Impact of Asymmetric Information in Islamic Financial contract: An Empirical Analysis

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Abstract— A primary source of asymmetric information arises from banks' uncertainty about borrowers 'Creditworthiness. This can generate two types of barriers to efficient credit allocation in the loan market: ad-verse selection in the likelihood of repayment and moral hazard in the riskiness of firms' business decisions, also affecting repayment. This study investigated the consequences of asymmetric information on Islamic financial contracts in the Pakistani market for small and medium enterprise (SME) business lines of credit. Islamic bank's main financial contracts were discuss the two of them which are Istisna and Murabaha .The methods of' T test' was conducted to ascertain the difference in means of both forms of financing, whereas Multiple Regression Analysis using panel data to assess the relationship of critical variables with Disbursed amount, profit rate, spread, tenor. Data of three year i.e. from 2016 to2018 of 35 firms, with 105 numbers of observations having istisna and Murabaha contract, were taken. The results suggested that both the means of Murabaha and istisna financing are significantly different in major performance indicators, implicating companies that have taken these two financing have performed differently. Secondly, in most of the ratio that mattered like efficiency and profitability, Murabaha based financing have yielded results that are more efficient and better performed as compared to istisna)

Keywords- Asymmetric information; Islamic financial contracts; Istisna; Murabaha; Islamic bank; Pakistan;

I. INTRODUCTION

1.1. Background to the Study

Banking sector serves as the engine of growth for any economy. An economy cannot run without the existence of banking sector as it channelize the funds from those who have excess to those who have opportunities to deploy those funds in profit generating activities and share the benefits with the owners of the funds. Islamic banking emerged as a practical reality and started functioning in 1970s. Since then it has been growing continuously all over the world. The global market share of Islamic Banking in total Islamic Financial Industry (IFI) is equivalent to USD 1,557.5 billion which represents 76% approx. the Islamic Financial Industry (IFI), which is equivalent to USD 2,050.2 billion. The global IFI, which comprises of Islamic Banking, Islamic Capital Market and Islamic Insurance (Takaful) sector has growth at 8.30%.

Table 1:
Breakdown of Global IFI by Sector

Sectors of IFI	Banking Assets	Sukuk	Islamic Funds	Takaful	Total
Amount in USD billion	1,557.5	399.9	66.7	26.1	2,050.2
Percentage Share of Each Sector	75.98%	19.50%	3.25%	1.27%	100%

Source: Islamic financial services industry stability report (2018)

As depicted in above table banking assets forms the largest part of IFI. The Islamic finance industry has expanded rapidly over the past decade, growing at 10-12% annually. Today, Shariah-compliant financial assets are estimated at roughly US$2 trillion, covering bank and non-bank financial institutions, capital markets, money markets and insurance ("Takaful"). In many majority Muslim countries, Islamic banking assets have been growing faster than conventional banking assets. There has also been a surge of interest in Islamic finance from non-Muslim countries such as the UK, Luxembourg, South Africa, and Hong Kong.

Islamic Banking and finance has emerged as a potential replacement of interest based financial market. The growth is not limited to the Muslim dominated countries but also shown its foot prints non-Muslim countries. The global Islamic banking industry, operating alongside conventional financial institutions, has also weathered several systemic challenges over the past several years.[1] Major financial markets are discovering solid evidence that Islamic finance has already been mainstreamed within the global financial system – and that it has the potential to help address the challenges of ending extreme poverty and boosting shared prosperity.

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[1] Islamic financial services industry stability report (2018), page 87, 88

In Pakistan, the banking industry is comprised of conventional banking sector and Islamic banking sector with 87.1% and 12.9% share respectively State Bank of Pakistan (2018). Being the second largest country of Muslim population after Indonesia, Pakistan has great potential for growth of Islamic Banking and financial industry.

Islamic finance is equity-based, asset-backed, ethical, sustainable, environmentally- and socially-responsible finance. It promotes risk sharing, connects the financial sector with the real economy, and emphasizes financial inclusion and social welfare.

The following key principles guide Islamic Finance:

1. Prohibition of interest on transactions (Riba);
2. Financing must be linked to real assets (materiality);
3. Engagement in immoral or ethically problematic businesses not allowed (e.g., arms manufacturing or alcohol production);
4. Returns must be linked to risks.

 Some of the obvious differences between Islamic and conventional banks are the nature of contract on the basis of which financing is being extended to the customer and mandatory Sharia board supervision of all Islamic banking activities including Islamic financing. Islamic banks extend financing on the basis of Sharia compliant mode of contract while conventional banks provide financing on the basis of loan and interest. The other major factor is the Sharia governance by Sharia board of every Islamic Bank and Islamic banking windows.

In Islamic credit model, the customers specify goods to be purchased through contracts with the bank to acquire on customer's accounts, the banks buy good and attains title of ownership from seller, clients take delivery of the product and pay on deferred basis and if the client defaults, the bank cannot reimburse the penalty charges. Elgari (2003). Here, structural difference with regards to financing between Islamic and conventional banks is that Sharia compliant financing contract should be linked to real assets whereas in conventional financing, loan is granted and interest is charged based on creditor's riskiness. Subsequently, those funds are utilized to acquire asset. This means, no asset is involved directly in contract but indirectly as a result of the contract. This would likely to lead to the problems of asymmetric information.

The borrower has better information regarding potential returns and risk associated with investment projects for which financing are done, than the lenders. This information primarily includes borrower real intention of utilizing borrowed funds. Lack of information creates

problems in the financial system on two fronts, before the transaction is entered into and after. These problems are referred to adverse selection and moral hazards respectively Stiglitz and Weiss (1981). Adverse Selection occurs before making transaction, when those potential borrowers who are most likely to produce an undesirable outcome-bad credit risk-are the one who most actively seeks out a loan and thus most likely to be selected. Whereas, Moral hazards occurs after making transaction, whereby the borrower might engaged in activities that are undesirable (immoral) from lenders point of view because they make it less likely that loan will be paid. These activities includes making investment in highly risky business such as real estate and property markets while taking loans for less risky project.

Moral hazard produce adverse incentives on bank owners to act in way which are contrary to the interest of bank's creditors mainly depositors, by undertaking risky investment strategies, which if unsuccessful would jeopardize the solvency of the bank. Moral hazard on bank owner can become worse by number of factors which may force borrowers to choose investments with higher returns but with lower probabilities of success Stiglitz and Weiss (1981). Similarly, Adverse Selection can also affect the financial soundness of a bank. Higher lending rate and a greater volatility in expected rates of return to borrowers' project can lead to decline in the average quality of the pool of the applicants who are willing to borrow from the bank. The high creditworthy borrowing customers are driven out of the market by higher lending rates. A prudent bank would ration credit in this situation Stiglitz and Weiss (1981)

Reliable collateral may help to mitigate the banks' asymmetric information concerns by ensuring repayment (Bester, 1985; Chan and Thakor, 1987). To compensate for adverse selection risks, banks may refrain from funding risky firm. However, in highly competitive markets, banks grossly ignore these two conditions making their cash flows more instable and can potently lead to higher non-performing loans (NPL)

On the contrary, as Islamic financing contract includes real asset, the problem of asymmetric information (that includes borrower real intention of utilizing borrowed funds pre and post transaction) is resolved as funds can only be utilized in buying assets mentioned in contract. This makes their cash flows more stable and less susceptible to have a non-performing financing.

