

## Economic Rationale of the Prohibition of Interest: A New Aspect

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### Abstract

*Conventional economist, in particular neo-classical, assumes that self-interest is the guiding principle of economic behaviour and there exist no fallacies of composition. That is, whatever is in the interest of an individual is also in the interest of a society. Keynesian school of thought, on the other hand, though admits fallacies of composition such as “paradox of thrift” and “liquidity trap,” but they believe that such anomalies can be resolved by appropriate government intervention. History has, however, shown that government intervention, on average, worsens the issues of an economy instead of resolving it. One such issue which could not be resolved through government intervention is of “interest.” In this paper we investigate that why interest requires divine intervention for its prohibition. After explaining the economic rationale of prohibition of interest from Islamic perspective, we show through numerical illustration that how interest-based investment project, on one side, allows individual lenders to shift risk to borrowers and on the other side, generates a negative externality in the shape of financial and bankruptcy risk, which is an addition to the investment risk for the stakeholders of interest based investment. This might be one of the reasons that all divine religion including Islam give more weight to the societal or other stakeholders’ interests than the interest of lenders only and prohibit interest based lending completely. We conclude that Islam not only admits the existence of fallacies of composition, as do Keynesian school of thought, but also takes steps to resolve such fallacies through divine rules.*

### Keywords

divine rules, interest, fallacy of composition, economic rationality, financial risk, JEL code Z12.

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## Introduction

After the publication of Adam Smith's (d. 1790) famous book<sup>1</sup> in 1776, economics was recognised as a separate discipline of knowledge among academic circles. It was the time when the idea of separation of state and religion was quite popular. Smith himself was a supporter of this idea. Therefore, he developed the maxim of "self-interest," which later became the fundamental principle to define economic rationality for micro and macroeconomic analysis. The maxim of "self-interest" means that every member of a society gets involved in economic struggle with the aim of maximising his/her own material well-being. However, by doing so, he/she does not do any harm to the society; rather, he/she contributes to the welfare of society. The reason is that society is nothing more than a collection of individuals.

The underlying assumption of this philosophy is that "fallacies of composition" do not exist in the system. That is, whatever is beneficial to an individual economic agent is also beneficial to a society. The policy implication of this philosophy is *laissez faire* or free market economy. The primary role of government in such economy is to maintain law and order and allow only private sector to manage businesses and economy of the country. To put it differently, human votes elect the government while dollar votes shape up the economy. Hence, political leadership who is elected by peoples is given the task of maintaining law and order in the country, whereas business community is given free hand to decide what to produce, how to produce, and for whom to produce.

The main drawback of a *laissez-faire* economy, as noted by the opponents of this philosophy, is that it gives birth to a class system of haves and have-nots.<sup>2</sup> The reason is that rich people who have dollar votes support only those policies and business rules, which safeguard their interests even at the cost of the poor's interests. The logical consequence of a class system is that tensions simmer up among different classes and end upon on a bloody revolution. Consequently, economic progress achieved under peacetime *laissez-faire* policy is converted into a chaos-like situation in the society. Thus, Karl Marx (d. 1883) gave policy recommendations against self-interest. He proposed a ban on holding private property as it instigated "self-interest," in his view. He proposed transferring the ownership of property and businesses to the state

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<sup>1</sup> Adam Smith, *An Enquiry into the Nature and Causes of the Wealth of Nations* (New York: Modern Library, 1965).

<sup>2</sup> Karl Marx, *Capital*, trans. Ben Fowkes (New York: Knopf Doubleday, 1977); Sayyid Abū 'l-A'la Maūdūdī, *Mu'ashiyāt-i Islām* (Lahore: Islamic Publications, 1990).

and an establishment of a central planning and monitoring cell to manage all businesses and property in the country.

