2023

Preliminary Analysis of Cross-shareholding in the Green Supply Chain and Recommendations for Regulatory Policy in the Philippines

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Date received: May 30, 2023
Date revised: August 09, 2023
Date accepted: September 30, 2023
Similarity index: 14%

Abstract

Cross-shareholding is increasingly used in supply chains to improve strategic synergy between companies. However, regulations on cross-ownership within green supply chains are still in their early stages of development. Cross-ownership affects both the government's pricing strategy and its carbon reduction policies. Additionally, the cross-shareholding structure impacts the profitability of the supply chain by introducing power dynamics between manufacturers and retailers. When cross-shareholding regulations and models are implemented, manufacturers and retailers within the supply chain exhibit more substantial reductions in their carbon footprint and experience increased profits, particularly in decentralized supply chains when cross-ownership surpasses a specific threshold. The adoption of cross-shareholding profit-sharing agreements could enhance the performance of green supply chains. This article synthesizes the views of scholars on cross-shareholding in the supply chain. It uses analytical methods to evaluate the role of the negotiation process, trade credit, and cross-shareholding in the supply chain. The article uses jurisprudence to recommend a cross-shareholding policy in the Philippines to enhance supply chain efficiency. It uses the "Stackelberg Leadership Model" to analyze the impact of cross-shareholding on two levels of the supply chain, offering recommendations for future implementation to improve supply chain efficiency. The article recommends that the Philippines' supply chain policy include mechanisms to encourage new companies to join the existing cross-ownership network, capitalize on the impact of cross-shareholding on supply chain assessment, and develop ways to use equity ratio and trade credit. These recommendations aim to refine policy and legislation in the Philippines to effectively utilize trade credit, equity ratios, and cross-shareholdings in supply chain management.

Keywords: legal policy, cross-shareholding, supply chain, the Philippines

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https://doi.org/10.53899/spjrd.v28i2.252

The term "cross-shareholding" means the case where two or more companies hold a certain percentage of shares in each other's business to improve their market power and business strategy. By applying models and regulations on cross-shareholding, companies can strengthen partnerships and gain advantages in terms of charter capital, high technology, sales revenue, and innovation processes (Brooks et al., 2018). For example, Lenovo PCs created a low-temperature solder manufacturing process that reduced carbon by 35% in 2017 (Lenovo, 2017); Walmart reduced its operations' carbon footprint by 18% in 2017-2019 compared to the level achieved in 2015 (Walmart, 2019).

In 2009, China-based lingerie manufacturer Bosideng bought a 1.76% stake in Dachang Group (a local department store chain). The same year, Chinese shoemaker Red Dragon bought a 2.2% stake in the Dashan group. Two cases have shown cross-ownership in the supply chain when a large supplier (the dominant person in the two-tier supply chain) holds the shares of the small partner. This also demonstrates that cross-shareholding exists between a large company and small suppliers in the supply chain. Not only in China but the case of cross-shareholding in the supply chain also occurs in Japan. Typically, Toyota has held shares in suppliers such as Nippondenso (22%), Toyoda Gosei (14%), and Koito (19%) (Womack & Daniel, 1991). In Western countries, cross-ownership in the supply chain is similar to that of the US auto industry (Alley, 1997) or the energy sector in Northern Europe (Amundsen & Bergman, 2002).

Some of the research covers topics such as process improvement methods, internal decision-making mechanisms in the supply chain (Sheu, 2008), and the optimization and coordination of green strategies (Hu & Feng, 2017). However, according to the author's research, supply chain management has not been studied in the context of cross-shareholding from a global perspective. Therefore, this article will examine the impact of cross-shareholding on supply chain decisions and performance. The author will introduce the cross-ownership mechanism according to the decentralized supply chain model. The article will also clarify the impact of share cross-ownership on the selling price in a close relationship with the power structure of the cross-ownership network.

At the same time, scientific studies in the Philippines often pay little attention to cross-shareholding. According to the author's research, understanding and evaluating the mechanism of cross-shareholding in the supply chain in the Philippines has not been focused. This is a significant research gap in perfecting the legal mechanism for cross-shareholding in the Philippines, which may affect the development of corporate law in the long run. Therefore, this article is established to provide more reference background for the process of completing cross-ownership in general and improving the utilization of cross-shareholding structures in the supply chain in the Philippines.

