risk, and henceforth, lead to the shortages in liquidity to the lender, financial institutions are usually reluctant to provide credit to agricultural coops.

3.3.3 Interest rate risk

Barton and David (1989) have described the interest rate risk as the risk of earnings decline due to the movements of interest rates. Most of the balance sheet items of cooperatives, which generate revenues and costs, are indexed to interest rates. Since interest rates are unstable, so are earnings. Anyone who lends or borrows is subject to interest rate risk. The lender earning a variable rate has the risk of seeing revenues reduced through a decline in interest rates. The borrower paying a variable rate has higher costs when interest rates increase. Both positions are at risk since they generate revenues or costs indexed to market rates. At the same time, the movements of interest rates present opportunities for gains as well.

3.3.4 Market risk

Gardner and Mills (1994) highlighted that market risk is the risk of adverse deviations of agricultural produces price in agricultural market. Unanticipated forces, such as weather or government action, can lead to dramatic changes in agricultural produces price. As agribusiness moves towards a globalized market, the agricultural coops are ever-increasingly exposed to a wider range of unanticipated forces rampant in the global market. For instance, the weather conditions in the other parts of the world and the government policies of other nations can vary the price of the agricultural producers in the global market.

As a result, the market risk can be identified as the risk that emerges due to the uncertainties in relation with the amount and the price of agricultural produces.

3.3.5 Foreign exchange risk

Smith and Smithson (1990) stated that the foreign currency risk is the risk of absorbing losses due to the changes in exchange rates. Variations in earnings are caused by the indexation of revenues, the changes in exchange rates, or the movement of the values of assets and liabilities labeled in foreign currencies (Bessis, 1998). Generally, the foreign exchange rate risk arises from the changes in exchange rates; especially, in the

case of firms involved in businesses overseas such as imports and exports or with foreign borrowings. In simple words, foreign currency risk is the risk associated with the agricultural coops that deal in foreign currencies as an outcome of the foreign exchange rate fluctuations.

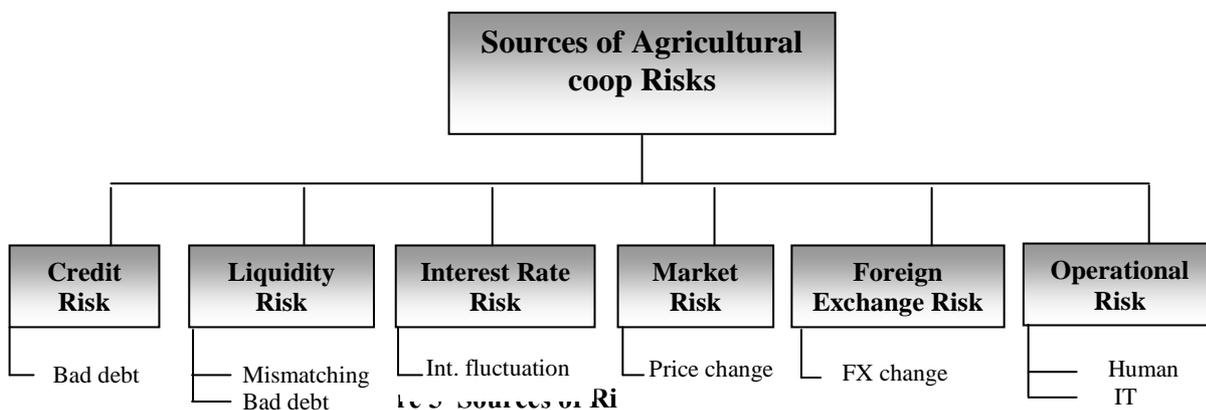
3.3.6 Operational risk

Operational risks are related to the malfunctioning of the information systems, reporting systems, and the internal risk monitoring rules (Madura, 1996). Operational risk is the latent risk affiliated to other risks that make Thai agricultural coops incompetent in agricultural business. It is the risk caused by external events, and, at the same time, by deficiencies in internal processes, people, and

systems, which results in an economic loss – whether anticipated to some extent or totally unanticipated. Operational risks are too diverse to manage by an individual person or division. In the absence of efficient tracking and reporting of risks, some important risks can remain ignored, do not trigger any corrective action, and can result in disastrous consequences. Operational risks appear at two different levels:

- The technical level, when the information system or the risk measures are deficient.
- The organizational level, while reporting and monitoring of risk, and all related rules and policies are inadequate.

Figure 5 demonstrates the identified risks and their corresponding sources.



3.4 Risk impact

Many researchers studied the impact of risks on the business performance, which are amplified as follows:

Manfredo, Richards, and McDermott (2003) studied the agricultural coops and risk management and their impacts on financial performance. The research found out that risks affect the overall performance and the financial

