

# Islamic Formula of Future Value of Asset: A Scientific Derivation

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**Abstract**— Increasing price of an asset being sold on credit is a common practice of Islamic Financial Institutions (IFIs) and certain retailers using formulas of compound interest (*Riba*) and speculation (*Maysir*). As Islam prohibits both of these concepts, relevant literature was qualitatively probed to find *Shariah* compliant mechanism for setting future value of an asset being sold on credit negating *Riba* and *Maysir*. The study thus extracted a formula from authentic *Shariah* sources and presented it quantitatively as an alternate to abandon the conventional formulas of interest and speculation. It further contributed recommendations for credit sellers and buyers in the light of *Shariah* principles and possible future research.

**Keywords:** *Credit Sale; Maysir; Riba; future value; inflation*

## I. INTRODUCTION

Islam guides mankind in all affairs of life. One common affair is *Bai* (sale/trade) of items mainly commodities, accessories and luxuries. Spot sale (*Bai-e-Muajjal*) is usually the preferred mode for consumable commodities and accessories. For reusable luxuries both *Bai-e-Muajjal* and credit sale (*Bai-e-Ghair Muajjal*) modes are adopted. Sometimes *Bai-e-Ghair Muajjal* is also adopted for commodities and accessories. Islam encourages *Bai* of all legitimate (*Halal*) assets/items in any mode stressing on honesty and fairness [1] [2]. In *Bai* Islam strictly prohibits all kinds of the following:

1. *Riba* (Usury) – is any undue exploitation in sale/trade seeking excessive profit than the prevailing market rate, or imbalance in weighing commodities during their sale by cheating and another type is charging interest/markup/usury in loans [3][4][5][6] and [7].
2. *Milawat/Talawa* - foist [7],
3. *Ahtekar/Asa'ar/Zakheera Andozi* - illicit hoarding, [7],
4. *Al-Qumar/Maysir/Gharar* – games of chance such as gambling, speculation, and hypothecation [8]
5. *Dhokay Bazi/Ghash/Khada'a* – cheating/deceiving in selling [7]
6. *Israf* - extravagancy [9], and
7. *Yameen/Qasam* – false swearing on Allah [7], [10].

This study focused on *credit sale* of *Halal* assets where their value is increased due to deferred payment in installments. It thus declares details of all the above listed prohibitions in Islam out of its scope. Consensus among Islamic scholars of diversified schools is reported on permission for increasing value of an asset being sold under credit sales to an extent that buyer does not have to face an undue exploitation [11]. Islam does not allow entertaining time value of money considering money only as a medium of exchange with no intrinsic value at all. However, for *Halal* assets it acknowledges the variation in their price/value from time to time. Substantiating such concept [11] yet remained silent in answering how should a Muslim seller calculate the future value of the asset s/he is selling under *credit*? As literature remained helpless in understanding the formula/mechanism for estimating *Shariah* compliant future value of an asset being sold on credit, this study developed interest in pursuing the analyses of existing practices and adopted formulas/mechanisms in credit sale of *Halal* assets especially by Islamic Financial Institutions (IFIs) and various retailers in Pakistan.

The significance of this identified gap enhanced as this study observed that all IFIs including Islamic banks, *Takaful* companies, *Mudarbas* and Islamic Mutual Funds in Pakistan yet employ the conventional formula of future value of asset/money which incorporates all three *Haram* measures that are *Riba* (interest), compounding for *Riba* and *Maysir* (speculation). References [12], [13], [14], [15] and [16] explained that formula that this presents as F-1:

$$FV = PV (1 + i)^n \quad (\text{discussed ahead as F-1})$$

Where

FV is the Future Value of Asset,

PV is the Present Value of Asset,

*i* stands for rate of usury/interest known as (Karachi Interbank Offer Rate) *Kibor* in Pakistan, and

*n* represents the period of lease/credit sale

A linear version for computing same concept that is future value of asset through same references is:

$$FV = PV (1 + i \times n) \quad (\text{discussed ahead as F-2})$$

All elements in F-2 mean the same as in F-1. Nevertheless F-2 does not demand compounding for sake of usury, but yet it is not immune from usury and speculation. This study did find more complex versions of F-1 that IFIs in Pakistan also utilize in their calculators and software, but it limited its scope to analyzing only F-1 and F-2 from *Shariah* perspective for the reason that further complex formulas of usury will certainly enhance *usury*, compounding for sake of *usury and speculation*. Before analyzing these formulas in depth here it is significant to give an overview of the Pakistan's economy and inflation as these determine the choice of sellers in *credit sales*.

