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Swedish University of Agricultural Sciences

Department of Economics

Comparison of the cooperation patterns and quality control of the dairy industry in China

- A comparative case study of the Mengniu Group and the Yili Group

Hao Shi

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Summary

Food safety has been a global issue in the recent years, and in particular dairy product have come to attention. Dairy products are associated with people's standard of living and economic prosperity. In recent decades, a number of developing countries, such as China, India and countries in South East Asia, have increased their share in global dairy production and consumption. However, the stronger consumers demand for dairy product, has been followed by increased concern about the quality of dairy product.

After a well-reported milk scandal 2008, the dairy industry in China faced enormous challenges. To regain both lost both profits and reputation. Since this crisis, the Chinese dairy industry has continued to work with food safety to rebuild their reputation and improve the quality of dairy product and service. In this thesis, the work of two leading dairy companies in China, the Mengniu Dairy Company Limited and the Yili Group is presented and compared. These two cases hold leading positions in the world dairy market, and have been competing for many years. The analysis explores and compares how these two dairy industries cooperated with dairy farmers to control the quality of raw milk quality. The supply of the raw milk is a key element in the end-chain dairy products and the dairy farmers play a significant role in dairy supply chain, so the cooperation between processing companies and farmers will affect the success of the whole chain.

Abbreviations

AQSIQ- Inspection and Quarantine of China
CNY- The code of Chinese currency
HACCP- Hazard Analysis Critical Control Point
LRQA- Lloyd's Register Quality Assurance
OEM- Original Equipment Manufacturer
SCM-Supply Chain Management
SGS-Société Générale de Surveillance

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1 Introduction

In this chapter, the author will introduce the world dairy industry briefly, and the situation and issues faced by Chinese dairy industry. The aim and research questions and the outline of this thesis will also be presented in this chapter.

1.1 Problem background

Food is a necessary element to support peoples' life, and the food industry is also a significant support of the economic development. In the recent years, the issues of food safety have increased, and leading to that people distract their attention from enjoying food to being worried about food. There are some examples. In 2010, a report issued by University of California Davis Olive Center showed that approximately 69% of olive oil with the label "extra virgin" in the US did not meet the International Olive Council standard. That means this olive oil was failed to satisfy the international standard for extra virgin olive oil (Frankel, *et al.*, 2011).

In 2013, the Food Safety Authority of Ireland tested some of the burger products, and the result showed that burger products contain DNA from horse meat (O'mahony, 2013). This issue is known as the horse meat scandal, and a large number of food products and food industries has involved in this scandal.

These issues and incidents of food-safety problems not only affect people's health but also break the food supply chain, destroy the reputation of the brands. People became carefully when they buy and eat food. Consumers must know much more information about the food that they want, such as whether the food contains the preservative or excess additive; whether the raw material is fresh enough; whether the food is as safe as they think. Food safety existed in different kinds of food, such as fish, oil, meat, fruit, rice, especially the dairy food. Dairy food can include milk and the other products made of milk, such as cheese, butter, yogurt, ice cream. Dairy food is an essential element of the food industry; it acts a necessary role in people's lives, it also related closely to people's health. The well-known fact is the dairy industry actively contributes to the economies of a lot of communities and countries, and the increasing demand worldwide is noticeably emerging at present, and the industry is globalizing, thus increasing the scope and intensity of the global dairy trade. In the last three decades, world milk production had increased from 500 million tons in 1983 to 769 million tons in 2013. There are about 150 million households around the world are engaged in milk and dairy production (www, Food and Agriculture Organization of the United Nations, 2017). In the global dairy industry, the US kept in the leading position, which is producing 91.3 billion kilograms cow's milk in 2016. India, China, Brazil, and Germany round out the other place in the top 5 cow's milk producing countries (www, Worldatlas, 2016).

In recent decades, developing countries have increased their share in global dairy production. Because some countries in the developing world have a long tradition and experience of milk and dairy production, and the milk product is related closely with their life and diet. Such as China, India and countries in South East Asia account for a major portion of the global dairy industry, but milk supply in these regions has not been able to keep pace with the level of growing demand. The primary purpose of this thesis is to discuss two dairy product companies of China. China has a huge and potential dairy market. The dairy industry is not the traditional industry in China. In 1980, the dairy production was only approximately 1 million tons per year, during the following 15 years; the output of dairy production has increased by 14% annually

(Qian, *et al.*, 2011). In 2016, China reached the third rank of the highest milk producing countries in the world (www, Trending Top Most, 2016).

In sum, Chinese milk industry has developed stable for the last several years. However, as people know, China has more than 1.3 billion populations, and it represents one-fifth of the global total, the milk yield, and the milk quality cannot be satisfied by Chinese consumers, even though the economics of China and the dairy industry has grown and increased rapidly in the recent years. China's huge population and increasing food safety issues has attracted attention by the global.

In 2008, a notorious melamine scandal happened in China, and not only the consumers' health, but also the profit and reputation of dairy companies affected by the melamine scandal. Simultaneously, the system and the institutional of Chinese dairy are not sane, that make the competition of domestic dairy companies became a vicious circle. Some milk enterprises that do not have enough fund and facility, so they use the fake raw material to reduce the cost and scramble the market share; these companies also break the rule and balance of the local dairy market. The technology and the innovation are also becoming the weak link in the dairy supply chain, such as transportation, store, control the quality of the raw milk, and so on.

However, Chinese dairy companies never stop working on rebuilding the reputation, even though many dairy companies have involved in the milk scandal, but these companies still making an effort on a recovery of Chinese dairy industry. In this thesis, the author will introduce the Mengniu Group and the Yili Group as two representatives of Chinese leading dairy companies. The author will explore how they strive to control the quality of dairy and how they collaborate with the dairy farmers. The strategy and operation pattern they used will also be compared.

1.2 Problem

In 2008, an incident of milk powder injured a lot of Chinese families. The food safety official of Qinghai province took and tested the raw material from the milk powder formula. The result of the test samples showed that the milk powder contained to 500 times the maximum allowed level of the chemical (www, BBC, 2010). The milk powder made by a Chinese dairy company which is named Sanlu group contained with melamine. Melamine used in manufacture melamine resins and the other industrial uses, such as glues, adhesives, and flame retardants (World Health Organization, 2008). After the investigation, Sanlu Group confessed the truth. Subsequently, Inspection and Quarantine of China (AQSIQ) randomly inspected baby formula produced by the other 175 dairy companies (Qian, *et al.*, 2011). 22 Chinese companies including Yili Group and Mengniu Group has involved in this milk scandal. At the end of November in 2008, at least six babies died because of the milk incident, and more than 294 000 children suffered kidney and the other disease (Yang, *et al.*, 2009). Chinese dairy industry suffered a massive blow from this incident. The melamine scandal not only affects the reputation of Chinese dairy companies but also struck the development of Chinese dairy market. The negative impact can be reflected in the following aspect.

First, dairy enterprises were affected by a loss of consumer confidence in their products. Many consumers cannot rebuild the trust to Chinese dairy production anymore, and consumers became worried about all the dairy products, such as milk powder, yogurt, and try to use different way to purchase the dairy products from New Zealand, Sweden, Australia, Holland, and the other countries. A lot of dairy products have recalled by the dairy companies, and it

makes the companies loss of property, profit, and stock prices. From September 2008, the volume of Yili and Mengniu has fallen to 6.4 billion CNY (Qian, *et al.*, 2011). On the other hand, the orders for these two largest dairy companies fallen over 80% and daily average milk purchase volume was only 37.62 million tons (*ibid*). That made Chinese dairy companies developed in an awkward circumstance.

Second, the incident impacts on dairy farmers. Dairy farmers are the weakest and also the most important section in the dairy supply chain. The dairy farmers forced to dumped vast quantities of raw milk, and some farmers even slaughtered their cows. The dairy farmers have dumped 137,000 tons milk from September to November in 2008 (Qian, *et al.*, 2011). Because of the lack of some insurance policies and agreements, and legal knowledge, many dairy farmers don't know, even can't protect their rights and interest, that make the contradiction and conflict between dairy farmers and dairy companies became violent and difficult to coordinate.

Third, the government also affected by the scandal. This dairy scandal discloses some issues and hidden danger of China's dairy market. For example, the lack of dairy quality supervision, weak legislature, and the defect of some dairy enterprises. The milk scandal caused a global negative impact to Chinese dairy industry and world image; some countries even banned imported Chinese dairy products.

There were different dairy incidents happened in China, but the main reasons of these incidents are almost similar, that is the misconduct in quality control. As people know, the quality is the essential element of a food industry, and it also the lifeblood of a food industry. If the quality issue has ignored, then the supply chain will be cracked from the upstream, thus affect each link of the food or dairy supply chain. The dairy supply chain is vast and complicated, that will be difficult to realize the problem on time. So how to control and test the quality efficient became the important goal for many dairy companies. Some of them rely on the high technology, and some of them adopt the advanced experience. In short, the quality control is the essential step in the dairy supply chain, and it is also a kind of guarantee for the stability of the dairy supply chain.

The dairy supply chain consists of the different sections; one of them is the raw material supplier. In this thesis, the raw material supplier is the dairy farmer. Dairy farmers provide the raw milk to the dairy companies and also developing together with the dairy companies. The dairy farmer is also an important stakeholder of the dairy companies. Different dairy companies have their way to cooperate with the dairy farmers; an appropriate cooperate pattern will keep the dairy company running stable, and will make a win-win situation.

According to the real situation of Chinese dairy market and the purpose of this thesis, the author will choose two leading Chinese dairy companies and explore how they use the different the way control the dairy quality and cooperate with the dairy farmers. The purposes of comparing these two dairy companies are following.

First, dairy diet is not a traditional dietary habit for Chinese people, and dairy industry is not a traditional industry in China. In the recent years, the dairy industry contributed a lot to economic growth, and the consumers' demand for various dairy products is increasing. As two leading dairy companies, their strategy and operation model is worth to explore and analyze. Many dairy companies are competing in Chinese dairy market. How can they use the unique strategy and operation pattern stand out from the competition?

Second, both these two dairy companies involved in the milk incident in 2008, and both of them devastated from the incident. What is the main reason make such the large scale companies involved the milk incident? How they make an effort to rebuild their reputation? In the author's opinion, this is an important point to analysis. Because from the long-term perspective, the dairy safety issues are not only happened in China, so it's necessary to research how to prevent and avoid the hidden danger during the operation process. It's important to abstract some experiences and inspiration from this purpose according to the real case of Chinese dairy companies.

From the academic perspective, this thesis focuses on the dairy supply chain, and how do different units cooperate and keep the stable of a supply chain. Because the quality of the dairy product will directly affect the consumer's health, trust, even life. That needs all the units and stakeholders in the dairy supply chain work together. This thesis won't explain all the links in the dairy supply chain, but some important groups in both upstream and downstream still analyzed by the author. On the other hand, how the different stakeholders cooperate with each other and how a dairy company can deal with the crisis of confidence are also the important research topics for the business analyst. This thesis uses the comparative way to analysis the primary stakeholders in the dairy industry and the dairy supply chain, and explore how to control the dairy safety issue and improve the quality of the dairy product through the cooperation between different stakeholders in the dairy supply chain.

