Of Religion and Redemption:

Evidence from Default on Islamic Loans[*]

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Abstract

We study default rates on conventional and Islamic loans using a comprehensive monthly dataset from Pakistan that follows more than 150,000 loans over the period 2006:04 to 2008:12. We find robust evidence that the hazard rate on Islamic loans is less than half the hazard rate on conventional loans. Across duration models we include a variety of loan contract, borrower, and bank characteristics, where possible combined with time, borrower, bank and/or borrower*bank fixed effects. In big cities Islamic loans default less likely if the share of religious parties increases, suggesting that religious motivation may determine loan default.

Keywords: Loan Default, Islamic Loans, Religion, Duration Analysis

JEL: A13, G21, G32, G33, Z12

Islamic banking is one of the fastest growing parts of the financial sector. Growing recently at approximately 20%, and already accounting for $700 billion or 1% of the global banking market, "the global potential of the Islamic banking market is conservatively estimated at $4,000 billion, according to Moody's Investor Service" (*Financial Times*, July 8, 2008). The financial crisis may have spurred its growth and potential market share even further, as observers claim the "principles based on religious law insulate the industry from the worst of the financial crisis" (*Washington Post*, October 31, 2008).[1]

Yet despite the fast growth of Islamic banking and the imperative claims made about the built-in protection against excessive risk-taking by financial institutions, no research (we are aware of) so far has investigated the default rate of individual conventional and Islamic loans and explained their difference, if any. This lack of evidence should not come as a surprise, because the identification challenges, and corresponding data requirements, faced by such an analysis are steep. Borrowers seeking Islamic loans and banks granting these types of loans may differ from their conventional counterparts in many observable and unobservable characteristics. Whether therefore the difference in credit risk of Islamic and conventional loans is mainly due to compliance with Islamic rulings *per se*, or borrower, bank and/or other loan characteristics that are not determined by the *Shari'ah* remains an open question we aim to address in this paper.

The data set we employ covers all business loans that were outstanding in Pakistan during the period 2006:4 to 2008:12. The Credit Information Bureau (CIB) database, that we use, is maintained by the Consumer Protection Department of the State Bank of Pakistan and is also analyzed in Khwaja and Mian (2005), Mian (2006), Khwaja and Mian (2008), and Zia (2008)

[1] See also the *International Monetary Fund* report by Hasan and Dridi (2010). Islamic banking may in general positively affect financial development (Gheeraert (2008)).

for example. The country and sample period provide a unique setting to analyze credit risk in Islamic lending. Pakistan may be one of the few countries in the world where both well-developed conventional and Islamic banking sectors have co-existed for a considerable period of time. Though the characteristics of banks, borrowers and loan contracts may differ between conventional and Islamic loans, their co-existence in Pakistan offers a unique opportunity to test for the effect of religion on the loan default rate. Actually quite a few firms and banks repeatedly and concurrently engage in both conventional and Islamic type financing providing unique opportunities for advanced empirical identification. During the sample period loans continued to be first liberally granted and then increasingly started to default.

Employing a variety of duration models we find robust evidence that Islamic loans are less likely to default. This effect is not only statistically significant, but also economically relevant. The hazard rate on Islamic loans is on average less than half the hazard rate on conventional loans. For the same borrower taking both conventional and Islamic loans from the same bank, the hazard rate on Islamic loans drops to one fifth the hazard rate on conventional loans. These findings hold in a variety of specifications that contain pertinent combinations of borrower, bank and loan contract characteristics, and year*month, borrower, bank and borrower*bank fixed effects.

The elimination of interest in all its forms or *Riba* in Islamic banking, and the resultant structuring of Islamic loans into, among others, deferred-sale and lease-like contracts, may provide only a partial explanation for this robust finding. We cannot entirely exclude the possibility that borrowers may also feel a more acute conflict with their religious beliefs when defaulting on an Islamic loan (Iannaccone (1998) and Guiso, Sapienza and Zingales (2006)). Suggestive on this account is our finding that Islamic loans are less likely to default

if the share of religious parties increases, particularly in big cities where the distinction between religious and other political parties may be more acute.

Our study aims, therefore, to contribute to a wider literature that has investigated how religion may explain differences in economic growth across regions (Landes (1999)) and across European cities between 1500-1750 (Dudley and Blum (2001)), and how religion may determine economic development (McCleary and Barros (2006)), investor protection (Stulz and Williamson (2003)), economic attitude (Guiso, Sapienza and Zingales (2003)), risk aversion (Hilary and Hui (2010)) and entrepreneurship (Audretsch, Bönte and Tamvada (2007)). Our contribution exists in studying a comprehensive micro-level data set that contains individual loan contracts with both conventional and religiously-inspired Islamic loan contracts to assess their differential repayment performance. The lower hazard rate on Islamic loans seems to be partly related to possible differences in religious motivation of the borrowers.

The rest of the paper proceeds as follows. Section I explains the basic tenets of Islamic banking and their relevance for loan default. Section II introduces the data, our identification strategy, and duration models. Section III discusses the empirical results. Section IV concludes.

I. Islamic Banking and Loan Default

A. Islamic Banking

Islamic Banking refers to a system of banking or banking activity that is consistent with the principles of Islamic law (*Shariah*). While the purposes of Islamic banks are not unlike those of conventional banks, standard loan and deposit products are fundamentally different because of the prohibition of interest (*riba*) in Islam: Islamic banks are not allowed to offer a fixed rate of return on deposits and are not allowed to charge interest on loans.

Ideal modes of Islamic financing are based on the profit-and-loss sharing (PLS) paradigm. Examples include Musharakah (partnership, where all partners invest both money and expertise) and Mudarabah (partnership with some partners investing only money and others only their skills/labor). The ex-ante fixed rate of return common in conventional loan products is replaced by a return that is uncertain and dependent on the borrowing company's realized profits. What is known though at the start of the contract is the profit-sharing ratio between the provider of capital (bank) and the borrower (company). Notice that while PLS financing shares some characteristics with equity financing, a key difference is that financing is not for the entire life of the financed enterprise, as in case of equity, but for a shorter period corresponding to the duration of the contract.

A particularly popular product is the diminishing Musharakah. As in the Musharakah, a financier and his client participate either in the joint ownership of a property or an equipment, or in a joint commercial enterprise. What is different, however, is that the share of the financier is divided into a number of units, which at pre-agreed moments in time will be purchased by the client. Each period, the client's share increases until all units are bought and he fully owns the property or commercial enterprise. Rent, in case of property financing, or profit, in case of a commercial enterprise, is paid to the financier according to his remaining share in the project.

Over time, Islamic banks have developed products that are more comparable to conventional loans than the Musharakah and Mudarabah. While these products do not strictly involve a sharing of profits and losses, they are still permissible according to Islamic law because the two underlying contracts on which these financial products are based are permissible and there is no exchange of money for money. In a Murabahah contract, the bank first purchases a real asset from a supplier, and consequently sells it in a different contract at a marked-up price to the borrower. The borrower pays the price in installments over a period of time or in

lump sum at maturity of the contract. The asset commences as a mortgage with the bank until maturity of the contract, or until default has been settled (consumable items or inventory for example will obviously dissolve over time). The Ijarah contract is similar to a leasing contract, in which a bank buys an asset for a customer and then leases it to the customer for a certain period at a fixed rental charge. Islamic law allows rent to be charged because the customer enjoys the usufruct of the good while the bank bears the risk of ownership. Ijarah wa'Iqtina is similar to an Ijarah contract except that it allows for the possibility that the customer becomes owner of the good at the end of the lease contract, either for free (gift) or at a pre-agreed price.

B. Default on Conventional and Islamic Loans

Islamic loans are structured differently and are governed by different contracts than conventional loans. Moreover, there can be different motivations to prefer one form of banking over the other. For example borrowers may choose conventional over Islamic banks because of easy accessibility or specific product needs. If proximity of the closest bank branch or suitability of product is the overriding reason to choose one type of loan over the other, we do not necessarily expect that the default rate on either type of loans will differ. Nevertheless competing hypotheses can be formed regarding the motivation for preferring one form of credit over the other and the expected default rates associated with that choice.

If a client does not fully pay on the due date or soon after, and hence is delinquent and "defaults", the price cannot be changed under Islamic rulings nor can penalty fees be charged. In order to deal with the associated moral hazard of the clients (i.e., "the incentives [that] exist for default and abuse" (Iqbal (1987)), it is therefore nevertheless possible under Shari'ah to charge a penalty, but only if the money is given to charity. If the Islamic bank incurs a real

loss (and not simply the opportunity cost of a delayed payment) then an external arbitrator can also allow the bank to actually keep (part of) the penalty.

If borrowers base their borrowing and default decisions on a rational comparison of the associated costs, they will, when choosing a loan, also take into account the expected cost of default. Banks can charge a penalty to a borrower defaulting on an Islamic loan, but unlike with a conventional loan they have to give that amount to charity. Islamic lenders should, therefore, be reluctant to impose penalties to keep the borrower in a more solvent state. This makes the expected cost of an Islamic loan default for a borrower lower than the expected cost of a conventional loan default. Therefore, those who have a higher probability of default should prefer Islamic over conventional loans and we should observe a higher rate of default on Islamic loans.

On the other hand, lenders may set the penalties on conventional loans lower than on Islamic loans to attract fees from borrowers that are expected to only being temporarily unable to repay their loan commitments. Islamic loan contracts may further result in a swifter loss of access for the borrower to the financed object (a car, for example) than a conventional loan, especially when the latter is uncollateralized. Also in that case the probability of default of an Islamic loan may be lower.

Finally, the sources outlawing interest payments, i.e., Al Quran and Hadith, also forbid "eating" other people's money in an unlawful way. Those who choose to stick to one law (i.e., avoiding interest) are expected to have a higher propensity to follow other law as well. Therefore, if people obtain Islamic loans because of their religious motives then they are expected to default less on their loans.