Increase in general price level of goods/services is inflation that may be result of different factors. Literature explains two main types of inflation i.e. demand pull and cost push [17]. It has been noted that different factors of demand and supply lead to increase in inflation. On the supply side factors like increase in prices of wheat, crude oil and various raw materials may cause soaring in prices. On demand side upward pressure on prices can be due to increase in investment and hence high demand for goods and services. At the same time [18] reviewed quantity theory of money by Fischer that asserted inflation to be caused by increase in money supply. Reference [19] has reported a close link between inflation and output gap for Pakistan indicating that overall inflation in this country happened cost push instead of demand pull. Such facts explained that theory of Fischer as reiterated by [18] was fully true for Pakistan. Findings by [20] reinforced this understanding for our country as he reported that important factors that led to inflation in Pakistan during 2012-2013 were government and non-government borrowing, increase in money supply, exchange rate and indirect taxes. Such cost push inflation and the massive increase in the loose credit that was accessible to the private sector played a considerable role in disturbing the price system. Similarly the ease of use of finance at a negligible cost encouraged hoarders and speculators [20]. It made sellers expect higher prices in future that in turn led to massive increase in inflation particularly in house rents, prices of land and food in Pakistan. Here we find it important to share how Islam views inflation.

In an ideal situation the true Islamic economy is based on real productivity, Islamic taxes and charity for welfare of masses and development in the state. According to [21] any rise in prices in an Islamic economic system will only be result of natural rise in cost of materials, increase in wages paid to labours getting experienced or more productive, supplier's profit margins or increased volume of demand relatively to the volume of supply due to natural phenomena. Islam does not allow inflation due to *Riba*, *Maysir* (speculation), hoarding and other forbidden factors listed above. Contrariwise in the prevailing conventional economic system drivers of inflation are interest, conventional taxes, speculative earnings and market imperfections. These conventional factors give rise to

inflation while Islam does not declare it a Divine's bounty rather it certifies that inflation due to forbidden factors is a sign of Divine's unhappiness and punishment [7]. The Divine's book of Islam states [22], "And whatever strikes you of disaster/problem - it is for what your hands have earned; but He pardons much". Further Al-Quran [23] states, "Corruption has appeared throughout the land and sea by [reason of] what the hands of people have earned so He may let them taste part of [the consequence of] what they have done that perhaps they will return [to righteousness]". These verses of the Holy Quran guide that inflation in prices due to misdeeds and corruption of human will put economy on astray. A real Islamic economic system is thus challenging to be achieved in Pakistan as it has high corruption index and thus inflation remains unleashed and in practice even in the credit sales of items.

A common practice in Pakistan during credit sale contract is thus to charge increased price whether it is for commodity or any expensive item. Nevertheless such orientation to inflationary practices is true yet this study discovered that excluding commercial IFIs and very few retailers, majority of the SMEs serving as manufacturers, wholesaler or retailers in Pakistan selling commodities, accessories and luxuries items offer credit sale for the convenience of lower and middle income class without charging any markup of interest for short term period. These avoid demanding markup or interest in credit sale of items sold on short term contract considering it *Riba and Maysir*. For example certain retailers do not charge an increase in the future value of consumable commodities such as grocery items given on credit to well recognized and trusted customers living in their neighborhood despite cost push inflation in Pakistan. It was very encouraging to observe and learn that such businessmen running small retail stores did not believe in enhancing value of commodities considering it *usury*. Only IFIs and certain retailers charge markup or increased price employing the same formulas F-1 and F-2 for estimating future values of assets being sold on credit. As IFIs in Pakistan believe in increasing the future value of reusable luxury and accessory items computing it incorporating interest rate plus profit margin, such diversified practices and believes motivated us to probe certain research questions in the light of *Quran* and *Sunnah* as mentioned next.

## II. RESEARCH QUESTIONS

The study set the following questions of interest relevant to future value of asset and Islam:

1. In Islam is it incumbent upon seller to increase future value of an asset being sold on credit?
2. Is Islamic order on computing future value same for commodities, accessories and luxuries in credit sale?
3. What does Islam order for a market where deflation is likely to surpass inflation during the period of *credit sale*?
4. What if the rate of inflation remains unaltered or consistent after a year in a country?

