



Floor-Pricing Without Put Options: Hedging by Trade Contracts in Islamic Finance as Exemplified in Agriculture Production

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Abstract

Conventional methods of hedging, such as the use of put options, have long existed in trade with their use being justified for managing price risk. However, many Shari'ah scholars find issues in their implementation on various grounds that are based on the principles of achieving economic equity. The method proposed here aims to achieve floor-pricing as a hedging tool for producers, using common accepted trade contracts. This aims to avoid existing contentions in hedging amongst differing scholarly views, while recognizing proper rights and obligations of stakeholders. This conceptual paper analyses the needs of hedging in the context of an agricultural production setting, touches on currently known hedging mechanisms together with their known issues and puts forth an alternative method. Implementation issues of this method is discussed and proposed ways to address them are included. This method does not address hedging for buyers and utilizes the Salam contract, which is not suitable for addressing hedging of currency exchange.

Keywords: Islamic derivatives, Commodity, Salam, Options, Ju'alah

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1. Introduction

Goods of trade are always exposed to market price fluctuations. Traders will assess market conditions before undertaking a business venture to minimize risk exposure to it. This is harder if the endeavour takes a long time to get to market. Hence, hedging techniques are used to ensure price risks are reduced and trades are more viable.

Shari'ah (Islamic law) requires business transactions follow a rule of ethics, which not only encompasses the transaction objectives, but also the means leading to it. A simple comparison would be with regards to financing: Shari'ah has no issue with raising funds, but it clearly forbids usury. Similarly, while the act of hedging as a means to protect wealth is allowed, the means to do so still requires examination (Mohd Razif et al., 2012).

One of the main concerns in Shari'ah regarding hedging mechanisms is the possible existence of gambling characteristics (Al-Suwailem, 2006, p. 79). The zero-sum nature of gambling, whereby one can only benefit at the expense of others, creates a scenario where parties are motivated to go against one another. It creates negative incentives such as fraud and unrestricted speculation, which in turn leads to more, instead of less risk. As such, this paper proposes one method of hedging that considers Shari'ah by utilizing well-known accepted contracts in trade, and is demonstrated with regards to agricultural production. The reason for looking into this economic sector is due to its long market lead time, which highly exposes it to market price fluctuations. This sector is also the earliest documented to have hedging contracts applied (Malkawi, 2014, p. 43).

Section 2 starts by outlining market price risk faced by smallholder producers to establish context of the need for hedging in the actual economy. Section 3 introduces current price risk management instruments and

some views of Islamic finance regarding issues in executing them. In Section 4, the basic mechanics of the proposed method are laid out, followed by in Section 5 with additional contractual features to ensure the desired goal of hedging. In Section 6, a brief discussion regarding operational details is included to highlight items which have Shari'ah consideration or execution implications. Research in this paper investigates literature of commonly known and discussed concepts in Islamic finance and is adapted to a case of an actual agricultural trading operation by a farmers' organisation. As Shari'ah interpretation may differ amongst various school of thoughts as well as individual jurists, the deliberation in this paper follows views which have greater consensus or minor opposition.

2. Market Price Risk in Agriculture

2.1 High market price risks faced by smallholder farmers

In agriculture, there are various risks facing producers such as production risks, ecological risks, market risks and institutional risks amongst others (Moreddu, 2000, p. 17). Amongst existing market risks is price risk, which is what a farmer gets from sales of his produce. From author's various discussions with farmers and officers in year 2022 at the Farmers' Organization (LPP) farm produce collection centre in Kuala Langat, Selangor, Malaysia, the main challenges raised were fluctuating market prices, logistical costs and farmhand labour.

In many cases, smallholder farmers have limited bargaining power, and so are essentially price-takers (George et al., 2008, p. 58). Thus, they are particularly affected by fluctuating market prices and have limited ways to counteract them. Given that there are a lot of items to be managed, it is too simplistic to assume that skilled smallholder producers are also inherently market-savvy, as they have to focus first on production matters. The long time-to-market nature of their work makes it tougher for these producers to react to price movements, compared with traders who have more market mobility (Dana and Gilbert, 2008, p. 11).

2.2 Indirectly coping with market price risk

The simplest way for a farmer to live with market price risk is by creating a savings fund to fill up during good periods and withdraw from during bad periods. The difficulty would be identifying the suitable time and amount to save and withdraw, aside from the discipline to follow through. Financial institutes could provide funds during shortfall, but there are not many which easily, and immediately, allow revolving credit for smallholders (George et al., 2008, p. 61).

Some address market price volatility by counter-productive reactions such as minimizing the use of agricultural inputs (i.e. fertiliser, pesticides, seeds, etc.) (Assouto et al., 2020, p. 4) or even increase production to meet revenue targets, which itself aggravates the condition of low prices (Assouto et al., 2020, p. 9). This could also cause loss of quality and in the long run, loss of customers.

Risk-coping and risk management strategies have costs, and sometimes indirect methods create very complex outcomes. For example, crop diversification can become less efficient especially when not planned properly, while disposal of properties during low income can jeopardise future well-being if resources being sold are from productive assets (Dana and Gilbert, 2008, p. 30).

3. Current Available Hedging Techniques

3.1 Conventional price risk management instruments

Currently, there are instruments used for managing market price risks. In forward contracts, fixed prices are contractually agreed upon in advance (Kang and Mahajan, 2006, p. 6). It relies on reputation of both buyer and seller to honour the contract. If market prices move away too much from the agreed price, it could tempt either party to break the contract. A few variations of these contracts are used for flexibility, such as 'Price-To-Be-Fixed' (PTBF) contracts or deferred pricing contracts.

Futures contracts are standardized forward contracts traded on an exchange. The contracts themselves can be traded several times before the date of delivery of the commodity. They operate in a financial market where most of the futures trades are financially settled. Actual sale or purchase of goods is not necessary, which is why typically less than 2% of traded volume ends in actual delivery (Kang and Mahajan, 2006, p. 11). Hedging occurs when producers sell a futures contract to lock-in current prices and then buy back futures at the time they are physically selling their produce. Any gain or loss in the futures market counteracts the market price movement of a similar physical sale, theoretically cancelling out financial effects.

Alternatively, call/put options are contracts which give the right to buy/sell commodity in the future at a specified price. Because there is no obligation for the contract holder to exercise them, they act as an insurance when prices later increase or fall beyond that which has been specified in the contract.

3.2 Some challenges of conventional price risk management instruments

However, there are barriers for smallholder farmers to utilize these instruments (Dana and Gilbert, 2008, p. 14). The trading volume sizes needed in futures markets will usually not match their hedging needs, as they are usually more suited to middlemen traders who move order in bulk. Futures markets also operate on an international scale, so, contracts may consider delivery only to major warehouses near designated ports. Prices quoted would also cater to the international community and would mean that currency exchange differences also have to be taken into account.

