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Understanding What Drives the Small Business Risk Portfolio Score

This document is intended to address the following questions:

- ✓ *How was the Small Business Risk Portfolio Score developed?*
- ✓ *What does the Small Business Risk Portfolio Score predict?*
- ✓ *What data elements drive the Small Business Risk Portfolio Score?*
- ✓ *How can the Small Business Risk Portfolio Score be used in conjunction with the Fair, Isaac's Small Business Scoring Service, Version 5.0?*
- ✓ *How does the Small Business Risk Portfolio Score perform?*
- ✓ *What is the Small Business Risk Portfolio Segmentation? And how can it be used in my decisioning process?*

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Introduction

The Small Business Risk Portfolio Score – powered by Fair, Isaac - provides a dependable and flexible tool to optimize your account management process. It predicts the likelihood of severe delinquency (60+days past terms) over the next 18-24 months including bankruptcies and charge offs. It uses statistical probabilities to classify companies into a 50-250 score range, where 50 has the highest likelihood of severe delinquency and 250 has the lowest likelihood of severe delinquency.

The Small Business Risk Portfolio Solution combines D&B's powerful commercial database and advanced portfolio management capabilities with Fair, Isaac's statistical and analytical expertise in using business and consumer data to build small business predictive models. The result is a suite of account management scorecards that are highly effective in predicting the potential delinquent behavior of your existing small business accounts. The solution allows you as a small business lender or leasor to:

- Achieve virtually 100% resolution of automated small business account reviews
- Reduce the costs associated with full-scale annual risk reviews
- Pinpoint accounts that need prompt action
- Increase customer satisfaction with faster, more consistent decisions
- Manage collection resources with prioritized actions for delinquent accounts
- Satisfy regulator needs for timely, consistent and objective review decisions at the account level

In order to help portfolio risk managers accomplish these objectives, the Small Business Risk Portfolio Solution offers:

- **A series of scorecards**, built exclusively for financial services by Fair, Isaac, driven by D&B's comprehensive small business information and consumer business owner information.
- **Standard and customizable segmentations** driven by the score and your internal account information, providing added insights and recommended action steps for more precise account treatment
- **Access to portfolio and individual account analytics, decisioning and management reporting** when used in conjunction with D&B's Risk Assessment Manager – Enterprise (eRAM). Scores and data can be imported to the eRAM application for more strategic portfolio analysis and individual account management in categories such as:
 - ✓ Overall risk distribution



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- ✓ Score distribution by product type
- ✓ Score distribution by active/inactive customers
- ✓ Score distribution by scorecard type
- **Batch scoring** for account management of your entire portfolio

Capitalizing on both companies' core competencies and extensive knowledge of the financial services industry, the Small Business Risk Portfolio Solution leverages:

- D&B's powerful commercial database,
- Fair, Isaac's small business analytic capabilities, and
- D&B's market-leading portfolio management decisioning engine, Risk Assessment Manager – Enterprise, to bring you one comprehensive portfolio management solution.

This document explains in greater detail how the Small Business Risk Portfolio models and segmentation were developed, and how they can be used to increase the effectiveness of your account management process. Section One discusses the models used in the solution and how they were developed. Section Two describes the portfolio segmentation strategies included in the solution and how they were developed.

Fair, Isaac and D&B – Partners in Small Business Risk Assessment

In the early 1990's Fair, Isaac pioneered the use of small business predictive modeling for Financial Services by blending consumer and business data for small business risk assessment. These analytics are currently the most widely accepted tools for origination of small business credit and are used by 90% of top small business lenders.

Consumer data has been an important component of these small business analytics because the business owner tends to be the primary decision maker and often uses their personal credit as a way to finance the business or to facilitate cash flow. As a result they use credit more, revolve more and have higher delinquency rates. These characteristics might indicate higher risk for a typical consumer but may actually be fairly normal for a small business owner.

Fair, Isaac's small business analytics are optimized on this unique group of consumers who are small business owners. Over the past decade, they have developed and refined analytics to include a suite of models that combine business information from D&B, the leader in the commercial and small business risk management information marketplace, with principal information from the consumer bureaus to provide a more precise portfolio risk assessment on these small business establishments. In fact, Fair, Isaac and Company Inc. and D&B confidential, proprietary information.

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information from D&B's extensive commercial and small business databases, about the business itself, provides a critical dimension to the small business risk assessment. The end result is a suite of models tailored to a range of situations that are optimized for those scenarios.

