Legality of Agricultural Products Weight Cutting as a Cost of Risk in Trade

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Abstract: Agricultural goods transactions with toke (in Bahasa is known as a traditional market agent) always carry a weight cutting of one to 2 kilograms per bag. Risk reduction is considered a burden to be borne. Therefore, how to study the law in the aspect of risk imposition when transactions occur between plantation farmers and toke in traditional markets. The aim of this research was to examine how weighing is carried out and the recognition of the weight of agricultural products on scales is associated with possible risks that will occur in the future. This research method was qualitative, field research. Data sources were garden sellers/farmers and toke in traditional markets. Data collection through interviews and examination of artifacts. Data analysis technique was qualitative descriptive. The research finding showed that when the agricultural harvest was sold, there was a scale cut of around 2 kg per bag, such as chilies, ginger, corn and so on. The result of reducing the scale in dealing with the risks that will occur with irregular goods. The risk was borne by the farmer/seller, this is suspected and endangers the continuity of the relationship between farmer, toke, retailer towards objects that change naturally. Cutting the weight of the scales was still permitted as long as it was within appropriate limits. Recommendations for cutting the weight of the scales when changing goods and not fixed goods.

Keywords: Buying and Selling; Maṣlahah Mursalah; Weight Cutting; Trading Risk.

Introduction

The imposition of buying and selling risks on plant products means that the seller's rights are neglected. The agricultural products that the farmer will sell are the property rights and rights to all goods sold. Agricultural products such as chilies, corn, beans, etc. were taken to the market to be cashed in, so that they knew in advance how much the unit weight per sack was. The method was to weigh each sack unit. However, if one sack of chilies weighs 100 kg with a brand X sack, then it was written on the jute sack weighing 98 kg. This means that the weight of the chili is reduced by 2 kg from its actual weight. Trade goods from agriculture were then sold by the toke to retail traders. When toke bought from farmers/sellers and distributes them, the goods experience shrinkage due to decay so that the weight was not the same as before. This means that when a toke bought agriculture products, the scale was not the same as when selling to a retailer. Along with the risks that will occur, it became production costs. The risk costs in buying and selling transactions became collateral (Caragiannis, et. al., 2019).

Many studies discussing risks in buying and selling transactions had been written in previous researches. Previous researches that examined the issue of risk in trading can be classified into three tendencies, namely: risk as a tool for estimating future prices (Little, et. al., 2017; Shah, et. al., 2020; Yang, et. al., 2022; X. Yu & Sun, 2019), managing risks in production so that risks in production costs could be minimized (Kuo, et. al., 2022; Voica & Schmitz, 2022; H. Yu, et. al., 2022), the influence of high risk on
bankruptcy, both changes in interest rates, currency and equity as well as negative changes in commodity and investment prices (Al Janabi, 2021; de Maere d’Aertrycke, et. al., 2017; Quax, et. al., 2013; Ralph & Smeers, 2015). This research related to the legal consequences of cutting scales due to the risk of shrinking/damaging goods. This research was concerned with the legal consequences of several reasons for cutting the scales, not about the seller's rights to his goods when they were sold. It was clear that there had been no research that specifically examined the burden of risk management aspects in the sales of non-fixed goods. This means that in the study of Islamic law, the sale of goods could change/was not fixed. Therefore, existing writings had not examined differences in views regarding the sale of agricultural products as goods that were subject to changes such as decay and other changes.

This research aimed to complete studies related to risks in buying and selling transactions. It reviewed the determination of weight deductions as a risk for the cost of non-fixed goods, not through an ownership rights approach when making transactions, and analyzed the reduction in weight of chilies/vegetables as a basis for the toke argument which was used as a risk cost from an Islamic legal perspective. These two things were the focus of the discussion to understand the reduction in weight as a risk cost applied by the toke/vegetable agent to producers/farmers and also the responsibility for the risk of depreciation of vegetables/chilies in the days ahead after the buying and selling contract/agreement occurs. This was also done to see the validity of the trading tradition in buying and selling vegetables in terms of the impact of selling goods that were not fixed before they move into the hands of retailers.