1.2 Problem Statement

The presence and consequences of asymmetric information in Islamic banks financing markets are of crucial importance for

credit allocation and financial development, which make the contracts some time, **void**. Asymmetric information arises from banks' uncertainty about borrowers' creditworthiness. It can occur before or after execution of financial contract. Asymmetric information can generate two types of barriers to efficient financing in the Islamic financial /banks market:

1) ad-verse selection in the likelihood of repayment

2) and moral hazard in the riskiness of firms' business decisions,

First is the after effect of holding data that is obscure to somewhere around one gathering engaged with the agreement and makes the individual or association who hold the data have favourable position or get any type of advantages, which would have not been gotten if the data was known to all gatherings engaged with the agreement, This type of asymmetric information leads to adverse selection of products or services offered by the firms. Islamic bank face this situation when asymmetric of information remains unmanaged.

The second sort of asymmetric information is the consequence of exploiting holding explicit data after the agreement has been concurred or worked out. Both type of issues create the inefficient allocation of financing and become the challenge for the validity of contract. The aim of this study is to examine at what extant gharar will create uncertainty in the Istisna and mudarba contract.

Islamic banking assets are 12.9% of the whole Pakistani-banking sector. However, by reviewing the historical data it is been revealed that the non-performing financing of Islamic banks in Pakistan is quite low (2.7%) as compared to overall banking sector non-performing loans (7.9%). State Bank of Pakistan (2018)

Following table depicts the comparative level of non-performing financing of Islamic Banking and conventional banking of last nine quarters spanning from June 2016 to June 2018.

Moreover, Islamic Banking institutions and conventional banking institutions are working in the same domestic and worldwide macro-economic environment but the non-performing financing portfolio of the two set of banks are different, therefore a need of study is arise to ascertain the factor, which are acting differently for different set of banks i.e. Islamic and conventional banks.

We need to ascertain what factors are causing non-performing portfolios in Islamic and conventional banks. Moreover, what are the reasons of their disparity? Furthermore does this disparity depict in performance of firms taking financing.

Table 2: **Islamic Banking NPF v/s Overall Banking Industry**

Non Performing Financings to Financings (Gross)		
	Islamic Banking	**Overall Banking Industry**
18-Jun	2.7	7.9
18-Mar	2.8	8.3
17-Dec	3	8.4
17-Sep	3.5	9.2
17-Jun	3.7	9.3
17-Mar	3.9	9.9
16-Dec	4.1	10.1
16-Sep	4.8	11.3
16-Jun	4.5	11.1

Source: Islamic Banking Bulletin of State Bank of Pakistan, Various Quarterly issues

1.3 Gap Analysis

Handel (2011), (Handel, 2011) Lustig (2011), (J, 2011) and Starc (2012) (Stare, 2012) found the effects of adverse selection and imperfect competition in US health insurance markets. However, they mainly focused on insurance markets and no similar work was done to measure the consequences of asymmetric information in lending. Few papers provide crude evidence of the problem of information asymmetry. For example, Bofondi and Gobbi (2006) show that new banks entering local markets perform poorly relative to incumbents, as entrants experience higher default rates and concentration and default rates are positively correlated. Gobbi and Lotti (2004) claim that there is a positive correlation between branching and markets with low proprietary information services.

Few papers explored impact of asymmetric information in Islamic banking. Yousfi (2013) showed that Mudarabah enables to mitigate the moral hazard problem and lead the entrepreneur to provide the first best levels of effort. On the contrary, Musharakah does not solve the moral hazard problem. One explanation could be the fact that the two parties jointly fund the project and that both of them provide non-contractible efforts, which diminish their incentives. David Kömling (2014) also studied the link between the profit and loss sharing base Islamic financial contracts with respect to information asymmetry and shows that Musharkah and mudarba base financial contract are mostly facing the moral hazard and adverse selection problem, but there is limited research on debt base Islamic financial contracts like Murabaha and Istisna. Shatha (2014) also concluded that the profit and loss-sharing contracts are supposed to be vulnerable to any kind of asymmetric information problems, as the financier faces stronger incentives to closely monitor his clients than he would face in a debt like contract.

Despite the fact that there is a dearth of Islamic financial literature focusing on comparative performance of Islamic and conventional banks (see among others Aggrawal and

Yousef, 2000, Abdul-Majid et al., 2010b, Beck et al., 2010; and Kablan and Yousfi, 2012), there is a large gap that is not covered yet. For instance, academic literature does not provide rigorous analysis of the Islamic financial product structure, and what are their role under asymmetric information, and how to deter opportunistic behaviour of borrowers

There was one study, *Crawford* etc. al. (2013) (crawford, 2013) that empirically measured the extent and consequences of asymmetric information in borrowing by regressing different efficiency factors on variables like loan size, tenor, and interest rate of loans. This riskiness influences banks' pricing of loans as higher interest rates attract a riskier pool of borrowers, increasing aggregate default probabilities. Data on default, loan size, demand, and pricing separately identify the distribution of private riskiness from heterogeneous firm disutility from paying interest. Results suggest evidence of asymmetric information, separately identifying adverse selection and moral hazard. However, these studies were not done in the context of how financing contracts were designed, neither have they carried a comparative analysis for different mode of financing, and the information asymmetry in each. And above all they were not done in environment of a developing country having higher information asymmetries.

Moreover, there was a need to compare conventional and Islamic mode of financing with regards to asymmetric information, as they are designed different and the problem of asymmetric information in Islamic finance is supposed to be reduced by transferring physical position of financed asset. However, as there are many other factors that are different in Islamic and conventional banks, that cannot be held constant, making their performance and profitability comparison un-reliable. These are size of business, their past loan history and their stage in business life cycle. Businesses that are more stable and mature normally have long term credit history with conventional banks thereby reducing many of the problems of asymmetric information such as moral hazards and adverse selection. Islamic banks are relatively new and are facing more information asymmetry. Hence comparing those with conventional banks might not give credible results as we are purely focusing on the problems of asymmetric information that arrived from the way financing contracts were designed. A work around was to compare mode of financing within Islamic bank that doesn't involved new assets being purchased (Istisna) with that in which new assets are purchased (Murabaha). In istisna financing, the bank order to manufacture some goods to the and then by an agency agreement customer sell those goods to end buyer firms existent asset is purchased by bank and leased or sale back to firm on deferred payment, effectively giving money to

firm that can theoretically utilized that in more risky businesses. And because that intention is not known, this information asymmetry would lead to the problems of moral hazard and adverse selection. Whereas in Murabaha, new assets is purchased directly by bank from the third party and after taking physical or constructive possession, it is sold or leased to that firm, affectively not getting money that could be invested somewhere else, but as asset. This will reduce the problem of information asymmetry. Hence, in this way factors discussed above were affectively controlled for.

Moreover, to keep other bank specific factor constant (that are different within Islamic banks), we select customers from a single bank. We selected Meezan bank as it's a largest full fledge Islamic bank in Pakistan. Moreover, Country Pakistan is selected as Islamic banking is relatively new but rapidly growing at the rate of 14%. And new banks seemed to have more information asymmetry of borrowers as compared to old established banks where borrowers have long credit history.

1.4 Research Objective and Significance

In this paper, we measure the consequences of asymmetric information in the Pakistani market for small business lines of credit. This riskiness influences banks' pricing of loans as higher interest rates attract a riskier pool of borrowers, increasing aggregate default probabilities. To measure the distribution of asymmetric firm riskiness, we estimate models of loan size, profit rate on financing, tenor of financing, and default spread.