In fact, China never stops improving the food safety, and China dairy companies also working on rebuilding their reputation and improve the quality of dairy product and service. The author chooses two leading Chinese dairy companies which are called "Mengniu Dairy Company Limited" and "Yili Group." As two leading dairy companies in China, Mengniu Dairy Company Limited and Yili Group has competitive for many years, both of these two dairy companies affected by the milk powder scandal in 2008, but they didn't stagnate. They have brave to confess and admitted the truth during the toughest period, and keep working on rebuilding the brand image and reputation. These two companies are not only keeping in a leading position in Chinese dairy market, but also gain the significant performance in the global dairy market.

Table 1. Global dairy top 20, 2016 (Rabobank, 2016).

2016	2015	Company	Country of headquarters	Dairy turnover, 2015*	
				(USD billion)	(EUR billion)
1	1	Nestlé	Switzerland	25.0	22.5
2	2	Lactalis	France	18.3	16.5
3	3	Danone	France	16.7	15.1
4 ▲	5	Dairy Farmers of America	USA	13.8	12.4
5 ▼	4	Fonterra	New Zealand	13.1	11.8
6	6	FrieslandCampina	Netherlands	12.3	11.1
7	7	Arla Foods	Denmark/Sweden	10.5	9.4
8 ▲	10	Yili	China	9.3	8.4
9 ▼	8	Saputo	Canada	8.6	7.8
10 ▼	9	Dean Foods	USA	8.0	7.2
11	11	Mengniu	China	7.9	7.1
12	12	Unilever	Netherlands/UK	7.0**	6.3**
13 ▲	16	Kraft Heinz	USA	6.5	5.9
14 ▼	13	Sodiaal	France	5.7	5.1
15 ▲	20	Müller	Germany	5.6**	5.0**
16 ▼	14	DMK	Germany	5.5	5.0
17	17	Meiji	Japan	5.2	4.6
18	18	Schreiber Foods	USA	5.0**	4.5**
19 ▼	15	Savencia	France	4.9	4.4
20 ▲	-	Agropur	Canada	4.6	4.1

Table 1 shows the rank of top 20 dairy companies all over the world in 2016. According to the data of Rabobank, both of these two dairy companies were placed on the World Top 20 dairy companies. In 2016, Yili Group has increased its rank from 10th to 8th, and Mengniu still kept the 11th position. Mengniu and Yili have competed for a long time. Both of them were founded in Inner Mongolia. They have their strategy to compete in the dairy market, such as control the milk source, use different way corporate with the farmers, and cooperate with the national project. From 2007 to 2010, Mengniu still kept the first place in the rank of Chinese dairy industry, even though the milk scandal brings the depression of dairy market. After 2010, Yili Group began to exceed Mengniu year by year, in 2015, the gap between these two dairy companies increased to approximate 11 billion RMB.

In this thesis, the author won't judge which company is better or worse. The author will discuss and explore how these two companies control the milk source and the quality of milk, and explore how does them cooperated with farmers, because the milk source is the first and the most important sector of dairy food supply Chain.

1.3 Aim and research questions

This study aims to explore and compare how the Mengniu Dairy Company Limited and the Yili Group cooperated with their dairy farmers in their efforts to control the quality of the milk they process.

To achieve the aim, the following research questions are addressed:

1 What are the main differences between these two dairy companies concerning how they cooperate with their dairy farmers?

2 What are the main differences between these two dairy companies concerning how they control the quality of their raw milk source?

1.4 Outline

This study will be organized as shown in Figure1. The first chapter is a brief introduction about the situation of Chinese dairy market and the problem faced by Chinese dairy industry. The next chapter is the theoretical perspective which introduces the theories used in this study and also presents the literature review. Chapter 3 includes the method used and the delimitation in this thesis. Chapter4 will introduce the history of two Chinese dairy companies: The Mengniu Dairy Company Limited and the Yili Group. Chapter 5 presents the how Mengniu and Yili manage the dairy quality and cooperate with the dairy farmers detailed. Chapter 6 will discuss and analyze the research question, especially compare the difference between the cooperation patterns and the quality control of these two dairy companies. In the final chapter will be the conclusion.

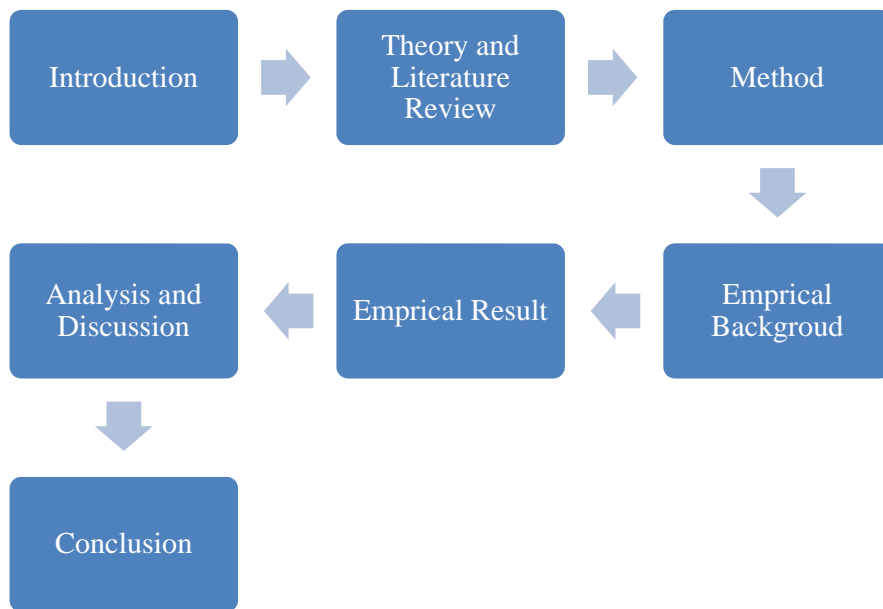


Figure1: Outline of thesis

2 Theoretical perspective and literature review

Chapter2 will introduce the theoretical perspective. Stakeholder theory and supply chain management theory will be used in this thesis. The author will also present the literature review.

2.1 Supply chain management theory

Each industry has its supply chain; the stability of supply chain is the key element of the business operation. According to this thesis, the dairy industry has an enormous supply chain, and it includes many links. If some issues happened in one of the links, that will affect the running of the full chain, and also affect the consumer's demand.

2.1.1 The concept of supply chain management

The term supply chain management (SCM) was originally introduced in the early 1980s (Oliver and Webber, 1992) and has subsequently gained tremendous attention. In the recent years, supply chain management became a tool to help the manager running the business stable and efficient. There are also different definitions of supply chain management. The author chooses the definition to define by Dr. Dawei Lu on 2011. *“Supply Chain Management is simply and ultimately the business management, whatever it maybe in its specific context which is perceived and enacted from the relevant supply chain perspective”* (Dawei, 2011, P13). Dr. Dawei Lu also explained that supply Chain management activities are captured by three conceptual components shows on Figure2.

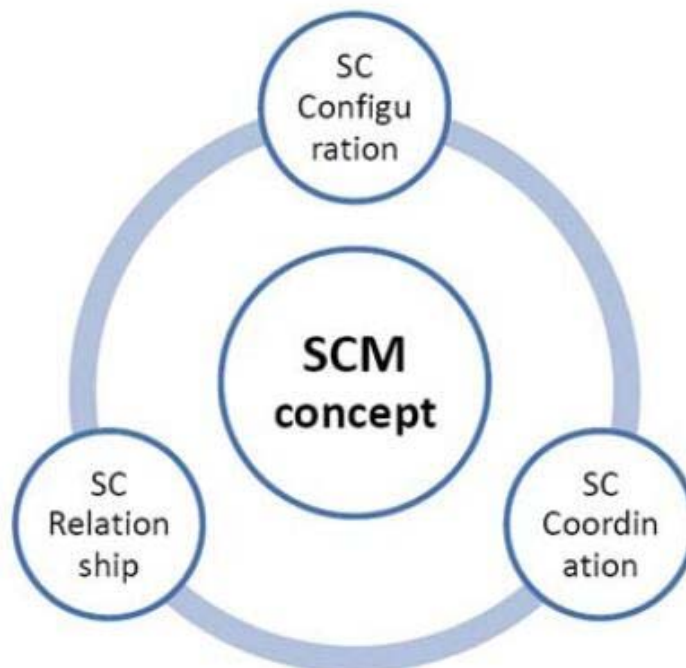


Figure2 Three conceptual components of SCM (Dawei,2011)

Figure2 shows three conceptual components of SCM concept: “*Supply Chain configuration, Supply Chain relationship and Supply Chain coordination*” (Dawei, 2011).

Supply chain configuration is related to all the firms included in the supply chain. It’s about such as the scope of vertical integration, how the downstream distributions constructed, and so on (Dawei, 2011).

Supply chain relationship is about the relationship between the inter-firms (Dawei, 2011). That means the type and content of inter firms and organizations will affect and determine the type of supply chain relationship (*ibid*). The relationship between these inter groups can be closely like “arm’s length” if they exchange and share their perspective and plan. (*ibid*)

Supply chain coordination is about the inter-firm operational coordination in a supply chain. It includes such as production capacity, forecasting, manufacturing scheduling, customer services and so on (Dawei, 2011).

2.1.2 The function of supply chain management

SCM used to explore and analyze the planning and control of materials and information flows and the other business activities. Not only in the internal of a company, but also externally between companies. SCM can include some fields such as purchasing and supply, logistics and transportation, operations management information systems, and strategic management and so on. Typically, SCM attempts to control the production, transportation, and distribution of a product or service. By managing the supply chain, companies can cut excess costs and deliver products to the consumer as fast as possible.

The main functions are follows:

1. Inventory Management, 2. Distribution Management 3. Channel Management,
4. Payment Management, 5. Financial Management, 6. Supplier Management, 7. Transportation Management, 8. Customer Service Management (Behra& Patel, 2014).

Supply Chain Management (SCM) is an essential element to operational efficiency. In the global market, the competition is not only companies against with companies, but also supply chain with supply chain, so SCM is, therefore, a new perspective towards the old actives (Dawei, 2011). So SCM is becoming a globally important trend. Running SCM effectively is important for the following reasons:

First, the global market is a huge and complex supply chain, and it’s also uncertain. Some major issue will affect the business strategy and operation, such as rapid growth of multinational corporations, the expansion of the global market, the competition of prices, and environmental issue. These problems make supply chain management became a necessary competitiveness for the business.

Second, SCM also acts an important role in the development of society. Such as creating more job opportunities, decrease the pollution, and improve the quality and safety of living. For example, in 2005, Hurricane Katrina happened in New Orleans, LA. Many citizens can’t get water and food. Due to an efficient SCM system, the rescue operation was running stable and efficient. After the first week, about 1.9 million meals 1.9 million meals and 6.7 million liters of water were delivered to the citizen (Rawther, 2015). That’s the benefit by a stable, speedy and efficient SCM system.

Third, SCM is also important for the entity of business. SCM can help the company reduce the unnecessary cost and organized the business activities efficient, also improve the advantage and competitiveness. An efficient supply chain also increases the negotiating power with partner businesses, such as suppliers and retailers, which also stand to benefit from doing business faster.

2.1.3 The dairy supply chain

Dairy supply chain involves all the units and actives from supply raw milk to the final consumer. Every unit should gain the maximum profit with the minimum possible cost (www, fao, 2017, 2).The dairy supply chain includes the raw milk supplier, processors, dairy companies, wholesalers, super market, and consumers and so on. This thesis won't explore all the units in the dairy supply chain, this thesis focus on the upstream of the dairy supply chain, especially the relationship between dairy farmers and companies. Because the dairy farmers are the source of the dairy supply chain, the dairy farmers also related with the quality of dairy products directly. The quality of products will also affect the operation of the dairy industry, and also related to the health and confidence of the end consumers in the downstream of the dairy supply chain. In other words, all the units in a dairy supply chain are not developing independently in the supply chain. They reacted with each other, also rely on each other.

