SAMPLE SCORING MODEL WITH COMMENTS TO ASSESS SME LOAN REQUESTS

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JORDAN ECONOMIC DEVELOPMENT PROGRAM (SABEQ)

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AUTHOR: KEVIN O'BRIEN

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Jordan Commercial Bank

The Housing Bank for Trade and Finance

EXECUTIVE SUMMARY

Credit scoring models are used globally to process a variety of credit products. These models have led to greatly enhanced credit processing and improved loan quality, which is why lenders and regulators alike have embraced the concept.

Jordanian lenders to the SME market will one day use scoring models on a broad scale and realize similar benefits. Despite the absence of a credit bureau now, several forward thinking bankers are designing scoring models and will make the necessary adjustments later, when credit repayment histories are more accurately reported. The interest in scoring models among bankers is noticeable and is spreading. For this reason, SABEQ devoted extensive time to credit scoring at a recent Credit Process Workshop held at the Association of Banks.

This Report contains a sample credit scoring model along with explanatory comments for discussion purposes only. All of the information in this Report comes from discussions with Jordanian bankers that are in the process of designing scoring models. Bankers that are unfamiliar with credit scoring should gain a full understanding of the subject before trying to develop their own. Moreover, we recommend the use an outside expert, or experts, to develop and implement a credit scoring model.

Like any other model, the results from using credit scoring models need to be measured and analyzed on a regular basis. Scoring models become obsolete if not tracked and adjusted periodically.

BACKGROUND

TERMS OF REFERENCE

The writer of this Report (the Advisor) worked in Amman from June 8 until September 4, 2008 on the broad topic of access to financing for Small to Medium Size Enterprises (SMEs). The Advisor's terms of reference (TOR) were assigned under the USAID funded Sustainable Achievement of Business Expansion and Quality Program (SABEQ). This report (the Report) is one of five deliverables required under the TOR.

SPECIFIC TASKS

Specific Tasks required under the TOR are shown below.

SME Credit Scoring (this Report):

- Assist banks in developing a SME scoring model.
- Use knowledge gained from work on SME scoring models with banks to support other SME lenders, e.g. lessors and vendors.

SME Market Survey:

- Obtain final comments, translate and distribute questionnaires to banks and business/trade associations.
- Provide instructions on distribution and obtaining feedback.
- Select a local firm to assist with collating and analyzing results.
- Distribute results to banks and participating associations.
- Use analysis from market survey to design training workshops on identifying, servicing and financing clients in priority sectors.

SME Product Development:

- Finish product design.
- Support launch of pilot phase.
- Research similar product design and experience in other markets.
- Assist with rollout of final product.

- Determine reliable monitoring methods to track results.

Microfinance and SME Regulatory Framework:

- Brief the banks and the Association of Banks on new laws and their progress.
- Provide consultative support.
- Coordinate comments among the banks and legal drafters.

Establishment of Credit Bureau:

- Identify work in the IFC plan where the Advisor could add value and speed implementation of a credit bureau.
- Provide advice using related legal and financial experience.

WORK PERFORMED OUTSIDE THE TOR INCLUDED:

- Training new examiners at the Central Bank of Jordan in Risk and Credit Management (June, August and September).
- White Paper on Legal Obstacles to SME Loans in Jordan.

  Deliverable for TOR (this Report):

- At least one credit-scoring model for processing SME loan applications that includes the contribution of one or more banks.

RESULTS (THIS REPORT):

- Banks will have a better understanding of how to develop credit scoring models.

REPORT

This Report contains a sample scoring model to assess SME loan requests (the Model) and comments (the Comments) that explain the Model. There are no exhibits or appendixes.