This article is based on the argument that in the muansalaha (Islamic law trade) aspect (especially in buying and selling transactions), business actors had imposed several possibilities that would happen to agricultural products. The risk to future agricultural products was the basis for transferring the risks incurred. Reducing the weight of goods was a risk that arises before it falls into the hands of the retailer. Therefore, the validity of trading traditions in buying and selling vegetables in terms of the impact of irregular sales of goods before they move into the hands of retailers was very important to study.

**Literature Review**

**Agricultural Produce Transactions**

A buying and selling transaction is an exchange of assets for assets in the form of transfer of property rights and ownership (Nawawi, 1980; Moen et al., 2019) which is carried out face to face or using web media and certain applications (Y. Yu et al., 2016) which utilizes the internet as a medium for actor contract meetings (Robina-Ramirez et al., 2020) and aims to meet needs (Hamid & Putra, 2021). The motives of Indonesian consumers in carrying out buying and selling transactions are as follows: first, hedonic motivation is a person's desire to spend or use money excessively which refers to a consumptive attitude; second, utilitarian motivation, namely ease of buying and selling transactions in terms of ease and variety of payments (Noer et al., 2022); third, impulsive motivation for product information, product descriptions and quality as well as improvisation in product presentation (Chen et al., 2021).

From an Islamic perspective, there are several rules that must be observed in buying and selling transactions, namely: the product being traded must be useful, halal and tayyib (Ahmed & Rahman, 2015). Islam views business as a legitimate and halal practice in Islamic law unless the business includes trade containing elements of pork, alcohol and gambling (Ghamallah et al., 2021; Shinkafi et al., 2017). Islam views that risk is unavoidable, uncertainty, usury, speculation, monopoly, hoarding of kinaz (wealth), profits obtained without taking risks, fraud, and investment in wealth are haram and prohibited in Islamic law (Bouslama, 2017).

Next, product safety guarantees are determined by product reputation and quality (Totanan et al., 2021). In marketing products, sellers are not allowed to hide product defects from buyers. They must inform buyers about the quality and any defects of the product before carrying out any transaction. If the seller or buyer lies or hides something from others, then it is haram. Therefore, sellers must have honesty and good ethics to provide the best quality and service.
In fulfilling consumer expectations in line with Islamic principles, unfair business competition is prohibited. This competition can take the form of hoarding of goods at certain times which results in an unreasonable increase in the price of goods. Urgent needs have an impact on low interest in buying and selling as a result of unfair price setting by entrepreneurs. This creates economic difficulties for consumers and harms society in meeting their needs (Atikah, 2022; Sekotibo, 2021).

Scale Reduction

Scales are electronic and non-electronic tools that function as a measuring tool for objects. Objects are measured using a scale of 0-20 kilograms and do not include the weight of the weighing container (Ali & Kravitz, 2018; Li et al., 2018; Tscharke & Banhazi, 2013). Digitalization of analog measuring instruments is used to obtain more accurate weighing results and make it easier to use as a measuring instrument. One of the measuring instruments that has switched from analog to digital is a scale. The accuracy of weighing data greatly influences the level of raw material required to produce a product.

Weighing systems are grouped into four types, namely: first, manual scales (Tscharke & Banhazi, 2013) are ordinary scales that are operated manually, low technology (Ali & Kravitz, 2018) namely with human assistance used in everyday life; second, digital scales are scales that work electronically and automatically with electric current and indicators in the form of digital numbers displayed on an LCD screen (Rikame & Kulkarni, 2015). One form of digital scale is a belt scale (Li et al., 2018) and a multi-head weighing machine (del Castillo et al., 2017). Multi-head scales are generally used in large-scale industry and trade. This scale is a precise, accurate and reliable weighing machine (Narkhede et al., 2016). This scale is used for fast and accurate packaging. Meanwhile, in buying and selling transactions in the market, Indonesian people generally use Katak (Frog) scales, hanging scales and electronic scales.