Following Stiglitz and Weiss (1981), (Weiss, 1981) we assume firms seek lines of credit to finance the on-going activities associated with a particular business project, the riskiness of which is private information to the firm. In fact those firms know the riskiness of their own project, but banks can only observe the average riskiness of their borrowers, conditional on observable firm characteristics. For a given interest rate, firms' expected profits are increasing with risk due to the insurance effect of loans: banks share a portion of the costs of unsuccessful projects. As a result, higher-risk firms are more willing to demand higher-rate loans. This, in turn, influences the profitability and performance of the borrowing firms. As firms invest in risky business due to asymmetric payoffs, their profitability and performance is compromised. Banks credit department filter out these risky firms through their credit rating, collateral and business risk. Financing rates are charged depending on these characteristics. Since they would grant financing for a particular business and in particular conditions, this would make the firm more disciplined, and efficiency thereby increasing their

performance. However, there is always a chance that firm invest that money somewhere else ex-post. Since bank is not aware of firm's intention, that information asymmetry would not only increase risk and lowering the profitability of the bank, but also for the firms themselves. For this reason, higher rates for any bank also worsen the risk composition of its accepted loans. This increases its aggregate default rates, lowering its profitability.

In this study, we analyzed two Islamic financial contracts istisna and Murabaha to assess the impact of information asymmetry on borrowers' performance. We employ independent t-test as well as regression and co-relation to assess the extent of information asymmetry affecting their performance.

We also did a comparative analysis of these two modes of financing. Four variables were proposed which can affect the Islamic banks financing contracts especially in Murabaha and Istisna in the environment of asymmetry information. We investigated separately for both Islamic financial contracts and their impact on asset and liabilities that can affect any firm or complete sector.

This will help identify the main reasons for moral hazard and adverse selection so that the bank will select the techniques to reduce it. This would also help the bank to avoid the impact of asymmetric information while using these two products.

1.5 Research Question

Particularly, the discussion in this study to review the following questions:

1. How is the business concept of Islam in the system of financing in Islamic banking helps to tackle the problem of information asymmetry.

2. By tackling asymmetric information problem like moral hazards and adverse selection, How it affect the ex post performance of the borrowers

II. LITERATURE REVIEW

This section of study examines the previous studies, concepts, methodologies from other researchers. Most of the studies have done on conventional sector to analyses the relationship between the asymmetric information and companies financing and investment decisions. Both in conventional and Islamic financing and investment tools.

(Yousfi, 2013) (Yousfi, Asymmetric information and islamic financial contracts, 2018) showed that Mudarabah enables to mitigate the moral hazard problem and lead the

entrepreneur to provide the first best levels of effort. These efforts depend on the level of risk of the project. First, the profit share of the entrepreneur depends closely on the level of risk of the project. Second, the threat to have no payment in case of failure increases the entrepreneur's incentives. On the contrary, Musharakah does not solve the moral hazard problem. One explanation could be the fact that the two parties jointly fund the project and that both of them provide non-contractible efforts which diminish their incentives.

Shatha (2014) (Shatha, 2014) concluded that, the majority of the Islamic investments attributed to Murabaha and ignores the other Islamic investment "Istisna". Islamic banks working in Jordan, the majority of the Islamic investments attributed to Murabaha and, Istesna'a percentage are very low, less than 3%. Although comparisons is being done between the both type of contracts which highlight that the profit and loss-sharing contracts are supposed to be vulnerable to any kind of asymmetric information problems, as the financier faces stronger incentives to closely monitor his clients than he would face in a debt like contract.

Aggarwal, R.K. and T. Yousef (2000) (Aggarwal, 2000) studied the set of instruments used by Islamic banks to finance projects in Muslim countries given that Islamic Law prohibits the charging of interest. The evidence indicates that the bulk of the financing operations of Islamic banks do not conform to the principle of profit-and-loss sharing (e.g., equity contracts). Instead, most of the financing is based on the markup principle, and is very debt-like in nature. They also imply that economies characterized by adverse selection and mora hazard will be biased towards debt financing.

Abdul-Majid, M.; Saal, D.; Battisti (2010) (Abdul- Majid, 2010) investigated the efficiency of Islamic and conventional banks in 10 countries that operate Islamic banking for the period 1996–2002. They found that Islamic banking appears to be associated with higher input usage. They also found that Islamic banks are found to have moderately higher returns to scale than conventional banks.

Beck et. al. (2010) (Beck, 2010) showed that many of the conventional products can be redrafted as Sharia-compliant products, so that the differences are smaller than expected. While Islamic banks seem more cost-effective than conventional banks in a broad cross-country sample, however, conventional banks that operate in countries with a higher market share of Islamic banks are more cost-effective but less stable. There is also consistent evidence of higher capitalization of Islamic banks and this capital cushion plus higher liquidity reserves explained the

relatively better performance of Islamic banks during the recent crisis.

Kablan and Yousfi (2012) (O.Yousfi, 2012) analyzed Islamic banks efficiency over the period 2001-2008. They found that they were efficient at 78.9%. The level of efficiency could however vary according to regions. Asia displays the highest score with 84.64%. Country like Malaysia and Pakistan implemented reforms in order to allow Islamic banks to better cope with the existing financial system. They also found that Market power and profitability have negative impact on Islamic banks efficiency. Concentration leads to higher costs through slacks and inefficiency. Again other results from robustness checks appear to stress the specificity of Islamic banks, like their first aim for financing rural population

2.1 Asymmetric information

Ugo Albertazzi etc. al. (2014) (Ugo Albertazzi, 2014) analyzed Asymmetric information in securitization deals is based on a unique dataset comprising a million mortgages. The main finding was that securitized mortgages have a lower default probability than non-securitized ones. Crawford etc. al. 2018) also studied the effects of asymmetric information and imperfect competition in the market for small business lines of credit. They found evidence of adverse selection in the form of a positive correlation between the unobserved determinants of demand for credit and default. While increases in adverse selection increase prices and defaults on average, reducing credit supply, banks' market power can mitigate these negative effects.

Lester et al. (2017) (Lester, 2017) show that equilibrium contracts in insurance and credit markets are jointly determined by adverse selection and market power, and that increased competition and reduced informational asymmetries can be detrimental for welfare.

Karlan and Zinman (2009) (Karlan, 2009) estimated the presence and importance of hidden information and hidden action problems in a consumer credit market using a new field experiment methodology. They randomized 58,000 direct mail offers to former clients of a major South African lender along three dimensions: (i) an initial "offer interest rate" featured on a direct mail so licitation; (ii) a "contract interest rate" that was revealed only after a borrower agreed to the initial offer rate; and (ii) a dynamic repayment incentive that was also a surprise and extended preferential pricing on future loans to borrowers who remained in good standing. They found strong evidence of moral hazard and weaker evidence of hidden information problems. A rough estimate suggests that perhaps 13% to 21% of default is due to moral hazard.

Jalaluddin and Metwally (1999), (Jalaluddin, 1999) showed a positive relationship between the probability of financing through PLS and the business risk. This means that an entrepreneur with a risky project is more willing to enter into a PLS contract rather than an entrepreneur with a lesser risky project. They also found that if the costs of borrowing (through interest) are high, the probability of financing through PLS is higher. In addition, they found negative relationships between the probability of PLS funding and some independent variables.

Safieddine (2009) (Safieddine, 2009) has done an investigation of the investment accounts of Islamic banks. He applied agency theory to the banks and found that investment account holders expose their money to risks but lack influence on the management. As, Investment accounts of Islamic banks are created through a so called "two-tier mudarabah" the depositor is therefore exposed to risks associated with the investment decision of the bank, but the bank does not face any risk, because in the mudarabah contract the supplier of funds is solely liable for losses. If the investment accounts holders' lack influence and monitoring possibilities on the management due to difficulties gathering information, then there is room for agency problems.