5. Does Islam permit computing future value of an asset being sold on credit utilizing the formula F-1 or F -2 any of their more complex/simpler versions?
6. Actual prices of luxuries and accessories sold on credit at higher price than their present value usually get depreciated while they are in use with the buyer. What is the order of Islam for buyers for purchasing depreciating item on expensive cost through credit sale?
7. What is the limit for increase in future value to avoid undue exploitation of buyer and speculation?
8. What could be the Shariah compliant formula for computing future value of any *Halal* asset?

### III. PROBLEM STATEMENT

Literature reporting Islamic permission for increasing the future value of any *Halal* asset being sold on credit without imposing undue exploitation on the buyer does not provide any formula/mechanism that traders/sellers should adopt for estimating *Shariah* compliant future value of an asset ensuring negation of *usury* and *speculation*. Further comprehensive answers to the research questions of this study can enrich the relevant literature.

### IV. METHODOLOGY

This is a theoretical, analytical, and qualitative study that standardized *Quran* and *Hadith* as yardstick to whet the quantitative formulas of economics and finance employed by various retailers and IFIs for computing future price or value of an asset they offer under credit sale in their calculators and software. It entertained and discussed relevant *Hadith* from all diversified schools of thoughts in Islam without any bias but considered the *Hadith* substantiated by Imams from Ahl-e-Bait (AS) of Prophet Muhammad (SAAW) more dependable. For interpreting the verses of the *Quran* relevant to *usury*, same principle was preferred. The study conformed to the philosophical belief that all permissible (*Halal*) and prohibitions (*Haram*) from Allah in *Quran* and *Hadith* relevant to financial matter of sale are universally final and beneficial for the mankind. The study utilized various books, journals and sources of economics and finance explaining the formulas of future value of money and asset and relevant theories. However, it limited its scope to analyzing the contents and effects of applying the formulas of future value of assets only. In addition to literature review, observation of the practices of various IFIs and retailers offering credit sale was utilized as a parallel source of learning. The study employed logic and deduction for analyses, discussion, reaching conclusion, and contributing recommendations. It utilized simple mathematical and quantitative notations to formulate its understanding from *Hadith* on future value of asset into quantitative terms.

### V. LITERATURE AND ANALYSIS

To begin with this study reviews the rationales for credit sale contributed by [11] founding it on the two verses numbering 275 and 282 of *Al-Baqra* the second chapter of

Holy Quran. First this study quotes their translations as presented by [11]:

“Allah has permitted trade and forbidden *riba*” (*Al-Quran* 2:275)

“O you who believe! When you deal with each other in transactions involving future obligations in a fixed period of time, record them in writing.” (*Al-Quran* 2:282)

The translation of a portion of verse 275 was found right both denotatively and connotatively when rechecked from the holy *Quran*. While this verse attests the sanctity of trade and prohibition of usury/interest, denotatively it does not address the concept of credit sale directly. This study assumed that [11] perceived this verse connotatively declaring all types of trade of *Halal* items permissible. It is thus perceived that [11] considered verse 275 as an indirect permission of credit sale.

Next we counter checked the translation of the verse 282 of *Al-Baqra* and learnt that [11] had relied only on its first portion again seeking connotation of their choice. Denotatively the verse 282 of *Al-Baqra* explains order of Islam on the matter of debt (*Dain*) and not any general transaction involving future/credit sale with fixed time. Can the Arabic word *Dain* connote as future sale transaction with fixed time? To the best knowledge and findings of this study *Dain* only refers to debt that must be returned. Envisaging implication of *Dain* as trade and especially credit sale is not a norm among Islamic scholars. This study thus identified that the second rationale of credit sale as perceived by [11] remained questionable.

Now we take into consideration the third evidence presented by [11] that was a *Hadith* from *Sahih Bukhari* and *Sahih Muslim* which they narrated as:

“A’ishah reported that the Prophet (pbuh) bought some foodstuff on credit from a Jewish trader and mortgaged his armor to him” [24] [25].

Meaning wise this *Hadith* seems an appropriate rationale for considering credit sale of needful (foodstuff) and mortgaging as the *Sunnah* of our prophet Muhammad (SAAW). However reliance on only a *Hadith* was not rational and therefore this study probe for the alternates. Reference [26] reported a *Hadith* in his book on Islamic Banking referring *Sahih Bukhari* that we quote as under:

The prophet Muhammad (SAAW) advised to have hand on hand (spot) sale that is *Bai Muajal* for the following commodities:

1. Wheat
2. Barley
3. Salt
4. Dates
5. Gold
6. Silver

As their credit sale will involve *Riba*.