Marxian policy could not last very long in the Union of Soviet Socialist Republics (USSR). The main reason was its opposition to the human nature, which demanded reward for economic efforts. In addition, it was not implemented amicably but through an iron hand of force. Hence, corruption, shirking, lack of interest in hard work, circular debt, and sluggish economic growth prevailed in USSR and could not be controlled well on time. Moreover, there was no place for religion in the system in complete contrast to the historical fact (rediscovered by social scientists in the recent past too) that religion was a formidable need of every human soul.<sup>3</sup>

John M. Keynes (d. 1946) took the middle path between these two extremes.<sup>4</sup> He favoured the principle of “self-interest” in general, but also pointed out some fallacies of composition like “paradox of thrift” and “liquidity trap.” He showed through these fallacies that how the maxim of “self-interest” hurts communal interests. Briefly, the “paradox of thrift” means that if a good number of people in an economy decide to save more of their current income, which must not be objectionable as they do it to satisfy their “self-interest,” then economic activity in the country may slow down. In other words, the maximisation of private interest may not necessarily lead to increase in the welfare of society. Hence, everyone in the country will suffer including the ones who save more. Similarly, “liquidity trap” means that when liquidity in the system becomes excessive, then instead of channelling it into productive investment, individuals prefer to keep it idle. This adversely affects economic activity in the country, as people are not using funds for productive purpose rather holding it in the form of cash for a longer time. Keynes, therefore, suggested government intervention to take care of such anomalies. Contrary to his intention, government intervention, however, has been normally more expansionary than what is warranted. That is why, the phenomenon of stagflation—where both unemployment and inflation increase simultaneously—surfaced in 1970s, which generated debate about the validity of Keynesian school of thought as well.

Having realised the side effects of both aspects of capitalist system, conventional economists also started focusing on religion from 1980s onwards.

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<sup>3</sup> Laurence R. Iannaccone et al., “The Economics of Religion: A Symposium,” *Faith and Economics* 46, no. 3 (2005): 1–23; Peter Ellway, “Shopping for Faith or Dropping Your Faith?” *Rational Choice Theory of Religion* (2005), <http://www.csa.com/discoveryguides/religion/overview.php>.

<sup>4</sup> John Maynard Keynes, *The General Theory of Employment, Interest and Money* (London: Macmillan, 1936).

It is worth mentioning that many Islamic scholars have already emphasised the role of religion in economics such as Abū 'l-A'ālā Maudūdī (d. 1979), whose work appeared in the first half of the twentieth century. However, they were not duly recognised in the field of economics. From 1980 onwards, the role of religion in economics surfaced significantly. As a result, two different strands of knowledge regarding religion (economics of religion and religious economics or Islamic economics) received recognition in the economic literature.<sup>5</sup> The economics of religion explains why people participate in religious activities and how their religiosity affects their social and economic behaviour. Religious economics including Islamic economics, on the other hand, explains the impact of religious teachings on economic behaviour of individuals and societies. Nevertheless, the secularisation of social sciences led to the slow growth of such literature. This might be the reason that one finds opposing views about the economic rationale of the prohibition of interest, which has been proscribed in all divine religions generally and in Islam particularly.<sup>6</sup>

This research provides a new perspective on the economic rationales of the prohibition of interest in Islam. Apparently, it seems that the prohibition of interest contradicts economic rationality as it restricts one's choice in making use of his/her savings and wealth. However, if financial risk and its adverse effect on other stakeholders of an investment are taken into account, the prohibition of interest makes good economic sense even to those who do not adhere to Islam. We opine that the prohibition of interest is aimed at maintaining a balance between individual and societal interests, which other systems have been unable to manage effectively. One can find literature related to the rationale of prohibition of interest.<sup>7</sup> However, this work adds a new aspect to the available list of such rationales. We show through a numerical

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<sup>5</sup> Sayyid Abū 'l-A'ālā Maudūdī, *Sūd* (Lahore: Islamic Publications, 1977); Syed Nisar Hussain Hamdani and Eatnaz Ahmad, "Towards Divine Economics: Some Testable Propositions," *Pakistan Development Review* 41, no. 4 (2002): 609–26; Laurence R. Iannaccone, "Introduction to the Economics of Religion," *Journal of Economic Literature* 36, no. 3 (1998): 1465–95; Iannaccone, "Progress in the Economics of Religion," *Journal of Institutional and Theoretical Economics*, 150, no. 4 (1994): 737–44; Timur Kuran, "Religious Economics and the Economics of Religion," *Journal of Institutional and Theoretical Economics* 150, no. 4 (1994): 769–75.

<sup>6</sup> Mervyn K. Lewis and Ahmad Kaleem, *Religion and Finance: Comparing the Approaches of Judaism, Christianity and Islam* (Cheltenham: Edward Elgar Publishing, 2019), 40–74.