According to the particularity of dairy product, the dairy supply chain is different with the other kinds of the supply chain. The raw milk comes from the dairy cow, and the cow will be affected by the feed model or the other conditions, that makes the process of raw milk full of volatility and unpredictability. Because of the strict requirement about the fresh and safety of the dairy product, it needs every unit operate very carefully from the produce to consume. The dairy supply chain also requires the timeliness during the process of transportation, cold chain logistics, and storage, even the material of packing and recycle. In sum, the dairy supply chain needs to gain the profit in the short term, and on the other hand, it must keep the quality of product and provide the goods and service environmental friendly.

2.2 Stakeholder theory

Different stakeholders have different interest demand. How to balance and coordinate the relationship between them is essential for the developing of the business. Different stakeholder are reacting each other, also relying on each other.

2.2.1 What is stakeholder

In fact, there are too many different definitions about stakeholder in various scholars and fields. In 1984, R. Edward Freeman defined a stakeholder as *“any group or individual who can affect or is affected by the achievement of the organization's objectives”* (Freeman,1984). In 2004, Freeman continued stated a reformative definition which is *“those groups who are vital to the survival and success of the organization”* (Freeman, 2004).

In a general way, stakeholders are the people and people's benefit affect or affected by the business or the organization. The effect can be active and negative, and sometimes, the entity of business is also can be seen as stakeholders.

2.2.2 Who is stakeholder

Because of the different types and influence of stakeholders, it is difficult to include all the stakeholders into the management system. The stakeholders can divide into internal stakeholders and external stakeholders. Internal stakeholders can be seen as the individual and entitle within a business or an organization (www, Boundless, 2017), such as employees, investors, managers and so on. External stakeholders are the people or organizations developing outside the business (*ibid*). But their benefit will be affected by the decision of business, such as consumers, suppliers, dealers. See Figure 2 below. This section won't list every stakeholder, but according to the main purpose of the thesis, the related stakeholders will list later.

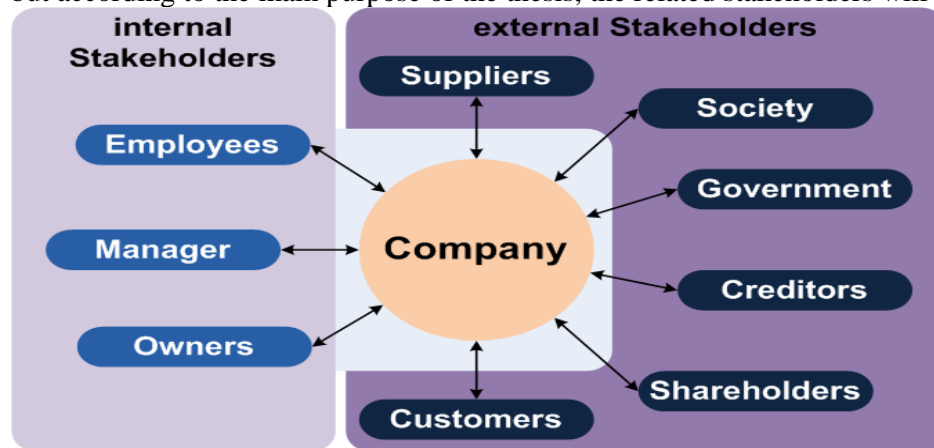


Figure3 Internal and External Stakeholders Source: (www, Boundless, 2017)

Figure3 shows the different typical internal stakeholders and external stakeholders. Each type of stakeholders has different impact and role for the business.

2.2.3 Stakeholder theory

In the 1970s, the concept of stakeholder has mentioned by some strategic planning literature (Stake, 1995). At the end of 1970, the concept of stakeholder has accepted by some of the business to help them in the planning processes (*ibid*). Stakeholder theory provides a support and contribution to decision making, especially in the field of innovation (McVea & Freeman, 2005). In 1984, in the book named "Strategic Management: A Stakeholder Approach" Freedman stated that the managers or the director of a board in the business not only need to care about the shareholders but also need to focus on the benefits of the stakeholders. The success of a firm is related with all the stakeholders, not only the shareholder who profit for the stock and the business (Freeman, 1984). That can be seen as an explicit statement of stakeholder theory. The stakeholder can include the entire individual or organization has the direct or indirect relationship with business, even the natural environment. These stakeholders have their duty and influence, so the company must consider the stakeholders when making the decision.

Stakeholder theory not only mentions the influence and role of stakeholder, but also can be used as the guideline to reduce the conflict of the internal of the company, and keep it running stable. Many stakeholders don't locate in the same level with the manager and the directors of the business, that means their benefit or interest will be ignored or misappropriated by the top manager or the other shareholders. If the manager or director use the stakeholder theory of running the business, and consider and protect the stakeholders' rights and benefit, and encourage the cooperation between the company and the stakeholders, that will make the business running stable, reduce the risk and conflict. It will be also helpful for the long-term development of the firm.

Second, in the modern market, the business not only needs to consider the stakeholder's rights but also needs to carry out the Corporation Social Responsibility. The balance between the obligations of the shareholder and the responsibility of business is necessary for the stable of the company.

2.2.4 Stakeholder in dairy supply chain

The dairy industry has various stakeholders, such as the supplier, the processor, the government, the consumers, the wholesalers, and so on. Not all the stakeholders will be discussed in this thesis. According to the purpose, the raw milk suppliers, the dairy companies, and the government will be seen as the primary stakeholders in this thesis.

In other words, the raw supplier is the dairy farmer. The dairy farmer is the first section of the dairy supply chain, and the dairy farmer is also one of the most important stakeholders in the dairy market. Because the dairy farmer is the foundation of a dairy supply chain, and dairy farmer is also a key factor to keep the stable of the operation of dairy companies. Their benefit will be related with their life, also related to the quality of dairy products directly or indirectly. It is essential to coordinate the relationship between the dairy companies and the dairy farmers. They can be employment relationship, and they also can be the cooperative relationship. Dairy farmers occupy an important position in the process of manufacture dairy product, but sometimes their benefit and demand also will be ignored.

The dairy company is another important stakeholder in this thesis. Various dairy companies are competing in the Chinese dairy market. The two case companies are the leading companies in China, and they have experience glory, and also suffered from the incident. They can be seen as the representative of Chinese dairy industry. Dairy companies need to focus on the demand of consumer and suppliers, and they also need considering the benefit of the shareholders. On the other hand, as a business, earn the profit is the main duty of the dairy company; the dairy company also need to consider how to keep their benefit as a stakeholder. So in the whole supply chain, dairy companies occupy in a subtle and sensitive position. It connects some other stakeholders, and it also needs coordinated the balance between itself and the others.

The government is also an important stakeholder for the development of the dairy industry. Because of the lack of the adequate supervision and policy in Chinese dairy market, the government should play a role as the supervisor and the mentor, and work efficiently with the dairy farmers and companies. Keep the order of the market, and the fairness of competition between the dairy companies. The primary duty of the government is to keep every stakeholder has fair opportunity to gain their profit and benefit, especially when the incident and natural disaster happened.

2.3 Summary of theory perspective

In sum, the stakeholder theory describes the relationship between the stakeholders, shareholders, and business. The stakeholder theory is a principle that ensures companies and organizations are accountable to their stakeholders and balance their benefit and rights. The stakeholder theory has a very tight connection with social responsibilities, and it tries to keep the ethics and economics together and achieve a successful goal of corporations. In other words, the companies should be run for the benefit and rights of all stakeholders and are accountable to them.

In a sense, stakeholder theory also connects with supply chain management. Gualandris and Kalchschmidt (2014) has argued that the business should use a sustainable way manage the supply chain and meet the different demands of stakeholders. The orientation of the business is a fundamental element for supply chain because the customer orientation will bring a positive impact to the supply chain, but shareholder orientation will lead increased cost in the supply chain (Reuter, *et al.*, 2012). With the development of society and economy globalization, supply chain management has become a dominant tendency in the development of corporate governance. Supply chain doesn't own by only one or two business, it needs all the stakeholders and units' participation and operation. Supply chain management also change the traditional corporate governance which is "shareholder first" to how to balance the interests of the relevant different parties and stakeholders and create a new direction of research management.

2.4 Literature review

The literature review can be seen as a tool to prove the author's knowledge about a particular area of study (Randolph, 2009), it provides guidelines for the author, and extract the essence of the specific research field or topic. Another aim of the literature review is it conduct a systematic framework to analyze the related previous findings and discoveries (*ibid*). It will also help the researcher to explain the thesis from the different perspective. Bryman has differentiated two different types of literature review which are systematic and narrative (Bryman, 2008).

The systematic review can help the researcher analyzed the problems through findings from a range of studies and got the reliable knowledge to the particular questions (*ibid*). It's also a way to review the study and literature that used by the specific procedures. The narrative literature review can be seen as an examination of the theory and the other scholars related to the authors' research (*ibid*), and it will provide an overview of the particular study through a logical assessment and critical analysis of the literature. In this thesis, the author has searched the previous literature which is related to dairy product safety, dairy supply chain and Chinese dairy companies and so on.

Dairy safety always focuses by many scholars as an important topic. The consumers are increasingly concerned about the quality of the dairy products and also the other potential threats related to human health. It's difficult to explore and judge which kind of reason is the key factor affect the quality and safety of dairy products. For example, Ruegg, P.L presented in "*Practical food safety interventions for dairy production*" that pasteurization, consumption of raw milk products, contamination of milk products and the emergence of antimicrobial resistance in zoonotic pathogens can all affect the quality of dairy products (Ruegg, 2003). Many previous studies related to the issue of dairy product and dairy quality (Griffiths, 2010; Haitao & Su, 2011), and also some studies emphasize use the specific way to control and test the quality of dairy (Ogier & Serror, 2008; Marshall, 1992; Ruegg, 2003).

The dairy supply chain is a kind of food supply chain, because of the specialty and uncertainty of dairy supply chain, the previous research also focuses on the various aspects. Such as some research related to institutional perspective (Glover, *et al.*, 2014). Some of the researchers focus on the risk and uncertain of the dairy supply chain (Mishra &Shekhar, 2011; Septiani, *et al.*, 2014; Daud, *et al.*, 2015). And also many research pay attention to the dairy supply chain management (Muhammad, *et al.*, 2014; Subbaiah, *et al.*, 2009 ; Subburaj,*et al.*,2009). Even though the previous research and study have the different direction, but most of them are related to how to improve the quality of milk products in milk supply chain and how to make the dairy supply chain running sustainably and efficiently.

In fact, dairy product is not the traditional diet for Chinese people, but with rising income in the recent years, the demand of Chinese consumers has increased rapidly. Consequently, Chinese dairy market, Chinese dairy industry, and Chinese dairy safety issue have gained the attention of the world. China's dairy industry has been the research subject since 1998. The most researchers focus in the field of supply or the demand for dairy products, and consumption of dairy products in China (Zhou, *et al.*,2002; Dong 2006; Fuller, *et al.*, 2007).Some Chinese researchers also studied specific safety-related issues, some of them focused on the aspect of the how policy affects the development of China's dairy industry. Some researchers focus on the fast growth of Chinese dairy industry. In 2008, the incident of melamine-contaminated milk scandal got Chinese dairy industry into trouble, and made China has received attention from a large number of research communities (Pei, *et al.*,2011; Chan, *et al.*, 2008; Xiu & Klein, 2010, Ortega, *et al.*, 2011). Even though Chinese dairy industry gains the attention through such a kind of incident, but the researchers provide some important experiences and analysis for this incident. The previous research explored this incident from the different aspect, such as the governance, the regulation, the consumers oriented, the operation model of the dairy companies, and the standard system. To some extent, the analysis and exploration help Chinese dairy industry avoid some hidden problem and also stimulate them to keep working on the way to improve the dairy quality and rebuild the consumers' trust.