Where the first *Hadith* states credit sale of foodstuff *Halal*, the second referred by [27] renders credit sale of the mentioned

foodstuff and gold and silver *Haram*. Such diversity in findings encouraged this study to consult reference [7] for probing the order of Islam on credit sale especially for foodstuff and valuables through *Hadith* substantiated by the progeny (*Ahl-e-Bait*) of the holy prophet Muhammad (SAAW). Analyzing the chapters contributed by reference [7] relevant to *sale* and *usury*, this study identified the following authentic *Hadith* # 4006 that it presents next to further interpretation and discussion on credit sale:

*Abaan reported referring Muhammad bin Ali Halbi and Hamad bin Usman also reported referring Ubaidullah Ibne Ali Halbi that Imam Jaffer Sadiq (AS) said that there was no prohibition in the hand to hand/on spot sale/barter (Bai Mua'jal) of the available heterogeneous grains/foodstuff (Ghala), assets (Maal) and items (cheezain) which happened better than one another by exchanging one (superior such as grain/asset/items) with two (similar such as currency or items of less quality or price) and delay in their sale is not right [7].*

This authentic *Hadith* clarifies that Islam primarily encourages on spot sale of all grains/foodstuff, assets and items with exchangeable currency or less quality/price heterogeneous items. The platform of *Ahl-e-Bait* declares delay in their sale not right which to the best finding and understanding of this study connotes less preferred, however not *Haram*. This study thus learnt that Islamic order on credit sale is not to prefer it as a primary choice. For sale of any commodity, luxury and accessory the first choice of a Muslim whether seller or buyer should thus be hand to hand or on-spot sale. Having clarified Islamic order on credit sale, this study now focuses when to adopt credit sale.

Islam allows credit sale in all scenarios demanding *Bai Salam*, *Bai Istisna*, and where buyer is running short of payment for the available items/grains /assets but yet agreeing on fixed time period for complete payment [7]. This study is primarily concerned with the scenario where buyer is not having adequate funds to opt on spot sale of any available *Halal* item and seller thus demands an increased price due to credit sale within specified time period. Reference [11] reported a scholarly consensus (*ijma`*) of the *ummah* on the permissibility of selling on credit if the due date is known. They further provided the rulings by traditional jurists for increasing the price of a commodity in credit sale that we quote:

1. *Al-Kasani 1327 AH (Hanafi) in Bada'i'i al-Sana'i'i: "The price may be increased based on deferment."*
2. *Ibn Rushd 1379 AH (Maliki) in Bidayat al-Mujtahid: "He has given time a share in the price."*
3. *Al-Nawawi n.d. (Shafi'i) in Al-Majmu': "Deferment earns a portion of the price."*
4. *Ibn Taymiyah 1398 AH (Hanbali) in his Fatawa: "Deferment takes a share of the price."*

Reference [3] further reported that the Islamic Fiqh Academy of the Organization of the Islamic Conferences (OIC) has substantiated price increase in the credit sales. This study respects and appreciates the consensus among four major *Sunni fiqas* of Islam and intends to review the ruling of *Fiqah-e-*

*Jaferia* on the same. While all the *Sunni* jurists have sanctioned increase in credit sale, the literature did not explain mechanism or formula that a trader should adopt for increasing the price remaining *Shariah* compliant. In other words the limit or capping on price increase is not elaborated in the light of *Shariah* in the above mentioned rulings by jurists and not *Quran* and *Hadith*. To this study the style of these inputs of Al-Kasani 1327 AH, Al-Nawawi n.d. and Ibn Taymiyah 1398 AH seem to be mere reports on the practices in trade these jurists would have observed in their respective times that were indeed far after prophet Muhammad (SAAW). Only the words of Ibn Rushd 1379 AH refers the word He which seems referring to Allah. If yes, Ibn Rushd's 1379 AH ruling must have incorporated certain verse of the holy *Quran* but this study could not find any relevant verse despite investigation. This study thus reserves its perception that *Ijma* of scholars or jurists is the secondary source of *Shariah* knowledge and must be founded based on *Quran* and *Hadith*. The above stated rulings by jurists presented as core rationale for legitimacy of increasing price of an asset or item in credit sale by [3] yet needs verification from *Quran* and *Sunnah/Hadith*. Such gap in the literature further signifies the need to investigate relevant order of Islam on this issue.