<sup>7</sup> Ziauddin Ahmad, "The Theory of Ribā" *Islamic Studies* 17, no. 4 (1978): 171–85; Muhammad Umar Chapra, "The Nature of Ribā in Islam," *Hamdard Islamicus* 7, no. 1 (1984): 3–24; Beng Soon Chong and Ming-Hua Liu, "Islamic Banking: Interest-free or Interest-based?" *Pacific-Basin Finance Journal* 17, no. 1 (2009): 125–44; Maudūdī, *Sūd*; Arshad Zaman and Asad Zaman, "Interest and the Modern Economy," *Islamic Economic Studies* 8, no. 2 (2001): 61–62.

example that why interest has been declared illegal by the divine decree.

The rest of the paper is organised as follow. The next section provides critical evaluation of the current logic regarding the prohibition of interest. The section after the next one presents the main theme of this research by explaining the economic rationale of the prohibition of interest. The last section illustrates economic significance of the proposed reason through a numerical example. It is followed by the concluding section.

### **Critical Evaluation of the Current Logic regarding the Prohibition of Interest**

Interested (*ribā*) is prohibited in Islam. However, sometimes it appears difficult to infer the significance and rationale of its prohibition—at least in the terminology of conventional economics—from the two main sources of Islamic law, that is, the Qur’ān and the traditions of Prophet Muḥammad (peace be on him). Hence, *ribā* has remained one of the most debatable issues in Islamic financial law. Particularly, since the second half of the twentieth century, academia in many Muslim countries seriously started thinking about the revival of interest-free financial system after getting independence from their colonial rulers. Consequently, this debate attracted considerable attention of academia. There are generally two main schools of thought among contemporary Muslim jurists and economists. One of them is termed conservative or orthodox, while the other one is termed liberal. The conservatives equate *ribā* with interest and usury.<sup>8</sup> They argue that the main reason for the prohibition of *ribā* is unfair risk sharing between lenders and borrowers. They are of the view that borrowers bear the whole risk of underlying investment while lenders get a certain positive return without sharing any risk. To support their view, they argue that the Qur’ānic verse 2:278 annulled lenders’ claims on *ribā*, but accepted their claims over principal amounts. They hold that lending at that time was for both consumption and commercial purposes and interest rates charged on both types of loans were

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<sup>8</sup> Imran Ahsan Khan Nyazee, *The Concept of Ribā and Islamic Banking* (Islamabad: Institute of Advanced Legal Studies, 1995); Mohammad Nejatullah Siddiqi, *Riba, Bank Interest and the Rationale of Its Prohibition* (Jeddah: Islamic Research and Training Institute, 2004); “The Text of the Historical Judgment on Interest Given by the Supreme Court of Pakistan,” [https://www.albalagh.net/Islamic\\_economics/riba\\_judgement.shtml](https://www.albalagh.net/Islamic_economics/riba_judgement.shtml); Muḥammad Shafī‘, *Mas’alah-i Sūd* (Karachi: Idarah-i Ma’ārif, 1996); Muhammad Ayub, “What is *Riba*? A Rejoinder,” *Journal of Islamic Banking and Finance*, 13 no. 1 (1996): 7–24; Maudūdi, *Sūd*; “Elimination of Interest from the Economy: Report of the Council of Islamic Ideology” in *Money and Banking in Islam*, ed. Ziauddin Ahmed, Munawar Iqbal, and M. Fahim Khan (Islamabad: Institute of Policy Studies, 1983), 103–257.

exorbitant and abnormal. Therefore, the cancellation of any amount over and above the principal amount implied the prohibition of both usury and interest.<sup>9</sup> They also refer to those sayings of the Prophet in which he forbade lenders of interest-free loans from accepting even a trivial tribute like a free ride from their borrowers. For example, the Prophet Muḥammad (peace be on him) said, “When one of you grants a loan and the borrower offers him a gift or a ride on an animal, he should not ride nor should he accept the gift, unless the two of them have been previously accustomed to exchanging such favours mutually.”<sup>10</sup>

