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Is Non-Interest Banking or Interest-Banking More Profitable?

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ABSTRACT

In recent times, a concept known as “Islamic Banking” has gained much prominence across the Islamic world. This system of banking is based on the principle of PLS (profit and loss sharing), wherein a bank’s profit from a contract is directly tied to the profits made by the borrower. The bank and borrower share the risk. Although there exists a plethora of research regarding Islamic banking and PLS, most of these studies are restricted to discussing the mechanisms by which Islamic banks operate as opposed to analyzing whether PLS or interest-based banking is more profitable. In this paper, I create a toy model that simulates the profitability of interest and non-interest-based banks. I find that non-interest-PLS-based banking to be much riskier than interest-based banking, as its profitability tends to fluctuate much more than interest-based banking. Under bountiful conditions, PLS-based banking is much more profitable, whereas in strenuous conditions, PLS-based banking often leads to a collapse. This paper concludes that the risk-sharing nature of PLS contributes heavily to its volatility, while interest-based banking can still profit if its borrowers struggle to immediately repay their loans.

INTRODUCTION

By the mid-20th century, as many Islamic countries gained their independence, old imperialist orders began breaking down. With independence came the ability for these nations to structure themselves not along Western conventions but along their own conventions. In several countries, Islamic law has been implemented in a way to ban riba or interest in the banking system. Islamic banking hinges on profit-and-loss sharing in loan contracts and prohibits interest [1].

The purpose of this paper is to examine profitability between Islamic and Western banking. To do this, I develop a simulation in which an Islamic bank and a regular interest-based bank loan capital to entrepreneurs for 10 time periods. Based on the results of this simulation, I then compare them to the conclusions already derived from previous literature and conclude that, due to the investor-like relationship of non-interest Islamic banks, their profitability is heavily dependent on the profits made by their borrowers. When the borrower earns a lot of revenue, the Islamic bank's profitability increases, whereas when the borrower earns little revenue, the Islamic bank’s profitability dwindles. On the other

hand, an interest-bank's revenue is less dependent on the borrower's total revenue and as a result, fluctuates less and is less risky.

BACKGROUND AND LITERATURE REVIEW

Literature comparing the profitability of non-interest banks and interest banks is scarce because there is a lack of data available and political issues in many Islamic countries that make empirical research difficult. However, there still exists plenty of literature on how the two systems work. Interest-banking is a system where a bank lends out a certain amount of money to a borrower and hopes to receive a profit. Debt payments are paid over an agreed-upon interval of time until the debt is paid off. The longer one takes to pay, the more the interest compounds and the more debt one owes. Borrowers can default on their debt payments, although banks instill incentives to avoid this outcome [2]. Non-interest banks, on the other hand, behave more like an investment. These banks loan a certain amount of money to an entrepreneur and do not expect a fixed repayment. Rather, the bank receives a portion of the project's revenue. There are larger upside and downside risks for a non-interest bank than for an interest bank [1]. This is the fundamental difference between these two systems of banking.

In order to understand the profitability of non-interest and interest-based banks, it is crucial one understands that a bank is limited in the amount of funds it can loan out, and if demands for funds are too high, banks will have to implement credit rationing. Credit rationing is a form of selection that involves formulating loan contract terms to attract borrowers who will act in the best interests of the bank. This is the topic of J.E Stiglitz's and A. Weiss's *Credit Rationing in Markets with Imperfect Information*. In this paper, the authors describe the usage of these two methods for two purposes: firstly, to act as "screening devices" to differentiate between "good" borrowers who are lower risk and "bad" borrowers who are higher risk, and secondly, to use these as pressures to push borrowers to make decisions that are in the best interests of the bank. The paper finds that neither increasing interest rates nor increasing collateral are universally effective strategies. The paper also criticizes equity financing (investment-like financing where a party buys a portion of a company's ownership/revenue and in exchange funds the said company) in this regard, noting that "too little effort will be forthcoming from agents" and states the most efficient form of resource allocation between lender and borrower will involve a mix of both equity and debt financing. The terms of such an agreement are dependent upon the "risk preferences" of the lender and borrower. Credit rationing is a crucial aspect in understanding how banks set the very interest rates by which they make profits and thus affect profitability [3].

In recent years, banks have begun to diversify their sources of revenue, turning towards non-interest sources of income. This is the focus of K.J Stiroh's *Diversification in Banking Is Noninterest Income the Answer?* This article addresses the apparent correlation between banks' increasing reliance on non-interest income and the higher levels of bank revenue in recent times. The article acknowledges that "aggregate volatility of bank revenue growth" declined in the 1990s, and the article attributes this to the lower volatility of net interest income growth as opposed to increased non-interest income. Instead, Stiroh

concludes that non-interest income tends to be riskier and hence should be avoided by banks. Since non-interest banks such as Islamic banks rely on non-interest income, conjecture can be drawn that Islamic banks, which adhere to the principle of non-interest, will suffer higher risk and hence may struggle more than interest-based banks at attaining stable profits [4].

Islamic Banking

Although there have been a slew of anti-usury banking institutions among Jews, Christians, and Muslims [5], in the modern era, Muslims are the only group of people who still at least nominally forbid it. Islamic banks claim to be fairer alternatives and more economically beneficial. In *Islamic Economics and the Islamic Subeconomy*, T. Kuran points out that a major flaw within Islamic Banking Theory is that the theorists often fail to specify how risk should be split among the loan-taker and loan-lender, but rather just a vague principle of fairness. As a result, Islamic Banks have often attempted to minimize the amount of risk they must bear in a loan agreement. Timur Khan also notes multiple similarities between interest and non-interest banking. For example, both systems produce similar returns to their depositors, and as I mentioned earlier, the risk on the banking party is minuscule compared to the risk on the borrowing party. Timur concludes that the vast majority of the revenue of Islamic banks is generated not through non-interest equity but by "debt-like instruments" such as murabaha contracts, thus suggesting that, as it stands, the profitability of Islamic banks is reliant on interest-like methods [1].

Similar to Kuran's article, R.K Aggarwal's and T. Yousef's *Islamic Banks and Investment Financing* investigates whether Islamic banks adhere to the precept of profit-and-loss sharing. Aggarwal and Yousef provide a more in-depth explanation as to the instruments used in Islamic banking, whether they be based on PLS (Profit-and-loss-sharing) or the markup principle. Among the PLS instruments are Mudarabah financing, which involves the bank providing capital for the business venture, and the entrepreneur working the venture. In case of a gain, the gains are distributed upon a pre-negotiated equity percentage, and in a loss, the bank receives none or a negative return, and the entrepreneur receives nothing for their efforts. Musharaka contracts are where both the bank and entrepreneur supply capital and manage the venture, losses are borne based upon who contributed what amount of money, and profits are divided upon a negotiated proportion. The article concludes that the lending done by Islamic banks is, for the most part, risk-free and secure, utilizing debt-like instruments to achieve this, and violating the principle of PLS. This is relevant because the trend of Islamic banks to devise debt-like instruments and prefer these over PLS-based contracts suggests that, in some way, debt-like instruments (and by extension interest-based systems) are superior to PLS-based contracts [6].

H.A Zuberi's *Interest Free Banking and Economic Stability* deals with non-interest banking in Pakistan and its relationship with the public's demand for non-interest-bearing money. The article concludes that the public's demand for non-interest-bearing cash tends to be stable compared to the demand for interest-bearing money. This article seems to indicate that the non-interest financial system of Pakistan is relatively stable and that there is a structurally stable demand for non-interest-bearing money in Pakistan [7].