Theoretical Framework

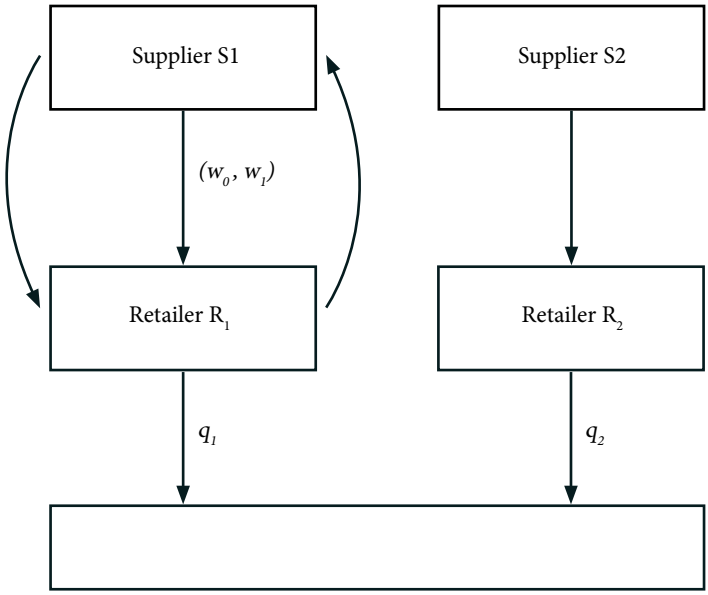
"Stackelberg Leadership Model" is a model built by Heinrich Von Stackelberg in 1934. The application purpose of this model is to create conditions for companies to dominate the group of companies to set prices. Companies in the group will then use this price to optimize their costs and production processes (Zhiyong Liu, 2005).

The "Stackelberg Leadership Model" forms a two-tier supply chain that includes manufacturer-applicable and retailer-applicable models. All supply chain members are assumed to act with the aim of maximizing their own profits. Legal regulations and consumer awareness of environmental protection encourage both manufacturers and retailers to reduce their carbon footprint. Manufacturers can design products and innovate manufacturing processes to cut down on activities related to carbon emissions. Meanwhile, the retailer can improve energy efficiency when selling green products in the market. This combination requires suppliers and retailers to invest in technology and the research and development at both levels (Figure 1).

DOI: https://doi.org/10.53899/spjrd.v28i2.252

Figure 1

Model structure of supply chain under cross-shareholdings



The impact of cross-ownership on the two-tier model is quite diverse. First, cross-ownership affects the selling price through the relationship between the supply chain members. For the retailer-dominated model, the manufacturer tends to charge a higher selling price when the retailer holds a higher percentage of shares in the cross-ownership network (Agi & Yan, 2020). However, in a model where the manufacturer is dominant and has a higher percentage of share ownership, the manufacturer tends to charge a lower selling price. The effect of cross-ownership on retail prices is simpler than its effect on producer prices. As cross-ownership increases, retailers always have an incentive to set higher prices. From a consumer perspective, high cross-ownership leads to higher retail prices (provided the value-added tax remains stable).

Second, the impact of cross-shareholding on economic performance depends on the power structure of the supply chain. In other words, the producer can earn a higher profit regardless of the cross-shareholding ratio. Conversely, when the retailer's share ownership is at a high level, the manufacturer can only earn higher profits when the percentage does not exceed a certain threshold. Clearly, the dominant supply chain will more likely derive additional benefits through a cross-ownership structure.

Third, higher cross-ownership forces supply chain players to reduce their carbon footprint to a greater extent in production and wholesale. The ratio of carbon reductions between manufacturers and retailers is closely related to the structure of the supply chain. As this ratio is positively influenced by the percentage of the manufacturer's share held by the retailer, a higher ratio can ease pressure on the retailer in the supply chain. However, a higher percentage of shares held by manufacturers reduces pressure on manufacturers to reduce the amount of carbon in the supply chain (Becker-Peth & Thonemann, 2016).