Divergences between local prices and futures prices due to the difference between local and global market conditions creates basis risk. This risk represents the imperfect correlation between price movements of these two markets and requires understanding by users who want to successfully utilize hedging, which is a challenge for wholesalers, let-alone smallholder farmers (Dana and Gilbert, 2008, p. 17).

3.3 Some Shari'ah views on conventional risk management instruments

While hedging is permitted (Abdul Rahman and Rahman, 2023, p. 83), the current use of futures and options run into opposition by many Fiqh (Islamic jurisprudence) councils (Al-Suwailem, 2006, p. 59). Similar to financing, risk management instruments are allowed when they are linked to real economic activities instead of being treated independently as a speculative instrument. However, this is mostly not the case in conventional economics. The separation of risk and assets or 'commoditization of risk' allows purely speculative activities which can distort asset prices (Al-Suwailem, 2006, p. 37). It could be noted here that decoupling risk from real economic activities has parallels to decoupling gain opportunities from real economic gains (or losses), which is similarly a key differentiator between profit from that of usury and that of asset-backed financing.

Islamic finance aims to uphold financial principles in Shari'ah, such as prohibiting Gharar (ambiguity/unnecessary risk), Maysir (gambling) and Riba (usury), with the aim of preventing harm to society (Dau-Schmidt, 2012, p. 539). It thus, considers the agreement details of trades to ensure proper rights and obligations are assigned to parties. This is because not all uncertainty simply equates to prohibited Gharar, not all risk taking leads to Maysir, and Riba is not just created by additional charges from payment due.

For example, a simple conventional forward sales would have the contract effective upon signing but both payment and delivery of goods exchanged later. This would be a "debt-for-debt exchange" (ba'i al-kali bil kali) which is not accepted by many Islamic scholars (Al Zaabi, 2010, p. 99), although it might not be apparent of having any of the prohibited elements earlier mentioned when taken at face value. In this case, a reason for such a prohibition would be prevention of purely speculative activities (Dau-Schmidt, 2012, p. 550).

3.4 Using promises to hedge market prices

In agreements for future sale and purchase, promises (Wa'd) can be added to hedge against market price fluctuations. One simple way would be to make an agreement to limit prices if market price varies to unwanted levels. However, mere promises in any arrangements to achieve hedging may run into problems to get them binding as strongly as contracts (Abozaid, 2022, p. 80). Even Shari'ah scholars differ on the rules for those reneging them (Abdullah, 2010, p. 86).

Promises are better suited to justify actions rather than trigger them to happen (Abdullah, 2010, p. 94). As such, issues such as compensation for breach of promises, as well as implementing the compensation still remain. From a Shari'ah viewpoint, promising to link a forward contract to future spot market prices is also unacceptable (Al Zaabi, 2010, p. 102). And using Wa'd as an object of sale itself is even more contentious (Firoozye, 2009, p. 7), which is also a concern with conventional options (Abozaid, 2022, p. 78). This is not to negate the use of Wa'd in transactions, but to seek stronger solutions in place of it.

3.5 Hedging with basic forward sales in Islamic finance

In Islamic finance, Salam is a forward sales contract which is accepted by Shari'ah (Al Zaabi, 2010, p. 95). It guarantees a fixed-price, so farmers would not have to worry of falling prices. Compared to conventional forward contracts, Salam requires full payment at contracting and is primarily used as a financing instrument.

Istisna' (manufacturing sales) is a similar type of forward sales contract but has more flexibility in payment. However, it is for items to be built to specifications and not agriculture produce (Kalimullina and Orlov, 2020, p. 11). And like Salam, Istisna' prices cannot be tied to future market prices (AAOIFI, 2017, p. 301).

Both contracts have the characteristics of executing a sales contract at a pre-determined price for a future delivery. Salam will tend towards lower prices, as the buyer has to make full payment upfront, and thus considers the effect of 'financing costs' (Malkawi, 2014, p. 50). This may put off buyers who do not want to incur delivery risk or farmers who have already secured capital and do not want unnecessary debt.

Salam works well when both buyer and seller are aspiring to hedge more or less equally against adverse markets. This is easier when a farmer is selling to someone who needs to directly use his produce (Dau-Schmidt, 2012, p. 536). However when dealing with other buyers such as traders, they may be less willing and when they do agree, many farmers, as mentioned in Section 2.1, will get very low price offers. Furthermore, they will also miss out on profit opportunities should spot market prices become higher at delivery time.

3.6 Hedging by conditional options of sales

There cannot be conflicting items in a sales contract, such as simply offering two prices as this leads to unwanted Gharar (Rahman and Osmani, 2021, p. 3). A conditional option to cancel a contract (Khiyar al-Shart) is allowed for resolving infringements in agreements, avoiding misunderstandings or rectifying reckless decisions (Obaidullah, 1998, p. 77). If there is an option to cancel in a future sales, the seller can simply choose to withdraw and then arrange a spot sales instead, if market prices become favourable to him. This, however, is not allowed in Salam contracts (Al Zaabi, 2010, p. 97). If both goods and payments were to be exchanged later, it would more likely be a promise to enter a sale in the future, which as mentioned in Section 3.4, needs to consider if it is binding.

Urbun refers to earnest money, which is paid by a buyer during contracting a purchase. Should the buyer refuse to proceed with the sale, it is retained by the seller. In retail sales, Urbun is used where immediate full exchange is not practical. For example, furniture bought may require shipment and inspection upon arrival, or purchase of a property may require prior legal processing. Urbun can cover transportation, documentation, legal and labour costs if the deal is abruptly cancelled unjustly. Some scholars may view indiscriminate retention of Urbun unacceptable. Thus, Hamish Jiddiyah, which retains only up to actual incurred costs, will be deemed more preferable, although it may not be deemed practical by others. In any case, while Urbun might be used by a buyer to counter increasing prices, legitimacy of sellers using it to manage decreasing prices is doubtful (Obaidullah, 1998, p. 81).

Istijrar is a contract for recurring sales between a supplier and a buyer (Obaidullah, 1998, p. 92). Historically, it is a relatively new Islamic trading instrument. It requires neither offer (Ijab), acceptance (Qabul) nor price to be set at each transaction. Prices benchmark market rate, so it can be used in cost-plus sales (Murabahah) with options for both seller and buyer in case market prices exceed certain lower- or upper-bounds. This option would be to follow average transacted market prices instead of a contractually specified price. Istijrar used in this manner is similar to Salam in a sense that it hedges both buyer and seller, but unlike in Salam, payment is deferred. It is more complex in analysis and implementation as well as the fact that both parties have to agree on the lower- and upper-bounds, apart from the specified price.