According to the purpose of this thesis, the issues and challenges faced by Chinese dairy industry and how does two Chinese companies cooperate with dairy farmers will be searched as the main literature. The literature and the other information will be more relevant to the issue of food safety, dairy supply chain and so on. The literature review used such as Google Scholar, Science Direct, Directory of Open Access Journals and the library system of SLU and online resource which can provide more information and academic support for this study.

3 Method and conceptual framework

This chapter will introduce the method used in this thesis, and also explain how the author collects the data and information. The conceptual framework will present in this chapter.

3.1 Research design

Research design aims to give direction and systematizes to the research and project, and the method used will affect the results and the conclusion. Qualitative research seeks to address questions concerned with developing an understanding of the meaning of humans' lives and social worlds (Fossey, *et al.*, 2002). That's means primary aim of qualitative research is to provide a complete, detailed description of the research topic. On the other hand, quantitative research focuses more on counting and classifying features and constructing statistical models and figures (www, Explorable,2017). It uses the approaches such as questionnaires, surveys, measurements and other equipment to collect numerical or measurable data. The researcher can use the qualitative method to analyze the data and explore the in-depth essence and character of the object (Choy,2014) and the qualitative research provides the detailed description of participants feelings, opinions, and experiences; and interprets the meanings and relations of their actions (Denzin, 1989).

The primary strength of the qualitative method is the ability to explore for underlying values and beliefs. To gain a full understanding of an organization or a business, and uncover what is driving their behavior (Yauch and Steudel, 2003). And qualitative research uses the data and the other resource to provide in-depth and detail perspective of phenomena and lived experiences (Bowen, 2005).

According to the main aim of this thesis, the author will explore and compare the operation active and cooperation model of two Chinese dairy companies. That needs the author focus more on people's opinion and perspective and a mass of empirical research. So a qualitative will uses as the primary method, because of qualitative is concentrate on an in-depth understanding of the social world of participants and their experiences, perspectives (Moriarty, 2011), and seeking for understanding some aspect of social life. The qualitative approach focuses on the qualities of units, but the processes are not measured regarding quantity, amount, or frequency (Denzin and Lincoln, 2000).

3.2 Data collection techniques

The main type of qualitative data can include dairy, open-ended questionnaires, observations, case study, documents. And the main data collection techniques of qualitative research are interviews, focus groups, observations, action research, and document review.

According to this thesis, documents and case study will be used as the primary data. This type of data can include newspapers, magazines, books, websites, and memos and so on. So in this thesis, the documents and online resource related to the history and news of these two companies will be collected. On the other aspect, the CSR reports and sustainability reports of these two dairy companies will also review as the documents.

Document review will be used as the main approach to collect data, and it often focuses on the study and academic research which about the past events (Letts, *et al.*, 2007). Document review

can be used as a flexible and open method, because of the aim of document review is explore how past events can relate to the research question or current research (*ibid*). It will help the audience understand the background of the business. It also provides a behind-the-scenes look at a program that may not be directly observable and bring up issues not noted by other means.

In fact, both the qualitative and the quantitative data should be used in this study, because this study also needs the quantitative data such as numeric information to support the author's view point. So the data about the profit of these two dairy companies and will be collected and analyzed as the part of quantitative data in this thesis, and this type of data will act as evidence to support author's view point.

3.3 Data analysis

Content analysis will be used as the primary approach to analyzing the data. The application of content analysis also includes human-coded analyses and computer text analysis. Such as face to face human communication and on line video research (Neuendorf, 2016). The content analysis comprises three distinct methods which are conventional, directed and summative; these three methods will help the researcher explore the meaning of the text data (Hsieh and Shannon, 2005).The content can be analyzed on two levels:

The basic level is the description of data and information, and higher level will provide a more interpretive analysis that is concerned with the response as well as what may have been inferred or implied. The content analysis will provide a direct communication via texts or transcripts, and also can provide valuable historical and cultural insights.

3.4 Delimitation

In this study, these two dairy companies are all come from China, that's means, much information in website and documents are written by Chinese language, and there are not so much English information and data, that's a significant barrier in this thesis. The author tries to find and search more English information from some authoritative and credible English website and documents because the author can't add so many individual opinions and only translate the Chinese information, because that will decrease the validity. For some reason, the interview didn't conduct, but at least, these two dairy companies have the English version on their official website, and the public document, such as annual report and financial reports has the English version too, that will make the information more credible.

During the period of collecting the data, the author tries to contact the officers or the coordinator of these two dairy companies. The author wants to conduct an unstructured interview or a telephone interview. But for some reason, the interview didn't conduct, that make this thesis lack for some argument and evidence.

3.5 Quality assurance

The quality issue in qualitative research addressed by the concepts "validity" and "reliability," (Bergman &Coxon, 2005). Validity in qualitative research means "appropriateness" of the tools, processes, and data. Whether the research question is valid for the desired outcome, the choice of methodology is appropriate for answering the research question, the design is valid for the methodology, the sampling and data analysis is appropriate, and finally the results and

conclusions are valid for the sample and context. In qualitative research with diverse paradigms, such definition of reliability is challenging and epistemologically counter-intuitive. Hence, the essence of assurance for qualitative research lies in consistency.

3.6 The credibility issue

The credibility issue for qualitative inquiry depends on three distinct elements: The first one is the rigorous techniques and methods for gathering high-quality data, and pay attention to the issues of validity, reliability, and triangulation during the analysis. The second one is the credibility of the researcher, which is dependent on training, experience, track record, status, and presentation of the author. The third one is the philosophical belief in the value of qualitative inquiry; which means a fundamental appreciation of naturalistic inquiry, qualitative methods, inductive analysis, purposeful sampling, and holistic thinking (Patton, 1999).

Most of the data and information were collected from the website of the firms. Even though these websites are Chinese website, but they also have the English language version, so the English version website will helpful for anyone who wants to check it in English. The author also collected the data and information from the web page and document which is authoritative and credible.

3.7 Conceptual framework

The purpose of this thesis is to compare different cooperation pattern and quality management between Mengniu and Yili. As the author introduced previously, the main theories are stakeholder theory and supply chain management theory.

For explore the research questions, the stakeholder in this thesis will focus on the dairy farmers, the government and the competitors of these two case companies. Because in Chinese dairy market. Mengniu and Yili as two leading dairy companies have competed for many years; there is a sensitive and unique relationship between those. Some previous literature and scholars explore of certain stakeholder groups and discuss how the stakeholders accomplish their requirements (Steurer, 2006).

In the dairy market, the stakeholder can be divided into different categories. Such as dairy farmers of both small scale and large scale, producers, milk cow feeders, the entity of the dairy industry, the financial institution, Non-government Organizations, the end consumers and the governments, and the other competitors (Moran, 2009). These stakeholders have their different influence. This thesis will focus on the farmers and the companies as the primary stakeholders.

Dairy farmers play the important role in the dairy supply chain. They are the main suppliers of the raw milk; they are also the base of the dairy industry. As the primary stakeholders, their benefit will be affected by the company's decision, and the stability of dairy farmers also related with the stability of the company. Especially the elite dairy farmers, they have knowledge and local reputations (Mutinda, *et al.*,2015), they will analyze the issues and the real situation between both farmers and dairy company, and affect the other farmers as an opinion leader (*ibid*)

The government and local authority are important units in the dairy market. They are the regulation makers, and they also provide the infrastructure, facilities and the other source for

the dairy manufacture (Mutinda, *et al.*, 2015). The government plays a role in building a beneficial environment for the sustainable development of the dairy.

The company's decision will affect the other stakeholders' rights; on the other hand, the dairy company will also be affected as a stakeholder by the other factors. For example, the shareholders occupy an important position in the internal of the business, and the shareholder's interests focus on the economic profitability (Tuohy, 2014). So the shareholders will use their authority to affect the decision made the company. However, for the long term perspective and according to the real situation of the global dairy market. The company also needs to focus more on the rights and benefits of the other stakeholders, such as the farmers and the end consumers, that's the main factors to keep the stable for the business. The company and the competitors are competing in the dairy market, but in some ways, they also interdependence. The company and the competitors should create a benign competition to keep the order of the dairy market.

The dairy industry has its risks and uncertainties. In this thesis, the author will focus on exploring and analyzing the first part of the dairy supply chain, especially the link between the raw milk supplier and the company. Because this link is related to the quality management and it will also affect the benefit and demand of the end customers.

4 Background for the empirical study

Chapter 4 provides the history of two dairy companies to the readers. The author will also introduce the performance gained by Mengniu and Yili.

4.1 The history of Yili

The history of Yili Group can be seen as an epitome of the development of Chinese dairy industry (www, Yili, 1, 2010). The history of Yili Group can divide into four periods.

First period: From 1956 to 1993.

In 1956, a dairy cows-raising cooperative was founded in Hohhot, which is located in Inner Mongolia (www, Yili, 1, 2010). This period can be seen as an initial period of Yili group.

In 1970, the dairy cows-raising cooperation renamed as “Hohhot Red Flag Dairy Farm” (www, Yili, 1, 2010). In 1983, Hohhot Red Flag Dairy Farm was divided into two parts: One is called “Hohhot Hui people Dairy Farm,” and the main operation is cow-raising (*ibid*). And another is a processing division which is known as the “Hohhot Hui People Dairy Product Processing Factory” (*ibid*)

Second period: From 1993 to 1996.

This period was the growth of Yili group. In 1993, Hohhot Hui people Dairy Product Processing Factory was restructured by 21 initiators (www, Yili, 1, 2010). In the same year, it was renamed as “Inner Mongolia Yili Industrial Co., Ltd (*ibid*). On July 1993, the Cold Drink Division was established (*ibid*). Yili used different ways to manage different types of products, “*which started the brand-based operation mode and laid solid foundation for Yili’s cold drink products to outperform its peers for consecutive 19 years*”(*ibid*) .

Third Period: From 1996 to 2009

This period was the expansion of Yili. Yili became China’s first dairy company that was listed on A-share market in 1996 (www, Yili,1,2010). In 1997, Yili began to extend its production and manufactured pure milk, chocolate milk, strawberry milk and sour milk (*ibid*).

In 1998, Yili developed the infant milk powder and the powdered milk containing zinc element and working hard with developed different kinds of dairy product.

From 2003 to 2004, Yili ranked first place in China’s dairy sector regarding revenue from main businesses. In the selection of China’s Top 500 Most Valued Brands, Yili ranked No. 38 for brand value of 12.787 billion Yuan, and No. 1 in the food industry (www, Yili, 1, 2010).

In 2005, Yili became the dairy products sponsor for the Beijing 2008 Olympic Games.

In 2009, Yili also became the dairy product supplier for the 2010 Shanghai Expo (*ibid*).

Forth period: From 2010 till now.

In 2010, Yili was awarded the Golden Prize for Innovation of Functional Dairy Products by International Dairy Federation, which is the highest honor of Chinese dairy company (*ibid*).