Khan (1989) (Khan, 1989) developed a model which is used to compare variable return schemes (VRS, like equity or PLS) withfixed return schemes (FRS, like debt or mark-up). He found that under the assumption of symmetric information the VRS dominates, because it spreads the risk much better than does FRS. As soon as he relaxes the assumption of symmetric information, the FRS becomes the dominant method of financing. According to Khan (1989) the dominance of FRS under asymmetric information has two reasons. First, lesser monitoring takes place because only a "reported return below the fixed return is suspicious". Second, the FRS allows for lower monitoring costs because it "minimizes information requirements". Because of these two reasons, he concludes that the dominance of the debt contract stems from the asymmetric information problem observed in practice.

David Kmling (2014) (mling, 2014) compared the asymmetric information problem between a debt like contract and an equity like contract. It proved that profit and loss sharing contracts are more beneficial to make the project successful because it minimizes the risk of maximum losses.

Rifki ismail (2014) (Isma, 2014) in another theoretical study, gave the assessment of moral hazard in Murabaha financing which shows the impact of information asymmetric in moral hazard in relation with price risk (which is the volatility of commodity price). The study

also shows which steps can be taken when the honest default occurs and when dishonest default occurs.

Kaouther Jouaber (2012) (Kaouther Jouaber, 2012) also showed the asymmetric information impact in the shape of moral hazard in Murabah financing, the study aim was to analyze the price risk in the context of moral hazard, and price was dependent variable to select the customer by bank.

Alsayyed,(2010) (Alsayyed, 2010) studied the uses of Commodity Murabaha, and found that Murabaha is clearly the Islamic treasurer's funding product of choice, as it is **flexible** enough to facilitate many structures for financing, hedging, and currency exchanging

Paolo Pietro Biancone and Maha Radwan (2018) studied that the unconventional financing alternatives could positively (Radwan, 2018) impact international economics and be a viable potential alternative for financing with its diversified instrument for social enterprise development.

III. METHODOLOGY

3.1 Theoretical framework of study:

Moral hazard in Islamic based financial contracts can take different forms, which vary according to the type and nature of the contract between the bank and the client. The most common factors triggering moral hazard are: (i) the borrower using the funds for different purposes than agreed with the bank; (ii) the borrower not reporting the profit correctly and truthfully; and (iii) holding inside information used against the interest of the bank.

To tackle the moral hazard problem the bank needs to regularly monitor the performance of the borrowers by obtaining and screening various types of financial information, such as statement of financial position, profit and loss account, cash flow statement, and statement of change in equity. Banks also send inspectors to firms to monitor borrowers' progress.

Investigating moral hazard leads to additional costs to the bank and the outcome of investigation can be either a success or fail. Where: MC is the monitoring cost. If the moral hazard is detected the bank takes back the remaining value of the asset financed and needs to forgo the mark-up. If the moral hazard is not detected then the bank bears the monitoring costs and the borrower continuous to retain the asset.

Chart: costs for impact of asymmetric information
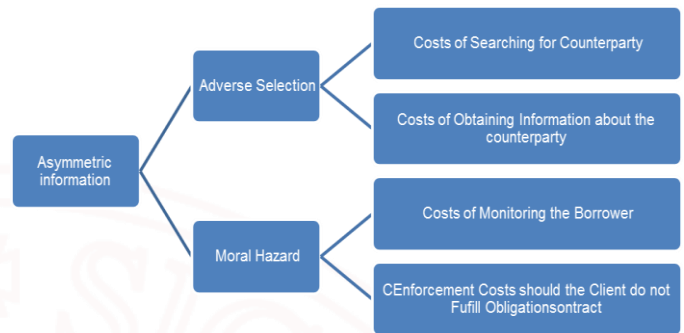
Use of incentive can overcome the problem of asymmetric information in Islamic financial contracts.it will encourage the borrowers to provide the critical data of company that save the Islamic financial institutions from moral hazard. In Istisna the industry practice is that bank after purchasing the product from customer appoint him as agent of sale in the market on incentive basis, so this lead to work the customer as an agent smoothly that will safeguard the bank from moral hazard and on the other hand customer don't complete his responsibility his incentive become zero so that bank can cover its share of loss of financing cost.

The risk of adverse selection can be solving by taking security /collateral from the customer, this shows the customer creditworthiness. So bank can cover his repayment risk in Murabaha by disposing off the security

Islamic bank also use the credit rationing techniques as the conventional do to resolve the issue of adverse selection, after some period of time bank can gathered a comprehensive data about the good and bad customer with which prevent him from loss.

3.2 Process Flow

3.2.1 Murabaha

The following process flow serves as the basic Process Flow for Murabaha financing (excluding Spot Murabaha). Any customer willing to avail Murabaha financing must accept this process flow along with the Customer Specific Details and provide acknowledgement on the format attached.). After the necessary Credit and Shariah Approvals, Bank and the customer will enter into MMFA and Agency Agreement for the purchase of goods.

The Bank Representative will educate customer about the Murabaha process and especially about the importance of placing Order Form to Bank before/along with finalizing order with supplier and well before the dispatch of goods

from the supplier's premises, signing of Declaration and Murabaha Contract before consumption of goods and storing the purchased stock of goods separately from the stock already present in the warehouse for proper identification.

As an agent, the customer will negotiate the price of the goods in the market for Bank and finalize the details with the suppliers and deliver an **Order Form** to the bank before/along with finalizing order with supplier (before the dispatch of goods from the supplier's premises).

The disbursement must be done at the time when the customer has to make the payment to the supplier. This implies that in case of Advance Payment, the disbursement will be done at the time of the Order Form. In case of Credit Payments, the disbursement will be done later i.e. at the expiry of the supplier's credit period (which is normally after the Declaration and Murabaha Contract).

The disbursement will be made to customer's account with BANK for onward payment to the Supplier via **any approved payment instrument** in favour of suppliers. The customer will provide copy of **this payment instrument payment evidence** to BANK for 100 % of the sub Murabaha transactions.

Upon receipt of goods, the customer will declare the goods through **Declaration Form** in the days mentioned in the Customer Specific Details along with providing the **purchase evidences Goods receipt evidence** for **100 %** of the sub Murabaha transactions.

Simultaneously, customer will give an offer to BANK to purchase the goods via **Murabaha Contract**. It must be ensured by the customer that the goods are not consumed before signing of **Declaration Form & Murabaha contract.**

In case of **Partial deliveries**, separate Partial Declaration form and Murabaha contract must be executed immediately for each delivery trench.

To ensure that goods are not consumed before signing of Declaration form & Murabaha contract, the Bank Representative will also perform random physical inspections of purchased stock in the no. of Sub Murabaha transactions mentioned in the Customer Specific Details & telephonic confirmation report (in case physical inspection is not conducted) will also be enclosed with the declaration form & Murabaha contract.

Upon Confirmation, BANK will accept the offer by signing the Murabaha contract and the ownership of assets will transfer to the customer. At this stage, the tenor of sub

Murabaha, contract price and payment schedule will be finalized through **Payment Schedule**.

In order to ensure that **acceptance of Murabaha Contract is communicated to the customer**, the Bank representative must communicate the acceptance of Murabaha Contract to the customer via email/telephone/fax etc immediately on the same day of acceptance of Murabaha Contract. For record and control purposes the Bank's representative must also mention over the Murabaha Contract the date and mode of communication of acceptance along with name of the customer's representative to whom acceptance was communicated. In case of email of fax, a copy of the same maybe attached.