[Insert Table 1 about here]

Though the characteristics of banks, borrowers and contracts may differ between conventional and Islamic loans, their co-existence in Pakistan offers a unique opportunity to assess the effect of religion on the loan default rate. We are not the first to empirically study Islamic banking − we summarize relevant papers in Table 1. With a few exceptions most studies indicate there are few significant differences between conventional and Islamic banks in their business orientation, efficiency, asset quality, or stability for example (see Beck, Demirgüç-Kunt and Merrouche (2010) for a comprehensive study).

Yet our study, as far as we are aware, is the first to access individual loan data to empirically investigate the differences between conventional and Islamic lending at the contract level, in particular with respect to each loan's repayment performance. A decisive step in our otherwise straightforward identification strategy exploits the concurrent repayment of both conventional and Islamic loans by the same borrower to the same bank.

II. Data and Identification Strategy

A. Data Description

We analyze loan level data obtained from the Consumer Protection Department (CPD) of the State Bank of Pakistan that maintains the domestic credit registry, i.e., the Credit Information Bureau (CIB). The monthly available data covers all business loans outstanding in Pakistan from 2006:4 to 2008:12, including both the run-up to and the financial crisis itself (for 16 months each if one takes 2007:08 as the start date of the crisis). During the sample period loans continued to be liberally granted at first and then increasingly started defaulting.[2] All loans were granted in the local currency, the Pakistani rupee (80 PKR ≈ 1 USD).

[2] As the financial sector still maintains limited, albeit growing, linkages with global financial markets, Pakistan has been relatively well-insulated against contagion coming from international financial markets (Mansoor Ali (2009)). Actually Pakistan underwent a phase of fiscal tightening and a stringent monetary stance with discount rates remaining relatively high for the entire sample period (discount rates remained at 15 percent till April

All banks in Pakistan are required to consult the CIB to verify the credit history of a loan applicant if the application exceeds PKR 500,000, and this requirement is similar for conventional and Islamic loans. The CIB data set is also, therefore, thought to be of good quality and has already been studied in different contexts by Khwaja and Mian (2005), Mian (2006), Khwaja and Mian (2008), and Zia (2008) for example.[3]

For each loan contract the CIB records key loan characteristics, such as the exact financial loan product name, default status, maturity, collateralization, whether cash is immediately disbursed or whether the loan is contingent, loan use for export or agricultural purposes, the approved limit and the remaining outstanding amount. The loan interest rate is also available for a subset of loans.

The CIB further reports the identity code and total exposure of all borrowers and their location and industry, and a unique and matching code for the lending bank and the branch where the loan is granted. While we do not have financial information on the borrowers other than the precise loan characteristics, we do know that the borrowers meet a specific threshold of financial soundness and are required to have a debt to equity ratio of 4:1 or better, and a current ratio of at least 1. Deviations from these requirements are allowed only in exceptional cases.

Our analysis of individual loan performance commences from the point when a unique credit decision is made. We therefore focus on new loans and loans that are renewed, extended or

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2009), to address significant macroeconomic imbalances in the domestic economy, rather than as a response to the financial crisis and global economic slowdown.

[3] As in these papers we do not observe loan need and/or demand to account for the "double" selection bias, in the spirit of Heckman (1979), as in Cerqueiro (2009), Chakravarty and Yilmazer (2009), and Ongena and Popov (2010) for example. Neither do we observe loan applications to study the approval of applications and/or loan granting as in Brown, Kirschenmann and Ongena (2010), Jiménez, Ongena, Peydró and Saurina (2010), and Puri, Rocholl and Steffen (2010) for example. But we are mainly interested in the differential loan default probabilities and control for observed and unobserved loan contract, borrower, bank, borrower-bank and time heterogeneity with combinations of characteristics and fixed effects. We also do not investigate riskiness at the bank or system level where Islamic deposit taking and limits on hedging and trading may be important.

altered during the sample period. If a borrower obtains two different credit lines for example then both are considered as separate loans. During our 32-month sample period there are 1,238,574 loan-months related to distinct new loans out of a total of almost 4 million loan-months involving 107 financial institutions. Table 2 provides the sample details.

[Insert Table 2 about here]

We discard all loans given to the federal, provincial or local governments, financial intermediaries, autonomous bodies and public sector enterprises because these non-corporate borrowers either cannot default on domestic currency loans, or have different default dynamics that are beyond the scope of this paper. We also exclude from our analysis micro loans of less than PKR 50,000, loans larger than PKR 419,000,000, infrastructure and other special loans, and loans granted by financial institutions that are not registered as banks.

Our final dataset consists of 603,677 complete loan-month observations, which corresponds to 152,730 loans granted to 22,723 borrowers by 40 different banks.[4] Around 5 percent of our sample involves Islamic loans (32,199 loan-months), that are granted either by one of the six Islamic banks in our sample (15,153 loan-months) or by an Islamic branch or subsidiary of one of the twelve "mixed" banks that offer both conventional and Islamic loans (17,046 loan-months). All bank names (and types) are listed in an Appendix. About 43% of the Islamic financing in our sample is under Murabahah financing, about 22% is Diminishing Musharakah, and about 24% is Ijarah and Ijarah wa'Iqtina. The pure profit and loss sharing (partnership) contracts, Mudaraba and Musharakah, constitute a very small fraction of the market, i.e., only 2% and 1%, respectively.[5]

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[4] This attrition we face (which is also caused by data availability) from 107 financial institutions to 40 banks is similar to Khwaja and Mian (2008) who study 42 banks out 145 financial institutions.

[5] These numbers are similar to those reported by the Islamic Banking Department of the State Bank of Pakistan in its *Islamic Banking Bulletin* of October-December 2008 for example.

Crucially for our identification strategy is the observation that within the sample period quite a few borrowers and banks have balance sheets containing both conventional and Islamic loans. As indicated in Table 3 in total 91,008 loan-months involve borrowers that obtain both loan types, while in total 378,649 loan-months involve one of the twelve mixed banks. For 17,381 loan-months the same borrower within the sample period obtains conventional and Islamic loans from the same bank.[6]

[Insert Table 3 about here]

Table 4 reports detailed summary statistics for both conventional and Islamic loans. We observe a substantially lower monthly default rate for Islamic compared to conventional loans. This difference (0.9 percent versus 0.5 percent) is not only statistically significant but also economically important. The difference in monthly default rate on Islamic loans granted by an Islamic branch or subsidiary of a conventional bank or by an Islamic bank (0.7 percent versus 0.2 percent) is not statistically significant. For completeness the table also reports the right-censored loan duration, i.e., the time to repayment, default or end of the sample period.

Conventional and Islamic loans statistically differ in all characteristics at the one percent level, though the differences are often economically small. According to the means conventional loans have a shorter maturity (15 versus 18 months), are less likely to be collateralized (93 versus 99 percent) and to involve an immediate cash disbursal (74 versus 82 percent) or a durable / fixed asset (14 versus 27 percent), are more likely to be for export

[6] Because the sample period is short, a high proportion of the loans obtained by mixed borrowers from mixed banks are concurrently being repaid. Whether the concurrency requirement delivers sharper identification is *a priori* not fully clear, because borrowers could in principle repay one loan of one type with a new loan of the other type and then halt repayments. We will argue later that the bank may even have incentives to be complicit in such loan switching, a practice distinguishable from evergreening (which supervisors strictly aim to discourage by annually examining more than 80% of each bank's loan portfolio). Either way we will study the default of loans without and with this concurrency requirement. We also plan to further study the sequencing of loan types in future research.

or agricultural purposes (11 versus 4 percent and 4 versus 0 percent), and are smaller (PKR 23 versus 35 million) than Islamic loans. Interest rates, which we observe for 239,943 loan-months (i.e., 40 percent of our sample), are on average 2 percentage points lower for conventional than for Islamic loans. The medians point in a similar direction. Both conventional and Islamic loans can have a fixed or a variable "interest rate" (called "mark-up rate" in case of Islamic loans).

[Insert Table 4 about here]

We measure the size of the borrower as the natural log of the sum of all credit facilities (loan limits) that are granted to a borrower by all banks. Borrowers with Islamic loans are larger and are located more often in big cities than other borrowers. Conventional loans are proportionally more often granted by government, specialized, domestic or large banks than Islamic loans. In absolute terms most conventional and Islamic loans are granted by privately (often internationally) owned and domestically incorporated banks, such as Standard Chartered, RBS, Dubai Islamic, Emirates Global for example.

B. Duration Model

1. Intuition

This section develops the econometric methodology employed in analyzing the time until repayment or default of the individual bank loans, or "loan spells".[7] We define default to occur if 90 days after the maturity date or the date of an interest payment and/or installment,

[7] As in McDonald and Van de Gucht (1999) for example. Loans to small firms typically carry a relatively short maturity, often without early repayment possibilities; hence, we choose to ignore early repayment behavior captured in their competing risk model. Heckman and Singer (1984), Kiefer (1988) and Kalbfleisch and Prentice (2002) provide comprehensive treatments of duration analysis. Shumway (2001) and Duffie, Saita and Wang (2007) discuss and employ empirical bankruptcy models. See also the application to the duration of bank-firm relationships in Ongena and Smith (2001) and Degryse, Kim and Ongena (2009), on which we base our discussion.

the debt balance remains unpaid. This definition for default is identical for conventional and Islamic loans, and in both cases default is not self-reported by banks. Later on, we confirm the robustness of our findings if we define default to occur after 180 days rather than 90 days.

The hazard function in duration analysis provides us with a suitable method for summarizing the relationship between the time to default and the likelihood of default. The hazard rate effectively has an intuitive interpretation as the per-period probability of loan default provided the loan "survives" up to that period.