4. Proposed Third-Party Floor-Price Hedging on Real Transactions

4.1 Floor-pricing focus as the hedge objective

The rules brought forth in Islamic finance do not ignore real economic needs. However, in the pursuit of such goals, there are innovations which end up mimicking prohibited conventional instruments and may depart from their end objectives. Hence, we step back and look at the original problem. As agriculture produce takes significant time to grow, farmers can find it difficult to plan and project their venture when planting. They can be caught off guard and even fail to break-even when market prices crash later at harvest time.

Some would suggest introducing price stabilization techniques to mitigate wild price swings, but that would be a macro-economic intervention requiring policy structuring. To enable supply-chain participants deal on a micro-level, methods to protect prices can be considered instead. This would require a look at legal instruments such as trade contracts, which are handled between actors.

Floor-pricing creates a minimum pre-determined price to look forward to upon harvest time. In this way, farmers have a minimum guaranteed income regardless of market price movement. Hence, they can better plan

beforehand without resorting to over-producing or being unnecessarily sparing on agricultural inputs (refer to Section 2.2). The additional feature of a floor-price compared to a simple Salam is that farmers can still benefit when market prices increase at delivery. And compared to cost-plus Istijrar mentioned earlier, there will also not be any cap on potential earnings. This more favourable outcome should address some concerns of losing out to uncontrollable market forces.

4.2 Including a risk absorber to facilitate hedging

If buyers in a market are more comfortable with following spot market prices, sellers cannot hedge prices with them. As mentioned in Section 3.5, a direct Salam agreement would be beneficial to only some buyers. Thus, farmers, as price-takers, cannot rely on getting their counterpart to aid their risk management. This is where a “Risk Absorber” who is willing to enable the hedge, can step in. The Risk Absorber as an independent third-party can facilitate services of hedging in the absence of supportive buyers. From a Shari’ah perspective, the permissibility of including this third-party would depend on the contract and relationship it would have with the existing actors. This would entail scrutiny over its legal form and substance (transaction objectives).

4.3 Third-party hedging with real transactions

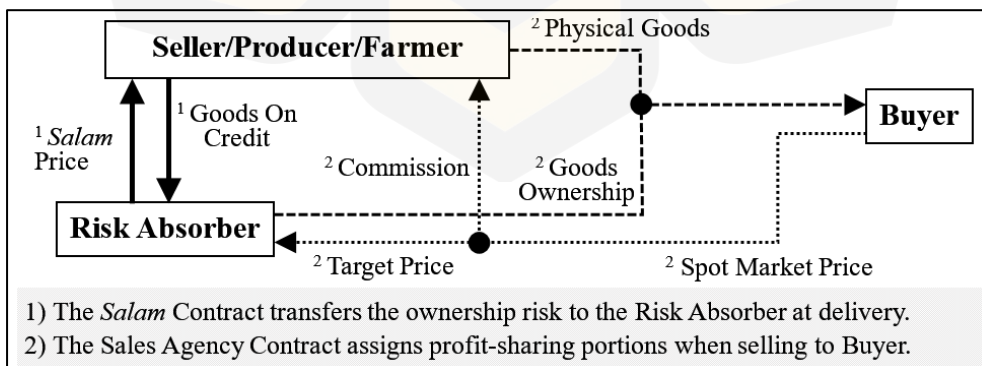
If the format of put options were to be followed, the option contract engaged between the seller and an option writer occurs in parallel with the trade to be hedged. This results in the option contract being independent to the trade, which allows pure speculation when actual trades do not occur. However, a Risk Absorber can create a hedge by entering directly into trade contracts between the seller and buyer. Although this increases the number of players in the supply chain, the buyer ultimately follows spot market price, and thus, should not lead to overall increase in market prices.

The seller should understand that even if his profit margins may decrease from hedging, but so too shall his cost of risks. Time, effort and money for risk handling could be spent by the seller without any financial hedging tools, or he could bear the consequences of some (or overall) losses. Hence, the role of the Risk Absorber should be regarded as value-adding, similarly with how third-party grading adds value to quality management or packaging adds value to transportation of goods, despite these benefits not being visible to consumers.

4.4 Salam and sales agency contracts to create floor-pricing

The hedging via trade proposed here is done with two independent contracts being made between a producer/seller and the Risk Absorber. A Salam sale between them fixes a price for future delivery. This creates the floor-price revenue for the producer, as any drop in market prices at delivery will not affect him. To enable the producer to gain from market price increases at harvest time, a sales agency contract to sell the produce is also made between the two parties. Here, the producer becomes the sales agent to the Risk Absorber and gets commission from selling this produce later at spot to a buyer, as shown in Figure 1.

Figure 1: Concept of the Salam contract with the sales agency contract



The sales agency contract should include a stipulation whereby the Risk Absorber has a specified target price to sell in the market, while the producer will earn surplus revenue as commission when sales surpasses the target price. Ju'alah (commission) only rewards the agent upon achieving an objective, hence, the Risk Absorber, keeps all sales proceeds if the target price is not met (Gojali et al., 2022, p. 237). So, the target selling price will be set at the Salam price plus a mark-up profit. The sum of all gained mark-up from trades covers the Risk Absorber's operational costs and losses from trades at lower spot prices. With regards to the validity of having the producer acting as a sales agent, it is a normal practise in Islamic finance and accepted by many scholars (Shah, 2022, p. 150), as long as it is a separate contract from the Salam contract.

Note that the sales agency contract is a Wakalah (agency) contract but is referred in this paper as quasi-Ju'alah, to highlight its compensation structure. Fees (Ujrah) usually refer to fixed payments (or wages) for labour, but remuneration in this case is performance-based. As a comparison, property agents may sell for their client at a target selling price, with any surplus above this being to the agent's benefit. Validity of a performance commission in this manner is in accordance with paragraph 15, specifically 15.6, of the Policy Document for Wakalah of the Central Bank of Malaysia (Bank Negara Malaysia, 2016). This also confirms with Item 4/2, particularly 4/2/5 of Shari'ah Standard No. 23 as well as Item 5, particularly 5/4 of Shari'ah Standard No. 46 of the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) (AAOIFI, 2017).

The basic operating structure is not entirely exceptional, as those similar to Figure 1 have been previously proposed regarding Salam financing with banks, such as by Muneeza et al. (2011, p. 143) as well as Ehsan and Shahzad (2015, p. 76). The main difference is with the sales agent compensation structure. In these other proposals, the objective is to enable financing, and hence, solving the producers' market price risk are not factored in. On the contrary, the financier would usually be the one shielded from this risk.