The customer will settle Sub Murabaha on or before the maturity from its own sources

3.2.2 Istisna

The following process flow serves as the basic Process Flow for Istisna financing. Any customer willing to avail Istisna financing must accept this process flow along with the Customer Specific Details and provide acknowledgement on the format attached.

After the necessary Credit and Shariah Approvals, Bank and the customer will enter into MIFA and Agency Agreement for the Sale of goods Manufactured by customer

The Bank Representative will educate customer about the Istisna process and especially about the importance of placing written offer to Bank before/along with finalizing order, signing of Declaration and Istisna Contract before selling the goods in the market on behalf of bank agent.

As a manufacturer, the customer will negotiate the price of the goods with the Bank, finalize the details with the bank, and deliver a **Written Offer** to the bank before/along with finalizing order.

The disbursement must be done at the time when the customer has to make the **Written Offer** to the Bank. In cases there should be Advance Payment which generates the running for customer.

Upon receipt of goods, the customer will declare the goods through **GRN (Goods receiving note)** in the days mentioned in the Customer Specific Details along with verified quality.

Simultaneously, customer will give an offer from Bank to sell the goods via **sale Contract**. The customer act as agent with agency fees also customer has given an incentive also which is over and above the bank target selling price.in this price bank can receive it's

In istisna customer to settle the bank payment on maturity from original proceeds from end buyer, customer is not allowed to repay to from his own resource because it is not the loan transaction but it is sale base sharia mode of financing.

3.2.3 Murabaha vs Istisna with respect to moral hazard and adverse selection

Both the Islamic financial contracts have risk of moral hazard and adverse selection but they have difference in stages where both the problems exists, e.g. in Murabaha adverse selection risk exist when customer credit proposal is in approval process if the customer hide his some information form Islamic bank which purely the customer have and bank has no direct excess on that information. For example after providing proper security to bank for approval of credit proposal and on its behalf customer receive the disbursement for bank and supplier is fake or he has make fake settlement with supplier which is his partner but is not disclose in any document. In this situation in case of disbursement to customer if bank identify this issue of adverse selection bank only can receive its principle amount without profit bank only black list the customer in future but in Istisna also the issue but bank can mitigate this by two ways, one is that the bank can ask the customer to disburse the amount verification of manufactured good if the product received on time bank made payment otherwise bank can apologies to disburse but by this way the Istisna product will not remain viable for industry because its nature is to cooperate with customer to fulfill his running finance needs.in second option bank can ask the customer to if the customer fails to deliver the product at delivery time he is bound to deliver the goods by purchasing from market and also bank can stop the customer factory produced to deliver to any other person and get it delivered to bank itself by force, finally bank has no need to receive the disbursed amount without profit but sometime this is risk in Murabaha.

IV. EMPIRICAL ANALYSIS

4.1 Data

To attain the objective of this study, a primary annual data from 2016 to 2018 is selected. This data is selected from Meezan Bank of Pakistan's small and medium enterprise (SME) and commercial customers. The number, of observations are 105 from Murabaha customers and 50 observations are from istisna financing customers. The data is selected on basis of their disbursement, profit rate, tenure,

along with balance sheet and income statement figures. Data of above-mentioned financing customers were collected from directly from Meezan Bank record. In data the mean, standard deviation, and probability shows significance level, probability in all is less than 0.5 which consider very efficient in industry

Table 3:
Descriptive Statistic (Murabaha financing)
Table 4:
Descriptive Statistic (istisna financing)
See both in last of article

When we make comparison in both modes of Islamic financing we found that probability of both the financing is have level of significance e in Murabaha the level is very high because all independent variables in relation with dependent variable have probability under the acceptable range but in istisna probability of dependent variable have negative relation with independent variable but it does not affect the real factor which shows that the istisna financing on ROE, ICR, FAT does not have any impact.

4.2 Variables

This section explains the econometric models used for measuring impact of disbursed amount (DA), spread, profit rate (PR) and tenor on various efficiency indicators like Profit Margin (PM), Total assets turnover (TAT), Equity multiplier (EM), Fixed Asset turnover (FAT), Return on Assets (ROA), and interest Coverage Ratio (ICR).

4.2.1 Dependent Variables

The process of data selection and collection and issues arising are discussed here. This is followed by an overview explaining the list of variables used in the econometric models. Variables are explained as under.

1. Disbursed Amount: This measured the amount volume of loan sanctioned to the borrower. This amount is disbursed to a needy customer after approving its credit proposal from business unit, risk, CAD, management office and from sharia Dept.

2. Spread: This depicts credit default spread, i.e. additional rate charged over and above the risk free rate to compensate for the probability of default, higher the probability of default, higher would be the spread. These percentages vary from customer to customer as well as on basis of amount financed and its tenor.

3. Profit Rate: The rate of profit charged by the bank on the financing amount. The profit rate is the percentage of principle amount being financed from a commercial bank to its customer usually it followed by a well-known benchmark like KIBOR, LIBOR etc.

4. Tenor: The maturity period of the financing, after this period, the principal become due.

4.2.2 Independent Variables

Our main variables consisted of Profit Margin (PM), Total assets turnover (TAT), and Equity multiplier (EM). These three financial ratios are decomposition of Return of Equity (ROE) ratio, and known as DuPont Equation. The Du-Pont equation in profitability analysis explains the drivers of profitability in detail with three drivers which are asset turnover, financial leverage, and profit margin. Succinctly, the DuPont model enables the analyst to ascertain whether the overall profitability of a firm is (1) emanating from the firm's income minus expenses (profit margin), (2) a result of effective and efficient use of organization's asset (ATO), (3) stemming from the mix equity and debt employed by the company (capital structure), or any combination of these factors (Turner, Broom, Elliott & Lee, 2015). (Turner, 2015)

Each of the factors is briefly explained below

1. Margins: net income/total revenue. High margins are often associated with organizations that are involved in rendering niche services / products, have stringent control over its cost structure (economies of scales or effective use of assets), and the ones enjoying monopolistic market conditions.

2. Efficiency: Asset Turnover Ratio is a metric most commonly used for measuring firm's efficiency by dividing total sales with total assets. It allows the users of financial information to assess how effectively the firms is capitalizing its assets in generating profitability

3. Financing Policy: The third component of DuPont model pertains to measurement of company's financial leverage by means of equity multiplier. It is a financial ratio determined by dividing a company's total asset value by total net equity.

Other ratios that depicted performance were also analysed, these includes

4. Fixed Asset Turnover: It is used by analysts to measure operating performance. This efficiency ratio compares net sales (income statement) to fixed assets (balance sheet) and measures a company's ability to generate net sales from its fixed-asset investments, namely property, plant, and equipment (PP&E). In general, a higher fixed asset turnover ratio indicates that a company has more effectively and efficiently utilized its fixed assets.

5. Return on assets (ROA): is an indicator of how profitable a company is relative to its total assets. ROA gives a manager, investor, or analyst an idea as to how efficient a company's management is at using its assets to generate earnings

6. Interest coverage ratio is a debt ratio and profitability ratio used to determine how easily a company can pay interest on its outstanding debt. The interest coverage ratio may be calculated by dividing a company's earnings before interest and taxes (EBIT) during a given period by the company's interest payments due within the same period. The Interest coverage ratio is also called "times interest earned." Lenders, investors, and creditors often use this formula to determine a company's riskiness relative to its current debt or for future borrowing.

4.3 Methodology

We attempted 3 pronged approach for analysing the problems of moral hazards and adverse selection. At first, we compare the mean and variance of different efficiency and performance measure and performed independent t test to ascertain whether the performance to the two modes of finance statically different.