Repayment of a loan or the sample period's end may prevent us from ever observing a default on this loan. Such a loan spell can be considered right censored. Not knowing when the default would occur, means we are unable to observe the "true" time to default for these loan spells. With no adjustment to account for censoring, maximum likelihood estimation of the proportional hazard models produces biased and inconsistent estimates of model parameters. Accounting for right-censored observations will be accomplished in duration analysis by expressing the log-likelihood function as a weighted average of the sample density of completed loan spells and the survivor function of uncompleted spells. As the sample period runs from 2006:04 to 2008:12, but the median loan maturity is only twelve months, about 5% of all loans are right-censored because of the sample period's end. As our sample consists out of only *new* loans granted from 2006:04 onwards, there is no left censoring problem.

2. Terminology

We begin by introducing terminology common to duration analysis and then describe the hazard function estimators. Let T represent the duration of time that passes before the occurrence of a certain random event. In the econometrics literature, the passage of time is often referred to as a "spell," while the event itself is called a "switch", which in this case will

be the switch to the default state. A simple way to describe the behavior of a spell is through its survivor function:

$$S(t) = P(T \geq t),$$

which yields the probability that the spell T lasts at least to time t. The survivor function equals one minus the cumulative distribution function of T.

The behavior of a spell can also be described through the use of the hazard function. The hazard function determines the probability that a switch will occur, conditional on the spell surviving through time t, and is defined by:

$$\lambda(t) = \lim_{\Delta t \to 0} \frac{P(t \leq T < t + \Delta t | T \geq t)}{\Delta t} = \frac{-d \log S(t)}{dt} = \frac{f(t)}{S(t)},$$

where $f(t)$ is the density function associated with the distribution of spells. Neither the survivor function nor the hazard function provides additional information that could not be derived directly from $f(t)$. Instead, these functions present economically interesting ways of examining the distribution of spells.

The hazard function does provide a suitable method for summarizing the relationship between spell length and the likelihood of switching. When $\lambda(t)$ is increasing in t, the hazard function is said to exhibit positive duration dependence, because the probability of ending the spell increases as the spell lengthens. Similarly, negative duration dependence occurs when $\lambda(t)$ is decreasing in t, and constant duration dependence indicates the lack of a relation between $\lambda(t)$ and t.

3. Estimators

When estimating hazard functions, it is econometrically convenient to assume a proportional hazard specification, such that:

$$\lambda(t, X(t), \beta) = \lim_{\Delta t \to 0} \frac{P(t \le T < t + \Delta t | T \ge t, X(t), \beta)}{\Delta t} = \lambda_0(t) \exp(\beta' X_t)$$

where X_t is a set of observable, possibly time-varying explanatory variables, β is a vector of unknown parameters associated with the explanatory variables, $\lambda_0(t)$ is the baseline hazard function, and $\exp(\beta' X_t)$ is chosen because it is nonnegative and yields an appealing interpretation for the coefficients, β. The logarithm of $\lambda(t, X(t), \beta)$ is linear in X_t. Therefore, β reflects the partial impact of each variable in *X* on the log of the estimated hazard rate.

The baseline hazard $\lambda_0(t)$ determines the shape of the hazard function with respect to time. The previous equation can be estimated without specifying a functional form for the baseline hazard. The Cox (1972) partial likelihood model bases estimation of β on the ordering of the duration spells. Because it specifies no shape for $\lambda_0(t)$, we refer to the Cox (1972) partial likelihood model as "semiparametric."

Two commonly used parametric specifications for the baseline hazard are the Weibull and the exponential distributions. The Weibull specification assumes:

$$\lambda_0(t) = \lambda \alpha t^{\alpha - 1},$$

and allows for duration dependence. When $\alpha > 1$ ($\alpha < 1$), the distribution exhibits positive (negative) duration dependence, implying that the hazard increases (decreases) in time. The exponential distribution, which exhibits constant duration dependence, is nested within the Weibull as the case $\alpha = 1$. To estimate hazard functions using the Cox (1972) partial likelihood model, Weibull, exponential or other specifications one uses maximum likelihood methods. We rely both on parametric Weibull specifications to determine the shape of the hazard function with respect to time, but resort to Cox (1972) proportional hazard models to handle inclusion of many fixed effects.

Explanatory variables can vary through time. To obtain interpretable estimates from the proportional hazard models, it is required that the variables be either "defined" or "ancillary" with respect to the duration of a spell (see Kalbfleisch and Prentice (1980)). A defined variable follows a deterministic path. Age of the firm would be an example of a defined variable because its path is set in advance of the relationship and varies deterministically with relationship duration. An ancillary variable has a stochastic path, but the path cannot be influenced by the duration of the spell. One can also assume that the conditional likelihood of ending a spell depend only on the value of an ancillary variable at time *t*, and not on past or future realizations of the variable.

III. Empirical Results

A. First Specifications

Table 5 presents maximum likelihood estimation results for the different duration models. In Models I to V, we use the Weibull distribution as the baseline hazard rate. In all parametric model errors are clustered at the borrower level. Model I features only the Islamic loan dummy (and an intercept) and in the subsequent two models II and III we add loan characteristics, borrower size as well as 7 region and 67 industry dummies (all regions and industries are listed in an Appendix). In Model IV, we additionally control for bank type and time (i.e., year*month) fixed effects. In Model V, we distinguish between Islamic loans that are granted by Islamic branches/subsidiaries of conventional banks and Islamic loans that are granted by Islamic banks.

[Insert Table 5 about here]

The coefficient for the Islamic Loan dummy is negative and highly statistically significant in all specifications. This is the first main result of our paper: The hazard rate is substantially

lower for an Islamic than for a conventional loan. This effect is robust (we will show) to many additional controls, including borrower, bank, and borrower*bank fixed effects and is economically large. Though we return later to economic relevancy in more detail, by way of preview: The coefficient in Model IV for example implies that the hazard rate of an Islamic loan is only 2/3^{rds} (= $e^{-0.402}$) of the hazard rate on a conventional loan.

Model V further shows that especially Islamic loans granted by Islamic banks have a lower hazard rate. The hazard rate of Islamic loans issued by Islamic branches or subsidiaries of conventional banks, though lower, is not statistically different from that of all conventional loans. However, our analysis in Table 6 will show that the hazard rate of Islamic loans issued by Islamic branches or subsidiaries of these mixed banks is statistically lower than the hazard rate of the conventional loans issued by these mixed banks. Hence the picture that arises is that Islamic loans issued by Islamic banks have the lowest hazard rate and that conventional loans issued by purely conventional banks have a lower hazard rate than those issued by mixed banks.

Before further model developments, however, we briefly review the estimated coefficients on the control variables. With respect to loan characteristics, we find the hazard rate to be higher for loans with a longer maturity and those involving an immediate cash disbursal, but lower for collateralized and agricultural loans (though the statistical significance of these findings later disappears somewhat). In our sample, we do not find a robust relationship between borrower size and hazard rates. In contrast, we find hazard rates to be significantly higher for loans issued by government banks and by those belonging to the largest five banks by loan volume, but lower for loans issued by foreign banks. Our finding of higher hazard rates for loans issued by government is consistent with results in Khwaja and Mian (2005), who find that loans given to politically connected firms by government banks in particular tend to have to up to 50 percent higher default rates.

Finally, we note that the parameter α is measuring the duration dependence in the baseline hazard specification and that this estimated parameter is not significantly different from one, indicating that there is neither positive nor negative duration dependence. In the next step we employ Cox proportional hazard models where the baseline hazard is left un-parameterized.

B. Differences in the Borrowers that Obtain Conventional and Islamic Loans?

Borrower, bank and/or loan characteristics that differ between conventional and Islamic loans may be responsible for the estimated difference in the hazard rates. We now systematically investigate each of these possible sources of variation.

Models IV and V control for borrower size, region, and industry, for example, yet these controls may not capture all borrower heterogeneity. In Model VI in Table 5 we therefore include borrower fixed effects to capture all time-invariant unobservable and observable borrower heterogeneity in a Cox proportional hazard model that leaves the baseline hazard un-parameterized (including this many fixed effects in a Weibull specification is technically impossible in our setting). We designate this specification as our bench mark.

We find that the parameter estimate for the Islamic loan dummy remains negative and statistically significant. Moreover, its magnitude is comparable to the other specifications, and even slightly more negative than the previous most complete specification without borrower fixed effects (in Model IV). Hence these estimates indicate that within the 32-month sample period (but controlling for year*month fixed effects) the same borrower is more likely to default on a conventional loan than on an Islamic loan.

Next, and to account for time-varying borrower heterogeneity that is unobservable to us but that may be observable to the bank, we add to Model VI the loan interest rate (Interest Rate) or the individual loan amount (Size). As described in the data section, we have the interest rate for only 40 percent of our sample observations. To conserve space we do not tabulate the

estimated coefficients. As expected, we find a positive relation between the loan interest rate or size, and the probability of default. However, the estimate for the Islamic loan dummy remains almost unaltered, i.e., -0.406** and -0.506***, respectively.[8]

For our benchmark Model VI we also more closely assess the economic relevancy of our findings for a one-year (median), collateralized, cash loan that is not for export or agricultural purposes, or granted by a government, specialized, foreign or large bank. Figure 1 displays the resulting schedule of the cumulative hazard of conventional and Islamic loans respectively. After one year the difference in the cumulative hazard is already more than 2 percent. This first-year cumulative hazard rate on conventional loans equals 5 percent, not uncommon for loans in a developing economy,-while the first-year cumulative hazard rate for Islamic loans equals 3 percent, more equal to the default rates on loans commonly observed in developed economies.

C. Differences in the Loan Contracts?

Despite the controls for the loan maturity, collateralization, cash disbursal, export / agricultural purpose, amount and interest rate, it is still possible that differences in loan contract characteristics between conventional and Islamic loans would explain the difference in hazard rates.