As adverse market price movements are a systemic risk, a concentration of hedges occurring at one harvest period can result in simultaneous losses. Hence, the Risk Absorber should aim to serve a steady volume of contracts over time. Plus, the floor-price offered would continuously shift with the progress of current market prices. 'Hard-selling' has to be avoided since it leads to this concentration of risks, in addition to encouraging over-production (refer to Section 2.2). Hence, the hedging concept here has some differences with the typical 'law of large numbers' used by insurers (Dana and Gilbert, 2008, p. 28). Offerings should focus on the producer's needs and the Risk Absorber's abilities to identify the appropriate take-up.

4.5 The Risk Absorber and Producer's Payoff

The overall outcome of the hedge can be represented mathematically, with Salam price, S_0 , and the Risk Absorber's target selling price, P_1 , as the following:

$$\begin{aligned} \text{When spot price at delivery, } M_1, \text{ is a decrease in price from Salam: } & M_1 = S_0 - m_d \\ \text{The Risk Absorber's losses:} & \Pi_{RA}^- = M_1 - S_0 = -m_d \quad (\text{Equation 1a}) \\ \text{and the Producer's takings:} & \Pi_P^- = S_0 \quad (\text{Equation 1b}) \end{aligned}$$

$$\begin{aligned} \text{When spot price at delivery, } M_1, \text{ is an increase in price from Salam: } & M_1 = S_0 + m_i \\ \text{The Risk Absorber's takings:} & \Pi_{RA}^+ = P_1 - S_0 \quad (\text{Equation 2a}) \\ \text{and the Producer's is:} & \Pi_P^+ = S_0 + (M_1 - P_1) = M_1 - (P_1 - S_0) \quad (\text{Equation 2b}) \end{aligned}$$

where $P_1 < M_1$ otherwise $P_1 = M_1$, since the commission cannot be negative.

So, viability of the Risk Absorber (with C representing operational costs), is:

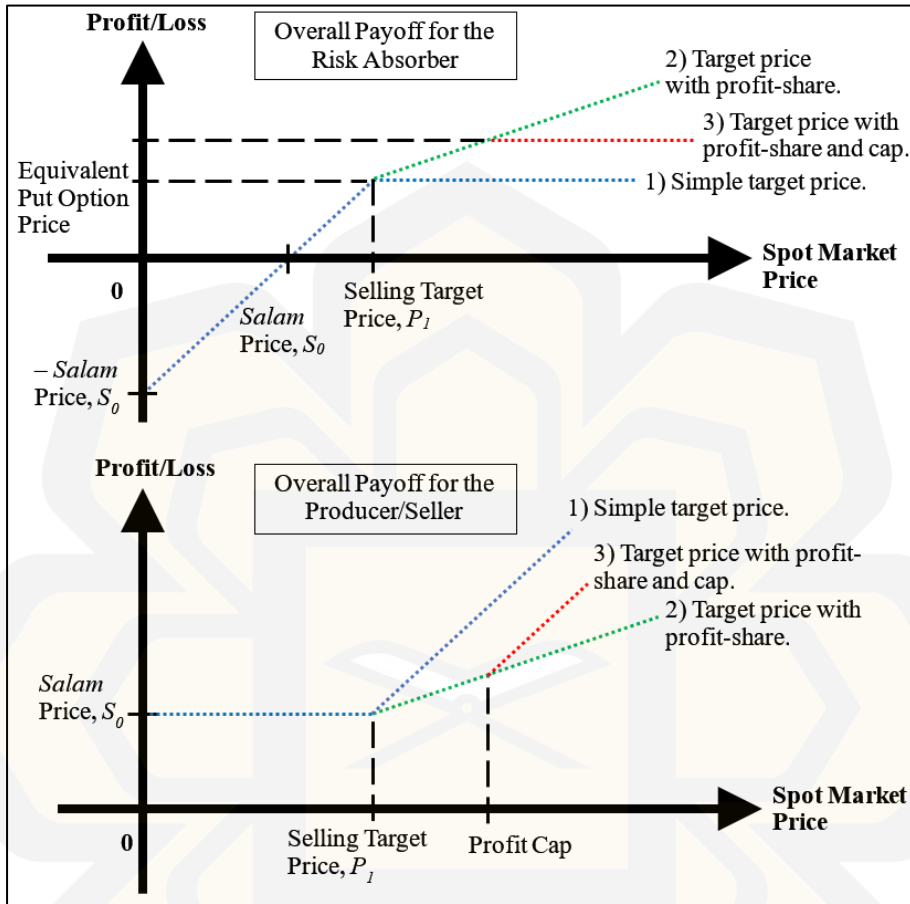
$$\sum(\Pi_{RA}^+) \geq \sum|\Pi_{RA}^-| + C \quad (\text{Equation 3})$$

This activity does not equate to a zero-sum game from the overall outcome since a drop in market price gives the result of a simple Salam trade, while a rise has more of a profit-sharing nature. Both parties benefit from increasing market prices.

The Risk Absorber has a payoff profile similar to a short put, where the selling target price can yield him a profit similar to a put option price as shown in Figure 2 (profile 1). This corresponds to Equation 2a. The equivalent put option may seem to give a better floor-price at first due to a higher strike price than the Salam price, but this is simply because the option price needs to be taken into account. The producer's payoff profile will not look like a long put as this is due to the sale of goods having to be taken into account of, instead of

profit relying solely from the performance of an option purchase.

Figure 2: Possible overall payoff profiles



Additionally, the sales agency contract allows a variety of other compensation structures to be made. For example, the Risk Absorber may take a percentage of returns above the selling target price (profile 2), or he may also do this plus a cap to his profits (profile 3). Or he could simply share returns when the Salam cost is met, which would be similar to a Mudarabah (partnership). These additional modes may allow better Salam price offerings, to which some risk averse producers could be more receptive to (Assouto et al., p. 2). What should be considered by the Risk Absorber is whether these modes can appeal to producers, since complex or disadvantageous terms may put off potential takers or even discourage them from honouring contracts.

5. Ensuring Contractual Observance

5.1 Marketplace operations and management

In commodity exchanges, options transactions are publicly accessible, highly regulated and have many gatekeepers on various operations. Participants are vetted and processes are highly formal. Similarly, real trade transactions here require identification of the specific trading marketplace to allow proper operations, ensure clarity for contracting and avoid deceit. Otherwise, matters such as market prices, point of deliveries and trading customs would be open to differing interpretations and easily allow disputes.