The liberal school of thought equates *ribā* with usury only.<sup>11</sup> In their view, at the time of revelation of the Qur’ān, poor people had to borrow funds mostly for pressing consumption needs. In the absence of formal banks, a handful of rich and influential moneylenders used to charge high interest rates and impose stern conditions such as doubling and redoubling of the outstanding amount, if not paid on the prescribed date. However, the situation has changed after the introduction of formal interest-based banking. They mention that on one side, banks have little monopoly power and thus compete for borrowers. On the other side, borrowing for commercial purposes has increased significantly, while borrowing for compelling consumption needs from banks has reduced significantly due to the popularity of welfare statehood. Such loans are provided on subsidised or zero interest rate by government, respective employers, and non-governmental organisations. Therefore, liberal school of thought considers conventional banking and interest rate on loans innovation of modern time, which is not *ribā*. They are of the view that there is no need to change current banking system even after having Islamic framework.

Both schools of thought are not free from criticism. The weakness of conservatives’ view is that their logic for the prohibition of *ribā* is based on “unfair risk-sharing” between lenders and borrowers. Nevertheless, this unfair

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<sup>9</sup> Many authors have argued that loaning for business purposes was well known at that time and it was also banned like loaning for consumption purposes after revelation of above verses of the Qur’ān. See Shafī, *Mas’alah-i Sūd* and Maudūdī, *Sūd*.

<sup>10</sup> Muḥammad b. Yazīd b. Mājāh, *Sunan*, Kitāb al-aḥkām, Bāb al-qarḍ.

<sup>11</sup> Muhammad Khalid Masud, Brinkley Messick, and David S. Powers, eds., *Islamic Legal Interpretation: Muftis and Their Fatwas* (Cambridge, MA: Harvard University Press, 1996); Ziaul Haque, “The Nature and Significance of the Medieval and Modern Interpretations of *Riba*,” *Pakistan Development Review* 32, no. 4 (1993): 933–46; Sabri F. Ulgener, “Monetary Conditions of Economic Growth and the Islamic Concept of Interest,” *Islamic Review* 55, no. 2 (1967): 11–14; Fazlur Rahman, “*Ribā* and Interest,” *Islamic Studies* 3, no. 1 (1963): 1–43; Sayed Yaquub Shah, “Islam and Productive Credit,” *Islamic Review* 47, no. 3 (1959): 34–37.

risk sharing is not confined to interest-based loaning. It also prevails in the exchange of many other services. For example, a security guard accepts, for a fixed wage rate, the guarding job that may result in physical injury to him/her or may even take his/her life. Similarly, a taxi driver bears, for a fixed fare, risk of accident to his/her vehicle.<sup>12</sup> If unfair risk-sharing had been the major reason for the prohibition of *ribā*, Islamic law would have either banned the provision of such services by one individual to another or beneficiaries of such services would have been asked to compensate their providers in case of any mishap. However, this is not the case. Hence, unfair risk-sharing could not be the main rationale of prohibition of *ribā* in Islam. Likewise, the conservatives have not raised any objection to the economic role of interest rate as bringer of equilibrium in credit market. All what they have objected is the socio-political role of interest and its unfair risk-sharing. It means that they implicitly acknowledge that interest rate works in credit market just as price works in a commodity market.

The argument of liberals contradicts the dictionary meaning of the word “*ribā*.” They also ignore the historical evidence that a reasonable interest rate was prevalent at that time, too. *Ribā* means an increase, an addition and a bump on plain surface. Hence, it is not generally used to mean excessive increase or addition, or a big hump. Based on this, the lexical meaning of *ribā* should not be confined to exorbitant or excessive interest rate only. Moreover, the cancellation of any addition to principal amount in verses 2:277–78 of the Qur’ān and terming even a trivial favour from a borrower as *ribā* by Prophet Muḥammad (peace be on him) clearly indicate that God and His prophet (peace be on him) equated a reasonable interest rate with *ribā* as well.