One variable we have not included yet in the specifications, as we know it is rather coarsely measured, is the durability or fixity of the asset that is financed with the loan. The bank's ownership claim in a Murabahah loan contract will be quite limited (in time) if the financed asset is an inventory of raw materials for example that is being used in the production process (recall that almost all Islamic loans are in addition also collateralized). Model VII includes the variable *Durable* that equals one if the loan is granted for a durable or fixed asset, like a

[8] As in the Tables, *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

plant, machinery, real estate or automobile for example, and equals zero otherwise. The coefficient on this new variable is insignificant, while the coefficient on Islamic Loan is unaffected.

Next, we perform additional robustness checks with respect to collateralization and Islamic loan type (we again do not tabulate the estimated coefficients). To account for the potentially differential nature of collateral in conventional and Islamic lending we add an interaction between the Collateral and Islamic Loan variable to our benchmark specification. The interaction effect is, however, not statistically significant, and the coefficient on the Islamic Loan dummy remains again unaffected.

Banks possibly adjust collateralization depending on borrower condition or additional financing, and may do so differently ─ if not in principle, then in practice ─ for the two types of loans. To account for this possibility we simply remove collateral from the base specification. The coefficient on the Islamic loan dummy again remains virtually unaffected.

To account for the different types of Islamic loan contracts, we split the Islamic Loan dummy into four loan type dummies, i.e., Murabahah, Diminishing Musharakah, Ijarah or Ijarah wa'Iqtina, and Other Islamic loans. The estimated coefficients on the four dummies equal -0.886*, -0.558*, -0.445* and -0.263, respectively, confirming our findings so far. We further exclude Musharaka and Modaraba contracts (both types are more similar to equity financing than to conventional bank credit), or even more tightly restrict the sample to Murabaha loans and similar conventional loans, i.e., term finance and working capital (excluding all other credit facilities such as mortgage finance, leases, export finance, agricultural finance and off-balance financing for example). In both cases results are unaffected with estimated Islamic Loan coefficients that equal -0.500** and -0.554*, respectively. In sum, it does not seem to be the case that differences in loan contract

characteristics between conventional and Islamic loans can explain their difference in hazard rates.

D. Differences in the Banks that Grant the Conventional and Islamic Loans?

While we do correct for bank type, our dataset does not include more detailed bank characteristics, such as capital ratios or indicators of the overall riskiness of the loan portfolio. Controlling for (time-invariant) bank fixed effects may nevertheless be important, as default rates may be due to bank specific clientele effects and/or screening and monitoring technology.

We therefore include bank fixed effects in a variety of models estimated on the set of loans that are issued only by mixed banks that offer both conventional and Islamic loans. This reduces our sample to 378,649 loan-month observations (15,653 borrowers for a total of 109,157 loans). Estimation results are tabulated in Table 6 and the model line-up is similar to Table 5 (we return to the last two specifications in Table 5 later).

[Insert Table 6 about here]

Models I to III in Table 6 are comparable to those in Table 5, except that the estimation results are based on the reduced sample. While the parameter estimates on the controls are mostly similar, we find a substantially stronger Islamic loan effect in the reduced compared to the full sample. This strong effect remains when we introduce first bank fixed effects (and a bank-specific parameter of duration dependence) in Model IV, then both borrower and bank fixed effects in Model V, and finally borrower*bank fixed effects in Model VI. In the latter model the hazard rate on Islamic loans is only one fifth of the hazard rate on conventional loans ($=e^{-1.577}$). Hence the same borrower obtaining conventional and Islamic loans from the same bank within the sample period is five times more likely to default on the conventional loan(s) than on the Islamic loan(s).

In Model VII we contrast these mixed borrowers with those having only conventional loans from the mixed banks. The latter type of borrowers are three times more likely to default on their conventional loans than the mixed type of borrowers on their loans ($=e^{1.184}$), while the mixed and Islamic-only borrowers do not differ on average.

In sum, these findings combined suggest that at mixed banks the hazard rates increase as follows: (1) Islamic loans by mixed borrowers, (2) Islamic loans by Islamic-only borrowers, (3) conventional loans by conventional-only borrowers, and (4) conventional loans by mixed borrowers. Or put differently at mixed banks the difference in hazard rates between conventional and Islamic loans for mixed borrowers is larger than the difference in hazard rates between conventional loans for conventional-only borrowers and the Islamic loans for Islamic-only borrowers.

Why this wider difference in hazard rates? One possible explanation could reside in the penalties banks charge in case of default.[9] Recall that those penalties flow to the bank in case of non-performance on a conventional loan and to a charity in case of an Islamic loan. In case banks would set penalties optimally (but disregarding other loan terms) they would set the penalties on conventional loans lower than on Islamic loans, especially for borrowers that mix loan types and that are of an intermediate credit quality.[10]

Yet we do not think differential penalties are the explanation here. First, anecdotal evidence suggests that banks actually set penalties on conventional and Islamic loans equal to each

[9] Borrowers may also maintain other conventional and Islamic bank products (deposits for example) that are priced jointly with the conventional and Islamic loans respectively by a separate conventional or Islamic bank desk. Any cross-subsidization across products taken by borrowers done at the bank level is absorbed by the borrower*bank fixed effects however.

[10] In this way banks would entice non-performance on conventional loans and not only capture the penalties (when paid) on the non-performing conventional loan(s), but also assure continued payment of the higher loan rates on the Islamic loan(s). This penalties strategy may be optimal for borrowers of an intermediate quality, who with a probability between zero and one pay the penalties and repay both loans. For really bad or really good mixed borrowers differentiating penalties between conventional and Islamic loans may be marginally less important. Of course, *ex ante* banks likely set penalties jointly with the interest (mark-up) rate and other loan terms and/or could provide for example repayment *boni*.

other. Second, when introducing in a variety of specifications the interactions of the Islamic loan dummy with ─ as a proxy for borrower quality ─ the observed loan interest rate and the rate squared, the estimated coefficients on the interaction terms are statistically insignificant but are actually pointing in an opposite direction (i.e., for intermediate loan rate borrowers the difference in the hazard rate between conventional and Islamic loan is minimal not maximal as we would expect if penalties are set optimally).

E. Borrower, Bank or Loan Characteristics? Or Religion?

Until now, we have found consistent evidence that the same borrower is less likely to default on Islamic than on conventional loans obtained from the same bank, and that when borrowing from a mixed bank the difference in hazard rates between conventional and Islamic loans for these mixed borrowers is larger than the difference in hazard rates between conventional loans for conventional-only borrowers and the Islamic loans for Islamic-only borrowers.

One complementary interpretation for this robust finding is that borrowers may choose not to default on Islamic loans because of their religious beliefs. While the most fervent religious believers may prefer to obtain Islamic loans only, intermediate fervency may result in mixed borrowing (of course mixed borrowing may also arise from specific credit needs such as corporate credit cards, export finance supported by the SBP, specific discounting of bills, etc.). Hit by a negative shock large enough to overwhelm their religious resistance to loan default, Islamic-only borrowers have no choice but to default on one of their Islamic loans. On the other hand mixed borrowers do have a choice and despite their lower fervency may on the margin more often decide not to default on their Islamic loans than on their conventional loans. An alternative explanation could be that the bank loan officer similarly driven by religious beliefs ─ maybe the loan officer works for an Islamic branch because of religious beliefs or is influenced by its orientation ─ is lenient and helps (or convinces) the borrower in

one way or another to avoid non-performance on the Islamic loan rather than on the conventional loan.

To assess whether religious beliefs matter for loan default we introduce a variable *Share Religious Political Parties* which equals the percentage of total votes obtained for National Assembly seats by the coalition of six religious-political parties in the General Elections of 2002 in the district where the borrower is located.[11] It is possible that in addition to religious beliefs measured in this way, the location of borrower (and bank) may also matter. Indeed, the distinction between religious and other political parties in rural areas and small towns may be less acute than in big cities. In addition, in rural areas and small towns there may be more social pressure to repay and more informal help from family and friends in case a borrower faces financial difficulties. We therefore interact the *Share* variable with a dummy variable *Big City* that equals one if borrower is located in a city with more than one million inhabitants and equals zero otherwise.

We report the estimates with the Share of Religious Political Parties and Big City variables in Model VIII in Tables 5 and 6. Notice that the sample now includes only those loans that are granted in the four provinces and the federal capital (i.e., regions where Pakistani political parties can operate) and exclude loans in other regions administered by Pakistan. The results are very interesting. The estimated coefficients suggest that: (1) in big cities the loan hazard rate is on average higher than in rural areas, (2) in rural areas Islamic loans are equally likely to default than conventional loans, but (3) in big cities Islamic loans are less likely to default than conventional loans if the share of religious parties grows. This evidence is suggestive of

[11] We use the poll results from the 2002 General Election because 5 of the 6 religious-political parties boycotted the 2008 edition.

the impact of religious beliefs on the difference in loan performance of conventional and Islamic loans.[12]

IV. Conclusions

The hazard rate on Islamic loans is less than half the hazard rate on conventional loans, across many duration models we estimate using a comprehensive monthly dataset from Pakistan that follows more than 150,000 loans over the period 2006:04 to 2008:12. The specifications include a variety of loan contract, borrower, and bank characteristics, where possible combined with time, borrower, bank and/or borrower*bank fixed effects. In big cities Islamic loans default less likely if the share of religious parties increases, suggesting that religious motivation may partly determine the differential loan default rates.

It is important to notice that our study does not aim to address the broader question if conventional or Islamic finance is "better" from either the borrower's, bank's or even society's perspective. Such individual, institutional and public welfare analyses would require for example the collection of detailed data on individual motivations for loan repayment and the aggregation at the bank level of micro-level data, not only on individual bank loans but also on deposits and other bank products, bank organization and processes etc. By studying the default rates on individual conventional and Islamic loans, our study takes but a first step in understanding how specific contractual arrangements in Islamic finance may, or may not, determine borrower loan repayment.