Finally, when the cross-shareholding ratio is the decisive endogenous variable, the impact on the optimal ratio is closely related to the power positions of manufacturers and retailers in the supply chain. In more detail, the person with a high stake in the supply chain can benefit from a greater financial position. However, a certain threshold must be set to maximize their financial performance. This threshold is related to the client's sensitivity to carbon reduction and the difficulty of green development. Furthermore, a revenue-sharing contract can be entered into to further enhance the performance of the supply chain in a cross-ownership network of joint stock companies.

From the preceding theoretical basis, supply chain members should set equity thresholds when they seek strategic synergy through cross-ownership, as the latter cannot reap much profit when the ratio is low. The stakeholder's stake is too high, which is harmful to long-term profits. Therefore, supply chain members who intend to improve the efficiency of their green investments and profitability through cross-ownership should negotiate to establish an appropriate cross-ownership ratio. In addition, chain members should increase their efforts to reduce R&D costs as lower costs can help them gain more benefits from the cross-ownership of the respective preferred shares.

Materials and Methods

Within the scope of materials, studies by Lariviere (1999) and Lariviere and Porteus (2001) provide some analysis of the effectiveness of the supply chain under the purchase contract. Moreover, Kornbluth and Salkin (1994) used mathematical programming models to solve the ownership structure in business management in accordance with UK and US laws and regulations. Another study by Levy (2011) used graph theory to calculate each company's voting weights per share in a decentralized cross-ownership network.

Cachon's study (2003; 2004) assessed both push and pull supply chains in the context of intercompany communication. Simultaneously, Cachon also compared pre-purchase discount contracts and demonstrated that many pre-purchase discount contracts in the supply chain achieve Pareto efficiency. From this background, Cachon's studies also clarified the difference between push and pull supply chains concerning inventory risk and demand uncertainty. In a push supply chain, the supplier pushes all inventory risk to the retailer. In a pull supply chain, the retailer takes inventory from the supplier and can replenish it as needed seasonally, resulting in the opposite situation where the supplier bears all of the inventory risk.

The above studies show that more than simple sales contracts are needed to coordinate the supply chain due to uneven distribution of demand risk and double margin. Therefore, current studies aim to further analyze the supply chain incentive mechanism with random demand, such as quantity discount mechanism, return policy, repurchase, sale price reduction, contract, and revenue sharing. All contracts have high administrative costs, including revenue tracking, inventory verification and inspection, and fixed ordering costs. Instead, cross-shareholding between two companies in the supply chain is regulated by a single selling price, which is easy to implement and does not require high administrative costs.

The research on inventory management is evolving rapidly, and several studies have examined ordering strategies with supply chain models. Lariviere and Porteus (2001) derived the equilibrium of supply chains in the game theory of Stackelberg, thereby giving the information supplier model, one of the frameworks of supply chain finance. Birge and Xu (2004) proposed a way to make decisions when there is limited capital and a way to extend the sales model to news providers. Buzacott and Zhang (2004) showed how to increase a retailer's return on assets in the context of bank loans. Furthermore, Yang and Birge (2009) showed that supply chain efficiency improves when a company uses trade credit from suppliers. Kouvelis and Zhao (2012) also compared the impact and difference

DOI: https://doi.org/10.53899/spjrd.v28i2.252

of trade credit with bank loans in the supply chain, and Yang and Birge (2018) studied the financing link between cash, trade credit, and bank loans. These articles focus on how the retailer, in a capital-constrained state, determines the optimal order quantity in the presence of trade credit and other funding sources. However, these studies did not consider the impact of cross-shareholding on retailer order quantity.

Additionally, several studies have examined the interaction in the supply chain between the tripartite relationship of suppliers, retailers, and banks. In a product competition, financial difficulties and legal conditions can affect the supplier-retailer relationship (Yang, Birge, & Parker, 2015). Meanwhile, Wu, Zhang, and Baron (2019) explored the behavior of companies in the supply chain and found that having one supplier sell to two retailers asymmetrical information leads to inventory competition when demand is unsustainable. On the other hand, Cohen and Frazzini (2008) provided a mechanism for risk transmission between suppliers and retailers with the results that the risks emanating from the supplier to the retailer have different effects on the parties' assets. Jahani, Abbasi, and Talluri (2019) extended the hybrid supply chain design model to enable financial performance optimization instead of profit maximization, while Yildiz et al. (2016) focused on risk management in the supply chain and established a trade-off between the two goals of reducing costs and increasing reliability. More importantly, Kumar and Park (2019) comprehensively reviewed risk, risk management strategy, and supply chain value issues, proposing a measure of supply chain value based on financial theory and risk management strategies. However, these studies have yet to analyze the retailer's ordering strategy concerning suppliers and banks.