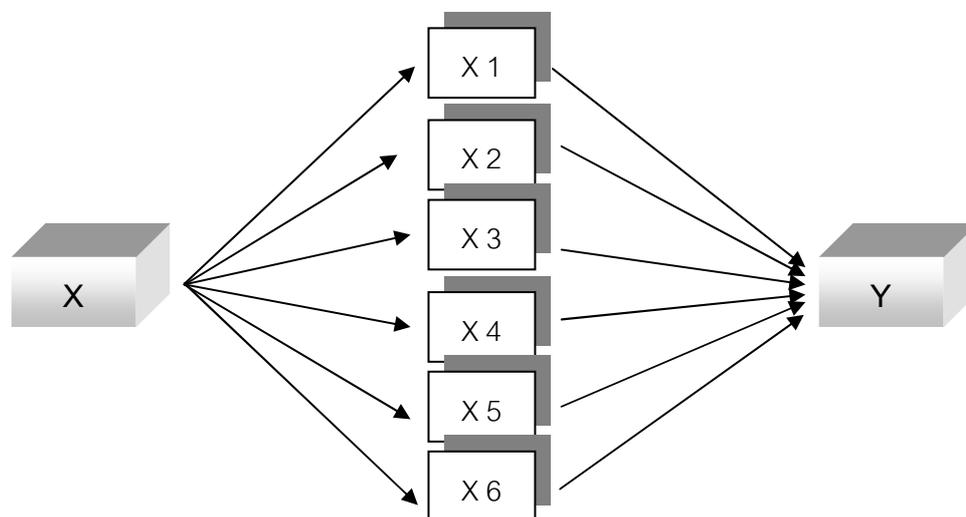
system (status) of agricultural coops, and induce the competitive disadvantage.

Moreover, Polster and Huang (1999) analyzed risk of the financial sector in China. The finding indicated the decrease in competencies of business operations of financial institutions due to the existence of risks.

Chaychon (2000) examined the effect of credit risk and market risk in the operation of agricultural coops in Northern Thailand. The research signified that credit risk is a source of liquidity risk. Thai agricultural coops generally borrow funds from external sources to maintain their liquidity. This practice results in higher costs of funds for agricultural coops.

Moreover, the outcome indicated that the change of prices of agricultural produces in the agricultural market leads to higher cost of operation in agricultural coops. The findings concluded that credit risk and market risk bear adverse effect on the profitability and competition of the agricultural coops.

From the researches and studies mentioned above, a conclusion can be drawn that the degree of impacts of different risks varies based on the type of risk. However, the impacts of the different risks tend to interact with each other and adversely influence the profitability and competition of agricultural cooperatives as shown in Figure 6.



- X = Agricultural Cooperative Risks
- X 1 = Credit Risk
- X 2 = Liquidity Risk
- X 3 = Interest rate Risk
- X 4 = Market Risk
- X 5 = Foreign Exchange Risk
- X 6 = Operational Risk

Figure 6 Risk Impact on Business Performance of Agricultural Coops

3. 5 Risk Management

Various definitions of risk management have been derived based on the views of different researchers. Risk management is everything that an organization does to reduce impacts in business operation to increase profitability and achieve goal (Wateman, 2002). Additionally, risk management, in a business context, is about reducing the cost of risk, which includes the cost of managing risk. Business, including operation, is about making profits or gains (USDA, 2000).

The objective of risk management is the proper protection of company assets and profitability against loss from pure risk. Risk management is both a set of tools, techniques and a process that is required in implementing the strategy of organizations, according to Bessis (1998).

Moreover, risk management is both a top-down and a bottom-up process (Johnson, 1994). At the top level, target earnings and risk limits are defined. From top to bottom (“top-down”), the global goals are translated into signals to business units, and to managers in charge of transactions with customers. These signals include target revenues, risk limits and guidelines with respect to business unit policies. The monitoring and the reporting of risks are bottom-up oriented, starting with

transactions and ending with consolidated risks, revenues and volumes of transactions. The aggregation is required for supervision purposes and to compare, at all levels where decisions are made, objectives and realizations. In the end, the process involves the entire hierarchy from top to bottom, in order to turn global targets into business unit signals, and from bottom to top, to aggregate risks and profitability and monitor them.

From the above discussion, a conclusion can be derived that risk management is a set of techniques and strategies used in order to prevent loss, decrease incompetency, and increase business opportunity of the organization.

Carnegie Mellon University (2002) demonstrated that the process of risk management consists of the following phases as identifying, analyzing, planning, tracking, and controlling

Patterson and Makus (1999) conducted the study on financial risk management with the managers of cooperatives. The result of the study showed that most managers manage their cooperatives without awareness and knowledge of risk management. They generally lack interest about risk in the future as well as lack risk

control. As a result, risk from business operations are increasing.

USDA, (2000); Mehr and Hedgers, (1973); Willett, (1999); Manfredo, Richards and McDermott, (2003) found that most of the agricultural coops are not aware of risks.

In short, risks of agricultural coops fall into 6 categories as follows: credit risk, liquidity risk, interest rate risk, market risk, foreign exchange risk and operation risk. Each risk is caused by different factors. The process of risk management can be categorized into 5 steps, which are identification, analysis, planning, tracking, and controlling.

4. Conclusion

Agricultural coop is an institution, which provides financial support to farmers and acts as an interface between the farmers and the markets. The business performances of agricultural coops, vital for the major financial interactions in the agricultural sector, are exposed to several different sources of risk. The risk components that impact the operation of agricultural coops comprise of credit risk, liquidity risk, interest rate risk, market risk, foreign exchange risk and operation risk. The impact of risks hampers the business operations, reduces the competencies, and influences profitability. The existence of risks emphasizes the importance of risk

management in the administration of agricultural coops. If a manager of an agricultural coop possesses inadequate risk management plan, the organization will lack the direction for risk management to mitigate loss from the synergistic impact of different types of risks. As a consequence, agricultural coops will not be able to operate and compete in the rapidly changing market. Thus, risk management is a major challenge for agricultural coop managers. The appropriate use of risk management would enable the managers to identify the risk components in the agricultural coops, analyze the sources of each risk, and select the method of risk treatment that would ensure the increase in profitability and reinforce the survival of the organization.

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