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[12] In robustness we replace the Share of Religious Political Parties with Religious School Enrollment we glean from Andrabi, Das, Khawaja and Zajonc (2006). They define this variable as number of children enrolled in religious schools as a percentage of total school enrollments in each district (we use the mid-points for the ranges they report). Results again suggest religious sentiments play a role in determining the differential probability of conventional and Islamic loan repayment, though now the effect is more muted in big cities. We further replace the Big City by the Government Bank dummy in all specifications but none of the coefficients on the interaction terms are statistically significant. This result suggests that the share of religious parties may not influence the loan officers at these government banks (that grant also Islamic loans) to be more lenient on these loans.

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Figure 1.

The figure displays the cumulative hazard based on the estimated coefficients of Model VI in Table 5 for a one-year (median) conventional or Islamic loan with all other covariates, excluding borrower effects, set at their mean. The cumulative hazard after 12 months for a conventional loan equals 5.2%, for an Islamic loan it equals 3.1%.

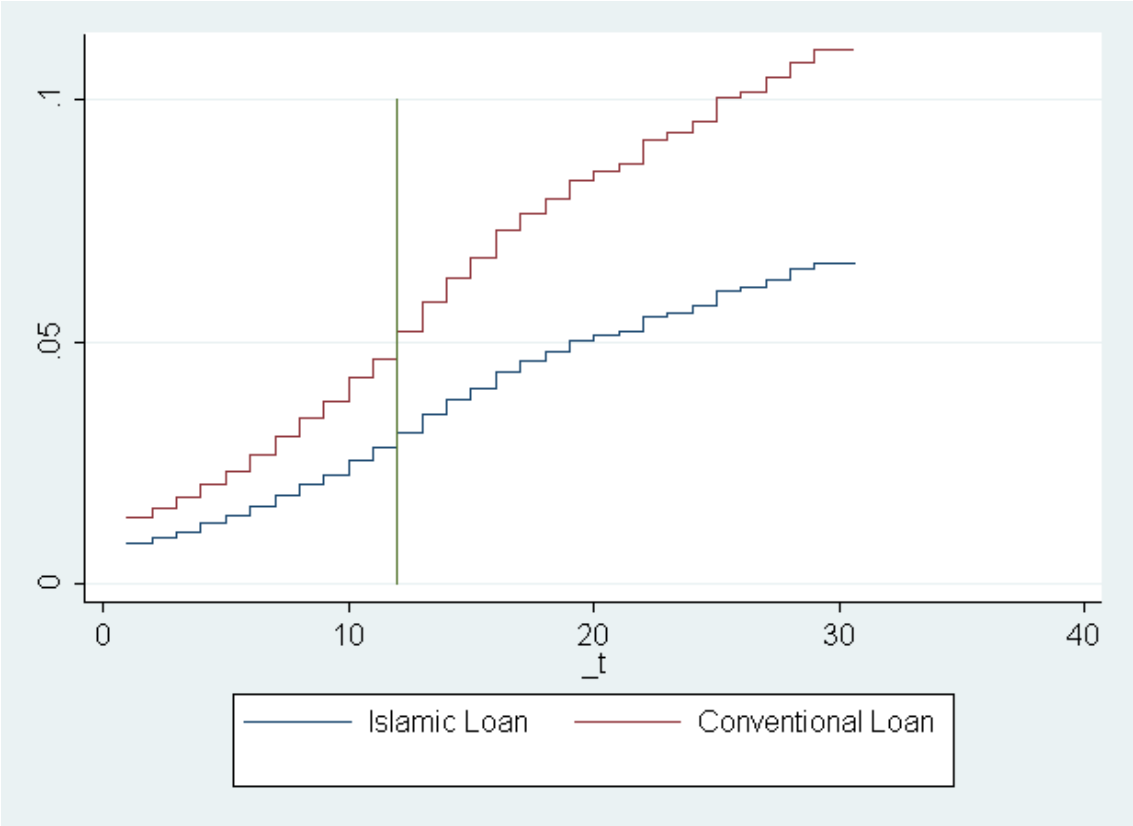

Table 1.

The table summarizes selected empirical work on Islamic banking.

Paper	Sample			Analysis		
	Country(ies)	Period	Obs.	At Level	Explains	Finds
Mohamad, Hassan and Bader (2008), Bader, Mohamad, Ariff and Hassan (2008)	21 countries	1990-2005	80	Bank	Efficiency	No differences between conventional and Islamic banks
Chong and Liu (2009)	Malaysia	1995:04-2004:04	109	Month	Average interest rates	Islamic deposits are not interest-free, but are closely pegged to conventional deposits
Čihák and Hesse (2008)	18 countries	1993-2004	2,347	Bank - Year	Z-score Bank strength	Small Islamic > small commercial Large commercial > large Islamic Small Islamic > large Islamic
Abdul-Majid, Saal and Battisti (2010)	10 countries	1996-2002		Bank - Year	Technical inefficiency	Islamic banks are more technically inefficient
Beck, Demirgüç-Kunt and Merrouche (2010)	141 countries	1995-2007	±25,000	Bank - Year	Various bank measures	Few significant differences in business orientation, efficiency, asset quality, or stability
Ongena and Sendeniz-Yuncu (2010)	Turkey	2008	16,056	Bank - Firm	Firm bank choice	Islamic banks deal with young, multiple-bank, industry-focused and transparent firms
This paper	*Pakistan*	*2006:04-2008:12*	*603,677*	*Loan - Month*	*Loan default*	*Islamic loans less likely to default*

Table 2: Sample Composition

The table reports the composition of the sample. The sample period runs from 2006:04 to 2008:12. Loans to non-corporates include loans to financial intermediaries, public sector enterprises, local, provincial or federal governments, and other autonomous bodies. Micro, special and non-bank loans comprise loans smaller than PKR 50,000, loans larger than PKR 419,000,000, infrastructure and other special loans, and loans granted by financial institutions that are not registered as banks.

Variable	Number of Observations	Unit
All new loans granted	1,238,574	loan - months
Minus loans to non-corporates	363,221	loan - months
Minus micro, special and non-bank loans	252,047	loan - months
Sample loans observed each month	603,677	loan - months
Conventional	*571,478*	loan - months
Islamic	*32,199*	loan - months
Loans	152,730	loans
Borrowers	22,723	borrowers
Banks	40	banks

PKR = Pakistani Rupee. 1 USD ~ 79 PKR , 1 EUR ~ 110 PKR (December 31, 2008).

Table 3: Samples for borrowers and banks by loan types

The table reports the number of loan - months for the samples of borrowers and banks by loan type.

Loans observed each month		**Granted by banks that offer loans that are**			
		only conventional	**conventional and Islamic**	**only Islamic**	***Totals***
Obtained by borrowers with loans that are	**only conventional**	172,120	331,675	-	*503,795*
	conventional and Islamic	37,755	44,946	8,307	*91,008*
	only Islamic	-	2,028	6,846	*8,874*
	Totals	*209,875*	*378,649*	*15,153*	*603,677*

Table 4: Summary Statistics on Conventional and Islamic Loans

The table reports the name, definition, and unit for all variables employed in the empirical analysis, and the number of observations, mean (and difference-in-means), standard deviation, median, minimum, and maximum seperately for conventional and Islamic loans (*and where indicated for Islamic loans granted by an Islamic branch or subsidiary of a conventional bank or by an Islamic bank*). Other Islamic loan types include Istisna, Salam, Musharakah, Modaraba, and Qard-e-Hasna loans. The sample period runs from 2006:04 to 2008:12. See the Appendix for the Regions, Industries and Bank types.