INTRODUCTION

CREDIT SCORING MODELS

Credit scoring models are used globally to process a variety of credit products (including SME loans). According to knowledgeable experts such as the Credit & Management Systems, Inc, models offer considerable institutional and economic benefits including:

- Speed – statistical scoring models are fully automated and allow for faster, more efficient credit decisions. Lesser automated models still save substantial time and expense.
- Accuracy – if applied consistently with proven predictive factors, models can be highly accurate.
- Quantifiable process – creditors no longer analyze one credit at a time; data is easily captured and client factors are compared with desired measures and peer groups, which is important for efficient SME evaluations; it is also less subjective.
- Fewer bad debts – when managed effectively, good models result in fewer credit problem loans; loan defaults are predicted with greater certainty so high vs. low risk requests are clearly distinguished; it also enhances portfolio management.
- Regulatory oversight – validated scoring models are routinely approved by regulators and will play a key role with Basel II IRB approach.

CREDIT SCORING MODELS IN JORDAN

The Advisor held many meetings with financial experts[1] in Jordan to identify ways of expanding access to financing for SMEs. A key sub-topic has been to identify efficient credit processes tools without sacrificing loan quality or integrity. One of the more promising tools is a well designed credit scoring models as shown in the previous paragraph.

This Report introduces a sample credit scoring model (the Model) for discussion purposes among the credit providers in Jordan. Along with the Model are explanatory comments (Comments) and both the Model and Comments are provided without liability to the USAID

[1] Senior bank executives, SME department heads and leasing subsidiaries.

SABEQ Program (see the next Section – No Liability). All of the information in this Report was taken from discussions with Jordanian bankers who understand that SME loan applications will require a different loan process than that used to evaluate loan applications from large corporate or retail clients. Several banks are seen as leaders in this area and are experimenting with SME credit scoring models. It's fair to say that most of the contributions to this Report came from these same banks.

One major missing link for wider confidence and use of scoring models in Jordan is the lack of a reliable credit reporting body (a credit bureau). Indeed, credit repayment history is one of the crucial "predictive factors" for scoring models. However, several lenders realize that Jordan will have credit bureau services one day and are preparing now by exploring the use of SME scoring models. The Model herein presents an opportunity for lenders to consider ways to quantify risks in the absence of a credit bureau. When a credit bureau is finally operating in Jordan, adjustments will follow to existing scoring models.

One last introductory comment is appropriate. A two day Credit Process Workshop was held in Amman this past year that was co-sponsored by USAID –SABEQ and the Association of Banks in Jordan. At least 25% of the workshop was spent on credit scoring loan requests and the challenges faced in designing such models for SME products in Jordan. The session was well attended and five break-out groups focused exclusively on design, components, predictive factors and sector-specific adjustments; all of which are discussed in this Report. Suffice it to say that the bankers showed a high level of understanding and interest in this subject, which explains the favorable written evaluations submitted by the attendees.

NO LIABILITY

SAMPLE CREDIT SCORING MODEL

	Scoring		Scoring		Scoring			
Factors	***1***		***2***		***3***	Score	Weight	Total Score
THREE COMPONENT FACTORS								
1. Non-financial = 45%								
Age of business - years	<two		two-seven		>seven			
Legal form	personal		Partnership		Limited			
Trade reference #1- payment history	30+ days PD		10-30 days PD		0-10 days PD			
Trade reference #2 - payment history	30+ days PD		10-30 days PD		0-10 days PD			
Trade reference #3 - payment history	30+ days PD		10-30 days PD		0-10 days PD			
Black list - returned checks	often		rare to sometimes		Never			
Bank client - years	<one		one to four		> four			
Repayment record with bank	below average		average - above average		well above average			
Branch manager comment	poor reputation		fair to good reputation		very good reputation			
Client concentration - <75% sales	< two clients		two-five clients		>five clients			
Debt confirmed with other lenders	uncertain		somewhat certain		nearly certain			
Bank references	<fair		fair-favorable		>favorable			
Credit rating - owner	TBD		TBD		TBD			
Credit rating - guarantor	TBD		TBD		TBD			
Credit rating - business	TBD		TBD		TBD			
Ability to confirm key factors with:								
deposit statements,	not confirmed		mostly confirmed		Confirmed			
bank invoices	not confirmed		mostly confirmed		Confirmed			
customer's books and records	not confirmed		mostly confirmed		Confirmed			
Total Score - Non-financial factors								***45 (max)***
2. Facility = 20%								
Type - P&I payment	Overdraft		Structured- Quarterly		Structured- Monthly			
Tenor - years	> five		one to five		< one			
Collateral coverage	< 1.25		1.25 – 2		>2			