In 2011, the revenue of Yili had reached 37.45 billion CNY, and in the same year, Yili as the first Chinese dairy company and even first Asian dairy company became a member of International Ice Cream Consortium (*ibid*).

In 2014, Yili cooperated with Wageningen University and established Europe R&D Center (www, Yili,1,2010).

In 2014, Yili ranked the world's dairy top 10. The Chairman of Yili, Mr. Gang announced that Yili still running according to its principle "recognized as the most trustworthy healthy food provider around the world" and making an effort to become reach world's top 5 dairy enterprises (www, Yili,1,2010).

In 2016, Yili reached the 10th rank in Rabobank's Global Dairy Top 20(www, Yili,1,2010).

4.2 The history of Mengniu

Inner Mongolia Mengniu Dairy (Group) Co., Ltd. was established in 1999 by Niu Gensheng (www, Mengniu, 1, 2017). At the initial phase, Mengniu faced an embarrassed and poor situation; there was no factory, no milk resource, no brand, and no market (Peverelli,2006). To solve this issue, Mengniu decided to create the market first, and then build the factory later. Mengniu adopted a series of strategies and measures to set up and promote its brand, including advertising strategies and the advantage of the human resource. Consequently, Mengniu has grown rapidly during that period. In 2002, Mengniu had Named Well-known Brand in China by State Administration for Industry and Commerce and also gain the name "Chinese Name-Brand Products" by General Administration of Quality Supervision, Inspection and Quarantine of China. In the same year, Mengniu has listed on the Hong Kong Stock Exchange - the first mainland dairy enterprise to go public there (www, chinadaily, 2007).

In 2003, the products of Mengniu qualified for astronauts use and designated by Chinese Cosmonaut as the dairy product supplier.

In 2004, Mengniu had launched the establishment of the largest single dairy ranch in China and became the pioneer of the Chinese dairy industry in build super-large size ranch (www, mengniuir, 1,2017).

In 2006, Mengniu started cooperated with premier Denmark dairy manufacturer Arla Foods and established MENGNIU ARLA , make an effort on developing high-quality milk powder products in 2006 (www, mengniuir, 1,2017).

In 2009, Mengniu reached 19th in the 2009 global dairy company list published by ABN AMRO; this is the first time a Chinese dairy company reached among the top 20. Mengniu did not stop developing. In 2010, Mengniu jumped to 16th in the in the top 20 global dairy enterprises issued by Rabobank. Mengniu keeping expands his international strategy; it signed a strategic cooperation agreement with Arla Foods in 2012 (*ibid*). In 2015, it reached 11st on the "2015 Global Dairy Top 20" list released by Rabobank (*ibid*).

5 Empirical study

This chapter will introduce the different technology and method used by Mengniu and Yili to control the quality and how do they cooperate with the dairy farmers.

5.1 Quality control of Mengniu

Liquid milk, ice cream, and milk formula product are 3 main products of Mengniu (www, mengniuir, 2, 2017). See Figure 4 below

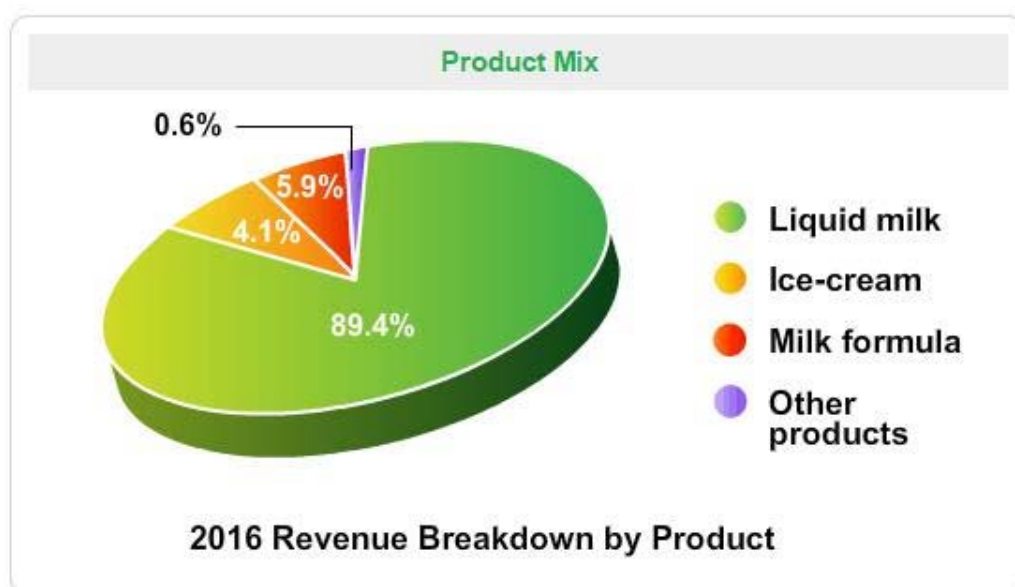


Figure4 Revenue breakdown by product of Mengniu in 2016
Source: (www, mengniuir,2,2017)

Figure 4 shows the revenue gained by Mengniu in 2016. The liquid milk occupies most of the percentage.

5.1.1 Quality management system of Mengniu

Mengniu has a strict quality management system. It includes “*the quality and safety management system and three quality management centers for milk sources, operations and sales respectively*” (Mengniu Group, 2016, p14), and can help Mengniu control the risk end-to-end in the whole supply chain. Mengniu uses the “perfect products” as the central principle during the process and product design. From the purchase raw milk resource to sell to the end customers, Mengniu monitoring tracks information forward and backward at in the whole industrial chain.

Mengniu uses the food safety management model of Danone Group, to improve the quality management system (Mengniu Group, 2016). It adopts a digitalized system called “Real-time Food Safety and Quality Monitoring and Control Platform.” This system monitoring the

situation of each link of the industrial chain (*ibid*), and the data and information of product will also upload into “Food Safety Cloud” platform (*ibid*), make the whole supply chain and the process of manufacture more transparent.

To abide by the latest PRC Food Safety Law effective from 1 October 2015, Mengniu has established a food safety matrix which covers the entire industrial chain horizontally and vertically. The matrix includes five major dimensions: namely structural integrity, standard construction, process control, assessment improvement and information support. To continuously improve and enhance the extensive implementation of Total Food Security Quality Management (“TFSQM”) in the entire industrial chain, Mengniu has also started constructing a “One-stop Position Management System” for offering clear, efficient and accurate guidance on the management of quality, food safety and regulation associated risks for each work area thus ensuring food safety and full compliance of its operations with all regulatory requirements.

There are six tasks of the milk sources quality management which are “Control of Regional Risk”, “Workshop Management of Milk Suppliers”, “Assessment of Maturity of Divisions”, “Grain to Fodder” program, “Enhancement of Health of Dairy Cattle” and “W-W Virtual Dairy Farming” (Mengniu Group, 2016,p15). All the divisions have taken the initiative to satisfy the higher national requirements by increasing sample inspection frequency and tightening the control criteria. Furthermore, the milk source quality management center has urged milk suppliers to standardize the production and management, and milk suppliers were supervised to ensure that they adopt and strictly follow Standard Operation Procedures (“SOP”) (*ibid*).

5.1.2. High technology of Mengniu

To manage the product quality and reduce the risk, Mengniu has invested approximately large amount fund for highly effective testing systems and advanced equipment. Mengniu also hired professionals to test raw materials and finished products. Every milk production has passed 9 procedures, 36 control points, and 105 indicators during the whole manufacture Period (Mengniu Group, 2016). Mengniu was keeping running a project named “W-W Virtual Dairy Farming Project” (Mengniu Group, 2016), to improve the productivity and capacity. “Adhering diligently to the benchmark of Arla Garden’s sophisticated ranch evaluation and management system, Mengniu has invited more than 10 top specialists from Denmark to help design systematic training programs for nurturing ranch talent” (Mengniu Group, 2016, p17).

Mengniu also started the support program to approximate 500 virtual trial supplier each the month and help them to improve the per cattle and profitability (*ibid*).

Relying on the high technology in Big Data management, Mengniu has gained the “*Ranch Service Management based on Big Data in Dairy Enterprises – Modernized Outcome Innovation Prize*”(Mengniu Group,2016,p19).This award is presented by the China Enterprise Confederation (CEC), State-owned Assets Supervision and Administration Commission of the State Council (SASAC) and the Ministry of Industry and Information Technology of the PRC (MIIT) ”(*ibid*).

5.1.3. Partners of Mengniu

Mengniu also cooperated with third-party organizations to improve the monitoring of quality and food safety. In 2016, 37 testing organizations of China test the raw milk suppliers of Mengniu, and the result shown that the pass rate is 100% (Mengniu Group, 2016). To help

partners strengthen quality and safety management, Mengniu has signed the agreement with approximately 6,000 suppliers and agency about guarantee food safety (*ibid*).

Mengniu has cooperated with Assure Quality from New Zealand to created Chinese first ranch food safety standard (Mengniu Group, 2016).The standard focus on control and manage ranch food safety which include seven areas: “*namely legal compliance, management of suppliers, ranch design and management, management of fodder and water, health and well-being of dairy cattle, production of raw milk and the environment, and has been implemented at 119 control points*” (Mengniu Group, 2016, P16). Mengniu also started the safety audits of seven ranches which are owned by its partners in the first half of 2016.

5.2 The cooperation patterns of Mengniu

The raw milk source is the key elements for the dairy industry, so the control power and competition for the raw milk base became progressively. Mengniu Group located in Inner Mongolia, where is full of large areas pasture and grazing. Figure 5 shows the pasture controlled by Mengniu.



Figure 5 Plant Map of Menniu. Source: (www, mengniuir, 3, 2017)

Figure5 shows the production base has cover 17 provinces. Most of them are located in the North of China because of the quality of soil and pasture. Mengniu collected raw milk through three ways from these pastures.

5.2.1 Three cooperation model

In the supply chain of Mengniu, it has three patterns of raw milk source supply.

The first pattern is a traditional pattern which is called “company + farmer”. The independent farmers fed milk cows and collect the milk, and Mengniu will purchase the milk from the farmers (Wang, *et al.*, 2009).

This model includes the individual producer and the dairy company, and the company will provide the feed and some other supports to the supplier, the farmers also can earn a considerable income (Dong, *et al.*, 2016).

The second model is “company+ pasture”. It is an exploration pattern. Mengniu introduced the pasture management system from the other country, make the pasture more normalize and professional. The foreign managers will use the advanced experience to help Mengniu control the whole process of operation.

The third one is named “Original equipment manufacturer” (OEM). In the modern global dairy market, OEM plays a major role in the business systems. Mengniu also uses the model “company + OEM suppliers” as an innovational pattern. Faced the serious competition, Mengniu merged local corporations, the OEM suppliers were in charge of the producing, and the Mengniu will control and monitoring the quality. This model will help Mengniu reduce the cost and expand Mengniu’s operation.

5.3 Quality management system of Yili Group

Raw milk is the most valuable resource of milk products. Yili Group has made an effort to build the raw milk base and the other installations to ensure all the facility and equipment have achieved the standard. Yili Group introduced food safety management systems throughout the supply chain to control everything, such as the cow fodder, disease prevention, raw milk collection, storage, and transportation. High technology also used in Yili’s factories and processes.