Fulfillment of the scales is an obligation in buying and selling transactions. This is written in the word of Allah in Surah Hud verses 84-85: “And to the people of Madyan (Allah sent) his brother Syu’aib he said, ...And do not reduce the weights and measures... (Hud 84). Shuaib said...... Fill the weights and measures fairly, and do not harm human rights against their rights (Hud 85)”. This verse is a warning not to abuse other people's rights related to personal and social rights such as weighing, measuring and calculating behavior (al-Maragi, 1974). Yusuf Qaradawi, quoting Imam Qurthubi's opinion, said that al-bakhsu in verse 86 means reduction. Especially in buying and selling transactions, they will manipulate prices by increasing or decreasing the scale (Qardhawi, nd).

Several frauds in trade transactions occur in the market, especially in the aspects of measuring and weighing in the form of: a) fraud in the field of scales, namely subtracting the net weight from the actual weight (Böckin & Tillman, 2019; Imai & Watanabe, 2014); b) fraud in the field of measurement, namely reducing the length of the object being measured; c) traders have two scales: accurate scales and refined scales.

Risk Determination

Risk costs are determined as loss cover (Laurino & Beria, 2014; Todorovic et al., 2018). The cost of risk in buying and selling transactions is a guarantee (Caragiannis et al., 2019), as well as legal protection (Pucheta-Martínez & López-Zamora, 2018; Rudmin, 2016; Wibowo, 2020). Risks in buying and selling transactions are caused by changes in commodities (Miečinskenë & Lapinskaite, 2014; Shmygol et al., 2021). Risk plays an important role in consumer decision making and the propensity to choose risk depends on behavioral intention (Hansen, et. al., 2018).

There are five forms of risk, namely: natural risk, economic & political risk, human risk, animal risk, and plant risk (Bong et al., 2019). Natural risks are risks that arise due to losses due to natural disasters. Meanwhile, human risk is the risk posed by human behavior in the form of negligence and errors. Humans who have a position of mukallaf (understand the law) carry out various legal acts. This legal act is carried out intentionally which results in the emergence of rights and obligations. When someone carries out various legal actions, sometimes he experiences certain conditions that influence his decision regarding this matter. One of the conditions that is considered is the side effects that will be obtained as a result of carrying out a legal action (Zuhayliy, 1986).
Sharia Maṣlahah

According to al-Ghazali, maṣlahah is a consideration that guarantees benefits and prevents losses. This is a legal principle contained in various legal regulations that are in line with maqashid sharia (Qotadah et al., 2022). The use of maṣlahah as adillatu ahkām is applied in various aspects of muamalah (special) which require flexibility based on each space and time. This departs from the Prophet's hadith, namely “you must not harm or harm other people” (Amin et al., 2022). According to Abu Zahrah, maṣlahah mursalah is a maṣlahah that is in accordance with the objectives of Islamic sharia and is not supported by a special source of evidence, either legitimizing or canceling the benefit (Qotadah et al., 2022). The existence and quality of maṣlahah mursalah is qāṭi‘i, even though its application is Zhanni (Al-Syatibi, 1975). According to Al-Syatibi, maṣlahah includes three basic human needs, namely: dharūriyah, ḥajiyah, and taḥsīniyah needs. Dharūriyah is everything related to something that is fundamental and must exist for human welfare. Ḥajiyah is all related to secondary needs. This need functions as a reliever of difficulties. Meanwhile, the need for Taḥsīniyah is the fulfillment of characteristics related to Al-Mukarim Al-Akhlak (Shinkafi et al., 2017).

Method

This research was field research. This was done at the Padang Luar market. This market is located on the side of the road and is a place for transactions between garden farmers and Tokes/agents. Transaction activities for the sale of livestock products are much sought after/awaited by Tokes/agents in this market. Garden farmers also market their garden products to shops in the market. Apart from that, they also met other farmers in the village who sold them their garden products. This research described the events that occurred during the buying and selling of farmers' garden produce, cutting the scales of chilies and other types of plants. This research illustrated that Tokes/agents want to overcome problems that might occur with non-fixed goods.

The data sources for this research were farmers who were/had sold their crops and Tokes/agents who bought farmers' garden products, and retailers. The sampling technique was purposive sampling. The research sample was determined based on criteria and in accordance with the research objectives. Data collection was carried out through in-depth interviews with the research sample. The validity of the data was carried out through data triangulation by comparing the results of interviews with the results of other interviews from the three categories of informants in this research such as tokes/agents, farmers and retailers. The data analysis technique was carried out through descriptive qualitative, namely: collecting data obtained in the field either from interviews or observations. After that, the data was reduced by selecting and coding or grouping the discussion, and categorizing it in the field based on sub-topics. Then, the researcher presented the data and discussed it for review and compromise with the theories of rights and risks in buying and selling.