However, the scope of these studies is limited in that they cannot directly compare the revenues of non-interest-based and interest-based systems and draw numerical conclusions. According to Egyptian banker Ahmad al-Najjar, less than 5% of the assets of Islamic banks consist of loans that adhere to the principle of PLS [1]. Given the significant discrepancy between the profits of Islamic banks and those generated based on the principle of PLS, it would be misleading to use the revenue generated by Islamic banks for a study comparing non-interest and interest-based banking systems. There is also little data that could help distinguish between the interest-like and non-interest revenues. Using a simulation, I can numerically show theoretical differences in outcomes between Islamic and interest-based banking systems.

METHODS

In this section, I explain the toy models for the interest and non-interest banks. It is important to note that the parameters were chosen for ease of calculation and interpretation. In the next section of the paper, I vary certain parameters within the simulation and see how they affect the results.

This simulation takes place over 10 rounds and has two banks: an Islamic non-interest bank that gives out Mudarabah contracts and an interest-based bank. Both banks have 100 units of capital. In the first round, 25 entrepreneurs go to each bank and take out a loan of 4 units of currency. Then they "use" this loan to fund their individual business ventures. These business ventures generate a random distribution of profits, an average of 14 units with a standard deviation of 10; some generate a substantial amount of currency, while others incur negative profits due to not even covering their expenses or not paying off other debts they may owe.

The Islamic bank takes 30% of the profits of each entrepreneur, and these are its earnings that are added to its new capital. In the next round, the Islamic bank loans out 4 units of currency to the maximum number of entrepreneurs it can, depending on its current capital. The interest-based bank receives its loan of four units back, along with 10% interest on this loan from each of its debtors who can pay. Those who do not have enough units to pay their debts are now indebted to the bank, and their interest rate gets compounded by that same 10% each round they are unable to pay. Each round, they will generate a profit to try to get enough units of capital to repay their debt. The money the bank makes in round one becomes its new capital, and in the next round, the regular bank loans out four units of currency to the maximum number of entrepreneurs it can. This entire process repeats for 10 rounds.

There are some limitations with this simulation. This simulation does not account for the behaviors of borrowers and lenders, meaning that important features of real-life banking, such as flexible interest/equity rates, borrowers choosing which banks to borrow from, and banks selecting which borrowers to accept loans based on credit scores and whether a venture will be successful, are not simulated. This introduces a number of limitations to this paper: First of all, without simulating the behaviors of borrowers and lenders, the simulation will suggest higher interest rates/profit shares are more

profitable for both banks. Even though in reality, interest rates/profit shares that are too high may actually drive customers towards cheaper options. A lack of credit screening will result in a greater number of malperforming borrowers because the profits of Islamic banks are more dependent on the profits of their borrowers. Without credit screening, Islamic banks would be expected to experience greater adverse effects. Therefore, the results of this simulation may exaggerate the struggles Islamic banks face in making profit.

I ran this simulation with three different conditions:

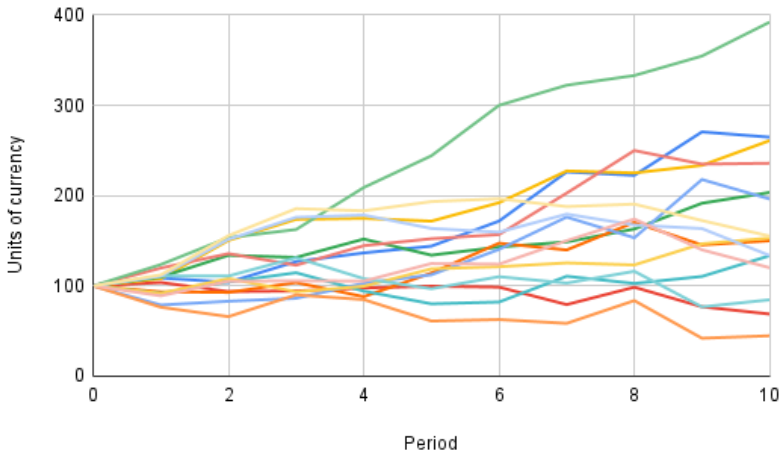
Table 1: A Brief Summary of the Parameters for each "Condition".

Simulation 1 (Normal Conditions)	Simulation 2 (Strenuous Conditions)	Simulation 3 (Bountiful Conditions)	Simulation 4 (Low profit share/low interest rate)	Simulation 5 (High profit share/high interest rate)
Profitability Average: 14 Variance: 10 Profit share: 0.3 Interest rate: 0.1 Figures 1-4	Profitability Average: 10 Variance: 10 Profit share: 0.3 Interest rate: 0.1 Figures 5-8	Profitability Average: 18 Variance: 10 Profit share: 0.3 Interest rate: 0.1 Figures 9-12	Profitability Average: 10 Variance: 10 Profit share: 0.2 Interest rate: 0.05 Figures 13, 14, 17 and 18	Profitability Average: 10 Variance: 10 Profit share: 0.4 Interest rate: 0.15 Figures 15, 16, 19 and 20

In figures 1-4 of the results, you will see the simulation running in "normal conditions". In this condition, we will see how the Regular Bank and the Islamic Bank's capital changes over time across 15 different runs, and see how their respective profitabilities stack up on average. In figures 5-8, we will see the experiment running in more strenuous conditions, where the entrepreneurs will be generating less profits for their ventures on average. This experiment will demonstrate which system of banking has a greater profitability when their borrowers are faced with smaller revenues and in Figures 9-12 we will test what happens under the opposite conditions, when conditions are bountiful for the entrepreneurs' respective ventures and they generate more profits on average. This will demonstrate which system of banking has a greater profitability when its borrowers are faced with larger revenues.

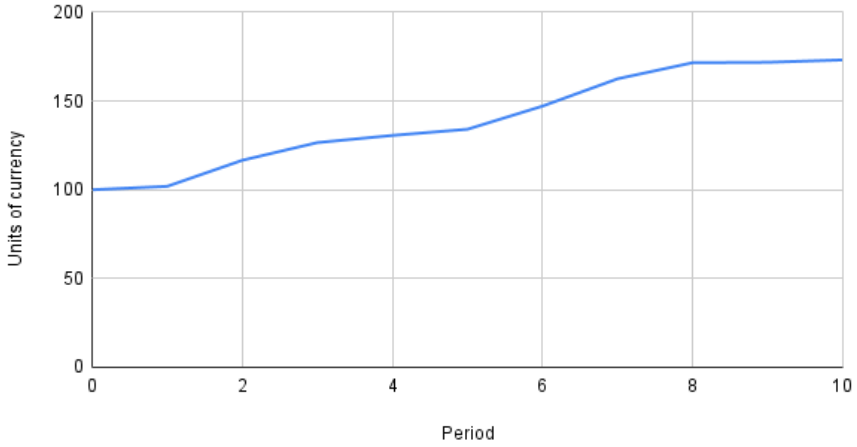
RESULTS

FIG 1: Islamic Bank's capital for each period across 15 runs in "normal conditions".