Here, we consider operations of the farm produce collection centre studied in Section 2.1. Trading is managed by the marketplace manager (LPP), with the farmer delivering produce first. The marketplace manager acts as a grader and buyers will come to collect produce. No credit terms are used, so market prices here can be lower than direct deals with traders elsewhere. Payments are channelled to the buyer by the LPP

who take a weight-based fee for services.

In the arrangement shown in Figure 1, the LPP can also play the role of a trustee. Deposits and collaterals to the hedge would be held-in-trust by them, and so would revenue payments to be distributed to the farmer and the Risk Absorber. Other marketplaces may not have the benefit of its manager closely overseeing sales such as the LPP does, but there are other ways to mitigate buyers and sellers from manipulating hedged produce, such as only allowing transactions to be bid in an open market, preferably with an automated platform, such as used by the London Metal Exchange, Chicago Mercantile Exchange or Bursa Suq Al-Sila’.

5.2 Salam without financing needs to secure future price

As a legal contract, Salam establishes the rights of parties to an agreed fixed price. Nevertheless, when compared to spot trading, it has counterparty risk. So, having a guarantor can ensure delivery occurs as agreed (Al Zaabi, 2010, p. 117). The guarantor could take collateral from the seller under a Kafalah (guarantee) contract. Using the Salam payment as this collateral can reduce the cost of counterparty risk to that of the difference between Salam price and spot market price at delivery. Note that from Hadith, Salam does not require that its price be used solely to fund production (Al Zaabi, 2010, p. 104).

This begs the question: if the guarantor asks for additional cash collateral from the producer for Salam contracting, would there be a limit? If it is considered oppressive for exceeding current spot market value, it should be remembered that Salam prices are usually lower to begin with (refer to Section 3.5). It may look odd that a seller is required to put money upfront instead of collecting payment, although it should just be viewed as securities pledged to a custodian to ensure contractual obligations.

Cash deposits as security (Hamish Jiddiyah) are already practised by Islamic Banks (Lawal, 2016, p. 114). What may be contested is the buyer himself taking security for Salam price, and not the guarantor taking security for Salam performance. As stated in Section 3.3, the full payment at contracting of Salam prevents pure speculation, and so, should not be undermined.

5.3 Integrity challenges to the contracts

Ideally, the two contracts of Salam and sales agency in the hedge are fully adhered to. If market price of produce drops at delivery, the producer keeps the Salam sale value; otherwise, he shares profit. However, there is possibility that parties avoid contractual responsibilities for their own benefit, and hence the need for mitigation strategies. Actions that can counter a party’s breach of the contracts are depicted in Table 1.

Table 1: Mitigating defaulting of contracts

Price Movement	Contract	Breaching Party	Counterpart Mitigations
Rising	Salam	Risk Absorber	None needed, since price has been paid.
		Producer	Second quasi-Ju’alah takes place with Guarantor, whereby Producer can lose deposit.
	Quasi-Ju’alah	Risk Absorber	Compensation by retention of some goods according to contract.
		Producer	None needed, since Producer loses benefit.
Falling	Salam	Risk Absorber	None needed, since price has been paid.
		Producer	Cancelling contract allows Salam price recovery.
	Quasi-Ju’alah	Risk Absorber	None needed, no difference occurs.
		Producer	None needed, no difference occurs.

The first quasi-Ju’alah serves to benefit the producer when market prices rise, hence, he would not ignore it. The Risk Absorber on the other hand cannot unilaterally cancel it without proper justification. It could be stipulated in the contract that the Salam goods legally in the hands of the sales agent become a pledge: meaning that the producer could own back some of the goods with respect to spot market price values at delivery, to compensate for possible rewards denied from unlawful contract cancellation. However, this should not be referred to as a Salam sale and a pre-arranged sell-back (Bai’ ‘Inah) at a higher price (Usmani, 2001, p. 88).

A second quasi-Ju’alah involving the guarantor can be utilized should the producer fail to deliver when

market prices rise. It protects the guarantor as will be explained in Section 5.4. Having already paid in full during contracting, the Risk Absorber has already committed payment to the Salam sale and is not considered a default risk.

5.4 Including a trusted intermediary as a performance guarantor

As mentioned in Section 5.2, the main purpose of the Salam contract that is being applied here is to get a fixed future price, and not necessarily for financing purposes. An independent intermediary and performance guarantor can handle deposits and purchase replacement of undelivered produce. With regards to the marketplace discussed in Section 5.1, the LPP would be suitable for this as they also handle other producers' sales transactions. When there is need to secure or sell commodity, the LPP has good connections to suppliers as well as buyers.

For incentive to contribute to the programme, banks would welcome the security deposits, especially when it already has a known fixed term. Likewise, as a marketplace manager, the LPP would welcome more transactions although they may be put off by the price risk exposure of guaranteeing performance. This can be mitigated by an arrangement to protect guarantors themselves from the effects of price fluctuations. The performance guarantor can be party to a separate sales agency contract with the Risk Absorber to sell the produce when needed. This contract is referred to in Table 1 as the second quasi-Ju'alah.

A producer may be tempted to look for better returns elsewhere when there is significant rise in market price, even though the Salam contract means he has already entered into a transaction. The guarantor will then have to acquire goods from the market at spot price, so he could utilize the Salam collateral to do so. A different selling target price in the quasi-Ju'alah contract with the guarantor can be used as shown in Table 2. This will effectively shield the guarantor from the effects of price increases. Where increasing market price ($S_0 + m_i$) exceeds the collaterals $S_0 + d_0$, the excess to be forked out by the guarantor to buy produce ($m_i - d_0$) can be recouped once he sells it back to the open market on behalf of the Risk Absorber.

Table 2: Guarantor ensuring performance at higher market price

Event	Risk Absorber	Producer	Guarantor	Note
Upon signing :	$- S_0$ (Salam price)	$- d_0$ (Deposit)	$S_0 + d_0$	Collateral held-in-trust by guarantor.
At delivery date :		(absconds)		
Goods substitution :			$- (S_0 + m_i)$ (Market price)	Acquire goods from market.
Agency selling by guarantor :			$(S_0 + m_i)$ (Market price)	Selling on behalf of Risk Absorber.
Sales revenue distribution :	$(S_0 + d_0)$ (Sales target)		$- (S_0 + d_0)$ (Transfer)	Transfer of sales revenue according to Quasi-Ju'alah 2.
Final outcome :	d_0	$- d_0$	0	

The Risk Absorber may set the target selling point to include the farmer's deposit (d_0) as shown in event 'Sales revenue distribution' of Table 2. This enables the Risk Absorber some justified compensation and act as a deterrence to renegeing the Salam contract. The assumption made here is that goods acquired from the market can be sold back at the same price. This should be a negligible concern with marketplace managers, such as the LPP, who process transactions.