First this study investigated in the holy *Quran* and to the best of its findings out of 6,666 verses it did not find any verse directly sanctioning the increase in price of an asset/item/commodity in credit sale. Next primary source of *Shariah* ruling was *Hadith*. It discovered that reference [7] reported a relevant *Hadith* # 4022 directly explaining the Islamic order on this issue that we present next:

*"Muhammad bin Qais reported that Imam Muhammad Baqir (AS) described that in a Hadith my ancestor father Hazrat Imam Ali Bin Abu Talib (AS) explained if any trader sells an item offering some price for hand to hand (on spot) sale but different price for credit sale, in such scenario although the buyer is given the right to purchase it at any price as per his free will but the right (Islamic) criterion in such purchase for the buyer is to accept only the cheaper/economical/lesser price out of the two even if he has to avail loan for paying the lower price (on spot)."*

Now from this authentic *Hadith* this research learnt the following lessons:

- a. Seller has the right to charge different prices in hand to hand (*Bai-Mua'jal*) and credit (*Bai-e-Ghair Mua'jal*) sale modes,
- b. Although Islam respects free will of the buyer for accepting an item on any price, but yet it guides him/her to accept the cheaper/economical/less price only,
- c. Accepting lower price and paying at once is given so much preference for the buyer that s/he is encouraged to avail loan from alternate source and avoid accepting and paying higher price, and
- d. Islam thus encourages free trade among seller and buyer without any force on either one (seller and buyer) and yet sets criterion for buyer for shielding against undue exploitation.



While this *Hadith* indirectly substantiates the consensus (*Ijma*) of above mentioned *Sunni* jurists, it further explains the preferred criterion for the buyer. Such finding of this study supplements the contribution of [3] addressing the gaps identified in their explanation. The same *Hadith* is a key to resolve the primary research question of this study how a trader offering credit sale may compute the increased price of an item/asset negating interest/usury and speculation. Before extracting its solution, the study considers it important to demonstrate the effect of *usury* and speculation in the formula F-1 and F-2.

Indeed usury/interest is *Haram* and thus in whatever calculation it is, a part will certainly lead to illegitimate estimations. It is just like a container of alcohol (*Khamr*) will be *Najis* (dirty/impure) from inside as *Khamr* is *Najis*. Such logical premise is helpful in deducting that use of F-1, F-2 or any of its extending versions by IFIs or other retailers does not negate *usury* and *speculation*. The severity of using F-1 for computing future value of any item exponentially skyrockets as it is designed to calculate compounding for usury such as greater the time period of credit sale, greater will be the compounding effect for the sake of *Riba*. Such built in attribute of F-1 formula guarantees speculation. This study thus interpreted that use of formula F-1 and F-2 lead to *usury* and *speculation* and these formulas must be replaced with alternate *Shariah* compliant formulas for computing future value of asset/items being sold on credit. To further strengthen such deductive reasoning this study first provides quantitative examples explaining the effects of using F-1 and F-2 formulas.

The study approached an Islamic bank for seeking Car *Ijara* with a purpose of learning how IFI applies the F-1 for processing future value of asset. The car we asked was Honda Civic i-VTEC Prosmatic Transmission whose cost was then PKR 2,156,000/-. The time period of *Ijara* was requested to be 3 years committing a 30% down payment. The Islamic bank offered this at Kibor + 4 that was, 13% or 0.13 as interest rate (*Riba*)/Kibor was then 9%. It demanded 30% of the present value as down payment that was PKR 646,800 plus PKR 5,000 as processing fee. So the net down payment was PKR 651,800/-. For the remaining cost PKR 1,504,200/- the calculator programmed on formula F-1 calculated the future value of the mentioned car as under:

$$FV = PV (1 + i)^n \quad (F-1)$$

$$FV = 1,504,200 \times (1 + 0.13)^3$$

$$FV = 1,504,200 \times (1.13)^3$$

$$FV = 1,504,200 \times 1.442897$$

$$FV = 2,170,405/-$$

The Islamic bank then divided this future value on 36 to compute equal installment for a three years that was PKR 60,290/- (approx). This installment was given a pretext as *Ijara/Karaya*. Now the net future value of this Honda Civic remained PKR 2,822,205/-. This gives it an increase of over 30.9% in three years of its present value. This study learnt that the formula F-1 is programmed to increase the percentage of increase as the time period is increased. The greater the time period the more the price based on *usury/interest* and

*speculation*, nevertheless the actual market price of the car will gradually depreciate and further there exists no guarantee or confirmation that in three years the accumulative inflation be in actual 30.9% for this particular car's price, proving it a kind of speculation (*Maysir*).