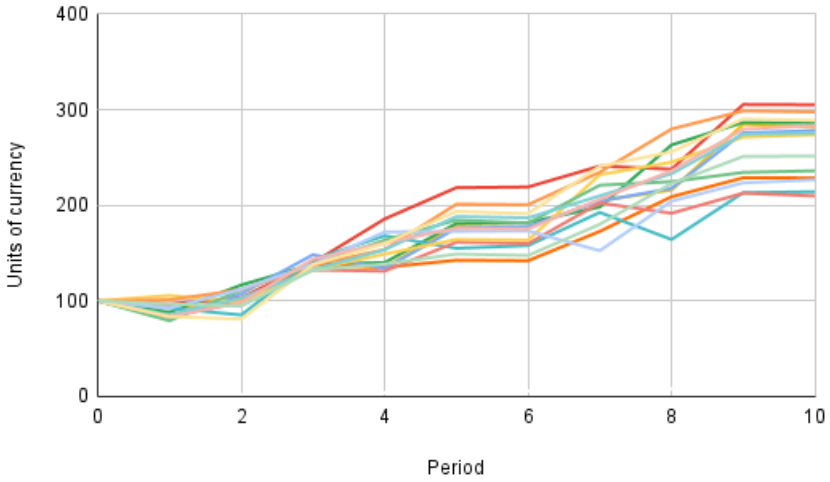
Each line represents an individual run, the y axis represents the number of units of currency the Bank has in its possession and the x axis represents the period of the simulation.

FIG 2: Islamic Bank's capital for each period across 15 runs in "normal conditions" average.



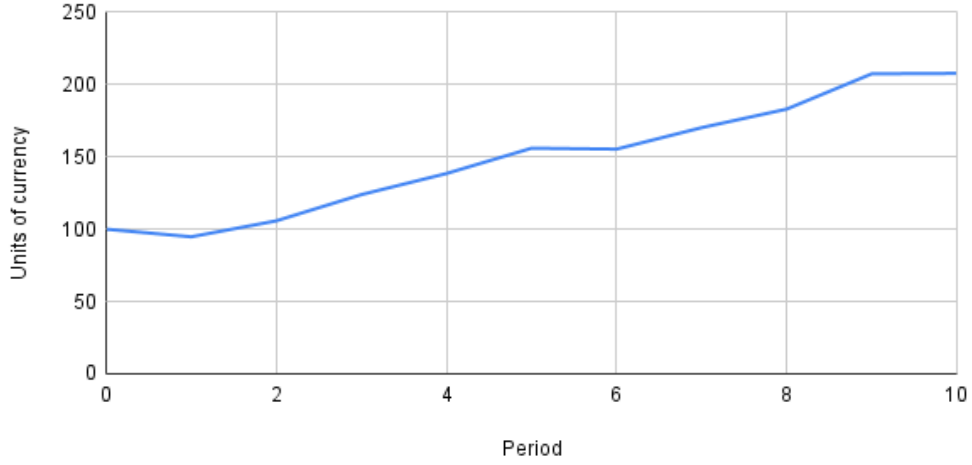
The blue line represents the average of all 15 runs, each y value represents the average amount of units of currency the Bank had across the 15 runs for that period (x value).

FIG 3: Regular Bank's capital for each period across 15 runs in "normal conditions".



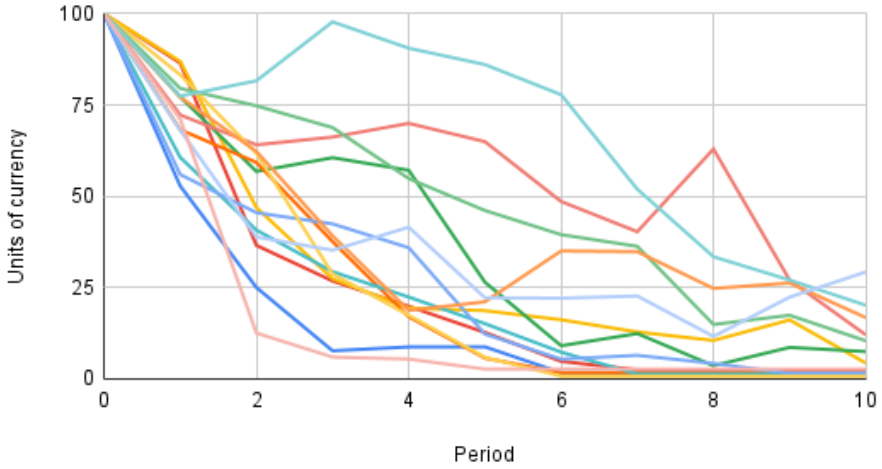
Each line represents an individual run, the y axis represents the number of units of currency the Bank has in its possession and the x axis represents the period of the simulation.

FIG 4: Regular Bank's capital for each period across 15 runs in "normal conditions" average.



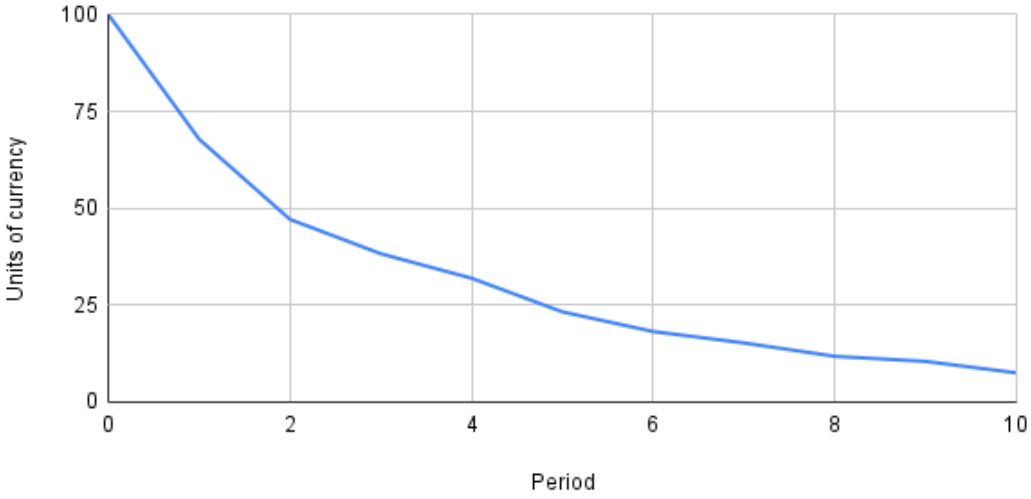
The blue line represents the average of all 15 runs, each y value represents the average amount of units of currency the Bank had across the 15 runs for that period (x value).

FIG 5: Islamic Bank's capital for each period across 15 runs in "strenuous conditions".



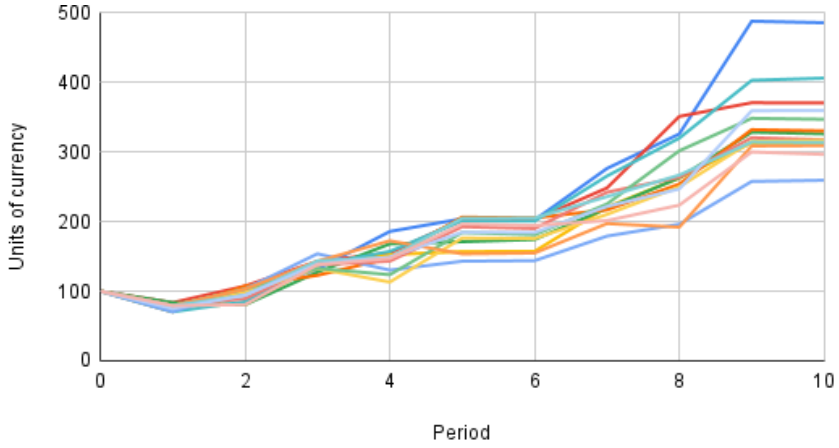
Each line represents an individual run, the y axis represents the number of units of currency the Bank has in its possession and the x axis represents the period of the simulation.