It should be noted that when the market price does not exceed total collateral, the excess ($d_0 - m_i$) will still belong to the producer – even if he never claims it. Hence, it is suggested that if market prices drop, the Risk Absorber will also withdraw from the Salam contract if the producer flees and fails to contact anyone, to save everyone's effort. Moral hazard of the producer abandoning Salam commitment can be mitigated by a high enough deposit, but it has to avoid becoming an entry barrier to hedging.

6. Discussion

There are a few items which could be studied in more detail regarding the proposed hedging technique to ensure smoother acceptance. For example, these would include the elements of contracting (its commencement, variations), the rights, responsibilities and risks of parties (Risk Absorber, sales agent, guarantor, marketplace manager), goods (ownership, physical transfer), payment methods as well as the handling of spot sales.

6.1 Sequencing of contracts

The sales agency contract should be separate from the Salam contract to avoid being deemed to lead to inconsistency of price or create conflicting rights (Rahman and Osmani, 2021, p. 11). Hence, it cannot be assumed that a party signing to one contract will automatically follow through on the other. As such, the effects of parties not signing all contracts accordingly have to be considered.

If the Risk Absorber and producer sign the Salam contract without finalizing the sales agency agreement, the producer can lose opportunity of gaining on rising market prices. Hence, how the arrangement is being executed can avoid deceit. This can be done by parties signing the sales agency contract first. Only after that do the parties initiate the Salam sale. If the sales agency needs to commence after Salam to assert independence of contracts, it is suggested here that the producer can begin straight away by advertising, right after an acceptance (Qabul) trigger which seals the Salam contract, such as the transfer of the security deposit to the guarantor. Note that getting the order of contracting wrong itself may not even be a Shari'ah non-compliance issue.

The sales agency contract can stipulate that the Risk Absorber's goods to be sold as what will be physically and legally in the agent's control at harvest time. This would mean that one agency contract can encompass several Salam contracts instead of multiple copies for different batches in one crop cycle, as long as details such as the quasi-Ju'alah remuneration is consistent. This can align to an Istijrar master contract applying the Salam sales.

6.2 Bundling hedging with financing

As the hedging scheme here uses a Salam contract, it can be directly embedded into a financing scheme. Payment for Salam price could directly go to the producer for immediate use while the sales agency contract performs as usual. In a way, it can appeal to potential Salam financing takers who are concerned on their future ability to settle their obligations. What might be debatable would be financing for the producer's refundable deposit in the hedge.

6.3 Sales agent remuneration and ownership rights and risk of goods

The producer is assured that the Risk Absorber cannot simply take advantage by cancelling the sales agency contract when market prices increase to deny rightful commission as the goods are already in the agent's hands. A Wa'd to protect the agent who wants to make the sale can be made (refer to Section 3.4). However, as the Risk Absorber has ownership of the goods, there could be allowance for him to retain it instead of forcing the spot sales to go through. This reinforces the idea of the Salam and sales agency contracts being independent, as well as the Risk Absorber being a bona fide owner.

Merely retaining goods would translate into loss of the agent's commission when market prices increase at delivery. As such, the sales agency contract could stipulate to still award remuneration for the agent as if the goods were sold at delivery. The basis of this could be as recognising the agent's imperceptible efforts, such as earlier done marketing and proper collection of goods. Hence, this justification may need more Shari'ah analysis.

Apart from this, the Risk Absorber as owner to the goods, should bear risk when the producer as the sales agent, cannot sell the goods despite his best efforts (Shah, 2022, p. 151). So, the Risk Absorber has to ascertain commodity liquidity before facilitating the hedge – which should actually be included in the fundamental objective, i.e. not just to hedge against price risk but including other market risks. This is one of the traits which sets this hedging method apart from conventional options.

Any transaction costs incurred due to the spot market sale is also rightfully borne by the Risk Absorber, although it could be simply computed into the Salam contract in advance by lowering the price correspondingly. This should be more transparent to the producer as he will know his minimum takings upfront, rather than having to calculate unseen hedging costs.

6.4 Salam performance guarantor fee

The guarantor who ensures that Salam goods are transacted can be compensated. However, the fees for him should only be for administrative costs (Malkawi, 2014, p. 51). Hence, it could be similar to how the LPP charges by weight as mentioned in Section 5.1, and not a fee based on the goods prices.

6.5 Having the marketplace manager as a risk absorber

The marketplace manager may prefer to directly play the role of the Risk Absorber as he has the data on market price movements, and hence, is able to judge price risk better than most actors. However, this would mean that his role will be less neutral as an intermediary and processes have to be put in place to mitigate bias. It should be noted that the sales agency contract can become conflicting unless goods sale are ultimately triggered by the producer as an agent. Thus, spot sales could be based on an automated trading programme to facilitate fair market price discovery, with the producer selling to the best bid he can get. Also, the marketplace manager will not be able to play the role of the performance guarantor and hence, a different agent or mechanism is needed to address the issue of Salam delivery default.

6.6 Detailing goods transfer and sales agent responsibilities in contracts

Direct hedging would involve the movement of goods ownership between parties. Hence, the question of who bears physical risks have to be discernible. For example, the Salam contract can clearly define how delivery happens for proper transfer. Without this, the Risk Absorber might end up having to deal with unwanted transportation and storage concerns. Notification processes should be available too, as the producer also plays the role of a sales agent and the transition is practically seamless.

The producer, as the agent, is liable to ensure correct goods are sold: he cannot legally pass on inferior items without having any responsibility. If the target marketplace is inaccessible for unforeseen circumstances, a secondary marketplace can be identified in the contract, or other arrangements specified. Otherwise, risk of collusion with potential buyers will become a major concern.

6.7 Delivery timing

Early delivery of produce has been agreed by scholars as acceptable, although this is not necessarily conducive in the current operations (Al Zaabi, 2010, p. 114). Past concerns could be more focused in securing material for buyers whereas now, buyers are also sensitive to logistical matters such as storage concerns (Kalimullina and Orlov, 2020, p. 10). Late delivery could be a problem, and any form of penalizing could become an issue (Al Zaabi, 2010, p. 119). As such, it would be easier to handle delays similar to a breach of contract as in Section 5.2. Agriculture harvest periods are quite accurate today, hence, a delivery window for Salam could be a few days' timeframe, allowing enough flexibility for the producer to seek the best time to sell, apart from the best time to harvest.