Similarly for examining the formula F-2's effect on price increase without compounding although this study did not find any IFI in Pakistan using this formula for the Islamic products offered by them. As per application of F-2, with same 30% down payment model, the future value of Honda Civic i-VTEC Prosmatic Transmission after above mentioned down payment would have been:

$$FV = 1,504,200 \times (1 + 0.13 \times 3)$$

$$FV = 1,504,200 \times (1 + 0.39)$$

$$FV = 1,504,200 \times (1.39)$$

$$FV = 2,090,838/-$$

So it's net FV with down payment = 2,090,838 + 651,800 = 2,742,638/-. This shows that F-2 leads to lesser future value for not compounding for sake of *usury*, but it yet caters both Kibor (*Riba*) and speculation.

It is worth noticing that for the recent year the inflation rate in Pakistan was reported to be 7% [19]. With an assumption that this inflation value will likely remain stable for sake of comparison we next calculate the future price of the same car using inflation rate instead of Kibor. It is just to examine whose effect is greater. For this the study applied the following steps:

1. PV in current year = PKR 2,156,000/-
2. PV in 2<sup>nd</sup> year (@ inflation rate of 7%) = 2,156,000 + 0.07 x 2,156,000 = 2,306,920/-
3. PV in 3<sup>rd</sup> year (@ inflation rate of 7%) = 2,306,920 + 0.07 x 2,306,920 = 2,468,404/-

Such formula for future value computation based on inflation takes the following shape depicted as F-3:

$$FV = \sum_{t=0}^n (PV + \text{Rate-of-Inflation}\% \times PV), \text{ where } n \text{ is time period of } Ijara/lease \quad (F-3)$$

Application of F-3 although led to only 14% increase in price in three years in comparison with F-1 and F-2 that led double than this. F-3 thus seems more realistic. Such calculation was based on assumption that there had been consistent annual increase in the value of the car based on stable inflation rate of 7%. One may argue that the inflation rate might have increased gradually in 3 years and considering it constant is not pragmatic. Although this argument is rational but still on what ground one could confirm what will be the inflation rate after second year. The simple answer is speculation/hypothecation (*Maysir*). Economic indicators do provide realistic estimates of probable future inflation rate these days, but yet speculation cannot be ruled out of it. The study thus interpreted the following lessons:

- a. The use of formulas F-1 and F-2 lead IFIs and other retailers to calculate future value of an asset incorporating both interest *and* speculation. Such future values of assets lead them charge excessive

profit in comparison with what is expected based on inflation rate. As Excessive profit is a kind of *Riba* therefore use of F-1 and F-2 in credit sale of asset must be avoided.

- b. The formula F-3 that only caters inflation's effect without interest may likely be *Shariah* compliant. However in this formula the future rate of inflation will itself be result of speculation as keeping inflation rate fixed for entire period of *Ijara/lease* will not be realistic. So use of F-3 though leads credit sellers to compute economic value of an asset, but yet negation of speculation is a challenge. However in certain circumstances where economic indicators provide figure of future inflation without speculation, F-3 might lead to *Shariah* compliant computation of future value of asset.

Having demonstrated the examples of all three formulas F-1, F-2 and F-3, this study discovered that yet an alternate formula needs to be engineered purely in line with *Quran* and *Sunnah* that completely negates both *usury* and *speculation*. The *Hadith* # 4022 as reported by reference [7] from Imam Ali Bin Abu Talib (AS) provided this study the three parameters for deriving the solution that are;

1. Free will of seller for setting future price (without *Riba* and *speculation*),
2. Free choice of buyer to accept offered prices, and
3. An atmosphere of win-win bargain among both parties to rationalize the future price of asset.

The study derived the following F-4 as a solution to its primary question:

**FV of Asset = Free Will of Seller ↔ Free Choice of Buyer ↔ Win-Win Bargain** (Discussed further as F – 4)

For determining the operational details of the contents of F-4 another empirical study will be needed. This equation should be adopted while ensuring the free wills of the seller and buyer. Using *Kibor* or any other form of *Riba* is thus avoided. Through a win-win bargain exercise market practices in credit sale of charging higher price are expected to be rationalized. One may argue that quantizing the contents of F-4 is nontrivial due to mentioned subjectivity. This study interpreted that Islam encourages such subjectivity for leading market to a free and open state so that it remains immune from monopoly and exploitation. Future researchers are expected to pay attention to F-4 for quantitative testing of its real application taking cases from real market where it is being exercised.