### **A More Plausible Economic Rationale for the Prohibition of Interest**

Pondering over the chronological order and wording of the verses of the Qur’ān on the subject of *ribā* reveals that the above-mentioned two reasons (unfair risk-sharing and exorbitant interest rate) for the prohibition of *ribā* may be relevant. However, there also exists another possible reason for the prohibition of *ribā*. Before explaining this reason, it is important to understand the gradual Qur’ānic process of prohibiting any deep-rooted evil. At the first stage, the Qur’ān merely deplores the evil act. Next, it prohibits its extreme form, which is generally known and understandable to every common person in society. Finally, the Qur’ān prohibits its delicate form,

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<sup>12</sup> Muhammad Mazhar Iqbal, “Prohibition of Riba (Interest Rate) and Dissimilarity of Trading and Loaning,” *Pakistan Journal of Social Sciences* 30 (2012): 1–18; Iqbal, “Prohibition of Interest and Economic Rationality,” *Arab Law Quarterly* 24 (2010): 293–308.

which is not easily understandable by everyone in a society. For example, with reference to the prohibition of drinking wine, first the Qur'ān states that drinking wine entails great sin and some benefit, but the sin is greater than the benefit.<sup>13</sup> Next, it prohibits approaching prayers in a state of intoxication, in which one does not understand what he/she says.<sup>14</sup> It means that at the second stage God banned only excessive drinking. Such prohibition of wine is easily comprehensible even to disbelievers. In many non-Muslim countries, where drinking does not constitute a crime, a drunk person over a certain limit is not allowed to drive. Finally, the Qur'ān prohibited drinking altogether,<sup>15</sup> because it adversely affect rational faculty of humans whereas Islam required them to be in their complete senses all the times.<sup>16</sup>

Having explained the Qur'ānic process of prohibiting any evil, we like to analyse the Qur'ānic verses related to *ribā*. At the first stage, the Qur'ān states in 30:39 that people generally believe that *ribā*-based loaning adds to the wealth of society, but in fact it is charity that does this job. This verse, in our view, explains the basic philosophy of Islamic economics that it is not the saving of a society in hope of earning usury or interest that brings prosperity; rather it is the charity that opens the door of prosperity, because it increases overall consumption or aggregate demand in an economy. At the second stage, the Qur'ān states in 4:160–61 that a major reason for the displeasure of God with Jews as a nation was that after categorical banning of *ribā*, they continued dealing in *ribā* one way or the other. This revelation aimed to prepare Muslims for accepting the expected prohibition of *ribā* in letter and spirit. At the third stage, the Qur'ān in 3:130 prohibited the most serious form of *ribā*, which resembles with usury in current terminology. There was no resistance to this prohibition, because the negative consequences of *ribā* were obvious even to a common person at that time. At the final stage, the Qur'ān in 2:275–79 prohibited the form of *ribā* that resembled interest rate in current banking system. Critics at that time vehemently objected to the prohibition of this kind of *ribā*, arguing that interest rate functioned in credit markets as price did in commodity markets. However, instead of explaining their dissimilarity in detail, the Qur'ān called such people “mad,” implying that their dissimilarity is too obvious to be explained further.

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<sup>13</sup> Qur'ān 2:219.

<sup>14</sup> Ibid., 4:43.

<sup>15</sup> Ibid., 5:90.

<sup>16</sup> Atakan Derelioglu, “The Higher Objectives of the Islamic Divine Law,” *Beder Journal of Humanities* 1, no. 1 (2013): 58-68.



The Qur'ānic claim that *ribā* and price are dissimilar can be better understood if it is assumed that the verses (2:275–79) revealed at the last stage refer *ribā* to normal interest rate as charged on business loans taken for the sake of real investment. It is well known that return on real investment is rarely certain. Uncertainty means that for a given investment, there are many possible outcomes along with their corresponding probabilities of occurrence derived either objectively or subjectively in such a way that the sum of all probabilities is equal to one. Here is the relevant point. Supporters of interest-based financial system presume that a given probability distribution can be represented by a unanimous single statistic or number, just like price of a commodity. However, the Qur'ānic verdict shows that such single statistic cannot be figured out.

Taking benefit of hindsight, one such statistic is the risk premium for one period investment. Initially using expected utility theory, it was worked out as the difference between expected value of an investment and its certainty equivalent. The greater is the risk premium of an investment, the less desirable it is. Thus, a higher interest rate should be charged on its financing. However, this method could not get much popularity among practitioners for two reasons. One is that many systematic violations of expected utility theory have been reported in the literature.<sup>17</sup> The other is that calculation of risk premium requires everyone to conceive a well-behaved, differentiable, utility-of-wealth function that may not be possible for people who do not know even the concept of utility.<sup>18</sup> Later, risk premium was calculated through capital asset pricing model, but that also came under criticism from the proponents of behavioural finance.<sup>19</sup> In fact, so far, no agreed single statistic has emerged to

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<sup>17</sup> Mark J. Machina, "Choice under Uncertainty: Problems Solved and Unsolved," *Journal of Economic Perspectives* 1, no. 1 (1987): 121–54; Matthew Rabin and Richard H. Thaler, "Anomalies: Risk Aversion," *Journal of Economic Perspective*, 15, no. 1 (2001): 219–32; Daniel Kahneman and Amos Tversky, "Prospect Theory: An Analysis of Decision under Risk," *Econometrica* 47, no. 2 (1979): 263–91.