Collateral type	not liquid		25-50% liquid		50-100% liquid			
Industry sector	high risk		medium risk		low risk			
Total Score - Facility factors								***20 (max)***
3. Financial = 35%								
Quick ratio	<.75		.75-1.25		>1.25			
Sales growth (in past 2 years)	< 5%		5-20%		>20%			
Net margin	<1.5		1.5 - 5%		>5%			
Projected debt service coverage	<1.2		1.2 - 2		>2			
Receivable turnover - days	>120		60 - 120		<60			
Inventory turnover - days	>180		90-180		<90			
Debt leverage	>5		1.5-5		<1.5			
Total Score - Financial factors								***35 (max)***
TOTAL SCORE								**100 (MAX)**

Total Score	***Quality***
90 – 100	Highest
75 – 90	Good
50 – 75	Average
Below 50	Below Average

COMMENTS

THREE COMPONENT FACTORS

There are three component factors in this Model:

1. Non-financial
2. Facility, and
3. Financial.

A lender may elect to limit credit scoring to two components such as Non-financial and Financial, and use the Facility score for related decisions including pricing, tenor and collateral. If a lender elects to drop the Facility score from the Total Score, a different weight would attach to Non-financial and Financial components (to replace the Facility weight) such as 50%/50%, 60%/40%, 40%/60%, etc.

The Model proposes a total component weighting of 45% for Non-financial, 20% for Facility and 35% for Financial. Although arbitrary, this weighting reflects to some extent the absence of adequate credit reporting and the receipt of poor financial information from many loan applicants.

In the interest of efficiency, a lender may elect to place a threshold requirement on any one component and deny loan applications that do not meet this threshold score. Furthermore, an analysis could begin with one component that requires a threshold score, before analysis can proceed with more time consuming analysis of other components. For example, a minimum score of 25 may be the threshold for Non-financial factors and loan requests that score less than 25 could be denied without taking the time to score the other components. The writer does not recommend this procedure as good or bad

1. NON-FINANCIAL COMPONENT

Factors: These factors are self-explanatory and some are subjective in nature.
"Age of business", "Legal form", "Trade references" and "Black list" are factors commonly found in local scoring models.

‘‘Bank client – years” and “Repayment record with bank” are factors found to a lesser degree in local models.

As with any other factor in the Model, the “Branch manager comment” is optional and, if used, may be worded differently or used on an experimental basis. The theory is that clients that frequent the branch and apply for loans are most likely best known by the Branch Manager.

“Client concentration – > 75%” is an attempt to quantify concentration risk, which can be a concern to lenders; this Model does not have a risk factor for “Supplier concentration” even though some lenders understandably express this companion concern.

“Debt confirmed with other lenders” assumes that the other lender(s) name is on file with the Central Bank and/or the applicant volunteers such information. It’s possible that other bank debt exists and is not disclosed during the application process. Jordanian lenders are well aware of this risk but I have not observed a way to quantify such risk.

Please note the factor “Credit ratings” for the “owner”, “guarantor” and “business”. This is here in case a credit rating is available from an off-shore source or for when a domestic credit bureau exists.

Scoring: As with the other two components, each factor is scored on a 1, 2 or 3 basis. No significance is intended; this scoring is used for the sake of ease and simplicity. Thus, lenders may elect different scoring schemes like 1 through 4 or 1 through 5. However, I submit that the use of numerous scoring options (more than 5) does not add appreciably to predicting loan repayment.

While logical, the scoring values are not necessarily representative of SME experience in Jordan. Therefore, all scoring values merit careful review by lenders and changes are encouraged.