FIG 6: Islamic Bank's capital for each period across 15 runs in "strenuous conditions" average.



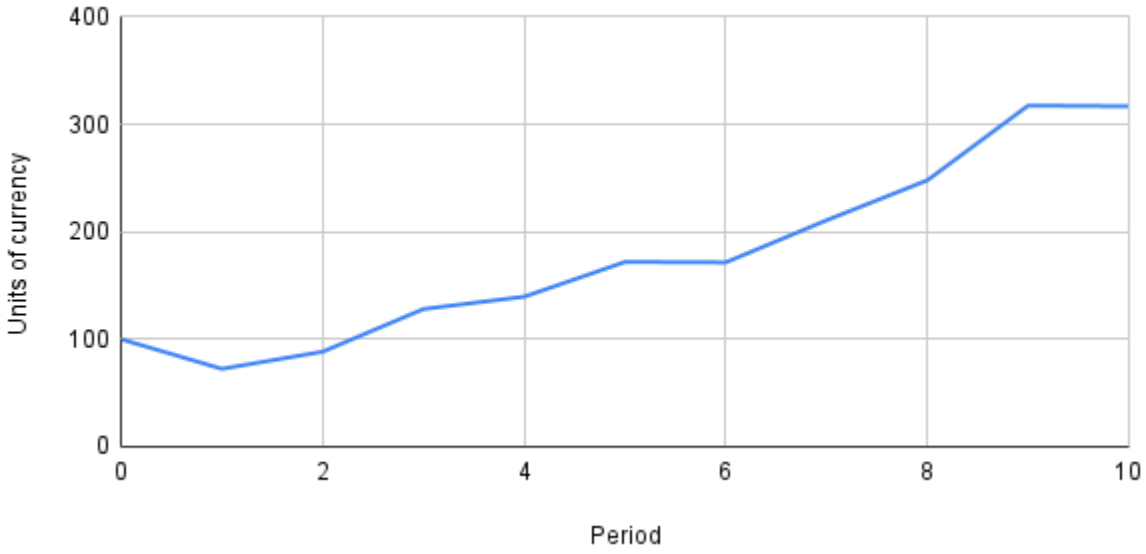
The blue line represents the average of all 15 runs, each y value represents the average amount of units of currency the Bank had across the 15 runs for that period (x value).

FIG 7: Regular Bank's capital for each period across 15 runs in "strenuous conditions".



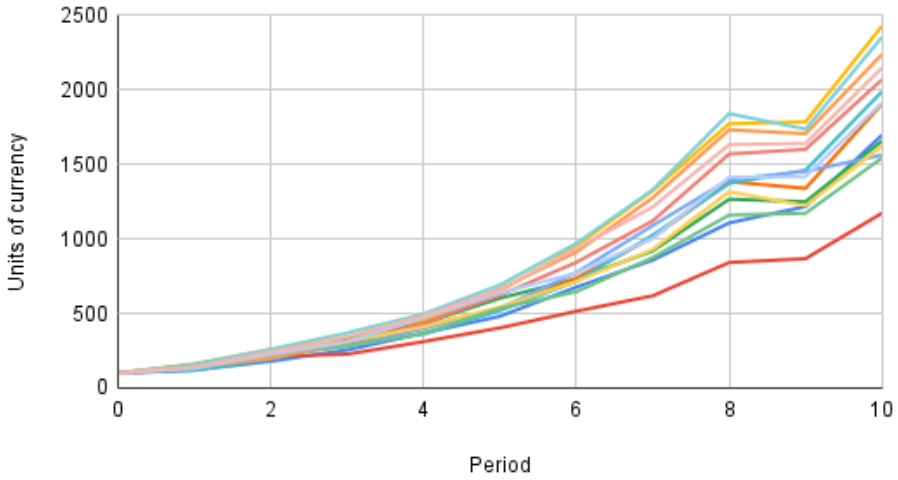
Each line represents an individual run, the y axis represents the number of units of currency the Bank has in its possession and the x axis represents the period of the simulation.

FIG 8: Regular Bank's capital for each period across 15 runs in "strenuous conditions" average.



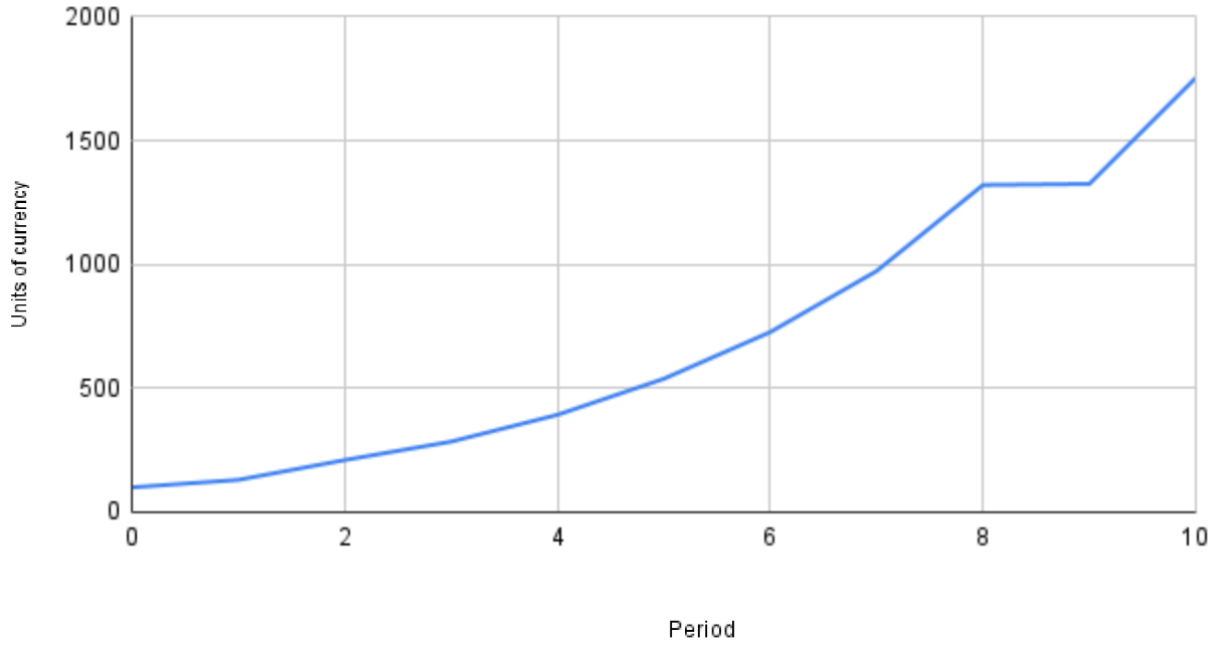
The blue line represents the average of all 15 runs, each y value represents the average amount of units of currency the Bank had across the 15 runs for that period (x value).

FIG 9: Islamic Bank's capital for each period across 15 runs in "bountiful conditions".