5.3.1 System and standard

Yili Group has a strict regulation of quality management. The quality management system of Yili includes every step during the process of operation. Simultaneously, Yili also uses the food safety risk monitoring system to control and monitor the potential risk in the whole business department and factory (www, Yili, 2, 2010). This system covers all its raw milk, raw materials, and final products. In 2014, Yili has cooperated with Société Générale de Surveillance (SGS), Lloyd’s Register Quality Assurance (LRQA) and Intertek to improve the quality management system (*ibid*). These three companies are all worlds leading companies which provide certification, verification, and testing. “SGS is the world's largest certification authority, recognized as the standard for quality and credibility”(www, SGS,2017); LRQA is company focus on independent assessment services including certification, validation, verification with recognition from over 50 accreditation bodies(www,lrqa,2017). Intertek is a world’s leading Total Quality Assurance provider (www, intertek, 2017).

Yili Group used the ISO 9000 standards to establish its quality management system, had introduced and conformed to the ISO 22000 food safety management system standards, the ISO 14001 environmental management standards and the OHSAS 18000 occupational health and safety standards. The Yili Group also utilized an automated control system for milk collection, sterile filling, packaging, and delivery from its warehouse.

Hazard Analysis Critical Control Point (HACCP) “*is a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement, and handling, to manufacturing, distribution and consumption of the finished product*” (www, fda, 2017). HACCP is a globally recognized system for minimizing the risk of food safety. HACCP System focuses on eliminating potential

hazards and controlled at specific and key points during the production. Any company work on the manufacturing, processing the food products can use HACCP to minimize or reduce food safety risk in their product. In 2002, the Chinese Inspection and Quarantine Authority adopted HACCP certification, and in the same year, Yili Group obtained HACCP certification for most of their dairy products. It also became the first Chinese dairy company gains the certification of HACCP.

5.3.2 Technology of Yili

Yili has set Internet-based product traceability system (www, Yili, 3, 2010). Every cow has unique breeding information and document after its birth, and the document will be saved in Yili's milk source database (*ibid*). Yili uses GPS tracking technology to monitor the whole process of the transportation of the raw milk (*ibid*). On the other hand, Yili also uses VR technology, three-dimensional display system, interactive entertainment technology and special visual-effect technology as digital technology (*ibid*). Rely on the digital technology; Yili's supply chain became transparent to the customers. Yili is the only dairy industry that controls the three major bases of top quality milk resources in Inner Mongolia and northwestern of China (*ibid*). Yili also integrates high-quality milk resources from Europe, Oceania, and America to meet consumers' need.

Yili group is focused on improving the training and development for the staff, and try to make them know more high technology to improve the quality of the milk. Because the science and technology are the most important productivity for a manufacturing company, it will provide strong support to improve the quality of the products. Simultaneous, Yili delivered leadership, responsibility, and business ethics training to help develop a deeper ethical awareness to the employees. These training will develop a stronger and deeper ethical culture at Yili Group (www, ChinaBusinessReview, 2009).

5.3.3. Partners of Yili

Yili makes efforts to build its global industrial chain. Yili has built a network global resource system, innovation system and marketing system in Asia, Europe, America and Oceania (www, Yili,3,2010). Yili has built the Europe R&D Center in Netherlands which is the first overseas R&D center of Chinese dairy company. In Oceania, Yili has invested 3 billion CNY in New Zealand for the construction of the world's largest integrated dairy base (*ibid*). These projects aim to create a high-end and comprehensive global dairy industrial chain and make an effort to provide high quality and safety dairy products to the customers.

5.4 Cooperation pattern of Yili

5.4.1 Milk station

In 1990 Yili built a milk collection system to collect the raw milk, this system can help Yili manage and control raw milk collection convenient (Abrami, *et,al*,2008). Because Yili could monitor the process of milk collection and adopted the cold process. For instance, when the milk was collected, the raw milk can quickly cool to four degrees Celsius and stored in refrigerated trucks and transport to the factories (*ibid*). In a sense, Yili is a pioneer which is use this system and pattern and also innovate it in the future. The system used by Yili has also become a model for all of China's dairy operations (*ibid*).

In 2002, Yili owned 300 collection stations in Inner Mongolia (Webber, 2012), and also sign the contract with the farmers. Yili unites the local government to provide the loan to the farmers; help the farmers buy the cows and equipment to keep the quality and quantity of the raw milk.

From, 2000-2005, Yili has provided 600 million loans to the farmers to help them increase the number of cows (Snyder, 2016). Yili has some measurement items to help the farmers work effective and earn more profit. For instance, Yili provides medical service, technical guidance and the other kinds of support the farmers, improve their productivity and the quality of the herd and the local government also provide support in the field of soil management, improve the quality of forage (*ibid*).

5.4.2 Training of dairy farmers

Yili not only treats the dairy farmers as the suppliers but also help them develop together. Yili never ignores improve the professional skills and knowledge of the dairy farmers. In 2010, Yili has founded “Cows School” and invited more than 100 experts in and organized more than 200 training about pasture management, disease prevention and some other issues (www, Yili, 3, 2010). The Cows School cooperated with Ministry of Agriculture’s Management Institute and adopted the training mode of “field school” (www, Yili, 3, 2010). The experts will go into the ranch and explore the issue in the breeding process, and then the experts can make a new method breeding and management according to the real situation and issues. *“In this way, it not only stimulates trainees' enthusiasm and initiative but also moves the classroom to the ranch and effectively solves the problems in the process of feeding management”* (*ibid*). In 2015, Yili Cows School changes the focus from providing the technology and financial support for the rancher or pasture owner to potential pasture successors. This project was running as a training camp, and named second-generation of pasture managers (*ibid*).

The training camp emphasis improves comprehensive skills and ability such as pasture management, milking, breeding, health care, ranch operations and so on (*ibid*). The experts of the training camp introduce internationally advanced theories and world-class guidance on technologies and practices to the successors (*ibid*). Help the successor and pastures managers can connect the international market, and understand the real situation of the global dairy industrial chain.

In 2015, Yili had more than 2400 self-constructive, under-constructive and co-operative pastures and more than 1 million contracted farmers to supply the raw milk. Because of the training system and advanced training principal of Yili Cows School, the quality of milk has improved, and the farmers also can use the technology to manage the ranch, improve the productivity, efficiency and reduce the risk. This is a win-win situation for Yili and dairy farmers.

6 Analysis and discussion

In the history of the development of Chinese dairy industries, Mengniu Group and Yili Group has never stopped the competition. In the other side, Mengniu and Yili are not only the competitor, but also have a sensitive relationship. In 1982, Niu Gensheng worked as a milk bottle cleaner in Yili Group, and reply by his hard work and ability promoted to management layer. However, in 1998, for some reasons that never been released by the broad of Yili, Niu Gensheng has fired by Yili (Peverelli, 2006). After only one year, Niu Gengsheng and his friends and colleagues raised 1.3 Billion RMB and created Mengniu Group (*ibid*). After that, Niu GenSheng relies on his unique ability and experience to created Mengniu, and Niu Gen Sheng also created his dairy empire and competed with Yili.

In this chapter, the author will compare the approach of quality management adopted by Mengniu and Yili, and also compare and explore how these two dairy companies collaborate with the farmers. The author will out judge which company is better or worse, the main content is explored and analyzed the differences between them.

6.1 Comparison of quality management of Mengniu and Yili

6.1.1 The strength of quality control in Mengniu

As introduced in the previous chapter, Mengniu relies on digitized technology and information technology to control the product quality and use the big data to store the information of the product. Mengniu recognized advanced technology is the strong support to manage and monitor the quality.

Mengniu has passed ISO9001, ISO14001, OHSAS18001, GMP, HACCP certification and the certification of green food five systems. In 2002, “Mengniu” trademark was successfully identified as “Chinese Famous Trademark,” Mengniu liquid milk was awarded "China Famous Brand" from the milk, production, packaging, factory to aftermarket products, with strict quality control and management system.

Mengniu emphasizes the quality control of two ends of the whole supply chain. At the beginning of the manufacture, focus on each detail; make sure the fodder for the cow is clean and safe. At the end of the supply chain, satisfy the demand of the end consumers, and improve the communication with the consumers.

Innovation and high technology are the main competitiveness of Mengniu. Mengniu Group has continuously focused on developing initiatives and using the innovative technology to produce high-quality dairy products to satisfy customers demand. Such as the unique quality management system of Mengniu, it includes three quality management centers for milk sources, operations and sales respectively. This system will help Mengniu control the quality and reduce the risk level by level. Pasture, factory, and the market has the own testing institutes to test the quality. The professional staff of quality management system will test and monitor each link of the production. Finally, the testing institutes of the third party will get involved the testing process, the make sure all the product and service satisfied the standard.

In a company, technology is the first productivity; innovation is the first competitiveness and the key elements to keep the vitality of a dairy company. Chinese dairy industry can keep the high position in the competition in the global dairy market; Technological innovation has contributed a great share. Keep innovation also help Mengniu meets customers’ potential demand, and use the differentiated products to leading in the dairy market. The dairy industry has a long and complicated industrial chain; innovation cannot be blind, the essential element is innovations must accord with the need of the market and guarantee the quality of the product.

Mengniu relies on the technology innovation, and strict attitude, improve not only its competitiveness but also has significance for the sustainability of development of Chinese dairy industry.

Another strength of Mengniu is the partners of Mengniu. Mengniu has collaborated with the leading dairy companies in the world and also adopt the advanced test and management technology from the other leading companies. Such as cooperated with Asure Quality, which is an enterprise of New Zealand to create a food safety standard. Danone from French has also cooperated with Mengniu to working on the yogurt and help Mengniu reduce the cost during the testing process. This kind of cooperation make Mengniu gain the advanced technology and experience to manage the quality and keeping the leading position in the rank of global dairy companies. For example, Mengniu has cooperative with Arla for many years, Mengniu adopted a production line which has more than one hundred years experience from Arla and introduced the advanced experience and technology from Arla that help Mengniu guarantee the quality of product and reduce the unnecessary cost, improve the efficiency, and make Mengniu access the high level of the global dairy market. In fact, the international strategy becoming a necessary trend in the current dairy industry, Mengniu expand its operation from China to Asia, from Asia to the World, and build a high technology industrial chain which includes training, research, produce, test, store, and distribution.

6.1.2 The strength of quality control in Yili

The good milk resource, strict management system and advanced process and manufacture skills are three basic elements to keep the high quality of dairy products. As the author introduces previously, Yili also adopted the model of “company+farmers” to collect the raw milk. However, Yili did not ignore the quality of the raw milk, to avoid the quality affected by the manual milking, Yili set the equipment which can help the farmers milking automatically, and the raw milk will cool quickly. This innovation keeps the quality of raw milk at the beginning of the whole supply chain, and makes a “green channel.”

Compared with Mengniu, Yili focus on the advanced test and standard system, not only the adopted the high technology blindly. That is the most obvious difference between Yili and Mengniu in the field of quality management. Such as Yili has cooperated with three global leading from SGS headquartered in Switzerland, Lloyd’s Registered Quality Assurance (LRQA) and Intertek from the UK. The technology will provide the support during the manufacturing process, but the advanced test and standard system will let Yili pay attention to the quality of raw milk from the source. If the raw material cannot pass the test, then it will not use to manufacture, it will help Yili control and manage the raw milk quality from the source of the whole industrial chain. Moreover, Yili also has its core technology, such as in the field of control the raw milk. Yili built the data for every milking cow when the cow was born, and all the raw milk can be trace and monitoring by the GPS technology. This retrospect system helps Yili make the product digitization and information, and Yili also relies on the big data technology and cloud technology to collect and analyzed the information of market and consumers. The retrospect system will also improve the transparency for the consumer, and maximum gain the consumers’ confidence.