4.3.1 Performance comparison of the two modes of financing

The first four dependent variables were financing details and subsequent six variables are performance details of three years after financing have being taken. We hypothesized that in Murabaha financing, where problems of asymmetric information is less because of position transfer mechanism discussed above, this will more efficiently be utilized in the business, these funds would not be diverted in other risky sectors that would increase the risk and reduce the performance in long run. In short run, they might benefit from the windfall profit in risk businesses but due to stochastic nature of risky returns, these will cancel off in long run thereby decreasing the performance and efficiency.

<div align="center">

Table 5: **T-Test:**

Two-Sample Assuming Unequal Variances

See in last of article

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Table 4 showed that the input variables do not depict any significant difference apart from disbursed amount. Especially the profit rate and spread that depict the riskiness of investment didn't seemed to differ significantly (p value 0.99, and 0.23). This means that both modes of financing have more or less the same risk level of customers. Despite the fact that on average Murabaha financing has slightly more maturity that is significantly different.

On the other hand, the output variables depict a slightly different picture. Two out of three DuPont measures showed mildly significantly difference among them. With both profit margin and turnover that showed demand and supply side performance and efficiency respectively are on average higher for Murabaha financing. Where tijara and istisna is mainly benefiting from leverage however the difference showed insignificant. The other ratios like ROA and interest coverage, also shown better performance for Murabaha financing with higher mean and both significant at 10% and 5% respectively.

This analysis showed two major findings

1. Both the means of Murabaha and istisna financing are significantly different in major performance indicators, implicating companies that have taken these two financing have performed differently.
2. In most of the ratio that mattered like efficiency and profitability, Murabaha based financing have yielded results that are more efficient and better performed as compared to istisna.

4.4 Correlation analysis

Table 6:

Correlations (Murabaha financing)

Table 7:

Correlations (istisna financing)

See in last of article

The above two tables showed coefficient of correlation among the variables of Istisna and Murabaha financing. It is evident that a moderate correlation exists between disbursed amount and the profit rate. Spread is also highly correlated with tenor for Istisna financing. Tenor is also moderately linked with the profit rate. This kind of relationship is not evident in case of Murabaha financing. This showed that Istisna more closely behaved with debt security then Murabaha. ROA and profit margins seems to have high correlation as expected, this suggested that main driver for return were demand led growth rather than supply led efficiencies.

4.5 Regression Analysis:

We apply multi-regression analysis to analyse the impact of disbursed amount, spread, profit rate, and tenor. We made fourteen models, the first six models were regressed with the total asset, total liabilities, sale, and net profit. In this analysis, we consider total asset, total liabilities, sale, net profit as independent variables and disbursed amount, spread, profit rate as dependent variable.

We employ the following regression equation

$$Y' = \alpha + \beta_1 TA + \beta_2 TL + \beta_3 SALE + \beta_4 NP$$

The rest of the models were regressed in different performance ratios. These included Profit Margin (PM), Total Assets Turnover (TAT), earning multiplier (EM) as a proxy of leverage, Fixed Assets Turnover (FAT) to assess the quality of fixed assets, Return on Assets (ROA), and Interest coverage ratio (ICR)

We employ this in the following regression equation

$$Y' = \alpha + \beta_1 PM + \beta_2 TAT + \beta_3 EM + \beta_4 FAT + \beta_5 ROA + \beta_6 ICR$$

Table 8:
Regression equation result
See in last of article

In model 1, Disbursed amount is significantly affected by total assets, where in model 2 (Istisna) it remained insignificant. This showed that in Murabaha financing, more assets leads to more loans as expected, but not for Istisna. This could be because the Istisna have no direct effect on customer assets as in Istisna customer produce the goods and sell to the customer/**ultimate buyer**.

Similarly, total Liabilities have a more significant effect on Disbursed amount in case of Istisna. This means more borrowing in case of more liability. It could be a sign that company is utilizing additional borrowing so where else. However, it is not the case in Murabaha due injection of payment in real asset as bank try to utilizes the amount in real purchasing.

Total Assets have more pronounced effect in Spreads in model 3 (Murabaha). More asset leads to lesser spread as accepted for Murabaha, but for Istisna, the relationship is inversed. This means that assets quality was not captured in Istisna leading moral hazards. Spread was also seemed to be influenced by total liabilities in Istisna financing (model 4). This clearly showed, more liability, leads to more spread for Murabaha, but not for Istisna this mean information is not properly absorbed in spreads for the case of Istisna.

Similar to spreads and total assets, the profit rate were also significantly influenced in Assets in case of Murabaha, this indicated increase in assets followed by more risky financing. Similarly, liabilities also have a significant effect in profit rate as in spread. Means risky investment were charged more in case on Murabaha, lowering the problems in information asymmetry. The factors in Istisna remained insignificant.

In model 7 (Table 8), Profit margin had a strong and significant impact on disbursed amount for Murabaha financing as compared to Istisna. This means, in case of Murabaha, higher profits are better captured by banks, and disbursed amount are better utilized. The reason is that, in Islamic financial contracts, banks focus on sale contract for customer financing.

Whereas, disbursed amount were not seemed to be effected from quality of fixed assets for both model 7 and 8.

Disbursed amount was also affected by financial leverage for model 7 (Murabaha). This showed higher disbursement, leads to increase leverage effect, this would ultimately be increasing riskiness of ROE, whereas that relationship is not significant in Istisna. Similarly, in model 7 and 8, quality of fixed assets didn't seem to effect the disbursed amount in both the cases.

Table 9: **Regression equation result**

See in last of the article

The effect of return on asset (ROA) on dispersed amount was highly significant for Murabaha, whereas insignificant for Istisna. This showed borrowing are affectively utilized in Murabaha as compared to Istisna, the reason behind is that in Murabaha customer purchases the goods from bank at the market rate. That variation in prices produced more effect on return on equity (ROE). However, customer cannot capitalized on higher market rate as in Istisna, because customer sell the goods to bank, and now bank can set the price that would not necessarily depicted in market. High significance of interest coverage ratio on disbursed amount in model 7 showed Istisna business have more safely covered from default risk.

In model 9 and 10, different performance variables were regressed on default spreads. Profit margin have highly significant effect on default spread, for both cases, this showed risky projects were effectively captured by the bank in higher spreads. Similarly, financial risk due to leverage was also captured adequately in default spreads in case of Murabaha.

Higher spread also leads to lower total assets turnover in model 9, according to expectations, whereas the relationship is inverse and significant to Istisna (model 10). This could mean, in Istisna, fund were invested in those areas where risk was not captured by the bank, evidence of asymmetric information.

Similarly, spreads are also being influenced by financial leverage (EM) for Istisna but the effect remained

insignificant at 5%, showing information asymmetries not fully captured by the bank

In Model 9 (murabah), fixed asset turnover, had a strong and significant effect on default spreads. This indicated that better fixed assets utilization increase their turnover at a higher spread. This means more risky business are utilizing funds efficiently, however it remained insignificant for istisna case. This relationship is also valid to Return on assets, as both is significantly influencing the spreads.

In model 11 and 12, financing rates were negatively affected by profit margin for both forms, indicating risky investments seems to have lower profitability, the effect is however insignificant for Murabaha maybe because of better utilization of financing. The same effect is witnessed for total assets turnover.

Financial leverage also negatively affected that financing rate as in case with spreads. The effect is significant for Istisna (model 12)

Return on assets was also positively related to financing rates for both forms however, the effect is significant for Istisna (model 12). It showed that higher financing rate leads to higher returns afterwards, It could mean, in case of Istisna, that banks were funding business that were more cyclical in nature, whereas in Murabaha financing, funds were invested in core activities that didn't significantly move with the rates.