Results and Discussion

Scale-Reducing Arguments

Trading transactions have risks that occur or may occur. Agricultural merchandise that is initially fresh and suitable influences the scales during transactions. Therefore, for objects being traded could only known how much the item weighs after weighing it. This usually happens in the market when there is weighing, such as buying and selling goods in sacks that weigh 2 kg. As for the size of the sack, look at the brand of sack used by the farmer. If the sack is larger, around 100 kg, the sack is of the X brand, and if the sack weighs around 50 kg, the Asnil brand is used (Interview E, Farmer May 2023). The reasons for considering reducing the scale are as follows:
In chili buying and selling transactions, Toke determined that there needs to be a risk fee that was emphasized to producers as a cost to cover losses during the distribution process. The cost to cover this loss was determined by subtracting 2 kg of the merchandise from the actual weight. This was based on interviews with Informants E and Y as chili farmers. They said that they sold their chilies to the Padang Luar market. In general, the chilies they sold vary depending on weather conditions and the quality of the chilies. If the quality of the chilies they brought was good, they brought 3 to 5 sacks of brand X. If the quality of the chilies is bad, they will bring 1 sack of the Asnil brand (Interview with informants E and Y as chili farmers, May 2023).

Based on informant Y’s statement, she said that: “ambo pernah mambaok lado sabanyak sakaruang Asnil, ditimbang jo urang tukang timbang sabanyak 52 Kg, sudah tu dikurangi sabanyak duo kilo ditulis dikaruang sabanyak 50 Kg.” (I once brought 1 sack of Asnil chilies, weighed the weight 52 kg, then subtracted 2 kg and wrote on the sack as 50 kg). Information E also conveyed the same thing which said: “beratnya 53 kilo, tu di pasa hanyo basobok 51 kg” (53 kg of chili, after weighing it at the market the weight was recognized as 51 kg). Meanwhile, informants L and P said that they were not chili farmers but chili pickers who worked for chili farmers. The salary given to them is Rp. 80,000 plus 0.5 to 1 kg of chili (Interview with informants L and P as workers in the chili fields, May 2023).

Based on Informant P’s description, he said that: “awak tigo kali maambiak lado dalam minggu ko, sudah kanu bangun kirin lado tu ka ibu Y untuk dijual ka pasa, Dek ibuk Y lado kanu ditimbang di rumahnya tarnyato barek tidak 1 ½ kg, sudah kanu , Nak pangiriman P tu dimasukan ka lado buk Y, buk Y mangecekkan ko lado ko wak pisah dari lado wak, lado ko Cuma diharagoi cukup 1 kilogram”. (“I have picked chilies several times this week. I sent the chilies to informant Y to sell at the market. Informant Y weighed the chilies and found that the weight was 1.5 kg. “Informant P’s chilies were put in informant Y’s chili sack. Informant Y said the chilies were separated from informant Y. And the chilies were only valued at 1 kg.”) (Interview with informant Y, farmer, May 2023).

The process of determining risk costs in chili buying and selling transactions occurs when a price agreement is reached between the producer and the chili toke. If the selling and buying prices are agreed upon, the commodity will be weighed to determine its net weight, then two kilograms will be deducted as a risk fee. Determination of risk costs in chili buying and selling transactions varies from one producer to another. This is because risk costs are determined based on the number of commodities per kilogram, not based on the condition and price of the commodity. The condition of a commodity is a rough description of the object of the item being traded. And the condition of a commodity affects the price of the item in the bargaining process. In buying and selling transactions, commodity prices are determined by the ability of each actor in the bargaining process by paying attention to the condition of the commodity.

In chili buying and selling transactions, risks cannot be avoided in the distribution process. The risks in buying and selling chilies are problems and obstacles that are commonly experienced by distributors when the chilies reach their hands. The diluent is the final distributors before the chilies reach the hands of
consumers. When the chilies reach them, they sell them in traditional markets and open certain stalls or outlets so that buying and selling transactions occur.