<sup>18</sup> Damodaran writes, "While utility functions have been mined by economists to derive elegant and powerful models, there are niggling details about them that should give a pause. The first is that no single utility function seems to fit aggregate human behavior very well. The second is that the utility functions that are easiest to work with, such as the quadratic utility functions, yield profoundly counter intuitive predictions about how humans will react to risk. The third is that there are such wide differences across individuals when it comes to risk aversion that finding a utility function to fit the representative investor or individual seems like an exercise in futility." Aswath Damodaran, *Strategic Risk Taking: A Framework for Risk Management* (New Jersey, NJ: Wharton School Publishing, 2008), 34.

<sup>19</sup> Frank J. Fabozzi and Franco Modigliani, *Capital Markets: Institutions and Instruments*, 3rd ed. (New Delhi: Pearson Education, 2003); Robert J. Shiller, "From Efficient Markets Theory to Behavioral Finance," *Journal of Economic Perspectives* 17, no. 1 (2003): 83–104.

represent a given probability distribution. Therefore, one may conclude that interest rate is not determined in a scientific way; rather it is determined arbitrarily or through policy intervention. In other words, interest rate is not the major determining factor of credit markets as price is for a commodity market. Moreover, ignoring non-scientific determination of interest rate, if it is still used as the market-clearing variable, it generates undesirable financial risk on top of investment risk for the underlying investment, endangering the whole society from financial fragility.

### **Numerical Illustration of the Economic rationale for the Prohibition of Interest**

It is a well-established fact in financial economics that debt-based investment multiplies the uncontrollable investment risk along with financial risk for its shareholders and bankruptcy risk for its all stakeholders.<sup>20</sup> To illustrate the point, let us suppose that the establishment of a firm requires one million rupees. Let there be ten possibilities of expected return. All such possibilities have equal probability of 10% as shown in table 1. The firm can raise all one million investments through equity, debt or combination of both. However, the option of 100% debt financing is not available to firms across the world. In most of the cases, the requirement for establishing a firm is some shareholders and a minimum specified amount of their paid-up capital. The level of such amount may vary from country to country and industry to industry. Therefore, we provide an example of equity financing and mix of both equity and debt financing. Let there be five options and call 100% equity financing as option one. Option two has 10% financing through debt. Options three to five have 20%, 30%, and 40% debt financing respectively. Financing through debt could include borrowing from banks or issuance of bonds or the both. We suppose the rate of interest is fixed at 10% and provide ten possible rates of return for shareholders on their equity under all these five options in table 1. Under option one, rates of return on equity varies from zero to 400,000. For option two, the rate of return on equity varies from -10,000 to 390,000. The rate of return on equity for each of the rest of options can be observed in their respective columns. It is to be noted that numerator shows return while denominator shows the equity balance under each available option.

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<sup>20</sup> Haim Levy and Marshall Sarnat, *Capital Investment and Financial Decisions*, 4th ed. (New York: Prentice Hall, 1990).

Possible rate of return under each option					
Option 1 (debt:equity 0:100) (in 000 Rs.)	Probability	Option 2 (debt:equity 10:90) (in 000 Rs.)	Option 3 (debt:equity 20:80) (in 000 Rs.)	Option 4 (debt:equity 30:70) (in 000 Rs.)	Option 5 (debt:equity 40:60) (in 000 Rs.)
00/1000	0.1	-10/900	-20/800	-30/700	-40/600
10/1000	0.1	00/900	-10/800	-20/700	-30/600
20/1000	0.1	10/900	00/800	-10/700	-20/600
30/1000	0.1	20/900	10/800	00/700	-10/600
40/1000	0.1	30/900	20/800	10/700	00/600
360/1000	0.1	350/900	340/800	330/700	320/600
370/1000	0.1	360/900	350/800	340/700	330/600
380/1000	0.1	370/900	360/800	350/700	340/600
390/1000	0.1	380/900	370/800	360/700	350/600
400/1000	0.1	390/900	380/800	370/700	360/600