## VI. DISCUSSION

The conventional supply and demand curves hold mostly for a short time period for normal goods especially for consumers who have access to full information [27]. Such latest economic reality reinforces the Islamic ideology of emphasis on spot sale in trivial circumstances as explained above. Reference [27] further stated that traditional economic theory works on the basis of supply and demand curves, which are set on a number of grounds that take into account

behavioral pattern of sellers and buyers. The formula F-4 of future value of asset derived from *Hadith* # 4022 by this study in its contents conforms to the behavioral pattern theory of [28] of both seller and buyer. On the other hand the conventional formulas F-1, F-2 and F-3 lack such ideal merit aspired by not only modern theorists but also Islam.

The key concept in economy is equilibrium and it is attained when each player (buyer or seller) has a vested interest in entering into a just and fair relationship with one another, whereby each one gets no less than what he gives on the basis of shared value system [27]. This study is confident that formula F-4 will help both seller and buyer reach such desired equilibrium which remains unavailable in current practices of credit sale by IFIs and certain retailers who mostly employ formula F-1 and set future prices of asset of seller's choice only. Formula F-4 hence seems promising conforming to modern good theories of economics and may be tested in future research.

Equity is one of the most significant factors that can offer a sense of equilibrium between the seller and buyer. According to [28] desecration of moral principle is one of the factors that can damage equity and hence equilibrium. While adopting formula F-1 as IFIs desecrate the mentioned moral principle for setting future prices of own choice only, an equilibrium enjoying economic activity just remains a dream. Employing and testing F-4 in credit sale is thus call of the day for further empirical learning and optimization after necessary framework for credit sale by regulators with such *Shariah* compliant mechanism.

Reference [29] gave the theory of invisible hand in 18<sup>th</sup> century where he stated that individuals following their own interest normally support the overall good of the society. People when act in their own self-interest demand for goods and services is created that induces increase in supply of goods and services in a manner that both the parties are benefitted without any exploitation. This leads to efficient allocation of resources. So the markets automatically clear and achieve equilibrium. Today's economists also largely use this theory to explain the free markets system and their working. In credit sale by IFI in Pakistan yet the concept of free choice from either side is not even in theory, far is indeed such aspired practice. Further IFIs in terms of their existence are not traders or trading companies, rather they do it enjoying public money deposited with them. Islam allowed conditionally in credit sale an increase for traders really investing their own money, while IFIs have started enjoying this relaxation based on investing public money. Further Islam never aspires traders to adopt habit of such credit sale expect for needful cases or exceptional circumstances, while IFIs have made it a habit. These facts and findings though invite further future research but here we focus on our specified agenda only. Use of pro *usury* and pro *speculation* formulas indeed restricts the aforementioned ideal equilibrium that is strongly advocated by Islam as well as modern economic theories and thus because of such practices exploitation is yet not negated from the use of formulas F-1 and F-2. F-4 is indeed a hope for future researchers, IFIs and retailers intending true *Shariah* compliance in their business of credit sale.

This article is thus an attempt to propose a formula for future value of asset free of interest as interest is based on exploitation where one actor gains at the expense of the other. Islam strictly prohibits a market condition where exploitation prevails in any manner be it the consumer or producer. High interest rate is the evidence of exploitation of weaker actor in the economy. Reference [30] affirmed that the abolition of *Riba* is one element of a comprehensive Islamic reform to establish an exploitation-free economic system in Pakistan. Reference [31] stated the advocates of Islamic banking and finance consistently presents moral statements about Islam's disallowance of *Riba* based on the dispute, exploitation and unfairness but all become irrelevant and off the point when it comes to practical application especially use of Kibor and its formulas. Our study has contributed F-4 and recommendation to probe its practical implications and effects on IFIs, economy and stakeholders in future research. Based on observation of small retail businesses that neither count on F-1 or F-2 nor even charge any premium in credit sale with their worthy customers, the study is confident that use of F-4 will likely lead to a win – win economy that respects choice of both the seller and buyers expecting equilibrium in gain on both sides.