On certain days or also known as Hari Balai (market days), the distributors will start buying and selling transactions by opening a stall accompanied by opening sacks of chilies so that consumers can see the quality of the chilies they have. When a buying and selling transaction occurs, what consumers usually do and is commonly done in traditional markets is to choose the chili they want. When consumers had chosen the chili they wanted, they were used to having poor quality chilies in the afternoon and these chilies no longer sold because of their poor quality. To prevent losses from increasing, thinners sold the chilies using a batch system.

The difference in risk cost mapping in chili buying and selling transactions lied in the price difference for each chili. In chili buying and selling transactions, the price was relative and fluctuating, this depended on how big or small the chilies enter the market. If a lot of chilies enter the market, then the price of chilies is relatively cheap and vice versa. This is exemplified if the price of chili is IDR. 15,000/kilo, then the risk cost is worth IDR. 30,000 at that time. If chilies cost IDR. 50,000/kilo, then the risk cost is IDR. 100,000, at that time. This causes uncertainty in determining the risk price in chili buying and selling transactions.

In the process of buying and selling chilies, beans and other agricultural products at the Padang Luar market, Toke incurs risk costs for farmers which Toke will receive when distributing agricultural products (Todorovic et al., 2018). Sometimes when agricultural products were in the hands of thinners, they found their condition was not suitable for trading because they were rotten, withered or the weight of the food HAD decreased (interview with informant D, chili thinner, 2 June 2023). And to cover this, Toke needs expertise in marketing, namely setting risk costs (Kamani, 2019). The risk costs in chili buying and selling transactions are a guarantee (Caragiannis, et. al., 2019) as well as legal protection (Pucheta-Martínez & López-Zamora, 2018; Rudmin, 2016; Metthania & Dalimunthe, 2022) for Toke and diluent rights.

The risk in chili buying and selling transactions is caused by changes in commodities (Miečinskenė & Lapinskaitė, 2014; Shmygol et al., 2021) after the buying and selling transaction agreement between the producer and Toke ends. Long journeys and difficult distribution cause commodities to change (Torre et al., 2020). Changes in commodities in the form of rotting, wilting and drying cause a reduction in weight when it reaches the diluent which causes losses due to price fluctuations (Miečinskenė & Lapinskaitė, 2014) with the net weight (Doshi et al., 2015) that it receives. To overcome this, Gecko determined that every item carried in a sack had the consequence of reducing the scale weight by 2 kilograms from its actual weight.

Depreciation of agricultural products occurs if there is a change in the weight of the sacks during the process of transporting the goods out of the area. When the retailer asks the distributor for the weight found, this is the basis for the Toke/agent as the buyer from the first party (farmer) to deduct from the actual weight. If the actual weight is 53 kg, the chili is recognized as 51 kg. The form of depreciation of agricultural goods such as chilies and vegetables because they will so that their weight does not meet. Rotting in the sack due to moisture or uneven shape of the chili indicates that the chili is mixed with bad ingredients.

**Scale Reduction as a Risk Cost in Chili Transactions from an Islamic Law Perspective**

In an Islamic economic perspective, risk is a condition or situation that cannot be avoided by every business actor. This is uncertainty because it contains something that might happen to business people. Transactions that contain uncertainty in value because they refer to Gharar practices are prohibited (Farooq, 2019). In chili buying and selling transactions, what is usually used as a risk fee is a reduction in food weight of 2 kg to cover losses caused by diluent. Risk costing by reducing the weight of chilies is a common tradition carried out by every chili toke. In chili buying and selling transactions, risks may occur. And this is caused by scientific factors in the form of changes in the condition of the chilies. Changes in the condition of chilies are caused by changes in weather which affect them during the distribution process. In this case, the discovery of chilies in a rotten and shrinking condition proves that risks in chili buying and selling
transactions do occur. Therefore, risks in chili buying and selling transactions can be avoided and are far from the uncertainty that leads to the practice of Gharar (Farooq, 2019).