Another advantage of Yili is the innovation. Mengniu focus on the innovated the technology, but Yili concentrate on the innovated the whole supply chain. As the author introduced previously, Yili uses the innovation as the guidelines, and focus on the consumers’ need, create the full chain innovation system. The system covers the upstream and downstream of the supply

chain, and creates a channel throughout the whole supply. In the upstream, Yili considers the rights and benefit of farmers, and strive to work on the development of raw milk resource. In the downstream, Yili also provides diversified goods and service to the customers. This advantage helps Yili build a channel throughout the whole chain, and improve the sustainability of the dairy industry. The most important point is all the stakeholder involved in the supply chain will benefit from the innovation and share the performance. Innovation also became the core competitiveness of Yili.

6.1.3 The weakness of quality control in Mengniu

Mengniu has lost reputation and a significant amount of profit in the dairy crisis in 2008, after that, Mengniu kept working on rebuild consumers' confidence and adopted a strict standard and advanced technology to manage the quality, but the safety issue has not completely eradicated. The main issue still happens in the quality control of the raw milk. As the author introduces before, the initial phase of Mengniu is different between the other dairy companies. Mengniu uses the strategy as "Market first, then factory" in the beginning, because of its weak foundation. However, after Mengniu growth as a leading dairy company in China, Mengniu still pay more attention to the marketing than control the milk source. That is the sequel of the "market first, then factory." The fund invests in promoting, and advertisement is more than in the fields of managing the milk resource, and this strategy makes Mengniu focus on expanding its market, and to some extent, ignore the monitor of milk resource.

Mengniu has spent lots of fund on cooperated with international partners and adopted the advanced technology, but the whole quality system more like combined by different countries' technology, and the real core technology of Mengniu did not occupy with enough proportion. That also means although Mengniu has advanced technology, it is lack of the management mechanism.

6.1.4 The weakness of quality control in Yili

Yili's technology can lead in the Chinese dairy market undoubtedly. But in the global dairy market, Yili still need to improve its core technology and its advantage, and design and research some more high-end product. As a dairy company, keep the good quality is not the ultimate goal, it is just the basic responsibility of the business. Faced with the competition in the global dairy market, Yili should accelerate its development; improve the competition and profitability on the premise of keeping the safety of the goods. However, as the author mentioned, according to the rank of world dairy industry of 2016, Yili has got an impressive performance.

6.2 Comparison of cooperation patterns of Mengniu and Yili

6.2.1 The strength of cooperation patterns in Mengniu

Mengniu uses three types of model to cooperate with dairy farmers and suppliers which are “company + farmer”, “company+ pasture” and “company + OEM suppliers.” Each of these three models has its advantage.

The “company +farmer” model can help the dairy farmers feed the cow dispersive, and the dairy station will collect the raw milk concentrated. The company could control the quality of the raw milk indirectly. Mengniu also signs the contract with the farmers, and cooperate with the farmers as an economic community.

In the model of “company+ pasture”, the pasture introduced from the other countries, and operated by the foreign managers. Mengniu adopted the advanced experience and management system in the pastures, keep and control the quality of raw milk. These pastures concentrate upon the provinces and cities closed to the base of Mengniu, reduce the unnecessary time cost and transportation cost.

Faced with the competition of Chinese dairy market, one of the important strategies of Mengniu is expend its operation and acquiring the local companies. In the pattern of “company + OEM suppliers”, the local OEM suppliers provide the raw milk to Mengniu, the Mengniu will control and manage the quality, and it will accelerate the expansion of Mengniu. Mengniu still uses this model as the main approach to collect the raw milk.

6.2.2 The strength of cooperation patterns in Yili

In the upstream of the supply chain, Yili focuses on improving the professional skills of the dairy farmers and provide the insurance and loan to the farmers and small business, help them deal with the finical issues, and give them a theoretical and technological support. Yili recognized that the dairy farmers are the basic and important element in the whole supply chain, if the farmers can use the professional skills to milking, that will reduce the unnecessary cost, and improve the efficiency, and also control the quality of raw milk. Yili emphasized the demand and the real situation of the farmers, use the model which is the enterprise take the risk, reduce the farmers’ pressure and risks, also drive the small scale business to develop together. It is good for the development of the stakeholder. Because different stakeholder has difference influence to the dairy supply, if one of the links is broken, then the full chain will be affected by this issue. That is why Yili makes an effort on the innovation of the entire supply chain, which will keep each stakeholder in the supply chain running stable.

From the long-term perspective, the model of Yili cooperate with the farmers can be seen as a sustainable way and suitable for the development of dairy companies and employers. It also can be considered as a way to carry out the Corporation Social Responsibility. According to the international trend, Mengniu not only provides the technical support to the old rancher, but also emphasizes the development of the young generation, and conduct the training about the financial management, business operation, and strategy development for the younger rancher. Yili still makes an effort to help them adapt the competition in the dairy market.

Second, internationalization has become an important trend in the global dairy market, which need the domestic dairy companies not only improve their ability but also try to connect with the international market. Yili has invited many experts to guide and help the farmers from the

theory to practice. The training includes milking, breed, health care, management and advanced international pasture management theory and so on. Help the farmers have a broader and a long-term perspective.

In fact, both Yili and Mengniu involved in the milk scandal in 2008, and their reputation and profit also affected by the incident. However, they have the different strategy to undertake the responsibility. Mengniu asks the agency and dealer to pay the compensation and undertake the responsibility together, but Yili chooses to pay the compensation by itself. We cannot judge which strategy is better, from Yili looks like recovered more consumers' trust after executed this solution.

6.2.3 The weakness of cooperation patterns in Mengniu

In Chinese dairy market, the model named “company + farmer” used by many dairy companies as a traditional model. It is easy to operate. This model not only includes the company sign the contract with the farmers but also includes the farmers collect money and become a shareholder of the enterprise. The farmers and the company cooperated as a interests community. The company provides the service to the farmers, and purchases the product according to the contract, but don't take the farmers the risk.

Because of the gap between the company and the farmers, the relationship between the Mengniu and the dairy farmers cannot be completely equal and fair. The farmers lack the knowledge of the law and the technology of production; it will make the farmers lose the initiative. So the conditions in the contract tend to protect the rights of the company, which will intensify the conflict between the company and the farmers, and can't make a win-win situation. Simultaneously, the milk stations can see as middlemen between the farmers and dairy companies, Mengniu sign the contract with the milk station, and the milk station collects the milk resource from the farmers. However, on the other side, the milk station is running independent; Mengniu cannot control everything process of the milk station and that will be some hidden danger of the quality management and safety management. The farmers cannot guarantee the quality of the milk. There is no specific department and regulation to control and supervise the milk station and the contracted farmers. These restrictions make the quality of raw milk cannot satisfy the standard of Mengniu, and the milk station will reject the milk collected by the farmers, then the farmer will lose their profit. Finally, the conflict between Mengniu and the dairy farmers became more acutely.

The second model is not perfect either. The pasture which is operated by the foreign manager cannot be suitable Chinese dairy market completely. Because of the foreign managers have different operation principle and different management methods. These principles and methods will not be fit with the real situation of Chinese dairy market completely, that will make the predicament of the management.

Mengniu also collected the raw milk from the OEM supplies. In fact, the OEM model also existed in the other industries. However, because of the particularity of dairy industry, it needs the suppliers in OEM model must pay attention to every link of the supply chain. Such as supervising, purchase, process, test, store, packaging and so on. If these are some problems happened in one of the links, that will affect the whole quality of the product, even influence the reputation of the brand. Mengniu cannot control and monitor all the suppliers, and maybe some suppliers do not have relevant certification and facility to provide high-quality raw milk, that will have the underlying problems in the whole supply chain.

6.2.4 The weakness of cooperation patterns in Yili

Yili has the similar weakness with Mengniu. The raw milk has still existed as a hidden danger. Even though Yili set quality management in the first place during the strategy, but Yili cannot control and manage each farmer and milk station either. Because of the complexity of dairy chain, some links will be ignored unavoidable. That is why Yili will train the professional skills for the farmers, which will keep the quality to a certain degree. That is also the reason Yili has less melamine in the dairy product than Mengniu in the incident happened in 2008.

6.3 The analysis for research questions

In sum, in the field of technology, Mengniu Group focuses on integrating the high tech from the other leading dairy companies. It will improve the productivity and efficiency, and helpful for Mengniu manage and control the quality. However, on the other hand, according to the history and real situation of Mengniu, the weak foundation and the initial developing strategy makes Mengniu more focus more the market, and lack of its core technology. Mengniu has grown and expanded rapidly, and as a world leading dairy companies, the core technology cannot be instead by the technology adopted by the other companies. Yili still making an effort to build a comprehensive standard system, because Yili recognized to improve the standard of high quality is the key factor to control the quality, and it looks like gained significant performance. The digital technology and trace technology can be seen as the core technology of Yili. According to the research question, the main difference between Mengniu and Yili in the field of quality control is Mengniu focus on adapt and introduce the different high technology from various leading dairy company; and Yili focuses on improving the test and standard system and keeps the quality from the source.

About the cooperation patterns, Mengniu needs to consider more about protecting the farmer's rights. The farmers are not only the raw milk supplier but also a stakeholder in Mengniu's supply chain. When the undulation happened in the dairy market, the dairy farmer will be the first group affected by the price cut. If the dairy company doesn't pay attention to the farmers' rights, that will aggravate the conflict between Mengniu and dairy farmers. Oppositely, Yili focuses on the long-term perspective, and strive to let the farmers have their skills and knowledge. Because as a dairy company, Yili did not treat the farmers as only a part of the contract, Yili makes efforts to developing together with the farmers. As the author explains previous, dairy farmers are an important stakeholder in the dairy supply chain. If this link can't running stable, that will affect the whole supply chain even the entire dairy market. So if the farmers gain the professional skills and knowledge and that will helpful for controlling the quality of the dairy product. Meanwhile, it will also improve the relationships between the company and the farmers and make it more harmonious. So the main difference between the cooperation patterns of these two dairy companies is Mengniu focus more on the market and economic benefit, the farmers are the part of the contract, if some undulation happened, the dairy farmers don't know how to protect their profit. On the other hand, Yili treats the farmers as a part of Yili, and undertake the responsibility and obligation initiative, and Yili also working on reducing the farmers' unnecessary cost and sustainably developing with farmers.

The quality control can be seen as the upstream of a dairy supply chain. The high technology can help Mengniu monitor the quality of raw milk from end to end. The operation of modern

pasture also can save the time cost and transportation cost in the upstream of its supply chain. However, on the other hand, Mengniu focus more on developing the market and invest lots of funds on the advertisement, promotion, and expand the market and that will make increase the cost of Mengniu, and decrease the resources supply capacity. If Mengniu expands so fast and is disjointed with the development of raw milk resource and that will affect the quality of the raw milk and exceed the real growth rate of the dairy market, and also affect the upstream of the supply chain.

Yili focuses on the innovation of the standard and test system. That means Yili wants to control the quality of raw milk radically in the upstream of its supply chain. Yili controls the high-quality pasture of China, and that will provide the high-quality raw milk to Yili. Yili expands the development of milk source base; optimize the upstream of the supply chain. Moreover, the milk source base built in the cities which have a large number of consumers, shorten the transportation period and make sure provide the high-quality milk production to the consumers. However, Yili operates such as long supply chain; the information cannot transmit and share to each section on time, which will make Yili cannot make the decision on time when some undulation happened in the dairy market. Yili cannot control all the links comprehensive, that will lead to Yili ignore some hidden dangers in the supply chain.