**Table 1: Investment and financial risk for shareholders in a hypothetical firm**

The expected rate of return under option 1 for shareholders is 20%. The investment risk, which is measured by standard deviation of the probability distribution, is 19%. Here though investment risk is positive, bankruptcy risk (probability of default on interest on loan) is zero. The reason is that under the worst possible outcome of zero return (no dividends) shareholders have no rights to take the firm to a bankruptcy court. On the other hand, under option 2, the expected rate of return for shareholders is 21.1%, but total risk is also 21.1%. Out of this total risk, the investment risk is 19%. The rest 2.1% is financial risk, which has emerged purely due to debt financing. In this case, bankruptcy risk is also positive. Under the worst possible outcome of zero return, the firm would not be able to pay interest amounting to Rs.10,000. However, lending banks and bondholders will take the firm to a bankruptcy court. The court may decree liquidation or closure of the firm in which case all stakeholders of the firm will suffer. To be exact, bankruptcy risk is 10% (100,000/1,000,000). This is the same probability as of the worst outcome (loss of 10,000). The expected rate of return under option three for shareholders is 22.5% and the total risk is 23.8%, out of which financial risk is 4.8%. Under this option, the bankruptcy risk jumps to 20%. This is due to the possibility of first two outcomes, which have the cumulative probability of 20%. Here, the firm is unable to pay its due interest. In the same manner, we can calculate the expected return, total risk, and financial risk. Table 2 shows for each option

the corresponding value of expected return, total risk, and financial risk for shareholders and of bankruptcy risk for all stakeholders.

Financing Options	Risk-Return Profile for Shareholders				Risk for other Stakeholders
	Expected Return	Total Risk (Standard Deviation)	Increase in Expected Return	Increase in Financial Risk	Bankruptcy Risk (Probability of loss)
Option 1 (debt:equity 0:100)	20%	19%	-	-	-
Option 2 (debt:equity 10:90)	21.1%	21.1%	1.1%	2.1%	10%
Option 3 (debt:equity 20:80)	22.5%	23.8%	1.4%	4.8%	20%
Option 4 (debt:equity 30:70)	24.3%	27.2%	1.8%	8.2%	30%
Option 5 (debt:equity 40:60)	26.7%	31.7%	2.4%	12.7%	40%

**Table 2: Risk-return profile for stakeholders under different financing options**

We can observe in table 2 that with the increase in debt ratio the level of expected return also increases. However, there is increase in financial risk for the same shareholders. In addition, this increase in debt ratio increases bankruptcy risk for other stakeholders (see column 6). One may ask why then the management of a firm goes for debt financing? The answer is that shareholders influence the decision-making of the firm's managers through their votes. We know that the dominant view with regard to the efficacy of debt financing is that initially it adds to the value of the firm until the optimal level of debt equity ratio is achieved. This means that the actual as well as potential shareholders of the firm give more weight to increments in the expected return than the increase in financial risk at initial levels of debt financing. The scenario reverses after the optimal level of debt equity ratio is achieved, where more weight is given to the increase in financial risk than increase in expected return. However, there is no hard and fast rule to determine the optimal debt equity ratio. Rather, this optimal level is mostly determined subjectively. In this regard, Modigliani and Miller are of the view

that share prices of a firm are independent of its financial structure.<sup>21</sup>

It is clear from the illustration in table 2 that to maximise expected return, shareholders support debt financing. However, such support brings bankruptcy risk for all stakeholders of the firm, including employees, suppliers, and consumers without any protection for them. Therefore, the only way to save these other stakeholders from the whims of shareholders is to completely ban debt financing on fixed interest rate.<sup>22</sup>