For profit-sharing contracts in the form of cross-shareholding, Brioschi, Buzzacchi, and Colombo (1989) developed a framework to help determine the market value of a cross-shareholding enterprise. Fedenia, Hodder, and Triantis (1994) studied the financial layers in cross-shareholding networks to highlight the characteristics of integrated diversity. Kornbluth and Salkin (1994) performed cross-shareholding structure matching between laws and regulations according to a mathematical model. Florackis, Kanas, and Kostakis (2015) study the impact of cross-shareholding on the business performance of companies. These articles focus on understanding how to share profits under the cross-ownership model but do not discuss cross-stake performance in supply chain management.

For supply chain management in the form of cross-shareholding, Chen, Hu, and Song (2017) showed that retailer performance is enhanced when well-financed by the cross-shareholding model. Gaigné, Latouche, and Turolla (2018) studied the network of cross-shareholdings in a complex vertically connected supply chain. Fu, Ma, and Cai (2018) studied a supply chain following a vertical cross-stakeholder model, in which upstream firms provide additional funding sources to downstream firms to aim to reduce retail prices and increase production volumes. Fu and Ma (2019) studied longitudinal cross-ownership to make decisions about the optimal selling price and production quantity of two companies. Although these studies investigate supply chain management under cross-ownership, they ignored how external financing affects a retailer's order quantity, especially trade credit.

Previous studies have yet to examine the cross-shareholding structure directly in the supply chain because the above authors only consider the top-down, one-way ownership structure in the relationship between manufacturer and retailer. On the basis that when an upstream monopolist sells inputs to a manufacturing firm, consumer surplus, and total surplus would remain unchanged if downstream firms held part of the upstream monopolist's ownership. This means that a buyer holding a seller's stock has the same effect on performance as a seller holding a buyer's stock. Therefore, the basic research aim of this paper is to analyze the impact of cross-shareholding on performance and performance decisions in the supply chain.

This article uses three methods: the method of collecting and synthesizing data, the analytical method, and the method of jurisprudence. The table below briefly presents the purposes of using these types of methods.

Table 1

Purpose of the methods used

Methods	Politeness Strategy
The method of collecting and synthesizing data	Collect some data and state some opinions of some scholars to inherit existing research results.
Analytical method	Evaluate the research object and evaluate the influence of the research object on relevant factors of the paper topic.
The method of jurisprudence	Make some recommendations for current policies and laws.

For this study, the article uses a synthetic method to collect data and outlines some scholars' views to inherit the research results obtained on the cross-ownership of shares in the supply chain. Collecting and synthesizing data helps the article clarify the "Materials" part and the "Theoretical Framework". For the "Theoretical Framework" section, the data synthesis method helps the author list and present the "Stackelberg Leadership Model" through Figure 1. Especially for the "Materials" section mentioned above, the data synthetic method helps the author inherit some essential perspectives, such as Cachon's point of view on push and pull supply chains, Stackelberg and Porteus's supply chain equilibrium point of view, and information provider model in supply chain finance, the view of the market value of cross-owned enterprise shares of Brioschi et al.

The analytical method is also used to assess the role of the bargaining process in the supply chain to assess the combined effects of trade credit and cross-shareholding in the supply chain. The analytical method helps the author clarify how to take advantage of the incentive mechanism through cross-ownership regulation to increase profits, boost selling prices, and enhance supply chain efficiency. This method also helps the author analyze the cross-ownership strategy's usefulness in cost sharing, including the costs of producing green products to protect the environment.