I. Small Business Risk Portfolio Score

Model Development Process

Fair, Isaac's approach to model development is to work closely with small business lending industry leaders to develop robust, accurate models that are relevant for today's lending environment. The models built for portfolio management were developed from a pool of several hundred thousand records contributed by participating financial institutions. The development data was comprised from banks of varying asset sizes, lending strategies and small business lending activity (e.g. lines of credit, term loans and commercial cards). This variety created a sample that contained a range of transaction size business types (for example, contractors, professionals, retailers, wholesalers), and geographic locations. In fact the sample closely resembled the Small Business Administration's geographic distribution of small businesses in the United States. This broad spectrum of data helps ensure that the models are representative of today's small business lending environment.

Model development involves selecting data available at the time of observation that will indicate how the account is expected to perform over a certain period of time. In this latest development Fair, Isaac combined data from 1996-2000 to create a pool of predictive data from D&B and the consumer credit bureaus and performance data from small business lenders' portfolios from which to build models.

Fair, Isaac periodically rebuilds models (as appropriate) based on more recent activity, but it's important to remember that Fair, Isaac has built and validated many similar models over the years in many different economic environments, including recently, and the models have proven their ability to maintain their rank ordering power. In our experience in analyzing data and building models, the factors that indicate risk don't vary significantly from one environment to the next. Lenders may have more of a higher risk profile in their portfolios in a difficult economic environment but the models will still retain their predictive power.

Of course data collection and sample construction is only the first step in comprehensive model development. Fair, Isaac applies research from past account management



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developments, insights from industry leaders and advanced modeling tools and techniques to build the most robust predictive models possible.

Model Design and Parameters

As part of model development Fair, Isaac works with the small business lending industry to establish certain design and outcome objectives for the models. Many of these parameters are driven by input from the industry while others are restrictions of the data.

The models are designed and have been validated according to the following parameters:

- Validated on a wide range of small business transactions and sales volumes.
- The scores predict a window of 18-24 months into the future and were built with Fair, Isaac's Small Business Scoring Solution, Version 5.0, to provide you with a single and consistent benchmark of performance throughout the life cycle of your accounts.
- "Bads" are defined as any account that goes 60 days payment delinquent or worse, including bankruptcies and charge-offs.
- "Goods" are defined as any account that was not more than twice 30 days delinquent.
- Fraudulent, non-profits and cash secured accounts were excluded from the sample. These kinds of transactions either have unusual risk profiles or little data for evaluation.
- Five adverse action codes are supplied which indicate which variables had an adverse impact on the score. This helps users understand what's driving the score and is useful for customer service.

While these design considerations are useful for model building and for understanding the analytics, the models can be tested and used in many different environments. In fact, many Fair, Isaac clients have successfully applied the models in various lending situations beyond the parameters used for development.

Model Suite and Model Selection

The Small Business Risk Portfolio Solution suite consists of 5 models. The model selection logic ensures that each account is automatically evaluated by the most appropriate model based on available data (business, consumer or both). Models using



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consumer data are segmented by presence or absence of derogatory information on the principals' consumer bureau report.

Having a suite of models allows for better separation of “goods” and “bads” by focusing on unique populations; for instance, where derogatory information is not present versus when it is. It also provides for the most predictive score possible optimized on the data available. As a general rule, having more data available to analyze portfolio risk is preferred. However, the model suite will accommodate and predict risk in situations when either business or consumer data on the principal owners of the business is not available.

Each model has an identifying number that is returned with the Small Business Risk Portfolio Solution to indicate which model was used to score each account.

The series of Small Business Risk Portfolio Scores use a combination of commercial and/or consumer data, depending upon scorecard type used. The characteristics consist of some of the following variables:

Principal Owner's Consumer Credit Bureau Characteristics

- Fair, Isaac consumer credit bureau score
- Net fraction revolving burden (revolving debt burden)
- Number of inquiries last 6 months (excluding the last 7 days)
- Number of satisfactory trade lines
- Number of trade lines 30 days or worse delinquent and/or a derogatory public record
- Months since most recent delinquency

D&B Business Bureau Characteristics

- Time as current owner
- Current Paydex score
- Current Paydex minus industry norm
- Number of experiences in the Paydex calculation
- Percent satisfactory payment experiences
- Derogatory rating
- Percent slow/negative payment experiences

In order for an account to be scored it must have a valid consumer credit bureau score.

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Scaling to Fair, Isaac's Small Business Scoring Solution (SBSS), Version 5.0

One of the immediate advantages for small business lenders utilizing the Small Business Risk Portfolio model suite for many Financial Services and Leasing firms already using D&B and Fair, Isaac in their origination process is that the Portfolio Scores were scaled in a similar manner to the SBSS 5.0 origination models. This scaling not only provides lenders with a risk score that they are already familiar with, but enables them to compare scores and track risk profiles over time.