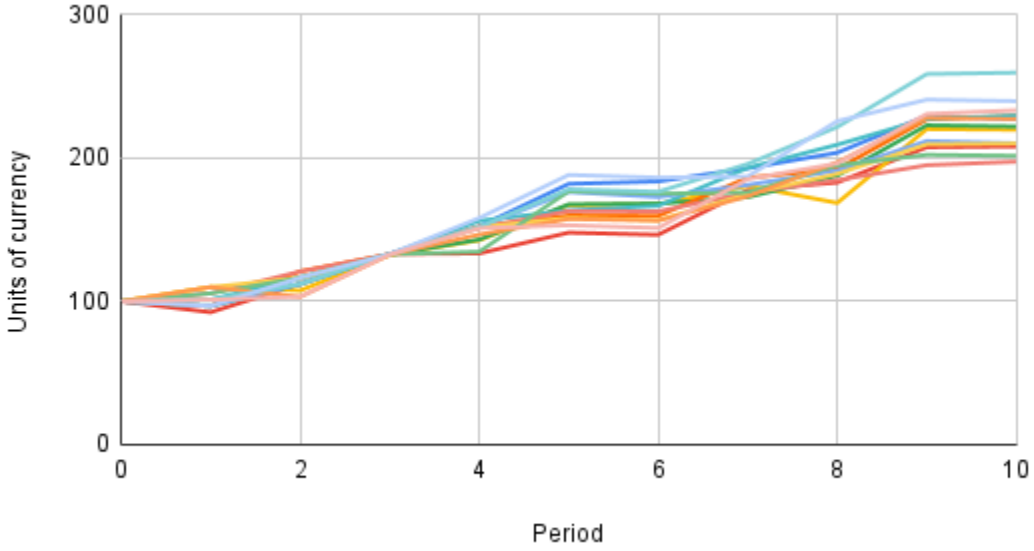
Each line represents an individual run, the y axis represents the number of units of currency the Bank has in its possession and the x axis represents the period of the simulation.

FIG 10: Islamic Bank's capital for each period across 15 runs in "bountiful conditions" average.



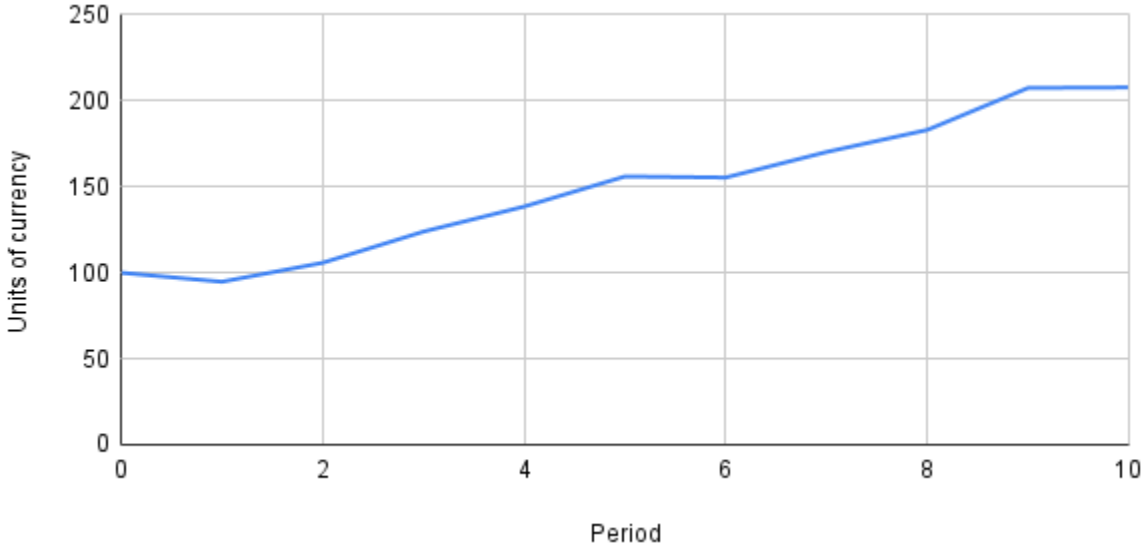
The blue line represents the average of all 15 runs, each y value represents the average amount of units of currency the Bank had across the 15 runs for that period (x value).

FIG 11: Regular Bank's capital for each period across 15 runs in "bountiful conditions".



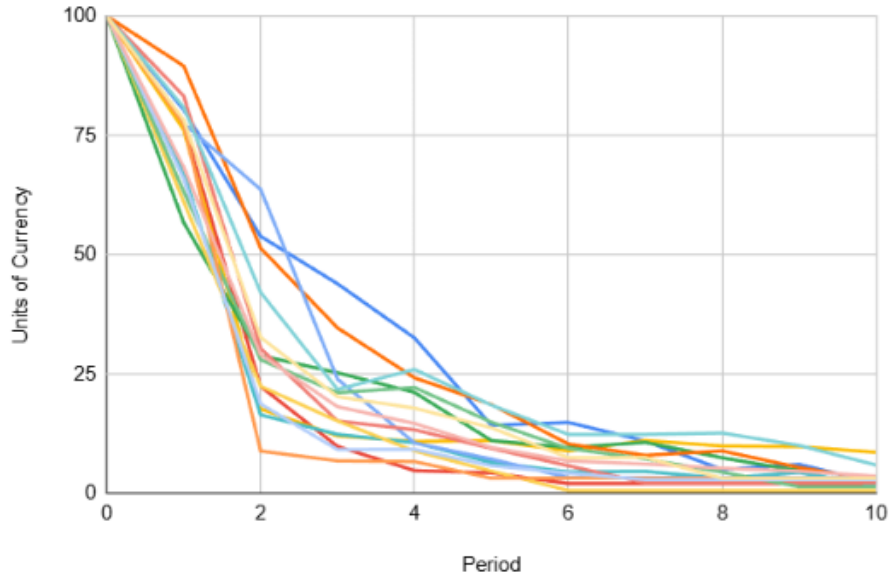
Each line represents an individual run, the y axis represents the number of units of currency the Bank has in its possession and the x axis represents the period of the simulation.

FIG 12: Regular Bank's capital for each period across 15 runs in "bountiful conditions" average.



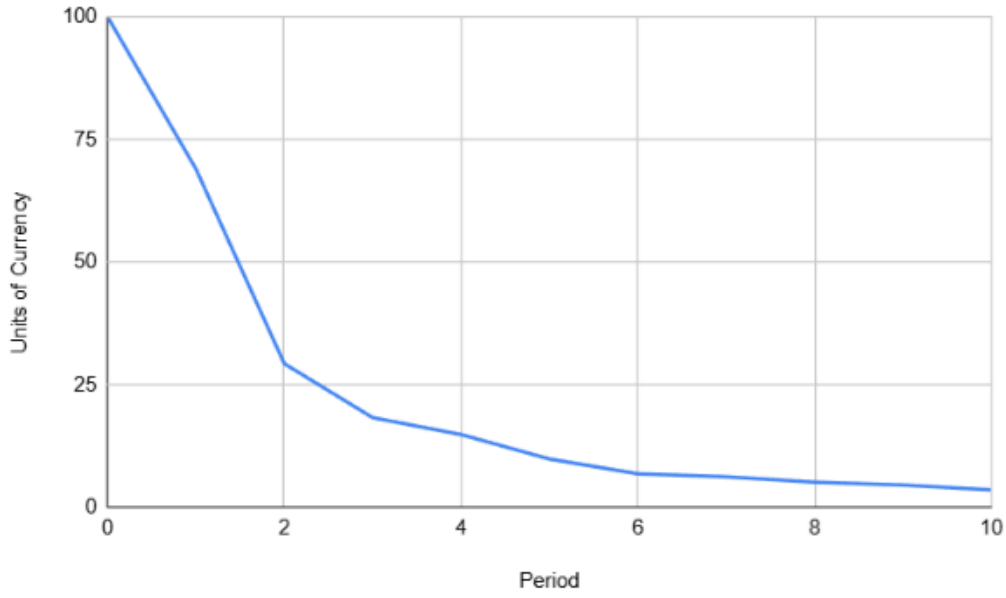
The blue line represents the average of all 15 runs, each y value represents the average amount of units of currency the Bank had across the 15 runs for that period (x value).