At the same time, through the method of jurisprudence, the article also makes some recommendations for the policy of cross-shareholding in the Philippines to make good use of this mechanism to develop the supply chain. The three recommendations in the article are based on the perspectives of legal policy on supply chain development, legal policy on companies, and agreement mechanisms related to cross-ownership of shares and commercial credit. Therefore, the jurisprudence method significantly contributes to the author's formulation of recommendations on policies, laws, and common civil transactions in the Philippines, which is a general perspective for the topic on which the article is working, mentioned to provide appropriate policy-making direction.

Results and Discussion

The role of bargaining in the supply chain system regarding cross-shareholding

A supply chain in partial cross-ownership represents a situation where each party holds a share of the partner's shares. In a partial cross-ownership supply chain, when decisions are negotiated, the supply chain is coordinated, and the profit allocation of the chain depends on the bargaining factor

DOI: https://doi.org/10.53899/spjrd.v28i2.252

and reserve margin. At the same time, the negotiation can be formed into a contract independent of the structure: The retailer holds a percentage of the supplier's shares but does not affect the supply chain efficiency and profitability of both parties and vice versa. Advanced technology-driven supply chains are often fast-changing and complex and are a commonly studied system in the field of systems engineering optimization (Chen & Ulya, 2019). From supply system design, reliability, reconfiguration to efficiency improvement are all studied when talking about supply chain in general and supply chain in particular. This section mainly focuses on using incentives through cross-ownership regulation to increase profits, selling prices, and supply chain efficiency.

Driven by today's most advanced methods, the two-tier supply chain model becomes quite popular, especially when inventory risk is pushed from upstream to downstream. Unlike the traditional two-tier supply chain consisting of two independent parties, the cross-shareholding model allows two companies to hold each other's shares to establish a closer relationship through the provisions of law on companies. China's Luzhou Laojiao Liquor Company issued additional shares in a private placement with its retailers in 2010, and its retailers subsequently held shares in the liquor company (Chen & Hu, 2012). This is a typical model of supply chain development through cross-shareholding. Although common in practice, the impact of cross-ownership on firm performance has been poorly studied.

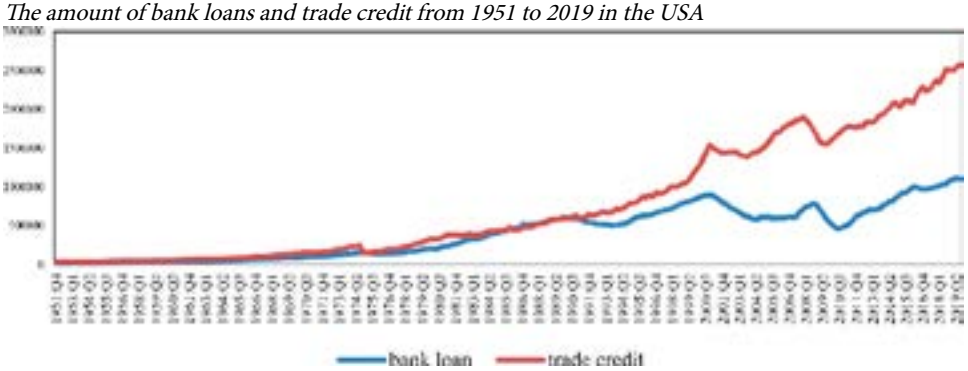
The supplier acts as the dominant player in the supply chain through partial cross-ownership. Letting a retailer hold a portion of a supplier's stock does not affect the efficiency of the supply chain and the profitability of both parties involved. In practice, however, instead of having one party as the manager, in a cross-ownership model, both parties in the supply chain ally and negotiate the selling price and quantity to be ordered. Therefore, the supplier and the retailer can sit together to bargain on the selling price and the order quantity. In summary, for the supply chain, bargaining can coordinate the supply chain, and the chain's profit allocation depends on the bargaining factor and the reserve margin. Under the cross-shareholding agreement, profits will still be guaranteed (Drake, Kleindorfer, & Van Wassenhove, 2016).

The combined effect of trade credit and cross-ownership in the supply chain

Trade credit is a business contract in which a seller grants a buyer the right to purchase goods or services from a supply chain participant without immediate payment, an essential external finance source. According to the US Federal Reserve Board (2019), the amount of commercial credit in the corporate bond business is more than double that of bank lending, and it has exploded over the past twenty years (Gao et al., 2019) (Figure 2).