In model 13 and 14, profit margins had inverse effect on tenor, the effect is significant for Istisna. This showed that long term projects yields more profit as compared to short term, however the effect was not significant for Murabaha. Similar result were found with Fixed assets turnover and Return on Assets, as it positively and significantly affected the tenor for Istisna (model 14), indicating more efficiencies in longer run, however it remained insignificant for Murabaha. At last, interest coverage ratio largely remained in significant in all models..

V.   CONCLUSION

Asymmetric information topic has widely discussed in relation with conventional banks. Some studies have been done on asymmetric information in relation with Islamic financial contracts as it discussed in literature review but majority studies are on equity base Islamic financial contracts like Musharkah and mudarba with respect to both aspect adverse selection and moral hazard, the studies shows that both problem exist in Musharkah and mudarbah and has been discussed their solution. There is another type of Islamic financial contract which is consider on debt base i.e

Murabaha, Istisna few article are on one side of effect of asymmetric information as moral hazard in Murabaha but no study found on Istisna in connection with moral hazard and adverse selection.

This study not only focused on Murabaha but also compared it with Istisna, It proved that Murabaha also have the problems of adverse selection in a way that at time of selection of a customer a bank may make mistake in credit worthiness checking of client, however, it can be cover by taking security. In Istisna it can be covered by not making disbursement till time of delivery of final product to the bank although as per sharia disbursement to customer is allowed before the delivery as well as at time of making Istisna order, but practically if the Islamic banks restrict the disbursement till delivery the product will not remain viable for market because the customer needs financing for purchasing the raw material, although it is risky which leads to moral hazard

We selected three years annual data of 35 customers with the 105 number of observation of Islamic bank, which are utilizing many sharia compliant financing facilities, but I select two: **istisna and Murabaha** financing products in different commodities like cotton bales, fertilizer, pesticide, oil cake, rice, wheat seed, cotton seed, chipboard, fans, auto parts, canola seed and medicines. We found no payment delay in all customer which are from very different segments unlike in case of conventional financing, where this ratio relatively high. In Islamic financing contract, the disbursement amount actually placed in asset which has its monetary value so in case of any loss due to availability of actual asset customer can recover major portion of his disbursed amount and will be able to pay the bank financing at the time of maturity, but in the conventional bank, the disbursed amount did not inject directly in physical asset so at time of repayment if customer has not got enough, liquidity he would default. This leads to the problem moral hazard ultimately. Hence, the injection of disbursed amount in real asset is more beneficial for economy.

Recommendations

The study suggested that SME and Commercial sector to finance their projects under the Islamic financial contracts. It is more secure and disciplined way for both the sectors. Benefit of using these contracts is firstly to avoid interest-based transactions, also these contact does not create the bubble in economy, which can burst at any time

Acknowledgments:

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Table 3:
Descriptive Statistic (Murabaha financing)

	DA	SPRED	PR	TENOR	PM	TAT	EM	FAT	ROA	ICR
Mean	4868653	0.022594	0.096346	148.2762	0.209546	5.271286	1.690048	83.51522	0.466732	0.838144
Median	2000000	0.0225	0.0868	178	0.0699	3.50137	1.2189	15.76127	0.2241	0.2659
Maximum	25000000	0.0565	0.951	270	7.51657	71.40822	7.80021	964.8595	10.1659	10.705
Minimum	125000	0.01	0.0716	1	0.00271	0.08189	0.16777	0.1108	0.0162	0.0175
Std. Dev.	6570561	0.011326	0.084895	62.0977	0.749522	7.606361	1.384871	189.9784	1.091595	2.256208
Skewness	2.020009	0.769974	9.853098	-0.12034	9.009218	6.442254	1.917884	3.324476	7.216809	4.027875
Kurtosis	6.113479	3.37444	99.71429	2.15708	87.78951	55.70852	6.847657	13.60189	61.89783	17.7666
Jarque-Bera	113.8178	10.98845	42621.19	3.361932	32873.42	12880.87	129.1394	685.163	16088.12	1237.896
Probability	0	0.00411	0	0.186194	0	0	0	0	0	0
Observations	105	105	105	105	105	105	105	105	105	105

Table 4:
Descriptive Statistic (istisna financing)

	DA	SPREAD	PR	TENOR	PM	TAT	EM	FAT	ROA	ICR
Mean	11337259	0.020625	0.096258	114.1667	0.094464	3.820821	2.981174	190.9057	0.265353	0.315242
Median	11292534	0.0225	0.0938	90	0.0583	2.839515	0.991115	19.61888	0.1969	0.16465
Maximum	29583360	0.03	0.1159	180	0.39321	13.11266	64.71127	1939.676	1.4742	2.5346
Minimum	1160430	0.01	0.0721	60	0.0001	0.25657	0.15068	1.22244	0.0007	0.0175
Std. Dev.	7775263	0.007328	0.012527	47.29089	0.100509	2.861496	10.65358	447.9905	0.285906	0.453498
Skewness	0.816737	-0.24978	-0.03201	0.317256	1.71419	1.250137	5.631386	2.87391	2.580821	3.585734
Kurtosis	3.347564	1.881462	2.319252	1.509492	4.874004	4.402553	33.1287	10.38909	10.61087	17.36472
Jarque-Bera	4.183553	2.251022	0.701275	3.936327	22.89852	12.32779	1551.883	131.4541	126.8519	386.6626
Probability	0.123468	0.324487	0.704239	0.139713	0.000011	0.002104	0	0	0	0
Observations	36	36	36	36	36	36	36	36	36	36

Table 5: **T-Test: Two-Sample Assuming Unequal Variances**

		Mean	Variance	t Stat	P value (two-tail)
Disbursed Amount	Murabaha	4868652.95	4.317E+13	-4.473934	4.098E-05
	Tigara/Istisna	11337259.25	6.045E+13		
SPREAD	Murabaha	0.022592143	0.0001283	1.1941622	0.2354193
	Tigara/Istisna	0.020625	5.371E-05		
Profit Rate %	Murabaha	0.096345714	0.0072072	0.0102272	0.9918576
	Tigara/Istisna	0.096258333	0.0001569		
Tenor	Murabaha	148.2761905	3856.1249	3.4307706	0.0009599
	Tigara/Istisna	114.1666667	2236.4286		
Profit Margin	Murabaha	0.20954618	0.5617825	1.5336053	0.1278974
	Tigara/Istisna	0.094465318	0.0101018		
Total assets turnover	Murabaha	5.27128662	57.856728	1.6439478	0.1024633
	Tigara/Istisna	3.820820235	8.1881596		
Equity multiplier	Murabaha	1.690048252	1.9178672	-0.725054	0.473239
	Tigara/Istisna	2.98117466	113.49866		
Fixed Asset turnover	Murabaha	83.51521608	36091.792	-1.395906	0.1706391
	Tigara/Istisna	190.9057377	200695.48		
Return on Assets	Murabaha	0.466730561	1.1915714	1.7256025	0.0867241
	Tigara/Istisna	0.265352763	0.0817412		
interest Coverage Ratio	**Murabaha**	0.83814381	5.0904723	2.246192	0.0264473

		Tigara/Istisna	0.315241667	0.2056607		

Table 6:
Correlations (Murabaha financing)