FIG 13: Islamic Bank's capital for each period across 15 runs when profit share is reduced to 0.2.



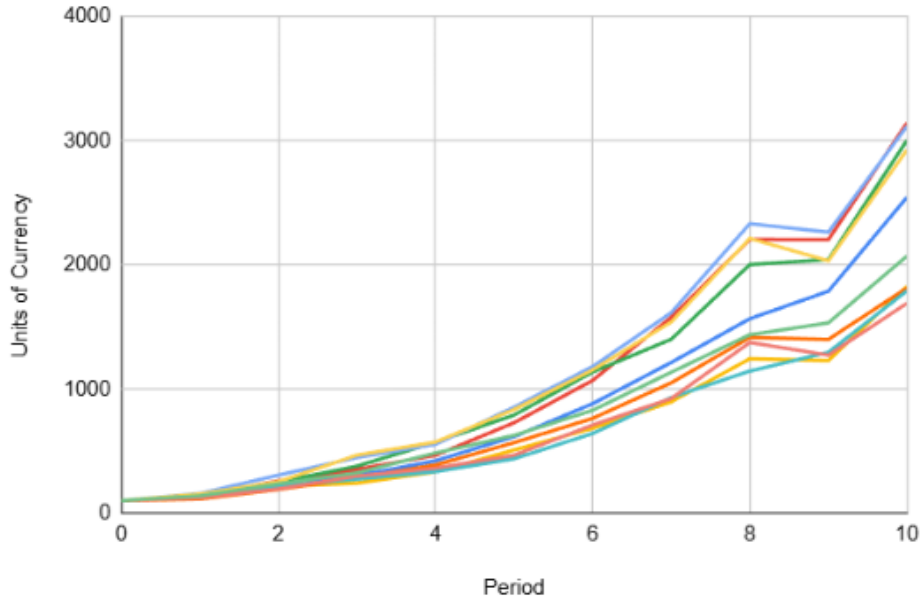
Each line represents an individual run, the y axis represents the number of units of currency the Bank has in its possession and the x axis represents the period of the simulation.

FIG 14: Islamic Bank's capital for each period across 15 runs when profit share is reduced to 0.2 average.



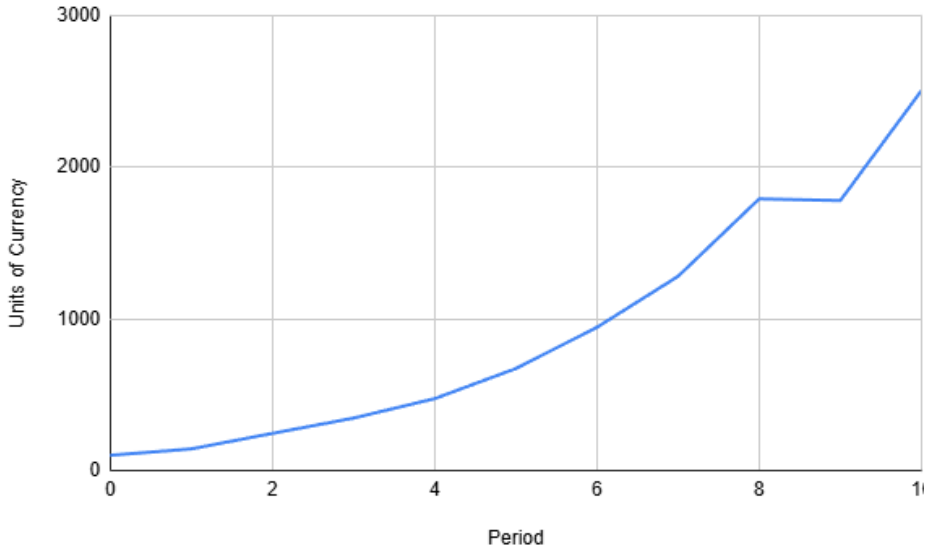
The blue line represents the average of all 15 runs, each y value represents the average amount of units of currency the Bank had across the 15 runs for that period (x value).

FIG 15: Islamic Bank's capital for each period across 15 runs when profit share is increased to 0.4.



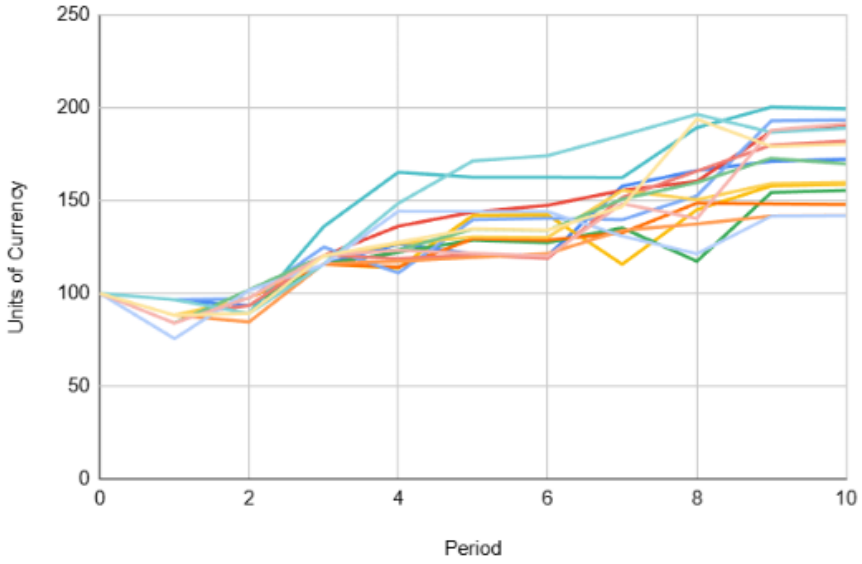
Each line represents an individual run, the y axis represents the number of units of currency the Bank has in its possession and the x axis represents the period of the simulation.

FIG 16: Islamic Bank's capital for each period across 15 runs when profit share is increased to 0.4 average.



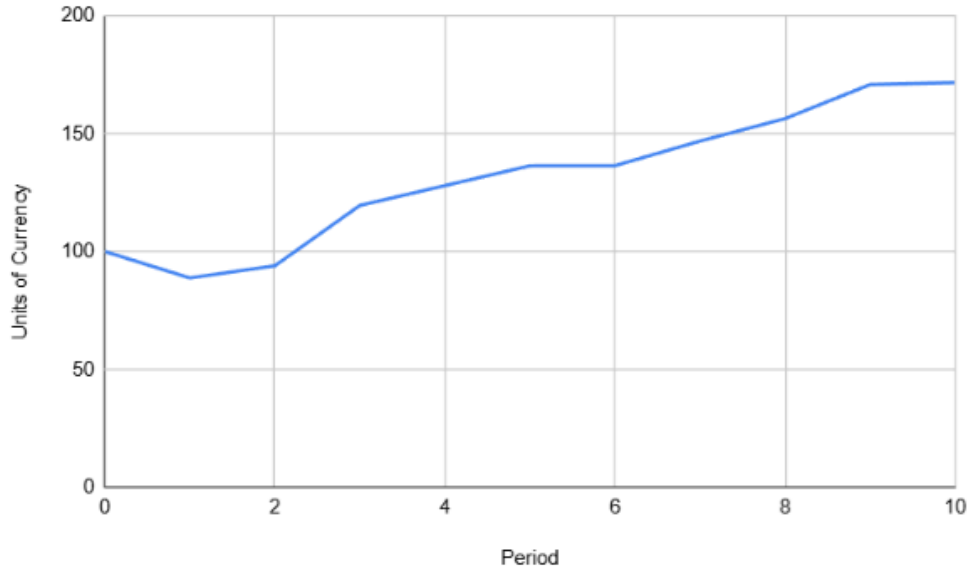
The blue line represents the average of all 15 runs, each y value represents the average amount of units of currency the Bank had across the 15 runs for that period (x value).