The models were scaled such that a change of 20 points doubles or halves the odds depending on the direction of the change. In other words an account scoring 180 is half as risky as one scoring 160. It's important to understand that individual portfolios will vary but lenders should see scaling consistent with what they are experiencing from the SBSS 5.0 origination models. Users of the original SBSS origination models that have not yet converted to the 5.0 models may not experience the same consistency to Small Business Risk Portfolio models. For clients who have not yet migrated to the SBSS 5.0 models Fair, Isaac can assist with research on their own portfolios to map the scaling from origination scores to Small Business Risk Portfolio scores.

In general development data are less relevant than a lender's own experience with the models. Regardless of which score is used at origination, Fair, Isaac recommends that every lender compile a database of their own accounts with both the origination and the subsequent Small Business Risk Portfolio score and track performance of those accounts over time. Assuming enough data was available, odds for each score could be developed on the lender's own portfolio. The lender would then gain a more accurate picture of how the different scores reflect changes in their portfolio risk level over time. Fair, Isaac consultants are available to help with this analysis.

All of the Small Business Risk Portfolio models are scaled the same so that a score has the same meaning no matter which model is used. In other words a score of 160 from the D&B only model means the same in terms of risk as a score of 160 on one of the blended Small Business Risk Portfolio models. This consistency of scaling is also a feature of the SBSS origination models. This facilitates consistency of results despite differences in information utilized at the time of origination vs. what is used at the time of account review.



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Model Performance

One way to measure model performance is by examining a trade-off curve. Below is a trade-off curve that illustrates the effectiveness of the Small Business Risk Portfolio models. A trade-off curve is a plot of ascending accumulation of good accounts vs. bad accounts. It is useful for illustrating model performance both at a particular score and across the spectrum of score distribution.

For example in the attached graph at approximately 40% of the cumulative Good population, the Small Business Risk Portfolio models identify approximately 75% of the cumulative “bads”. This means that if a financial institution focused on the lowest 40% of their portfolio there would be 75% of the “bads” in that group.

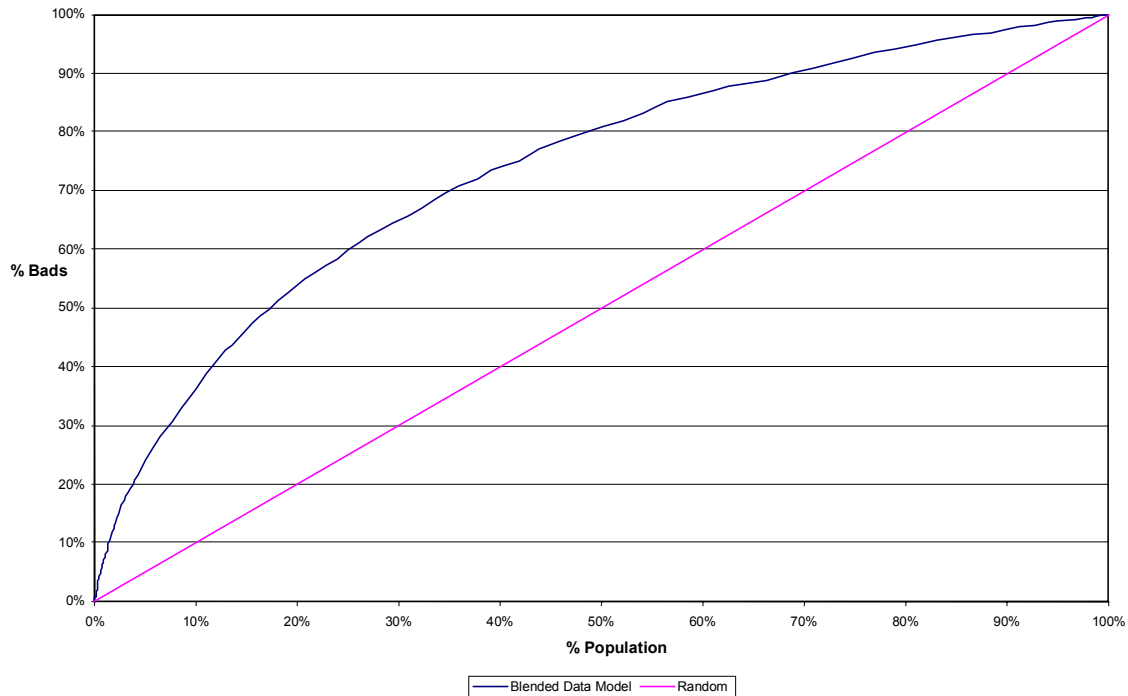
The inverse is also true. Say for example an institution wanted to automatically renew 60% of its lines of credit with no further review than the Small Business Risk Portfolio score. By doing this they would only automatically approve 25% of bad accounts. The other 75% would either be closed or at least more closely scrutinized. This is an example of how users can free up scarce resources to focus on more difficult decisions while maintaining consistent risk profiles in the portfolio with automated renewals.