Weights: The Model does not propose a weight for each factor as the lender makes this decision. Each factor’s score is multiplied by the respective weight and all factors are added together.

Some lenders do not divulge weightings to those involved in the credit process. To do otherwise may leave the scoring system open to manipulation. Consequently, the weighting and other “mapping” elements are known only by the department head or other senior officers.

Total Score: The Model shows a total maximum score of 45 points for the Non-financial Component.

2. FACILITY COMPONENTS

Factors: Again, a lender may elect to delete the Facility Component from this part of the Model (see the first three paragraphs of this Section) and all factors are subject to review.

The “Type-P&I payment” factor reflects general concern among lenders associated with Overdraft facilities.

The writer recognizes unfairness is built into the “Tenor-years” factor because medium and long term facilities are penalized with lower scores. Lenders may wish to consider other ways to quantify the notion that longer maturities mean more risk.

As with many other factors, “Industry sector” contains predictive risks perceived by lenders. Another option for lenders is to develop different scoring models for loans in different sectors permitted in its credit policy. This theme is repeated several times in this Section.

Scoring: Similar to the other two Components, each factor is scored on a 1, 2 or 3 basis (see NON-FINANCIAL COMPONENTS). Again, the lender should review each scoring value for changes or adjustments.

Weights: The Model does not propose a weight for each factor. Each lender will make this decision (see NON-FINANCIAL COMPONENTS).

Total Score: The Model shows a total maximum score of 20 points for the Facility Component.

3. FINANCIAL COMPONENTS

Factors: Only seven ratios appear in the Model. The lender may want to add or take away from this list and may wish to shape the ratios to better suit the applicant's size and sector.

Scoring: Similar to the other two components, each factor is scored on a 1, 2 or 3 basis (see NON-FINANCIAL COMPONENTS). The ratio value attributed to each score is unrelated to Jordan, SME size groups or sectors. Stated otherwise, lenders should pay little or no attention to this scoring scheme. It may be necessary to use ratio values and scores that are common benchmarks for a particular size group or sector. This would mean using different ratio values and scoring schemes depending on a sector.

Weights: The Model does not propose a weight for each factor. Each lender will make this decision (see NON-FINANCIAL COMPONENTS).

Total Score: The Model shows a total maximum score of 35 points for the Financial Component.

TOTAL SCORE – 3 COMPONENT FACTORS

The lender will determine total scoring quality guidelines. An example is given below where 100 is the highest possible total score for one loan application:

Total Score	*Quality*
90 – 100	Highest
75 – 90	Good
50 – 75	Average
Below 50	Below Average

IMPLEMENTATION GUIDANCE

Lenders that decide to design and implement a scoring model should consider the services of an outside consultant who possesses the proper qualifications and experience. For the larger or more complex projects, contracting firms offer a full line of scoring services. The main goal is to calibrate valid predictive factors and quantify the risks associated with loan repayment.

Once a lender has designed a test Model, prudence suggests that the existing credit process continue to operate parallel with the test Model. Comparative results may lead to key changes before going “live” with a Model, even on a test basis. This greatly “oversimplifies” the implementation phase but it does present some guidance.

TRACKING

Almost as important as implementation is tracking carefully how loans perform after credit scores are assigned. A decline in loan quality, for example, should cause reconsideration of predictive factors, scoring values, weightings and quality ratings. Likewise, Models using overly conservative assumptions may result in high loan quality but generate low loan volumes thereby disappointing clients, placing expected revenue targets at risk and losing the bank’s battle for market share. Like any other model, credit scoring Models require periodic adjustments or they become obsolete.

QUESTIONS

The reader may forward questions to: kevin.obrien@bearingpoint.com

Jordan Economic Development Program (SABEQ)
BearingPoint, Inc.
Salem Center, Sequleyah Street, Al-Rabiyeh
Amman, 11194 Jordan
Phone: + 962-6 550-3050
Web address: http://www.SABEQ-Jordan.org