The behavioral pattern of producers in the Padang Lua market is “baiting” Toke to charge risk fees in chili buying and selling transactions. Among the producer behaviors that are actions that are not in accordance with the benefit are: First, producers deliberately slow down sales of commodities that should be harvested and then postpone them a few days later. This exacerbates the spoilage of chili commodities because they are too ripe. Second; harvesting chilies during the rainy season because they think the chilies must be sold the next day; Third, the behavior of farmers in handling chilies at harvest time when it rains is considered less than optimal because they only aerate them by placing wet chilies on the platform without telling Toke that the chilies during harvest were exposed to rain.

The Islamic economic system says that one form of justice commanded by Allah is the fulfillment of measures and scales. This is illustrated in the word of Allah SWT in surah Al-Isra verse 35, namely: “And perfect the measure when you measure and weigh it with the correct scales.” That’s what matters (to you) and the better the results. In this case, there was a reason for the continuity of the distribution chain of goods up to the retailer’s hands with goods that had been naturally damaged in the sack. Because this is a specialty of implementing a reduced weight of 2 kg. The purpose of cutting the scales is for the benefit at the Hajiyah level to overcome risks.

In the aspect of consumer protection in Indonesia, one form of action that is prohibited for business actors is cheating in measurements. This is regulated in Law Number 8 of 1999 concerning Consumer Protection Article 8 paragraph 1 letters a, b (1) Business actors are prohibited from producing and/or trading goods and/or services that: a). Does not meet or does not meet the standards and provisions of laws and regulations; b). Not in accordance with the net weight, net or net contents, and the number of counts stated on the label, goods ethics.

From a business perspective, the desires or business interests that business actors want to achieve, especially Toke chili, are limited because they conflict with religious aspects and social values (Osorio-Vega, 2019). This is due to the high gap between theoretical ethics and functional ethics (Sholihin et al., 2020). Meanwhile, according to Ronaghi, the application of business ethics and corporate governance makes a positive contribution to social sustainability or the company’s ability to achieve business goals and long-term improvements. This is in line with Valentino’s opinion (Valentinov, 2022). He said that empathy for social life provides a positive image for the company because it can provide a positive response to employees’ personal lives, as well as a sense of full responsibility towards the company (Valentinov, 2022).

One way to increase the enthusiasm of business people is by providing courses or learning about business ethics and Corporate Social Responsibility (CSR) (Manning & Kelly, 2020). From a business ethics perspective, they are apathetic towards work climate and climate justice which are the main principles of the moral dimension related to business cultural diversity (Macklin et al., 2015). Even though business ethics are apathetic in facing the diversity of business cultures, they understand that values in society develop in accordance with societal developments (Lee et al., 2022). Diversity in business culture will result in different business management (Lämsä et al., 2017).

Scale cutting is adjusted based on soil conditions and the level of defects in the plant. Islam views one form of fraud as reducing weights and measures. Reducing weights in chili buying and selling transactions is considered a form of exploitation. Exploitation is a form of injustice (McLachlan, 2021). Product shrinkage naturally becomes part of production costs by the Toke/agent in the form of a reduction in weighing scales. As objects that change are purchased by reducing the weight of the goods by 2 kg to overcome production costs. This is part of Toke’s production costs.

**Conclusion**

The taking of rights occurs when the weight of the product being traded was reduced by reducing the weight. Toke’s tradition of buying agricultural products did not necessarily reduce the actual weight. The researcher saw that the taking of rights had nothing to do with a risk which Zhanni said occurred due
to the non-permanent nature of the merchandise. Toke’s basic consideration in purchasing agricultural products by reducing the weight of the weighed goods by 2 kg/sack was to overcome risks. Achieve trade benefits from sellers/farmers who own agricultural goods and sell Toke to retailers which did not result in losses in the hands of retailers when goods depreciate. This article provided an Islamic legal perspective on studies related to cutting the weight of agricultural products. This was also done to increase knowledge for the public or trade practitioners in the markets. Besides, this article was still limited in the scope of traditional communities and traditional markets.

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Conflict of Interest

This article has not a conflict of interest

References


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for risk: The need for long-term contracts. Energy Policy, 105(June 2016), 571-583. https://doi.org/10.1016/j.enpol.2017.01.029