6.8 Cash collateral use

Where payment and deposits are used as collateral as mentioned in Section 5.4, ownership ultimately belongs to the producer. Hence, any benefit rightfully should belong to him, such as profit from being a fixed-term deposit in a bank. This avoids opportunity loss by the producer and can be viewed as an obligatory savings. The scenario where the producer defaults on delivery of goods does not allow his collateral (both deposit and its related profits) to be arbitrarily confiscated. Thus, we have the substitution and commission mechanism in Table 2 that rationalizes usage of collaterals without ignoring interests of parties. After completing obligations, where there is surplus unutilised collateral, the producer remains the correct owner to it.

6.9 Avoiding perceived profiteering in enabling hedging

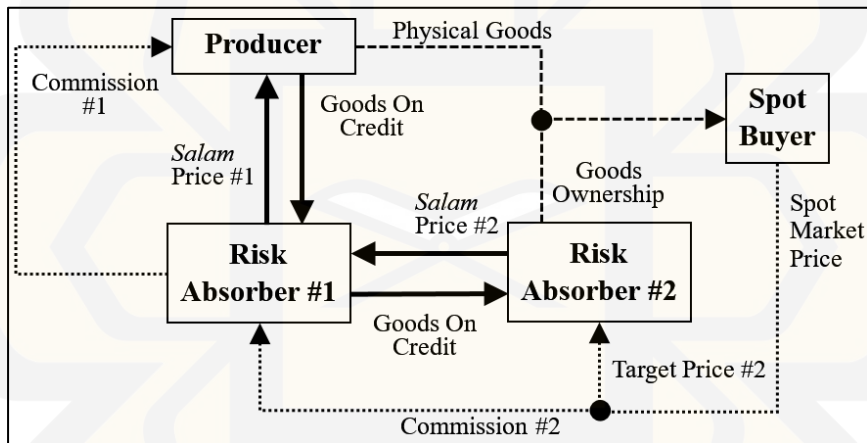
There could be concern that the Risk Absorber is perceived to be benefitting excessively from the whole arrangement. A 'willing buyer, willing seller' setting is already the trading nature of the Salam contract, but additional methods could be arranged to make it seem fairer. For example, a partnership with an investment vehicle can be made to share in financing the Salam contracts, with allocation for producers who have participated in hedging. Although this would give them opportunity to gain from the Risk Absorber's profits, it would also give them back some exposure to the price risks they had initially sought to avoid.

6.10 Parallel Salam and sales agency contracts in hedging

While the producer has initiated some control on price risks with the hedge, the Risk Absorber himself may want to take action as the market situation changes. Direct sales of the goods prior to delivery will introduce complications (Al Zaabi, 2010, p. 112), but there is no restriction which prevents an agreement for another Salam sale to be done in parallel with a new party before delivery, with the same features. This can be done with the sales agency agreement allowing the Risk Absorber to retain goods while being fair to the producer as mentioned in Section 6.3. Here, another party as a buyer, enters a parallel Salam contract and sales agency contract with the Risk Absorber as the seller and sales agent, as in Figure 3.

It could be stipulated in the original sales agency contract between the Risk Absorber and the producer that retention of goods would be allowed, as long as the producer is given opportunity to perform as a sales agent for a similar but entirely separate undertaking with the same compensation. So, at delivery, the Risk Absorber has to deliver goods to fulfil the second Salam, and will also be appointed as a sales agent. Under this second sales agency contract with the second Risk Absorber, it could be allowed that the first Risk Absorber appoint the producer as a sub-agent to collect and sell the goods in the market. With multiple overlapping agency roles of delivering, collecting and selling, the processes would need more scrutiny of Shari'ah-compliance.

Figure 3: Parallel Salam and sales agency contracts



The idea that multiple parallel contracts can be added along until delivery gives flexibility in the Risk Absorbers' handling of price risk themselves. Monetary gain is not necessarily the sole motivation for this: a selling Risk Absorber may be interested to wrap up contracts to clear up his accounts, manage his overall risk position or quickly prepare capital for other activities. The buying Risk Absorber may be entering to meet his portfolio of hedges at the delivery time.

Whether subsequent parallel floor-pricing contracts could distort market prices should not be a great concern. Since only one spot sale of the goods occurs, it would follow market prices at delivery. The producer's hedge is also preserved as his commission is based on the agreement with the initial Risk Absorber.

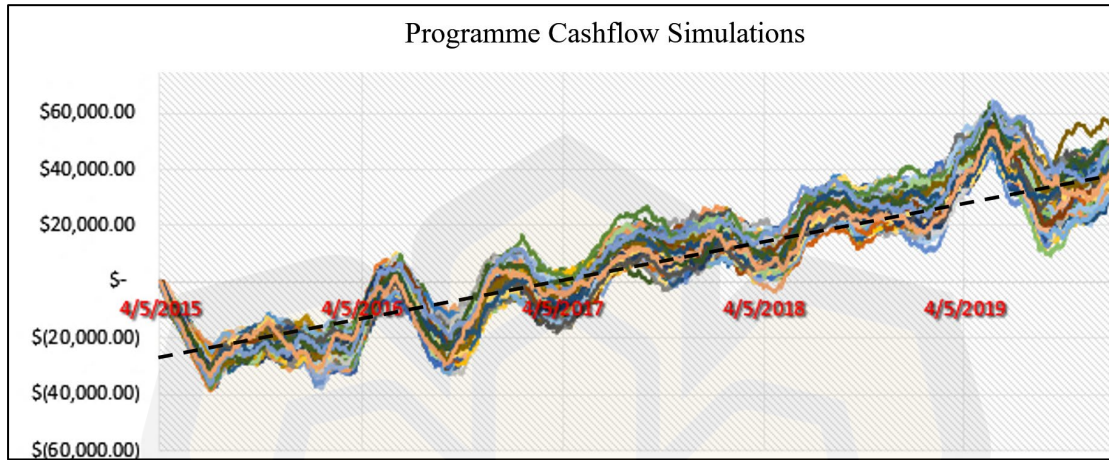
6.11 The risk absorber's operational viability

Salam pricing, quasi-Ju'alah sales target and the producers' security deposit are parameters that can be structured to ensure the Risk Absorber's sustainability while not hindering potential hedgers. Fine-tuning this can be done by rigorous Monte Carlo simulations and backtesting to ensure the programme is robust enough as shown in a basic test example on a commodity in Figure 4. While exact future prices can only be projected, it is never an exclusively random object which only entails chance.

How operations are done could be another way Risk Absorbers facilitating hedging may be differentiated from pure speculators. Option writers may be able to offer their contract at any point in time they deem will lead to gain. In comparison, it can be stipulated that the Risk Absorber has to provide his services throughout a duration to achieve profitability defined by Equation 3, which is demonstrated by the long-term upward trend

in the example. Hence, it can be required that Risk Absorbers have enough capital to offer hedging services throughout the year, quote daily floor-prices as well as their daily trade limits.