FIG 17: Regular Bank's capital for each period across 15 runs when interest rate is reduced to 5%.



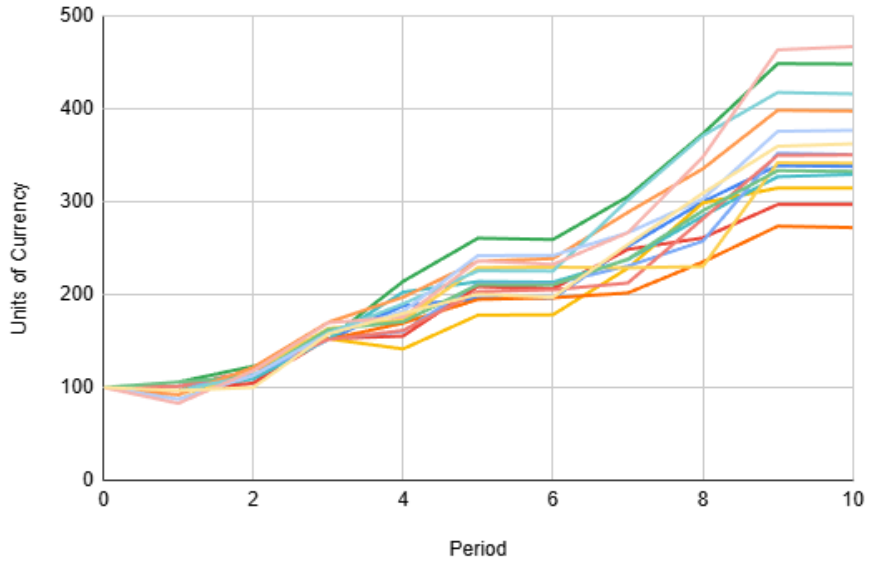
Each line represents an individual run, the y axis represents the number of units of currency the Bank has in its possession and the x axis represents the period of the simulation.

FIG 18: Regular Bank's capital for each period across 15 runs when interest rate is reduced to 5%.



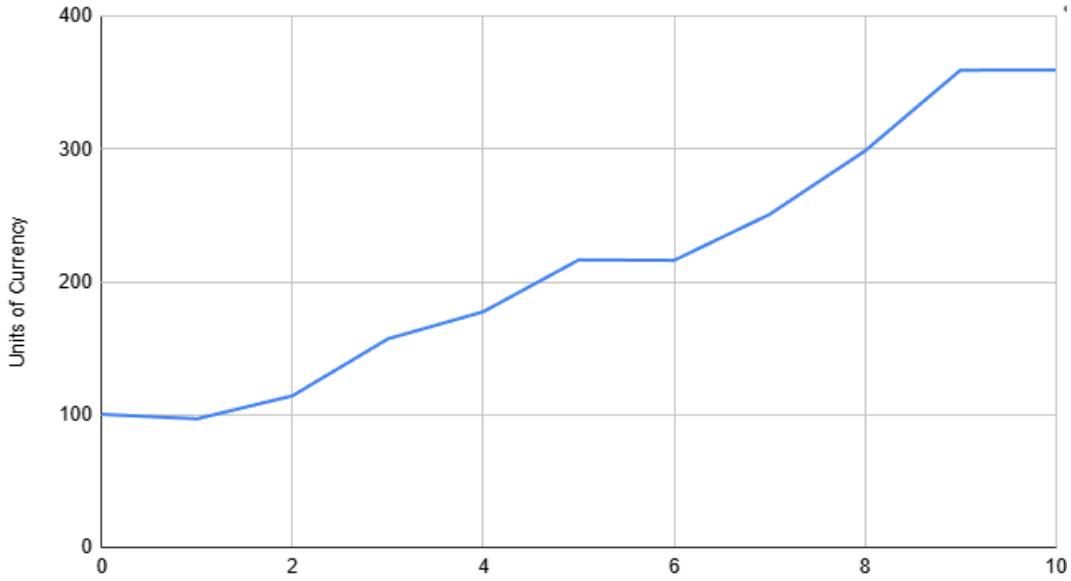
The blue line represents the average of all 15 runs, each y value represents the average amount of units of currency the Bank had across the 15 runs for that period (x value).

FIG 19: Regular Bank's capital for each period across 15 runs when interest rate is increased to 15%



Each line represents an individual run, the y axis represents the number of units of currency the Bank has in its possession and the x axis represents the period of the simulation.

FIG 20: Regular Bank's capital for each period across 15 runs when interest rate is increased to 15% average.



The blue line represents the average of all 15 runs, each y value represents the average amount of units of currency the Bank had across the 15 runs for that period (x value).

DISCUSSION

In Figures 1 and 2, a pattern emerges that is supported by previous research. Although the largest revenue generated by the Islamic Bank across these 15 runs far outmatches the largest revenue generated by the interest-based bank by a factor of 33%, this is clearly an outlier. When we look at the actual concentrations of revenues, we see that the Regular Bank's revenue is consistently above 200 units of capital by the end of Round 10, whereas only 33% of the runs for the Islamic Bank made it above 200 units. This indicates that, on average, interest-based banks are more profitable. Another pattern worthy of note is that the trendlines for the Regular Bank are much less volatile than the Islamic Bank's trendlines. From this, we can deduce that regular interest-based banks tend to be more stable and less risky than purely non-interest Islamic banks. This is to be expected, as the very objection that Islamic banking raises against interest-banking is that one should not earn money unless they assume some kind of risk with it [6].

In Figures 3 and 4, many of the interest-based banks lost money and had negative profitability in the first few periods. This is to be expected, as there are no debtors whose interest may have compounded in a significant way. In future periods, banks start to have multi-period debtors on whom interest accrues. Those borrowers may eventually pay back much more money than what they initially received [2]. Thus, a significant quantity of an interest bank's profit comes from the accumulation of interest that is eventually repaid.

Figures 5-8 represent both banks' capital trends under the aforementioned "strenuous" conditions, where entrepreneurs are making less profit. In Figures 5-6, we see the negative effect this has on the capital of the Islamic Bank. For all 10 periods, the Islamic Bank's profitability is negative. By the end of the simulation, in over half of the runs, the Islamic Bank's capital has collapsed to a point where it can no longer lend to even one person. This serves to reinforce the conclusion that Islamic Banks share in the risk of the ventures they loan to, as these trends show that even slight fluctuations in the profits of the ventures to which Islamic Banks are loaning can have significant impacts on the profits Islamic Banks make.