Variable	Definition	Unit	Number		Mean			St. Dev.		Median		Minimum		Maximum	
Islamic Loan	=1 if loan is an Islamic loan, =0 otherwise	0/1	32,199		0.053			0.225		0		0		1	
by Islamic Branch/Subsidiary	*=1 if the Islamic loan is granted by an Islamic branch or subsidiary of a conventional bank, =0 otherwise*	*0/1*	*17,046*		*0.028*			*0.166*		0		0		1	
by Islamic Bank	*=1 if the Islamic loan is granted by an Islamic bank, =0 otherwise*	*0/1*	*15,153*		*0.025*			*0.156*		0		0		1	
Murabahah	=1 if Islamic loan is a Murabahah loan, =0 otherwise	0/1	13,869		0.023			0.150		0		0		1	
Diminishing Musharakah	=1 if Islamic loan is a Diminishing Musharakah loan, =0 otherwise	0/1	7,219		0.012			0.109		0		0		1	
Ijarah or Ijarah wa' Iqtina	=1 if Islamic loan is a Ijarah or Ijarah wa' Iqtina loan, =0 otherwise	0/1	7,794		0.013			0.113		0		0		1	
Other	=1 if Islamic loan is an other Islamic loan type, =0 otherwise	0/1	3,317		0.005			0.074		0		0		1	
			Convent. Loan (*Bank*)	Islamic Loan (*Bank*)	Convent. Loan (*Bank*)	Islamic Loan (*Bank*)	Diff.	Convent. Loan (*Bank*)	Islamic Loan (*Bank*)	Convent. Loan (*Bank*)	Islamic Loan (*Bank*)	Convent. Loan (*Bank*)	Islamic Loan (*Bank*)	Convent. Loan (*Bank*)	Islamic Loan (*Bank*)
Loan Performance															
Loan Default	=1 if the loan defaults, =0 otherwise	0/1	571,478	32,199	0.009	0.005	***	0.092	0.068	0	0	0	0	1	1
	if the Islamic loan is granted by an Islamic branch or subsidiary of a conventional bank (Convent.) or by an Islamic bank (Islamic)	*0/1*	*17,046*	*15,153*	*0.007*	*0.002*		*0.083*	*0.045*	*0*	*0*	*0*	*0*	*1*	*1*
Duration	time to repayment, default or end of sample period	months	571,478	32,199	4.958	4.906	**	4.541	4.473	3	3	1	1	33	32
	if the Islamic loan is granted by an Islamic branch or subsidiary of a conventional bank (Convent.) or by an Islamic bank (Islamic)	*months*	*17,046*	*15,153*	*4.626*	*5.221*		*4.159*	*4.783*	*3*	*4*	*1*	*1*	*30*	*32*
Loan Characteristics															
Maturity	period for which loan is granted	months	571,478	32,199	15	18	***	14	20	12	12	1	1	180	236
Collateral	=1 if loan is collateralized, =0 otherwise	0/1	571,478	32,199	0.929	0.991	***	0.257	0.096	1	1	0	0	1	1
Cash	=1 if loan involves immediate cash disbursal, =0 otherwise	0/1	571,478	32,199	0.739	0.817	***	0.439	0.387	1	1	0	0	1	1
Export	=1 if loan is used for export, =0 otherwise	0/1	571,478	32,199	0.106	0.038	***	0.308	0.192	0	0	0	0	1	1
Agricultural	=1 if loan is used for agricultural activities, =0 otherwise	0/1	571,478	32,199	0.037	0	***	0.189	0	0	0	0	0	1	0
Size	the amount of cash disbursed or the granted limit	000 PKR	571,478	32,199	22,900	34,900	***	50,400	58,000	4,800	11,400	50	50	419,000	418,000
Interest Rate	the interest rate on the loan	%	234,398	5,545	12.695	14.795	***	4.214	2.301	13.50	14.63	1.000	1.000	42.80	42.05
Durable	=if loan is granted for durable/fixed asset, =0 otherwise	0/1	571,478	32,199	0.142	0.266	***	0.349	0.442	0	0	0	0	1	1
Borrower Characteristics															
Size	the sum of all loans granted by all financial institutions to a borrower	mln. PKR	571,478	32,199	329.000	433.000		1,220.000	1,160.000	25	52	0	0	80,900	19,100
ln(Size)	the natural log of borrower size	-	571,478	32,199	16.849	17.618	***	2.475	2.143	16.816	17.523	10.820	10.820	25.109	23.659
Region	location in province or other distinct region	1 of 8	560,822	30,232											
Industry	affiliation to industry	1 of 68	556,848	29,893											
Big City	=1 if borrower is located in a city with more than one million inhabitants, =0 otherwise	0/1	559,945	30,811	0.651	0.835	***	0.477	0.371	1	1	0	0	1	1
Share Religious Political Parties	percentage of total votes obtained for National Assembly seats by the coalition of six religious-political parties in General Elections-2002 in the district where the borrower is located	%	560,454	31,357	13.911	17.378	***	12.031	12.700	10.235	10.235	0	0	74.107	74.107
Bank Characteristics															
Government	=1 if bank is government-owned, =0 otherwise	0/1	571,478	32,199	0.133	0.087	***	0.340	0.282	0	0	0	0	1	1
Specialized	=1 if bank is a specialized bank, =0 otherwise	0/1	571,478	32,199	0.038	0.000		0.191	0.000	0	0	0	0	1	0
Foreign	=1 if bank is foreign-owned, =0 otherwise	0/1	571,478	32,199	0.018	0.174	***	0.132	0.379	0	0	0	0	1	1
Large	=1 if bank is 1 of the 5 largest by loan volume, =0 otherwise	0/1	571,478	32,199	0.367	0.055	***	0.482	0.227	0	0	0	0	1	1

***, **, * indicate significance at 1%, 5% and 10% level, two-tailed. PKR = Pakistani Rupee. 1 USD ~ 79 PKR , 1 EUR ~ 110 PKR (December 31, 2008).

Table 5: All Banks

The table reports the maximum likelihood estimation results of duration models. All estimations except in Models VI and VII employ parametric duration models with a Weibull distribution that includes a parameter of duration dependence. Models VI and VII report the results of a Cox-proportional hazard model and include borrower fixed effects. Estimations in Models VIII and IX include only those loans that are granted in the four provinces and the federal capital (i.e., regions where Pakistani political parties can operate) and exclude loans in other regions administered by Pakistan. The sample period runs from 2006:04 to 2008:12. The dependent variable is the hazard rate. For each variable in the specification the table reports the estimated coefficient, statistical significance level and standard error (below in parentheses). In all estimations below involving parametric models, standard errors are clustered by borrower.

Models	I	II	III	IV	V	VI	VII	VIII
Islamic Loan	-0.581***	-0.688***	-0.725***	-0.402**		-0.508***	-0.498***	-0.463
	(0.144)	(0.143)	(0.157)	(0.158)		(0.193)	(0.193)	(0.450)
-- by Islamic branch or subsidiary of conventional bank					-0.262			
					(0.189)			
-- by Islamic Bank					-0.781***			
					(0.238)			
Share Religious Political Parties								0.00588
								(0.00462)
Loan Characteristics								
Maturity		0.00390	0.00504**	0.00462*	0.00472**	0.00909***	0.00950***	0.00396*
		(0.00254)	(0.00222)	(0.00238)	(0.00238)	(0.00138)	(0.00142)	(0.00238)
Collateral		-0.206*	-0.233**	0.0462	0.0476	-0.109	-0.110	-0.022
		(0.108)	(0.114)	(0.136)	(0.136)	(0.105)	(0.105)	(0.134)
Cash		2.362***	2.302***	2.185***	2.181***	1.509***	1.518***	2.256***
		(0.106)	(0.109)	(0.111)	(0.112)	(0.109)	(0.109)	(0.113)
Export		0.134	-0.0152	0.00793	0.00947	-0.199***	-0.204***	-0.0536
		(0.203)	(0.211)	(0.204)	(0.204)	(0.0654)	(0.0654)	(0.204)
Agricultural		-0.804***	-0.701**	-0.302	-0.301	0.245	0.215	-0.173
		(0.145)	(0.318)	(0.251)	(0.251)	(0.381)	(0.382)	(0.262)
Durable							-0.112	
							(0.0878)	
Borrower Characteristics								
ln(Size)			-0.00934	0.0148	0.0145			0.0267
			(0.0223)	(0.0247)	(0.0247)			(0.0465)
Big City								0.395***
								(0.126)
Bank Characteristics								
Government				0.216*	0.213*	0.503***	0.498***	0.239*
				(0.123)	(0.123)	(0.121)	(0.121)	(0.124)
Specialized				-0.113	-0.114	0.191	0.239	-0.0259
				(0.305)	(0.305)	(1.322)	(1.343)	(0.318)
Foreign				-0.828**	-0.745**	-0.552	-0.558	-0.855**
				(0.339)	(0.335)	(0.374)	(0.374)	(0.337)
Large				0.719***	0.718***	0.575***	0.568***	0.823***
				(0.154)	(0.153)	(0.0984)	(0.0984)	(0.158)
Interaction Terms								
Islamic Loan * Share Religious Political Parties								0.0399**
								(0.0169)
Islamic Loan * Big City								0.0108
								(0.511)
Islamic Loan * Share Religious Political Parties * Big City								-0.0474**
								(0.0202)
Share Religious Political Parties * Big City								0.000510
								(0.00676)
Intercept	-4.759***	-6.689***	-6.689***	-8.752***	-8.745***			-7.145***
	(0.0995)	(0.147)	(0.476)	(1.169)	(1.168)			(1.308)
Region dummies (7) [4 in X]	No	No	Yes	Yes	Yes	No	No	No
Industry Dummies (67)	No	No	Yes	Yes	Yes	No	No	Yes
Year*Month Fixed Effects	No	No	No	Yes	Yes	Yes	Yes	Yes
Borrower Fixed Effects	No	No	No	No	No	Yes	Yes	No
Log Pseudolikelihood	-25,121	-24,098	-23,013	-22,157	-22,154	-9,510	-9,510	-21,928
α (Duration Dependence)	0.978	0.966	0.983	0.962	0.962			0.971
Chi^2(k) [LR in VI, VII, IX & XIII, Wald in others]	16***	559***	4,009***	4,479***	4,437***	1,631***	1,632***	4,179***
Number of regressors minus one (k)	1	6	81	117	118	42	43	116
Number of Loan-Months	603,677	603,677	582,759	582,759	582,759	603,677	603,677	578,809
Number of Loans	152,730	152,730	149,302	149,302	149,302	152,730	152,730	148,316
Number of Borrowers	22,723	22,723	21,866	21,866	21,866	22,723	22,723	21,574

***, **, * indicate significance at 1%, 5% and 10% level, two-tailed.

Table 6: Mixed Banks

The table reports the maximum likelihood estimation results of duration models. Models I to V and VIII employ parametric duration models with a Weibull distribution that includes a parameter of duration dependence. Models VI and VII report the results of a Cox-proportional hazard model and includes borrower fixed effects. The sample includes only loans given by banks that grant both conventional and Islamic loans and the sample period runs from 2006:04 to 2008:12. The dependent variable is the hazard rate. For each variable in the specification the table reports the estimated coefficient, statistical significance level and standard error (below in parentheses). In Models I-V and VIII standard errors are clustered by borrower.