In the field of stakeholders' profit, Mengniu's principle is benefit sharing and risk sharing. This principle is accord with the real trend and situation of the global dairy market, which will stimulate all the stakeholders to join and contribute to developing the business. However, the dairy farmers still existed as the weak part of the stakeholder's group. Because the farmers are the lack of the professional skills and legal knowledge, they can't protect their benefit and rights when the risk happens. Mengniu should consider more about protect the farmers benefit, not only reject their provision when there are some quality issues. Because risk sharing is based on the stakeholders and business trusts each other and developing as an alliance.

Yili considers the dairy farmer as one of the most important stakeholders, that is why Yili makes an effort on the training of the professional skills and advance manage experience for the farmers, also focus on the improve the ability of the successor of the pasture. In the long perspective, this strategy will make Yili and the dairy farmers developing sustainably. In the author's perspective and understanding, both Mengniu and Yili have its consumer group, and both of Mengniu and Yili has its strategy to improve the profitability and reputation. According to some milk issues happened in China recent years, Yili looks like gain more confidence back, because Yili didn't involve into the milk incident anymore after 2008. When Yili cooperate with the farmers, Yili will compensate to the farmers when the natural hazard or the other disaster happened. That will make the farmers feel fair and considered. However, on the other hand, Mengniu has involved in some quality issues after 2008, and a significant number of dairy farmers became the victims of these matters. Because when some there quality issues happened, Mengniu will reject the dairy farmers supply the raw milk, and sometimes will reduce the purchasing price of raw milk, at that time, the only choice of these dairy farmers is to dump the milk and kill the cow, without any compensation. That's the biggest difference between these two dairy companies cooperate with the farmers. The author cannot say which is good or bad, but Mengniu should think about more about how to developing sustainably.

6.4 The discussion base on the theory

Chinese dairy industry is facing a period of coexistence of opportunities and challenges. According to the theory used in the thesis, from the supply chain perspective, the dairy supply

chain is not only a chain connects the suppliers, producers, and customers, but also a value added the chain for the product, packing, transport and store. The first link of Chinese dairy industry is the raw milk resource. Raw milk resource is the starting point of a dairy supply chain, and the quality of raw milk resource is also a vital factor for the operation of the dairy supply chain. According to the real situation of Chinese dairy market, there are different factors affect the quality of raw milk. Such as the safety of fodder, adulterate raw milk, operating skills of dairy farmers, and the other issue related to some policy and regulations. Control the quality of the raw milk from the source of dairy supply chain, is the key factor to keep the stability of the whole supply chain.

Milk station is the second section of a dairy supply chain. Because of the limitation and restriction of the facility of milk station, some milk stations cannot test the milk which is added and adulterates on time, and it will make a hidden danger to the next step. Moreover, the chaotic of the management of milk station is also a factor that affects the running of milk station, the deficiency of supervision department makes the malignant competition, and speculative behavior happened among the milk stations.

The dairy industry and dairy business play a major role in the dairy supply chain. Chinese dairy industry has developed rapidly; Mengniu and Yili have occupied the leading position in Chinese dairy market for a long time. However, there are also many small and medium sizes dairy enterprises want to keep a position in the dairy market. They do not have enough funds to purchase and introduce the advanced equipment from the foreign dairy companies, and their facility cannot guarantee the quality of the dairy product during the process of packing, store, and transportation. For example, the quality of raw milk will affect the temperature, oxygen, light, dust, micro organism and so on. So a good quality packing material will isolate the raw milk and maximum avoid the secondary pollution. However, many small and medium size dairy enterprises do not have enough facility and ability to pack the raw milk in that way, so that makes the degenerative dairy products come into the market. In the other hand, the big size dairy companies use the different way to compete in the market, such as the aspect of price, brand, advertisement, and promotion. It surges the cost of dairy companies, and decrease the profit of the whole dairy industry; it indirectly caused the neglect of quality of milk products.

The dairy supply chain is a complicated supply chain, and the purpose of this thesis is not to explore the whole dairy supply chain, but according to the theory used in this thesis, it is necessary to explore and analyze how to improve the quality of raw milk from the long-term perspective. Focus on the situation of Chinese dairy market and the demand of Chinese consumers, Chinese dairy industry and relevant department should manage and optimize the dairy supply chain through the following aspects:

First, choose the dairy farmers and dairy stations carefully. Because dairy farmers are the main supplier, and the dairy station is the first collector. So choose the dairy farmers and dairy station which is honest and responsible is the first key elements to keep the quality of raw milk. From the author's perspective, a reliable reputation is more important than advanced technology. In the other hand, it will also reduce the risk during the process of supply the raw milk. The supplier and dairy farmer also need to improve their professional skills, to meet the requirement of the dairy industry. Of course, dairy companies should provide such kinds of training to the suppliers, just like the cooperation model of Yili.

Second, focus on the test system. Both Mengniu and Yili have gained the certification of HACCP. That is one of the necessary steps to improve the quality of the dairy product. The

dairy product is closed to people's health, so it is necessary to find and solve the hidden danger as early as possible. It is better to formulate the rules and regulations according to the requirement of HACCP.

Third, reinforce the accountability system. The different section in the dairy supply chain had their responsibility when the incident happened; it is necessary to find out relevant responsible personnel and imply the punishment. Eradicate the fluke mind and avoid some producers or companies harbor each other.

In sum, every link in the dairy supply chain is indispensable. From the long term perspective, the dairy farmer, the milk station, the dairy companies, the governments and the other units of the supply chain should make a favorable management system and operating system. It is important to coordinate the balance between the upstream and downstream of the dairy supply chain and keep the supply chain running stable. That is the way to control the quality of dairy product and provide the safety product to the consumers.

From the stakeholder perspective, different stakeholders have the distinct influences on the whole dairy industry and dairy supply chain. It depends on the degree of involvement of the stakeholders. For Chinese dairy companies, key stakeholders are government, dairy farmers, consumers, dairy enterprises. Compared with the other stakeholders, key stakeholders have more intense interest demand, and they are all connected. Especially the relationship between government, dairy farmers and the dairy companies, the balance between them will affect the stability and development of dairy companies directly. They can be seen as the core stakeholders for Chinese dairy industry.

There are also the other organizations also existed as the stakeholders, such as the feed processing company, some NGO, and the other community. Maybe they do not have such a direct influence as the core stakeholders. However, to some extent, they coordinate the communication between the different stakeholders. For examples, some NGOs will work as a supervisor or coordinator; it will help the companies to express their demand and also convey the government's regulation. The feed processing company will also affect the cost of the dairy farmers.

In the periphery of the dairy market and dairy companies, there will be some potential stakeholders. Maybe they will not affect the dairy market in the short time, but for the long perspective, the potential stakeholder also needs to be considered in the part of the strategy in the future.

The author summarizes some measures and suggestions which may good for the reaction of the different stakeholders in the dairy supply chain.

First, the raw milk is the source of the whole dairy supply chain. Create a standardized and normalized feed system for the dairy cow, eradicate the quality issue from the source, and built a track information system, make sure every step will be monitored by the companies and the other third party. Propagandize for domestic dairy businesses and dairy products is also important, it will make the consumer understand more about the information of the dairy product, and also know more about the culture of the dairy industry. On the other hand, improve the promotion is good for the companies' public image. It will make the dairy industry restrain itself and accept the monitoring from the public and consumers, and also affect the consumers' purchasing orientation.

Second, the dairy companies should focus on more the protection of dairy farmers. Guarantee their rights and profit, and also keep the fairness of milk collection. The third party should participate in supervision during the process of milk gathering.

Third, a good natural environment is the foundation of feed the cow, and it is also necessary to harmonious coexistence with nature. The companies could according to the operation model and the situation of the natural environment, use the natural resource reasonable, and make the fodder and dairy product environment-friendly. That will keep the business running in a sustainable way.

Fourth, the dairy companies should be communicating with government and the other NGO efficient. The government will make the rules and regulations; the dairy companies should not only understand the rules as a constraint. The rule is the restriction, but it is also a direction and a guideline. The other NGO will coordinate the relationship between the companies and government, and also be monitoring the manufacture and the other operation holding under a fair and safe environment.

Fifth, focus on the other stakeholders' profit and rights. The dairy companies connect the other stakeholders directly and indirectly, for the sustainable perspective, it is also necessary to consider the other stakeholders who do not have a strong influence.

The stakeholders of dairy supply chain existed independent, and they also rely on each other. Keep the balance of stakeholders will improve the quality of the dairy product; the high and safe dairy product will increase the profit of dairy companies and the consumers' confidence.

7 Conclusions

The dairy industry is not a traditional industry in China, and there are still some issues need to be solved in the dairy supply chain in China. Mengniu and Yili cannot represent all the Chinese companies, but as two leading Chinese companies, Mengniu and Yili represented the main operating model in Chinese dairy market and proven that Chinese dairy companies also can reach the high rank in the global dairy market. Even though the world-shaking scandal and different incident happen in Chinese dairy market repeated, but Chinese dairy industry still grows up step by step.

Mengniu and Yili have a subtle and sensitive relationship, they are the competitors, but Mengniu also can be seen as the split from Yili. They control more than half the share in Chinese dairy market; they also keep working on support and improve the facility of Chinese dairy industry.

Mengniu relied on its high technology and broad business scope located in the front row of the global dairy market and continued building the commercial empire. Mengniu's strategy makes it expand rapidly, and in a sense, Mengniu ignores and neglect of control and manage the quality of the raw milk. Even though Mengniu has introduced and adopted advanced technology from the top dairy companies in the world, and create the cooperation with them, but Mengniu still lack for the core technology and a more stable supply chain management system. Another issue is Mengniu still need to improve the crisis management, Mengniu's reputation has suffered a setback from several incidents, but each time Mengniu's attitude cannot make the consumer satisfying. That is why sometimes the customers boycott the product of Mengniu. Mengniu still needs to make an effort to rebuild its reputation.

The advanced test standard and system is the unique advantage of Yili, and Yili also relies on the advanced quality standard improve and control the quality of the dairy product and didn't involve in some serious food safety incident after 2008. Yili focus on the training of the farmers, they do not only treat the farmers as a part of the contract, but also a part of Yili. Yili chooses the developing together with the farmers, that is an innovation of the dairy supply chain, and Yili also has a sincere and positive attitude to solve each crisis. However, Yili still needs to improve and address some issue in its marketing strategy, and also improve the profitability.

Based on the theories used in this thesis, in the field of supply chain, Mengniu should make improve the control and management of the upstream of the supply chain, especially in the section of collect the raw milk. Yili operates the supply chain by itself, which means Yili cannot pay attention to each link of the supply chain. Yili should make the supply chain running more efficient and improves the profitability. According to stakeholder theory, Mengniu should consider the dairy farmers as the most important stakeholders; give them enough respect and consideration. Yili cooperates equally with the dairy farmers, and treat them as a part of Yili, but Yili should improve the development of the high-end product, make more profit. Because the quality is the basic condition to running a dairy business, the profitability and the shareholders' benefit is also important.

There is no perfect business in the world, and each business needs to suffer the turbulence and to get stronger after that. As two leading Chinese dairy companies, Mengniu and Yili will not stop the competition; the consumer also expects they improve the quality of the product through the fair competing, and keeping in the top of the global dairy market.

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