Figure 4: Example of simulations to confirm basic viability of operation parameters



6.12 Differences between the proposed hedge and put options

Creating a floor-price to aid producers sell at profitable prices need not follow conventional forms which are contended by Shari’ah scholars. The differences between the suggested floor-pricing method here and a typical conventional put option are outlined in Table 3. The first two items have been explained in Section 4.3 while the third item describes how the party enabling the hedge gets revenue. The Risk Absorber gets profit from the proposed method by sales of goods and not fees or sales of contracts. This has been described in Section 6.11.

Table 3: A brief comparison on the hedging methods

Item	Floor-Pricing by Trade Contracts	Put Options
1.	Real trade has to take place.	Pure speculation is allowed.
2.	Ownership risk is assigned by contracts.	No physical ownership concerns needed.
3.	Profit-sharing without ex ante premium.	Upfront premium charges.
4.	Full payment on contracting avoids speculation.	Margin calls are possible when leveraging on debt.
5.	Hedge cost determined by risk needs of sellers and Risk Absorber abilities.	Hedge cost determined by ‘fair’ probability of random price movement.
6.	Contracts bound to parties.	Tradeable contract.

Financial complications from unfulfilled obligations can be minimized as shown in the fourth item. Whereas external financing may be taken by writers of put options, the producer’s risk mitigation efforts is ensured with the full payment of Salam. He should not have to bear burden from external snowballing credit defaults.

The fifth item concerns the cost of hedging to the producer: various theories of price movements, with one of the most popular being the Black-Scholes model, are used to price options. There is no explicit cost for the proposed method as it depends on profit-sharing, and so, it translates to opportunity cost of potentially getting more profit. This opportunity cost would be focused more on price trends of the commodity as well as the risk-reward tolerances of the contracting parties.

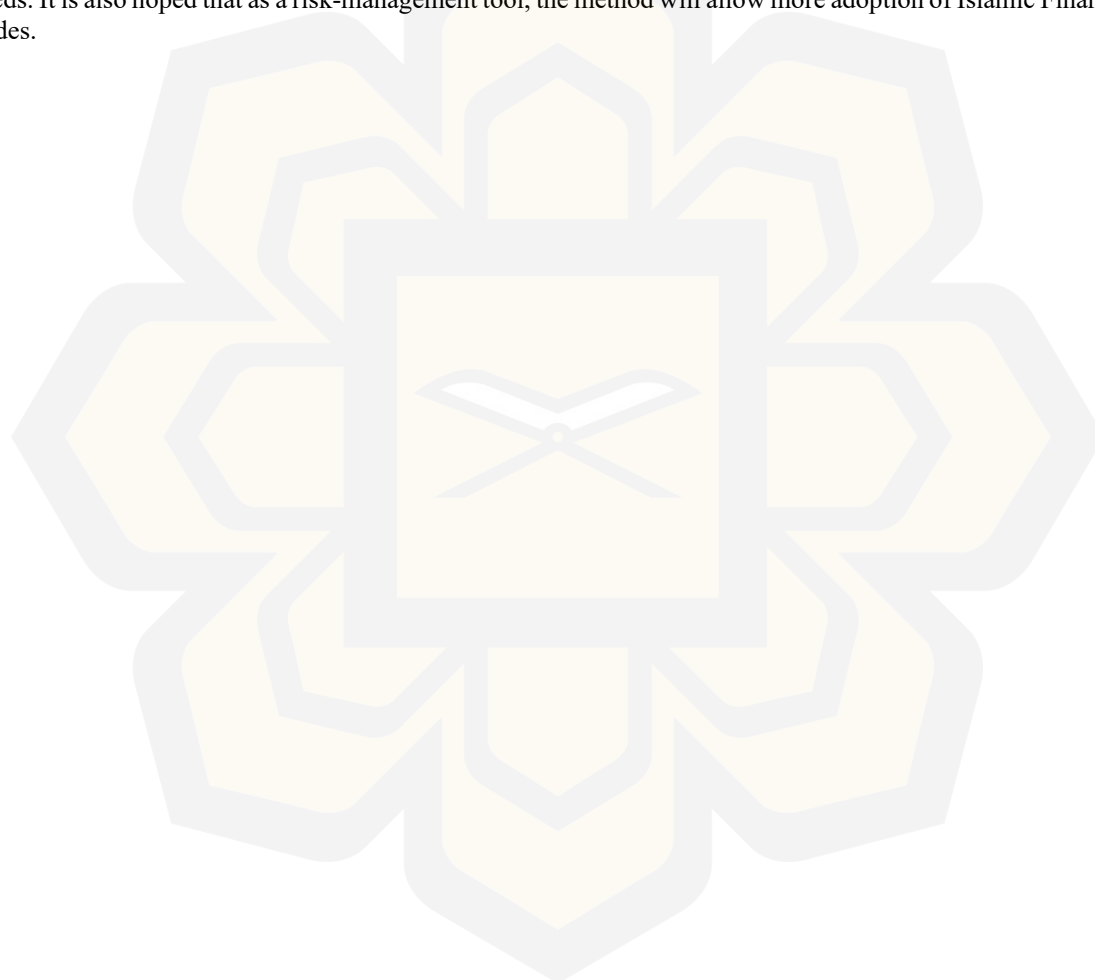
As for the sixth item, as mentioned in Section 3.4, tradability of contracts is controversial in Islamic finance. The trade contracts themselves are fixed between the parties. Hence, parallel contracting as mentioned in Section 6.10, could be an alternative when using the proposed hedging method.

7. Conclusion

This paper has demonstrated how the use of common contracts of trade can be used as a hedging tool for commodity sellers. The proposed method here aims to be more widely accepted amongst Shari'ah scholars compared with other debated solutions, whilst still being practical for execution.

Although it is based on an agricultural trade setting as a case study for execution, it can be adopted to other sectors. Industries which are expected to benefit directly from the proposed method here are those that have a long lead time. This could range from industries in heavy construction, electronics, pharmaceuticals or shipping where manufacturing, design, testing or transportation processes can be significantly long.

The challenges and proposed mitigation techniques have been deliberated in detail to suggest some suitable paths for application. However, discussion on a structured implementation such as its use on an exchange, as well as its governance, is excluded as it is beyond the scope of this paper. It is hoped that the various concepts used and applied here will spur other Shari'ah-compatible solutions to be developed to meet actual market needs. It is also hoped that as a risk-management tool, the method will allow more adoption of Islamic Financial trades.



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