	I	II	III	IV	V	VI	VII	VIII
Islamic Loan	-1.601***	-1.768***	-1.869***	-1.654***	-2.015**	-1.577*		-0.859
	(0.358)	(0.358)	(0.384)	(0.381)	(0.865)	(0.932)		(0.715)
Share Religious Political Parties								0.00687
								(0.00525)
Loan Characteristics								
Maturity		-0.00554	-0.00446	-0.00799*	0.00500*	0.00700**	-0.00807*	-0.00912**
		(0.00522)	(0.00390)	(0.00429)	(0.00256)	(0.00277)	(0.00429)	(0.00418)
Collateral		-0.422***	-0.479***	-0.559***	-0.204*	-0.237*	-0.551***	-0.593***
		(0.115)	(0.137)	(0.136)	(0.123)	(0.127)	(0.137)	(0.134)
Cash		2.592***	2.485***	2.357***	1.800***	1.783***	2.350***	2.482***
		(0.136)	(0.148)	(0.160)	(0.169)	(0.178)	(0.159)	(0.163)
Export		0.115	-0.0254	-0.0608	-0.239***	-0.171**	-0.0558	-0.127
		(0.245)	(0.255)	(0.238)	(0.0757)	(0.0793)	(0.236)	(0.239)
Agricultural		0.290*	0.238	0.0639	0.700	0.539	0.0591	0.247
		(0.175)	(0.193)	(0.199)	(0.443)	(0.447)	(0.199)	(0.202)
Durable						0.0405		
						(0.124)		
Borrower Characteristics								
ln(Size)			0.0147	0.0345			0.0431	0.0462
			(0.0288)	(0.0291)			(0.0302)	(0.0626)
Big City								0.486***
								(0.143)
Borrowers with conventional and Islamic loans							0.196	
							(0.580)	
Borrowers with only conventional loans							1.184***	
							(0.426)	
Interaction Terms								
Islamic Loan * Share Religious Political Parties								0.0429
								(0.0269)
Islamic Loan * Big City								0.206
								(0.907)
Islamic Loan * Share Religious Political Parties * Big City								-0.170***
								(0.0567)
Share Religious Political Parties * Big City								0.00193
								(0.00756)
Intercept	-4.734***	-6.576***	-6.657***	-6.907***			-8.162***	-5.799***
	(0.130)	(0.173)	(0.614)	(1.224)			(1.286)	(1.535)
Region dummies (7)	No	No	Yes	Yes	No	No	Yes	No
Industry Dummies (67)	No	No	Yes	Yes	No	No	Yes	Yes
Year*Month Fixed Effects	No	No	No	Yes	Yes	Yes	Yes	Yes
Borrower Fixed Effects	No	No	No	No	Yes	No	No	No
Bank Fixed Effects	No	No	No	Yes	Yes	No	Yes	Yes
Borrower*Bank Fixed Effects	No	No	No	No	No	Yes	No	No
Log Pseudolikelihood	-17,336	-16,558	-15,824	-14,695	-6,863	-6,522	-14,679	-14,477
α (Duration Dependence)	1.009	0.999	1.026					
$Chi^2(k)$ [LR in VI-X, Wald in other]	20***	428***	6,334***	7,390***	1,280***	1,019***	7,768***	6,268***
Number of regressors minus one (k)	1	6	81	123	46	38	124	122
Number of Loan-Months	378,649	378,649	372,415	372,415	378,649	378,649	372,415	369,816
Number of Loans	109,157	109,157	107,944	107,944	109,157	109,157	107,944	107,215
Number of Borrowers	15,653	15,653	15,355	15,355	15,653	15,653	15,355	15,144

***, **, * indicate significance at 1%, 5% and 10% level, two-tailed.

Appendix: Regions, Industries, and Banks

The appendix reports the names of the regions and industries. Banks are reported by type (and may appear in more than one category).

Regions
Province of Punjab
Province of Sindh
North-Western Frontier Province (renamed as Khyber Pakhtoonkhwa in 2010)
Province of Baluchistan
Federal Capital Area
(Pakistan Administered) Azad Kashmir
Federally Administered Tribal Area
Federally Administered Northern Area (Gilgit Baltistan as of 29 August 2009)

Industries (Sectors)
Agriculture, hunting and forestry - Others
Commerce and Trade- Retail trade
Commerce and Trade- Sale, maintenance and repair of motor vehicles and motor cycles
Commerce and Trade- Wholesales and commission trade
Construction- Buildings
Construction- Infrastructure
Education
Electricity, gas and water supply
Fishing, farming, aquaculture and related service activities
Foreign constituents
Health and social work
Hotels, restaurants and clubs
Insurance
Manufacturing- Basic metals
Manufacturing- Chemicals and chemical products
Manufacturing- Electrical machinery and apparatus
Manufacturing- Fabricated metal products
Manufacturing- Furniture and fixture
Manufacturing- Handicrafts
Manufacturing- Jewellery and related articles
Manufacturing- Machinery and equipments
Manufacturing- Medical, precision and optical instruments, watches and clocks
Manufacturing- Motor vehicles, trailers and semi - trailers
Manufacturing- Office, accounting and computing machinery
Manufacturing- Other sectors
Manufacturing- Other non - metallic mineral products
Manufacturing- Other transport equipment
Manufacturing- Petroleum products
Manufacturing- Radio, television and communication equipments and apparatus
Manufacturing- Rubber and plastic products
Manufacturing- Sport goods
Manufacturing- Food products
Manufacturing- Papers, paper boards and products
Manufacturing- Printing, publishing and allied industries
Manufacturing- Tanning and dressing of leather
Manufacturing- Textiles- Weaving
Manufacturing- Textiles- Spinning
Manufacturing- Textiles- Finishing
Manufacturing- Textiles- Made-up
Manufacturing- Textiles- Knitwear
Manufacturing- Textiles- Carpets and rugs
Manufacturing- Textiles- Wearing apparel, ready made garments and dressing
Manufacturing- Textiles- Other
Manufacturing- Tobacco
Manufacturing- Wood products
Mining and quarrying
Other community, social and personal service activities
Other service sectors
Real estate, renting and business activities
Ship breaking
Transport, storage and communications
Trust funds and non-profit organizations
Trading
Petroleum
Beverages
Cement
Telecommunication
Surgical and medical instruments
Footware
Sugar
Oil and gas expolaration
Power generation
Refinaries
Fertilizers
Agriculture- Rice
Agriculture- Raw cotton
Agriculture- Wheat
Miscellaneous Industries

Banks
Islamic Banks
Albaraka Islamic Bank B.S.C. (E.C.)
Meezan Bank Ltd.
Dubai Islamic Bank Pakistan Ltd.
BankIslami Pakistan Limited
Emirates Global Islamic Bank
Dawood Islamic Bank Ltd.
Government Banks
Bank of Khyber
Bank of Punjab
First Women Bank Limited
National Bank of Pakistan
Specialized Banks
IDPB (industrial development)
Punjab Provincial Cooperative Bank Ltd.
SME Bank
ZTBL (agricultural development)
Foreign Banks
Albaraka Islamic Bank B.S.C. (E.C.)
Barclays Bank Plc
Citi Bank N.A.
Deutsche Bank A.G.
Hong Kong & Shanghai Banking Corporation
Oman International Bank S.A.O.G.
The Bank of Tokyo-Mitsubishi Ltd.
Large Banks
Bank Alfalah Limited
Habib Bank Limited
MCB Bannk Limited
National Bank of Pakistan
United Bank Limited
Banks with Both Islamic and Conventional Loans
Askari Commercial Bank Limited
Bank Alfalah Limited
Bank Al-Habib Limited
Bank of Khyber
Habib Bank Limited
Habib-Metropolital Bank Limited
MCB Bannk Limited
National Bank of Pakistan
Royal Bank of Scotland (Formerly ABN Amro Bank NV)
Soneri Bank Limited
Standard Chartered Bank Limited
United Bank Limited
All Other Banks (Smaller Private Domestic Banks Offering only Conventional Loans)
Allied Bank Limited
Arif Habib Rupali Bank Limited
Atlas Bank Limited
Crescent Commercial Bank Limited
Faysal Bank Limited
JS Bank Limited
KASB Bank Limited
Mybank Limited
NIB Bank Ltd
Saudi Pak Commercial Bank Limited
Soneri Bank Limited
The Bank Of Punjab
Union Bank Limited

Appendix: Islamic Modes of Financing

Under Islamic economic philosophy, granting a loan is essentially a charitable activity and hence should occur without any compensation. The borrower may (and is encouraged to) voluntarily pay back more than the principal amount to show her/his gratitude towards lender, however, it is prohibited to make an agreement regarding any such additional payment.

If someone wants to earn profits from transferring money, then one must make an investment and share both in the risk and the return of the venture. The ideal modes of Islamic finance are thus *Musharakah* (partnership, where all partners invest both money and some or contribute their expertise) and *Mudarabah* (partnership with some partners investing only money and others only their skills/labor). Islamic banks, however, have devised a variety of other products that mimic the conventional banking products. Many of these products are based on sale contracts rather than loan contracts while others are based on rental contracts. Salient features of most widely used Islamic financial products are given below.

The first column lists the name of the Islamic banking product. The second column mentions the conventional (banking) product(s) that are similar to that particular Islamic product. The third column describes the way the product operates, the fourth column defines the default event and the last column describes the penalties in case of default.

Islamic Product	Conventional Equivalent	Operation	Default	Penalty in the Event of Default
Murabahah	Term loan (w/ balloon payment) installment loan (w/ bullet payments)	1. *Murabahah* is a kind of sale in which seller discloses cost to the buyer. 2. Bank and customer enter into a *Murabahah* agreement 3. The bank appoints the customer as its agent to purchase the asset and gives her/him money for that or the bank itself purchases the asset 4. Under a separate contract, the bank sells that asset to the customer at a marked-up price 5. The customer pays the price in installments over a period of time or in lump sum at an agreed on	Default occurs when the customer misses a payment. The facility is classified as non-performing when a payment is overdue by 90 days or more.	1. The bank cannot change the sales price once it is fixed. 2. To contain moral hazard on part of the customer regarding delayed payment or non-payment of any amount when it is due, the customer undertakes that s/he will give x% per annum of the overdue amount for the period of default to a charity fund managed by the bank. 3. Bank can approach a court to seek redressal, court may award solatium to the bank to cover the 'real losses' suffered like the cost