Figure 2

The amount of bank loans and trade credit from 1951 to 2019 in the USA



It is not easy for investors outside the supply chain to accurately grasp the financial health of small businesses (companies that are barely audited), leading to a serious information asymmetry between the demand side (enterprises) and the supply side (investors) in the supply chain, thereby increasing the financial costs of small-scale enterprises. As a result, trade credit may be the only source of external financing for small businesses. For large corporations, trade credit is a common form of financing that can help these corporations gain a dominant position in the market competition. Based on these characteristics of trade credit, it becomes one of the highlights of supply chain finance theory about how retailers make their decisions under trade credit.

Trade credit helps the cash-strapped retailer to order more from an upstream supplier, helping the retailer to gain more profit with less asset costs (Barbos, da Sila, & Carvalho, 2018). Applying trade credit leads to mutually beneficial outcomes among supply chain members, including consumers, retailers, and suppliers. In addition, trade credit changes the role of risk sharing between supplier and retailer, meaning that the supplier bears the risk from the retailer. In summary, on the one hand, trade credit enriches the external financing channel, improving the operational efficiency of the supply chain. On the other hand, the risk from the retailer is redistributed among the supply chain members. Today, more sophisticated financial instruments derived from trade credit are widely used in the supply chain, such as trade credit under bank guarantees, making risk sharing more complicated for members regarding environmental costs (Güth, Nikiforakis, & Normann, 2007).

Cross-ownership is becoming increasingly common in large-scale corporations, often divided into vertical and horizontal cross-ownership. Vertical cross-ownership refers to holding shares between vertically related companies such as suppliers and retailers. In contrast, horizontal cross-ownership means holding shares between parallel related firms (competitors in the same relevant market). The latter is widely used to form strategic alliances with competitors, such as in the case of cross-ownership between Suning and Alibaba (Savaskan & Van Wassenhove, 2006). Vertical cross-ownership plays a vital role in the supply chain. A successful case of vertical cross-ownership is Mi and Qualcomm; previously, a smartphone manufacturer, purchased chips from Qualcomm (one of the few suppliers that can design chips worldwide). Under the cross-ownership regulation, downstream retail company Mi will have easier access to key components of the cross-shareholding network. Therefore, cross-shareholding makes up for the shortcomings in supply chain management of Mi company (an emerging business). At the same time, Qualcomm shares the profits from Mi and becomes the most famous chip maker on the Android platform (Swami & Shah, 2013). The cross-ownership strategy helps both parties get ahead and win-win in sharing costs, including the costs of producing green products for environmental protection.

During the exploration of the combined impact of trade credit and cross-ownership in the supply chain, several questions arise, such as how does the retailer determine the optimal ordering strategy for trade credit and cross-ownership, how does a supplier decide on a trade credit agreement that optimizes cross-ownership, how does a retailer choose its ordering strategy against random shocks from market. Adopting the "Stackelberg leadership model" is necessary to answer these questions. Competing retailers participate in the model, and suppliers play a crucial role in the "Stackelberg model" (Thies et al., 2019). The target retailer and the target supplier are linked by vertical cross-ownership. First, cross-ownership should be simplified as a profit swap to model the distribution of profits between the upstream supplier and downstream retailer by cross-ownership. If the target retailer's optimal response function is chosen as the object of analysis to examine the overall effects of cross-ownership and outside financing, analyzing how upstream suppliers determine credit pricing, according to cross-ownership when trade credit is used, is quite clear. In summary, how retailers are capital and order quantity constrained by cross-ownership and outside financing to respond to market conditions is different, such as the retailer's cash levels, other competitors' ordering strategies, or random shocks (exogenous variables).

DOI: https://doi.org/10.53899/spjrd.v28i2.252

Another point worth noting is that when the target retailer is financed with cash (equity or loan), the optimal order quantity is improved by the downstream retailer's share but not by shares of the upstream supplier; this is due to the retailer's marginal cost decreases as the downstream firm holds more shares (Vafa Arani, Rabbani, & Rafiei, 2016). However, it does not apply when the retailer has run out of all its cash and credit conditions. When upstream suppliers can determine credit pricing to maximize their profits, they are better able to offer discounts to downstream retailers if the upstream supplier holds more shares or downstream retailers hold fewer shares.