On the other hand, the interest-based bank not only managed to make a profit in these conditions but thrived way beyond the profits it made in normal conditions, making, on average, 100 more units of currency than in normal conditions. Although this may seem counterintuitive, this makes sense when we look at how interest-based and non-interest-based banks' profits can change. Much like an investor, a non-interest bank's profit is directly proportional to the profit that its borrower makes. The only way their profits can increase is if the profits of their borrower increase. Such is the nature of the mudarabah contract, where the bank receives an agreed-upon percentage of a venture's profits for its investments in said venture [6]. This is why we saw the Islamic Bank's profitability fall in Figures 5-6. On the other hand, an interest-based bank's profits are not dependent on its borrowers' profits, for an interest-based bank does not engage in an equity-based loan contract. It does not behave like an investor; its profit isn't a percentage of the total profit made, it has a set amount of money it receives that cannot decrease and only

can increase through the compounding of interest, which happens when the borrower does not pay back their debt quickly enough [8]. Thus in an environment like this, where entrepreneurs are making less profit on average, they're more likely to have their interest compounded and so long as the entrepreneurs can pay back this debt, the interest-based bank will make more profits than if the entrepreneurs immediately were able to pay back their debts (Obviously there is a limit, to the point where the entrepreneurs make so little it becomes impossible for them to pay back their debts).

Figures 9-12 represent both banks' capital trends under "bountiful" conditions, where entrepreneurs are making more profits. In Figures 9-10, we see the significant effect this has had on the Islamic Bank's profits. By the end of the simulation, the profits were 10 times larger than what they were under normal conditions. This can be attributed to the investor-like position the Islamic Bank occupies. As mentioned in the earlier sections, a non-interest bank's profit is a percentage of the entrepreneurs' profits [6]. So, in such a situation as this, where the entrepreneurs are on average earning more, the profitability of the Islamic Bank is bound to be much greater than the interest-based bank in the same conditions. This is evidenced by Figures 11-12 where we see that the trendlines of the Regular Bank are pretty identical to the trendlines in Figures 3-4. Again, this is to be expected because the profitability of an interest-based bank is more dependent upon the compounding of interest than on how successful their borrowers are doing.

Figures 13-14 represent the Islamic Bank's profits when its profit share is reduced from 30% to 20% and the negative effects this has on its profit. This should come as no surprise however when we look at the mechanics of the simulation. The Islamic Bank loans out 4 units of currency to the entrepreneur and the entrepreneur on average makes 14 units per period. The Islamic Bank takes 20% of what the entrepreneur makes, but 20% of 14 is 2.8 units. On average the Islamic bank loses 1.2 units on every single investment and hence why we see the downward trends in the graph. From this observation arises an inequality by which we can predict whether the Islamic bank will be successful or not in the simulation:

$$AS > L$$

Where A is the average profit of an entrepreneur who has loaned from an Islamic Bank, S is the percent share of that profit which goes to the Islamic Bank and L is the loan which the Islamic Bank gives out. If this inequality holds true then the Islamic Bank should be profitable

Figures 15-16 represent the Islamic Bank's profits when its profit share is increased from 30% to 40%. In this scenario A is equal to 14, S is equal to 0.4 and L is equal to 4 .Since 14*0.4 = 5.6 is greater than 4, we would expect the Islamic Bank to be profitable. We should also expect to see that the AS of the parameters of figures 15-16 to be greater than the AS of figures 9-10. The AS of figures 9-10 is 5.4 units on average (which would be an average of 1.4 units of profit made per entrepreneur) compared to the AS of figures 15-16 which is 5.6.

Figures 17-18 represent the Regular Bank's profits when the interest rate is decreased from 10% to 5%. Although profits decrease, all of the banks across the 15 runs still make a positive profit by 10 periods.

This is to be expected because the average profit per period made by an entrepreneur is 14 units and the entrepreneurs will owe 4.2 units of currency to the bank so most if not all the entrepreneurs will pay back their debts in a few periods. Until the interest rate reaches a certain point that when it compounds, the debt becomes so large that it is unlikely the entrepreneur will be able to ever pay back their debt, the bank will remain profitable. Until interest rates reach this point, bank profitability will increase with interest rates. We can see this illustrated in figures 19-20 where the interest rate is hiked up to 15% and the Regular Bank's profitability is much greater than it was in figures 17-18.

The Regular Bank is much more profitable under strenuous conditions than under a low interest rate because a low interest rate lowers the profit ceiling (the maximum amount of profit a Regular Bank can make). Whereas, "strenuous conditions" merely lower the likelihood of an entrepreneur being able to repay the debt they owe in a single period. Entrepreneurs will eventually pay back what they owed and this amount will be larger due to compounding interest.

Overall, the trends expressed in this paper are not surprising at all considering what we see in the real world. As we'd expect to see if these PLS-based contracts were risky, Islamic banks generally tend to avoid making PLS contracts. The avoidance is so prominent in fact that for example in Malaysia, a 63% majority Muslim country [9], only 0.5% of Islamic loans are based on the principle of PLS [10]. This underscores the unattractiveness of PLS loans, the reason for which this simulation demonstrates as PLS loans are inherently a very risky endeavor for a bank to take on a large scale.

CONCLUSION

In the end, this simulation shows that bank profitability is dependent on many key factors. Due to the nature of Islamic non-interest equity banks acting like investors, their profits will tend to significantly fluctuate depending on the success of their borrowers. When their borrowers are successful, they will accrue large profits such as shown in Figures 9-10, whereas if their borrowers are unsuccessful, the Islamic banks will bear major losses. As demonstrated by Figures 1-2 and how spread out their trendlines were, engaging in equity-based loans seems to be very risky, something that is testified by earlier literature regarding this topic [4].

On the other hand, interest-based banking does not fluctuate as much. A borrower whose venture fails or does not make as much money as they sought does not affect the interest-based bank in a negative way as long as the borrower can eventually pay back the loan. Unlike Islamic banks, it appears that interest-based banks' profitabilities are positively affected by their borrowers not being able to pay back their debts immediately so long as these borrowers do not default.

As previously stated, there were certain limitations to the model, notably credit screening and customer behavior were not represented. Now, arguably, this could have skewed the results against Islamic non-interest banking because Islamic banks would be able to decide who to fund and who not to fund,

rather than just giving loans out to as many people as they possibly can, as this simulation demonstrated. Bank competition was also not present in the simulation.

We should not be surprised by these results. If anything, it is the goal of Islamic non-interest banking that risk be distributed among both borrower and lender, and the results of this simulation show that risk is spread out among both parties, thus making this economic activity permissible as per Islamic economics. While the lesser profits in situations where borrowers are unsuccessful in their respective ventures may be concerning to some, profitability is not the primary concern of Islamic Banking. Morality and fairness are the principal tenets of Islamic banking [1] and as per an Islamic moral paradigm, the distribution of equal risk among both parties is the ultimate goal as opposed to the relentless pursuit of profit, therefore the trends we see here do not represent a failing of Islamic economics so much as they represent the natural consequence of PLS which is anyway the stated goal of Islamic banking that is to equally distribute risk.

The trends of this simulation could, however, explain why we see such a disparity between Islamic banking in theory and Islamic banking in practice. Islamic banks may use debt-like instruments, which technically violate the principle of PLS because genuine non-interest banking is a risky endeavour. Therefore, the riskiness and ebbing profitability of these genuinely non-interest contracts, as demonstrated by this model, are key factors in understanding why non-interest banking is so rare in the modern world.

That being said, the best way for Islamic banks to mitigate the ebbing profitability while still adhering to PLS is to implement credit screening to ensure those whom they loan out to will act responsibly and make decisions that will create the most profit because of the nature of PLS. Without proper credit screening, Islamic banks would find that most PLS contracts they do would end up being net losses. They should also ensure that their borrowers do not lie about the profits they accrued because by claiming they earned less than they did they can cheat their loaners out of what should rightfully belong to them.

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