To put the same matter differently we may say that price is similar to interest rate in terms of the requirement of mutual consent of both sides of the market. However, they are not the same as price is a deterministic variable (whenever a person looks at a commodity, he/she is able to assign it a single price) whereas interest rate is linked with profit rate, which is a stochastic variable represented by a probability distribution of possible outcomes of underlying investment. If some people are asked to assess the prices of any two commodities or rank any two deterministic variables, their assessment or ranking is expected to be more or less the same. However, if they are asked to assign profit to some investment opportunity (that can be configured only in terms of probability distribution of possible outcomes), they may not be able to assign a unique single value or statistic to the profit and may rank the two investment opportunities quite differently. It means that the determination of a single fixed interest rate has no systemic link with the underlying probability distribution of return and is rather determined arbitrarily and through policy intervention. Therefore, interest-based financing increases the financial risk for shareholders and creates bankruptcy risk for all other stakeholders. Nevertheless, financial risk for shareholders is compensated in terms of higher expected return, but bankruptcy risk is not compensated at all for other stakeholders. The prohibition of interest-based financing, therefore, seems to save other stakeholders from the negative externality of debt financing. We may argue that Allah guides Muslims through His injunctions to insure and protect the interests of all the stakeholders rather than the interests of some selected ones.<sup>23</sup>

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<sup>21</sup> Franco Modigliani and Merton H. Miller, "The Cost of Capital, Corporate Finance and the Theory of Investment," *American Economic Review* 48, no. 3 (1958): 261–97.

<sup>22</sup> It may be noted that if debt financing is rather on different rate of return instead of fixed interest rate, then as per the theory the rate of interest will increase with the increase in the level of debt. This increase in the rate of interest along with increase in the level of debt financing will multiply financial risk in our given example in table 1. On the same time, the incremental change in expected return will be less than the incremental increase in financial risk. One may reproduce table 1 and table 2 by assuming variable and higher interest rate than the fixed 10% of interest rate.

<sup>23</sup> Atif Mian and Amir Sufi, *House of Debt: How They (and You) Caused the Great Recession, and*

## Conclusion

In this research, we suggest the rationale of the prohibition of interest on the basis of negative externality associated with interest-bearing debt in an investment project. We hold that the negative externality associated with debt-based financing is a more plausible rationale of the prohibition of interest from the perspective of economic theory. We are of the view that that interest rate is not the equilibrating variable in credit markets, as price is in a commodity markets. The reason is that price is a deterministic variable whereas interest rate has no link with the profitability of underlying investment, which is a stochastic variable and is represented by a probability distribution of possible outcomes. Researchers have not been able to develop any unanimously accepted statistic for the representation of a given probability distribution. This is in spite of the fact that some supporters of the expected utility theory and capital asset pricing model (CAPM) claim that a unique risk premium can be worked out for a given probability distribution. Nevertheless, later researchers have serious reservations about the credibility of such claims. Thus, there is no scientific basis for the determination of interest rate, which is in fact determined arbitrarily and through policy intervention.

We have shown that if a firm invites external financing on the basis of interest, the stakeholders of the firm will have to bear financial risk in addition to its investment risk. Consequently, all stakeholders of the firm will become vulnerable to financial fragility and bankruptcy risk that will largely disturb their economic life. Moreover, if the majority of firms are involved in doing debt financing, the economy at large will suffer from such shocks. Islamic law gives more weight to this negative externality of interest and thus completely prohibits interest to save economy from such suffering. Thus, we can safely say that the prohibition of interest also makes sense in the realm of positive economics in order to protect the economic interests of all society including those who are involved in debt financing one way or the other. One may conclude that economic rationality emphasises self-interest exclusively while

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*How We Can Prevent It from Happening again* (Chicago, IL: University of Chicago Press, 2015). It is worth mentioning that Atif and Sufi clearly highlight the positive aspect of risk sharing contract instead of debt-based financing. For example, they argue, "If financial contracts more equally imposed losses on both borrowers and lenders, then the economy would avoid the levered losses trap in the first place. This would force wealthy lenders with deep pockets to bear more of the pain if a crash materializes. But their spending would be less affected, and the initial demand shock to the economy would be much smaller. In the context of housing, a more equal sharing of losses would also help avoid the painful cycle of foreclosures. If financial contracts were structured appropriately, we could avoid foreclosure crises entirely." Ibid., 97.

economics based on the true teachings of Islam respects private interest provided it does not contradict the interest of society. Moreover, wherever an economic activity based on individual rationality contradicts the interest of society, Islam prohibits it through the divine decree instead of leaving it to the discretion of the economic policy makers in the government, who lack complete information and suffer from bounded rationality.