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Small Business Risk Portfolio Model



During the course of model development, various statistics from the development sample are gathered similar to the trade-off curve shown above. Development statistics provide useful information that can be used to help management determine credit policy related to the use of the models. For several reasons, however, statistics from model developments should not be construed as precise forecasts for individual portfolios.

In addition, models are developed assuming that the relationships observed between past customers' characteristics and subsequent payment performance will hold true on future customers. Because of this assumption development statistics should be viewed as estimates, and not precise forecasts, of future performance at a given score.

Nevertheless, models are robust tools for rank-ordering risk in changing circumstances; higher scoring applicants perform better than lower scoring applicants. Tracking the score distributions and the actual performance of accounts provides the most accurate projections for individual portfolios.



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Customer Information Requirements for Scoring

In order to score accounts, certain information is required to obtain the D&B commercial and consumer bureau data. These include:

- Business information – Business name and address (D-U-N-S® number if available)
- Principal owner information – Name, address and Social Security Number.

Small Business Risk Portfolio Solution and the models will accept and score information on up to 2 principals (it's advisable to provide the two business principals with the highest percentage of ownership should you have more than two).

Certain information is optional. For example, additional data from the client's master file systems such as current and historical delinquency is recommended though not required for portfolio segmentation. (See Section II Portfolio Segmentation for more detail about data used for segmentation.) Please refer to technical documents provided by D&B for exact input fields and file formats.

II. Small Business Risk Portfolio Segmentation

Portfolio Segmentation allows clients the option to combine their own internal customer data with business and/or consumer data on the principal owners of the business in a strategy tree that segments each account into a group with specific profiles. Even if no internal data is provided, segmentation will still occur driven by the score. Either way, these segments allow clients to take the most appropriate action for the customer profile indicated. This can be extremely helpful, for example, when evaluating accounts for line renewals. Customers that have high scores and no previous delinquency might be recommended for automatic renewals. Low scores and previous delinquency might require more scrutiny or possibly renegotiated terms. This enables clients to streamline the renewal processes to make faster decisions about their best customers and focus on accounts that need additional analysis.

Fair, Isaac develops segmentation using a process similar to that used for developing analytics. The baseline segmentation was developed using the expertise of Fair, Isaac strategy analysts with years of experience in portfolio management in conjunction with feedback from small business industry leaders to develop strategies that are relevant to



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small business lending and useful for a variety of portfolio management applications.



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Custom segmentation can be developed and is an option when clients wish to segment their portfolio(s) in ways that are more closely aligned with their portfolio objectives than the baseline segmentation provided by Fair, Isaac. Fair, Isaac will work closely with the client to define, develop and implement the desired segmentation.

Baseline “Standard” Segmentation

In order to take full advantage of the baseline segmentation, the client is encouraged to supply from their internal customer information systems data, such as:

- Current delinquency
- Current balance
- Line limit (for lines of credit and commercial cards)
- Maximum historical delinquency
- Account Type

The baseline strategy has separate strategies for Term Loan and Revolving types of products. Segmentation is also available for situations where no customer data is available, in which case the portfolio is segmented by the Small Business Risk Portfolio Score. We’ve also provided the ability to segment where customer data is supplied but for some reason a score is not available. This provides maximum flexibility for segmentation based on the level of data supplied by the user.

Custom Segmentation

The Small Business Risk Portfolio Solution input record allows many more fields than those listed above. These additional fields are to facilitate custom segmentation, should clients wish to create customized strategies other than the baseline provided. The 12 months history is available for payment, delinquency, balance and line amount fields. In addition, 30 user-defined fields are provided. Fair, Isaac experts are available to work with clients to design and build strategies customized to individual client needs and situations.



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Customer Information Requirements for Segmentation

In order to maximize the segmentation component of the Small Business Risk Portfolio Solution, it is recommended that you submit the following information:

Baseline

- Current delinquency
- Current balance
- Line limit (for lines of credit and commercial cards)
- Maximum historical delinquency
- Account Type

Custom

- 12 Months of Demand Deposit Account
- 12 Months of Credit Line Limit
- 12 Months of Payments
- 12 Months of Delinquency Status



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Appendix A

List of Reason Code Values

(This list consists of the potential reasons that had the most negative effect on the Small Business Risk Portfolio Score)

Code	Meaning
C6	D&B Business Report Derogatory Rating
C9	D&B Percent Satisfactory Payment Experiences
CA	D&B Percent Slow Negative Payment Experiences
CU	D&B Current Paydex
CV	D&B Number of Experiences in Paydex Calculations
CZ	D&B Business Bureau Time in File
M1	Maximum Score Possible
N2	Insufficient Information Available to Generate Business Bureau-Based Characteristic
B2	No D&B Business Data Available
X2	No Record at Business Bureau Found (v.2 only)