Further the formulas F-1 and its complex versions used by IFIs is a form of exploitation of public as higher future prices of goods are charged on the basis of interest rate plus prevailing profit rate in banking sector. Such fact has limited IFIs as imitators of conventional banking system while these are expected to replace this pro-*Riba* system. The proposed formula (F-4) is expected to lead to equity and efficient allocation of resources that in turn will breed social development as it is programmed to lead seller and buyer both to a win-win situation ensuring inputs of all. Further it is free of interest rate that is unjust and exploits the general public by making goods and services virtually inaccessible to them. Pakistan has already unending inflation and unemployment that are enough to deteriorate the standard of living. Formula F-4 as the mathematical projection of *Hadith* # 4022 by [7] will likely be a novel contribution to literature in line with the aspired free market system of economics. In conventional books this formula has not been reported yet and it will therefore be new for conventional finance professionals. However, this study has not focused on centrally planned system where regulators are required to bring the market in equilibrium. Therefore another call for future research is to investigate and devise a regulatory framework and directives encouraging IFIs to adopt F-4 and abandoning F-1 and F-2.

## VII. CONCLUSION & RECOMMENDATIONS

Based on the aforementioned analyses of relevant literature, *Hadith*, verses of Quran, and discussion on formulas F-1, F-2, F-3 and F-4, this study infers that for sale of commodities, accessories and even luxuries Islam primarily encourages on spot sale allowing hand to hand exchange of heterogeneous exchangeable between sellers and buyers. Buyers may however accept credit offering provided they remain economical. It is not incumbent on seller to necessarily increase future value of an asset being sold on credit value. It is his/her discretion to increase future value under scenario/condition when the time period of a credit sale contract extends so much that the effect

of phenomenal inflation gets applicable on the prices of items being sold. As inflation value is usually calculated after a year in most economies, seller should not increase price of items being sold on credit for a period less than a year or in which inflation does not hit prices. In case period of credit sale exceeds a year or period the phenomenal effect of inflation hits the prices, seller reserves the right to reschedule the prices as per the real inflation's effect. However advance increase in future value of assets using any formula employing interest rate such as Kibor or Libor and/or speculation (*Maysir*) is forbidden in Islam. Thus use of formulas F-1, F-2 and even F-3 for computing future value of asset is not *Shariah* compliant. In case deflation overrides in an economy, seller better not reschedule the prices of items sold on credit. The assets that actually face depreciation in their actual market price but yet offered for an increased future value under credit sale must not be accepted by buyers for an expensive value surpassing expected values of inflation. Such measure from buyers will automatically rationalize the offerings by credit sellers in the market.

Current practices in IFIs of computing future value of asset in Pakistan and even abroad only cater the will of seller (IFI) following Kibor (*Riba*) and speculations (*Maysir*) as pro interest conventional banks do. Hence IFIs are yet not free sellers as they are bound by traditions and regulations to cater *Riba* and *Maysir* while calculating the future values of assets they offer on credit. By now most buyers dealing with IFIs in Pakistan are not at all free to choose prices in credit offerings. Yet especially the retail clients do not get the option of bargain as IFIs let only certain corporate clients negotiate. This scenario needs to be turned conducive for applying F-4.

The study strongly recommends abandoning the practice of formula F-1 and any of its extended versions for all IFIs and other credit seller across the world. It further recommends F-4 as the *Shariah* compliant formula for calculating future values of assets being offered on credit assuring that buyers can bargain with choice and seller does not set future price entertaining *usury* and *speculation*. Regulators are encouraged to think out of the black box for defining and implementing regulations that encourage IFIs to use *Shariah* compliant benchmarks and standards for future value calculations divorcing the convention creed. Future studies are encouraged to be carried out for empirically testing the formula F-4 and its effects on the IFIs, buyers and society.

A limitation of our study is yet to provide empirical evidence of adopting F-4 and its effects in avoiding *Maysir* and *Riba* while assessing future price of items given on credit. A possible solution of incorporating real inflation instead of speculation is to include a stipulation in credit sale contract demanding the revision/review of estimated future value of the item sold as per F-4 after every year till its tenure gets accomplished. Future researchers are encouraged to figure out how effectively F-4 enables the incorporation of inflation, avoidance of speculation, and any undue exploitation in real practices of credit sales being offered by traders other than IFIs. It is also recommended to undertake conceptual investigations on what *Shariah* risks will be avoided in investing public money using F-4 by IFIs.

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