Some policy implications for cross-ownership structure under supply chains in the Philippines

From the above analysis, the author makes some recommendations to improve the policy in the Philippines to take advantage of the impact of trade credit and cross-ownership in supply chain management.

First, the legal policy on supply chain development in the Philippines should have a mechanism to promote the entry of new companies into the cross-ownership network. A new company enters the market, and the supply chain often needs more working capital to cover inventory management. Many small companies need help to afford to buy raw materials. With more financing in the financial markets through a cross-shareholding structure, new companies can be connected to their upstream suppliers. On the one hand, the downstream retail company has easier access to the key technologies of the large companies in the cross-ownership network. It has the opportunity to become one of the famous manufacturers of the future. On the other hand, large companies will share profits from small new entrants through a strategy of diversifying products and sales channels. Cross-ownership regulations integrated into supply chain development policy will help both sides stay ahead of the competition in each area, leading to mutually beneficial outcomes.

Second, corporate policy in the Philippines needs to take advantage of the impact of cross-shareholding on the supply chain through how the cash-constrained retailer determines its optimal order quantity. There are three steps to specifying this utilization process. The first step is to simplify cross-shareholding in the form of profit swaps. Contractual arrangements can select optimal response functionality as the primary audience or specify a strategy to operate under different market conditions, such as cash constraints. The second step is to negotiate how the producer determines the optimal credit price to maximize its operating profit and to derive the retailer's optimal response function to the endogenous credit price. The third step is to extend the contract and cross-ownership model by adding an exogenous variable (random shock) to the system to capture uncertain events (not the core business) that can affect retailer profitability.

Third, companies participating in the supply chain using a cross-ownership model should be aware of share rates and trade credit agreements. Both outside funding and cross-shareholding can lead to bulk orders, improving supply chain efficiency and social welfare. However, their mechanism is entirely different. Cross-ownership reduces the marginal cost that leads to bulk orders by retailers. However, cross-ownership of shares will not work when the retailer has run out of cash and credit conditions. When the credit price is an exogenous variable, the retailer's optimal function is independent of the upstream supplier's share. However, when the price of credit is endogenous, the supplier will give a better discount to the retailer when the supplier holds a higher share than the retailer or the retailer holds a lower share than the supplier.

Conclusion

Vertical cross-shareholding and outside financing greatly benefit the (capital-constrained) retailer when applied simultaneously (a dual mechanism). In other words, it is only appropriate for a cash-strapped retailer to adopt a cross-ownership strategy to improve supply chain efficiency if externally

funded (trade credit). The retailer's risk is independent of the ordering strategy and may lead to a different conclusion if exposed to demand risk. In addition, risk neutrality and the relationship between credit price and order quantity are subject to negotiation and contract conclusion of the parties. Thus, the article has demonstrated the usefulness of combining trade credit and cross-ownership in the supply chain and the feasibility of taking advantage of the incentive mechanism through regulation on cross-ownership to increase profits, push up selling prices, and improve supply chain efficiency.

One point to confirm from the research results is that the cross-ownership strategy can help businesses in the network share costs, including the cost of producing green products to protect the environment. If the parties make good use of cross-ownership regulations and offer appropriate contract terms, the supply chain can be well-developed to improve cost efficiency. Cross-shareholding contributes to reducing double isolation and, at the same time, brings high efficiency to the supply chain in a win-win model. On the other hand, the combination of selling price contracts and cross-ownership of shares simplifies the setting of selling prices and reduces administrative costs. This explains why cross-shareholding is common in practice, especially in supply chains. Therefore, the recommendations on legal policy on supply chain development, corporate legal policy, and agreement mechanism related to cross-ownership of shares and commercial credit in the Philippines are oriented perspectives of the author after achieving the research results in the discussion. These recommendations are only for reference value and serve as a premise for the author in further studies on this topic.

Overall, this article is the first step in studying the issues related to the cross-ownership of shares in the supply chain. Future studies can further analyze the retailer's right to set pricing through the percentage of shares they hold, or the proper analysis examines the impact of cross-shareholding in the context of asymmetric information.

DOI: https://doi.org/10.53899/spjrd.v28i2.252

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