	DA	SPREAD	PR	TENOR	PM	TAT	EM	FAT	ROA	ICR
DA	1									
SPREAD	-0.27472	1								
PR	-0.09311	0.092426	1							
TENOR	-0.01075	-0.0843	0.042247	1						
PM	0.031218	-0.12306	0.009017	0.082282	1					
TAT	-0.08757	0.116757	-0.03406	-0.06473	-0.11296	1				
EM	0.249122	-0.00623	-0.04887	-0.17097	0.131437	-0.27927	1			
FAT	-0.14753	0.001317	-0.04144	-0.07998	-0.08376	0.27007	-0.08386	1		
ROA	0.022575	-0.11195	-0.00483	0.140907	0.92926	-0.00232	-0.00657	-0.06791	1	
ICR	-0.06703	0.081098	-0.00194	-0.15856	-0.05555	-0.02268	-0.04602	0.342279	-0.04688	1

Table 7:
Correlations (istisna financing)

	DA	SPREAD	PR	TENOR	PM	TAT	EM	FAT	ROA	ICR
DA	1									
SPREAD	-0.32479	1								
PR	-0.41417	-0.16076	1							
TENOR	0.010577	-0.80535	0.554143	1						
PM	0.271207	0.121269	-0.31829	-0.30769	1					
TAT	-0.31966	0.068242	0.270035	-0.00617	-0.34183	1				
EM	0.421303	0.030758	-0.11262	-0.07605	-0.13625	-0.23603	1			
FAT	-0.41584	0.388901	-0.05242	-0.2192	-0.21631	0.36147	-0.06091	1		
ROA	-0.01726	0.040757	-0.10336	-0.19104	0.545513	0.342778	-0.17506	-0.03569	1	
ICR	0.132256	-0.00123	-0.37336	-0.01824	0.058583	-0.2204	-0.0145	-0.05885	-0.0884	1

Table 8:

Regression equation result

			Model 1 Murabaha	Model 2 Istisna	Model 3 Murabaha	Model 4 Istisna	Model 5 Murabaha	Model 6 Istisna
			Dependent Variable					
			DA		SPREAD		PR	
Independent Variables	**C**	**Coefficient**	4868653	11337259	1.326763	0.020625	4.883189	4.563633
		t-Statistic	3.26E+15	1.51E+15	18.01226	7.55E+14	1.21E+15	1.12E+15
		Prob.	0	0	0	0	0	0
	TA	**Coefficient**	8.48E-14	1.67E-14	-2.02E-07	5.27E-23	2.20E-19	5.36E-21
		t-Statistic	6.869016	1.179882	-0.33093	1.021551	6.595607	0.699548
		Prob.	0	0.2534	0.7418	0.3205	0	0.4932
	TL	**Coefficient**	-9.07E-14	-1.71E-13	-1.53E-07	-6.67E-22	-1.43E-19	-6.73E-20
		t-Statistic	-4.81221	-1.52776	-0.16429	-1.6295	-2.81428	-1.10784
		Prob.	0	0.144	0.87	0.1206	0.0065	0.2825
	SALE	**Coefficient**	-6.97E-15	7.10E-14	-2.15E-07	2.59E-22	2.57E-20	3.68E-20
		t-Statistic	-2.63802	3.38702	-1.6498	3.385334	3.594217	3.239574
		Prob.	0.0105	0.0033	0.1039	0.0033	0.0006	0.0045
	NP	**Coefficient**	-1.17E-14	0	2.06E-08	-1.75E-22	-2.23E-20	8.98E-20
		t-Statistic	-1.19641	0	0.042645	-0.50374	-0.84463	1.736886
		Prob.	0.236	1	0.9661	0.6206	0.4015	0.0995

			Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14
	R-squared		1	1	0.976313	1	1	1		
			Murabah	**Istisna**	**Murabah**	**Istisna**	**Murabah**	**Istisna**	**Murabah**	**Istisna**
			Dependent Variable							
			DA		**SPREAD**		**PR**		**TENOR**	
Independent Variables	C	Coefficient	4868653	11337259	0.022594	0.020625	0.097613	0.096258	147.6912	114.1667
		t-Statistic	8.68E+14	2.06E+15	5.48E+14	2.38E+15	4.20E+00	4.16E+15	27.96855	9.38E+14
		Prob.	0	0	0	0	0.0001	0	0	0
	PM	Coefficient	4.92E-08	1.26E-08	2.76E-16	1.90E-16	-1.57E-03	-5.24E-16	-2.507764	-2.04E-12
		t-Statistic	4.421539	0.3378	3.372805	3.242665	-0.03404	-3.35607	-0.239335	-2.4852
		Prob.	0	0.7399	0.0013	0.0051	0.973	0.004	0.8116	0.0244
	TAT	Coefficient	-5.73E-10	2.06E-09	-7.94E-19	3.32E-18	-3.23E-04	-1.12E-17	-0.278474	-1.15E-14
		t-Statistic	-1.41543	1.806613	-0.26658	1.84579	-0.19212	-2.33601	-0.730447	-0.45658
		Prob.	0.1619	0.0897	0.7907	0.0835	0.8483	0.0328	0.4679	0.6541
	EM	Coefficient	-1.72E-08	9.48E-11	-1.38E-16	6.71E-19	-9.84E-04	-2.59E-18	0.784259	-5.46E-15
		t-Statistic	-6.62061	0.401951	-7.22397	1.805494	-0.09137	-2.6208	0.320848	-1.04933
		Prob.	0	0.693	0	0.0898	0.9275	0.0185	0.7494	0.3096
	FAT	Coefficient	3.22E-11	1.77E-11	9.01E-20	-4.45E-20	1.35E-05	4.76E-20	0.000389	4.65E-16
		t-Statistic	1.387443	1.697593	0.528691	-2.71063	0.140065	1.088375	0.017831	2.020786
		Prob.	0.1703	0.1089	0.5989	0.0154	0.8891	0.2926	0.9858	0.0604
	ROA	Coefficient	-3.50E-08	-3.96E-10	-2.00E-16	-4.85E-17	2.13E-03	1.93E-16	2.865672	7.85E-13
		t-Statistic	-4.60894	-0.03227	-3.57496	-2.51129	0.06753	3.755108	0.400819	2.899575
		Prob.	0	0.9747	0.0007	0.0231	0.9464	0.0017	0.6899	0.0105
	ICR	Coefficient	-8.33E-10	1.02E-08	1.55E-18	6.31E-18	3.68E-04	0	-0.139678	1.55E-13
		t-Statistic	-0.66846	2.291651	0.16934	0.903412	0.071191	0	-0.119114	1.58471
		Prob.	0.5063	0.0358	0.8661	0.3797	0.9435	1	0.9056	0.1326
Adjusted R-squared			1	1	1	1	-0.06035	1	0.897888	1
Prob(F-statistic)			0	0	0	0	0.696332	0	0.00	0
Durbin-Watson stat			2.773731	2.046115	2.793367	2.317264	4.434157	2.275504	4.400719	1.9269
Adjusted R-squared			1		1		0.961508		1	1
F-statistic			3.51E+30		1.32E+30		65.94629		8.79E+28	2.27E+29	2.16E+30
Prob(F-statistic)			0		0		0		0	0	0
Durbin-Watson stat			3.034791		2.512496		1.515861		2.528205	2.815141	2.240126

Table 9:

Regression equation result

Periods included: 3 (2016 2018)
Companies included: 35 for Murabaha and 12 for Tijara and Istisna
Total panel observations: 105 for Murabaha, and 36 for Tijara and Istisna
Effects Specification: 1. Cross-section fixed (dummy variables) 2. Period fixed (dummy variables).

Editor in Chief

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