		date. Notes: Bank can appoint the customer as an agent to purchase the underlying asset on its behalf, but bank must retain the risk and return as he owner of the asset. Bank must own the asset before it could sell it. *Murabahah* cannot be used to finance commodities/assets already owned by the customer. Unlike a normal sale, the customer knows the cost and profit of the bank.		of litigation. Real losses do not include time value of money.
Diminishing Musharakah	Hire-purchase, mortgage financing	1. Customer approaches the bank with a request to finance a fixed asset (say building). 2. Bank agrees to a joint ownership with the customer and agrees to finance say 80% of the value of the building, worth $10M. 3. Bank pays $8M to seller, customer pays $2M to seller. 4. The bank divides its ownership in say 20 parts and the customer undertakes to purchase those parts at agreed dates. 5. The customer uses the building and pays rent to the bank for its 80% ownership in the building. 6. At agreed dates, the customer purchases the bank's shares in the building, the ownership in the building gradually transfers to the	Default occurs when the customer misses a payment. The facility is classified as non-performing when a payment is overdue by 90 days or more. Breach of promise also occurs if the customer does not keep her/ his promise to purchase bank's share in asset.	1. Bank cannot change the rent or sale price of its share in asset once it is fixed. 2. To contain moral hazard on part of customer regarding delayed payment or non-payment of any amount when it is due, the customer undertakes that s/he will give x% per annum of the overdue amount for the period of default to a charity fund managed by the bank. 3. Bank can approach a court to seek redressal, court may award solatium to the bank to cover 'real losses' suffered by it like the cost of litigation. Real losses do not include time value of

		customers. 7. The bank's share in rent of the building decreases proportionally. Notes: The contract of joint ownership and the promise to purchase the shares in asset from bank cannot be made conditional on each other. The promise to purchase bank's share is essentially a unilateral promise by the customer.		money.
Ijarah	Operating lease	1. It involves the transfer of usufruct but not ownership of the asset at an agreed rent. 2. Customer (lessee) approaches the bank (lessor) for lease of a specific asset and makes a promise to lease that asset. 3. The bank purchases the asset, or it may appoint customer to purchase the asset as its agent. 4. After acquisition, the bank rents the asset to the customer for a specific rent; rent may vary for different periods. 5. The customer pays the rent on agreed dates. Notes: Anything, which cannot be used without consuming, cannot be leased out, for example money, wheat etc. Bank retains the risks and rewards of the owner.	Default occurs when the lessee misses a payment. The facility is classified as non-performing when a payment is overdue by 90 days or more.	1. Bank cannot change the rent once it is fixed. 2. To contain moral hazard on part of customer regarding delayed payment or non-payment of any amount when it is due, the customer undertakes that s/he will give x% per annum of the overdue amount for the period of default to a charity fund managed by the bank. 3. Bank can approach a court to seek redressal, court may award solatium to the bank to cover 'real losses' suffered by it like the cost of litigation. Real losses do not include time value of money.

		Customer is responsible for the costs and benefits as the user of the asset The lease agreement can be terminated with the mutual consent of lessee and lessor or it can be terminated by lessor if the lessee contravenes any terms of lease.		
Ijarah wa' Iqtina	Financial lease	1. It involves transferring of usufruct of the asset, and at the end of lease period ownership of the asset also transfers to customer. 2. Customer (lessee) approaches the bank (lessor) for the lease of a specific asset and makes a promise to lease that asset. 3. The bank purchases the asset, or it may appoint customer to purchase the asset as its agent. 4. The bank makes a separate promise to give the asset to the lessee at the end of lease period as a gift or to sell the asset for a specific price. The promise must be unilateral i.e. not binding on lessee and it cannot be conditional on the lease contract. 5. After acquisition, bank rents the asset to the customer for a specific rent; rent may vary for different periods. 6. The customer pays the rent on agreed dates. 7. At the end of the *Ijarah* period, the bank sells the asset to the customer or gives it away to	Default occurs when the lessee misses a payment. The facility is classified as non-performing when a payment is overdue by 90 days or more.	1. Bank cannot change the rent or sale price of the asset once it is fixed. 2. To contain moral hazard on part of customer regarding delayed payment or non-payment of any amount when it is due, the customer undertakes that s/he will give x% per annum of the overdue amount for the period of default to a charity fund managed by the bank. 3. Bank can approach a court to seek redressal, court may award solatium to the bank to cover 'real losses' suffered by it like the cost of litigation. Real losses do not include time value of money.

		customer as gift. Note: The contract of *Ijarah* cannot be conditional on signing the promise of sale or gift. The promise must be made separately.		
Istisna	In some aspects comparable to working capital finance	1. *Istisna'* is a sales transaction where a commodity is traded before it comes into existence. It is an order to a manufacturer to manufacture a specific commodity for the buyer. 2. The price can be paid in advance, in installments or at the time of delivery. 3. The bank and customer enter into an *Istisna* contract, bank orders the customer to manufacture specific goods. 4. Bank can pay some or entire sum of the order in advance or in installments. 5. Customer manufactures the products and delivers them to the bank. The delivery can be constructive. 6. Bank appoints the customer (or anyone else) as its agent to sell the manufactured goods for cash or credit and receives the proceeds. 7. The agent is entitled to agency fees for services. Note: The customer can utilize the amount paid by bank	Default occurs if customer fails to deliver specified goods in time. Default also occurs if the agent fails to perform her duties.	1. It is permissible for the bank and customer to agree that in the event of delay in delivery of goods the price will be reduced by a specific amount per day. 2. It is also permissible to change the price later because of force majeure.

		for any purpose.		
Salam		1. In *Salam*, the seller undertakes to supply specific goods to the buyer at a future date in exchange of a price fully paid in advance. 2. Bank enters in a *Salam* contract with customer and pays the price for goods to be delivered at a later date. 3. With the same delivery date bank enters into a parallel *Salam* with another customer to sell the goods that it expects to receive under the first *Salam* contract. 4. Alternatively bank can obtain a promise from another potential buyer of the goods that the bank expects to receive under *Salam*. The bank can then sell the products for cash when it receives them. 5. The price under two *Salam* contracts or the first *Salam* and purchase promise can be different and that difference is profit of the bank. Notes: Engineering a buyback agreement using parallel *Salam* is not permissible, i.e the seller under first *Salam* cannot be buyer under the second *Salam* contract The two *Salam* contract are distinct from each other and cannot be made conditional on one another. Bank can ask for security or guarantee to ensure	Default occurs, if the customer fails to perform her obligations under the contract. Any misrepresentation by the customer is also construed as an event of default.	

		performance on part of its customer		
Musharakah	Joint venture	1. *Musharakah* is a relationship between two parties or more, who contribute capital to a business, and divide the net profit and loss. All providers of capital are entitled to participate in management, but not necessarily required to do so. The profit is distributed among the partners in pre-agreed ratios, while the loss is borne by each partner strictly in proportion to respective capital contributions. 2. Bank and customer enter into a *Musharaka* agreement by investing a certain sum of capital in the business for a specified period of time. 3. Bank and customer also define the share of each party in expected profits. The customer also gives an (annual) projection of profit. 4. The customer periodically (monthly/ quarterly) pays the profit to the bank based on the profit projections and bank's share in profit. 5. These profit payments are provisional and are subject to upward or downward adjustments based on the realized profits/losses. 6. At the end of *Musharaka* contract, customer pays back the capital of the bank net of profits/losses. Notes: Return can be fixed as a percentage of profit but not as a percentage of investment.	Default occurs if the customer fails to make profit or capital payments when they are due. The facility is classified as non-performing when a payment is overdue by 90 days or more.	1. If the business suffers losses, then bank assumes the losses in proportion to its investment. 2. To contain moral hazard on part of customer regarding delayed payment or non-payment of any amount when it is due, the customer undertakes that s/he will give x% per annum of the overdue amount for the period of default to a charity fund managed by the bank. 3. Bank can approach a court to seek redressal, court may award solatium to the bank to cover 'real losses' suffered by it like the cost of litigation. Real losses do not include time value of money.

		Share of an active partner in profit can be more than her/his contribution to capital. A sleeping partner cannot share in profit more than her/his share is capital. Loss is always shared proportional to the invested capital.		
Mudaraba	Similar to hedge / mutual funds	1. *Mudaraba* is a kind of partnership between two parties, where one party (or parties-financiers) provides finances and the other (entrepreneur) provides expertise, labor and management. Profits made are shared between the financier and the entrepreneur according to a predetermined ratio. In the event of loss, the financier absorbs all losses, while the entrepreneur loses her/his provision of labor 2. Bank and customer enter into a *Mudaraba* agreement, whereby the bank invests *all* the required capital and the customer commits his skills/management. 3. Bank and customer also define their shares in expected profits. 4. The customer periodically (monthly/ quarterly) pays the profit to the bank as agreed between the two. 7. At the end of *Mudaraba* contract, the *Mudaraba* can be dissolved or extended. In case of dissolution, the customer pays back the principal net of any accrued profits or losses. Notes:	Default occurs if the customer fails to make payments to the bank when they become due under the agreement or when customer fails to render her/his duties as agent of the bank to manage the affairs of the business. The facility is classified as non-performing when a payment is overdue by 90 days or more.	1. If the customer (agent) acts negligently to run the affairs of the business and business suffers loss because of negligence then bank can deny payment of compensation(for management and labor) to the customer. 2. The bank can also take over the business and terminate the right of the customer to look after it if the customer contravenes any terms of *Mudaraba* agreement. 3. The customer is liable for the loss if it is proven that s/he has breached her/his obligations.

		Return can be fixed as a percentage of profit but not as a percentage of investment. Losses are always absorbed by the financier(s)/bank.		
Qard-e-Hasna	Benevolent Loan	1. The borrower approaches the bank for financing. 2. The bank agrees to give loan to customer for a certain period, to be paid back in installments or in one go. 3. Bank can charge service fee, and documentation charges. 4. Bank cannot claim any other interest or profits for time value of money.	Default occurs when the customer fails to pay an amount when it is due. The facility is classified as non-performing when a payment is overdue by 90 days or more.	1. Bank cannot any additional amount in the event of default by the borrower. 2. To contain moral hazard on part of customer regarding delayed payment or non-payment of any amount when it is due, the customer undertakes that s/he will give x% per annum of the overdue amount for the period of default to a charity fund managed by the bank. 3. Bank can approach a court to seek redressal, court may award solatium to the bank to cover 'real losses' suffered by it like the cost of litigation. Real losses do not include time value of money.