Understanding the D&B

US Supplier Evaluation Risk Rating™ (SER Rating)

This document is intended to address the following questions:

- ✓ *What is the Supplier Evaluation Risk Rating (SER Rating)?*
- ✓ *What does the SER Rating predict?*
- ✓ *What is the availability of the SER Rating?*
- ✓ *How is the SER Rating calculated?*
- ✓ *How does the SER Rating perform?*

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Appendices:

I. Introduction

The D&B US Supplier Evaluation Risk Rating (SER Rating) predicts the likelihood that a supplier will cease business operations or become inactive over the next 12 month period based on the depth of predictive data attributes available on the business. The US SER Rating is derived from the Portfolio Comparison and Data Depth dimensions of the newly developed D&B Viability Rating™.

The SER Rating scoring system uses statistical probabilities to classify public and private companies into a 1-9 risk rating segmentation. These classifications are based on the chance of a business experiencing the above definition of “bad” performance over the next 12-month period.

The SER Rating scoring models utilize the combined power of D&B’s vast information database of approximately 30 million US businesses including business activity signals, detailed commercial payment experiences that capture month-to-month trends, public filing, demographic, and financial information when available.

Our proprietary DUNSRight® Quality Process ensures the integrity of the information contained in our database. DUNSRight is our process for collecting and enhancing information. Our expert team of statisticians and economists lead the development of our Predictive Indicator solutions, the fifth and final component of the sequential DUNSRight process, and are responsible for turning our vast commercial database into actionable business insight, enabling you to confidently make critical risk decisions.

In addition, D&B created the Global Data Insights and Analytics (GDIA) strategy in 2012 to focus on advanced data improvements and innovations with the goal to fuel improvements to the predictive insights we deliver to our customers.

The SER Rating is a suite of scorecards – a modeling system – that is highly effective in helping to predict the likelihood that your existing or prospective suppliers will cease operations or become inactive. The solution allows you to:

- Proactively identify troubled suppliers to help prevent costly supply chain disruptions
- Gain visibility into the level of critical business intelligence available on suppliers to assess readiness to make important supply chain decisions
- Gain competitive advantage by leveraging the SER Rating to negotiate favorable terms with current and prospective suppliers
- Manage by exception: free up resources to investigate potentially risky suppliers
- Enable more consistent decisions across the entire organization
- Reduce the costs associated with full-scale risk reviews of all current and prospective suppliers

This document explains in greater detail how the SER Rating scoring system was developed.

II. The SER Rating

What the SER Rating Predicts

The SER Rating predicts a business's likelihood of ceasing operations or becoming inactive over the next 12 months based on level of predictive data attributes available on the business. Specifically, SER Rating predicts the likelihood that one of the following events will occur:

- Voluntarily or involuntarily go out of business
- Become dormant or inactive
- File for bankruptcy

The SER Rating and the underlying models are based upon the observed characteristics of hundreds of thousands of businesses in D&B's database and the relationship these characteristics have to the probability of a business ceasing operations or becoming inactive.

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The Supplier Evaluation Risk Rating assigns ***a "Risk Rating" of 1 – 9***.

This is a segmentation of the scorable universe into nine distinct risk groups where a one (1) represents businesses that have the lowest probability of ceasing operations or becoming inactive, and nine (9) represents businesses with the highest probability of ceasing operations or becoming inactive. The SER Rating enables a customer to quickly segment their new and existing suppliers into various risk groups for evaluating probable vulnerabilities to their supply chain process.

The 1-9 SER Rating is derived from the ***Portfolio Comparison*** and ***Data Depth*** Indicator of the D&B Viability Rating.

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(a) Portfolio Comparison dimension of the D&B Viability Rating predicts the likelihood that a company will cease operations or become inactive over the next 12 months. It predicts the viability of a business compared to other businesses within the same model segment and is based on a scale of 1-9, where 1 represents the lowest probability of ceasing operations or becoming inactive and 9 represents the highest probability of ceasing operations or becoming inactive. The Portfolio Comparison dimension constitutes the predictive component of the SER Rating.

(b) The Data Depth Indicator of the D&B Viability Rating provides insights into the level of predictive data elements available on a supplier. It allows customers to understand and have confidence in the underlying data inputs used to evaluate supplier viability.

The Data Depth Indicator ranges from A-G, with A being records with the deepest, predictive data, and G referring to businesses with a level of descriptive data that has limited predictive value. Special categories exist for businesses with special circumstances such as bankruptcy, business deterioration, severe risk and others, and for subsidiary and branch locations. Refer to **Appendix A** for the key to the Data Depth Indicator.

Availability of the SER Rating

A SER Rating is available on approximately 28.7 million of the 30 million U.S.based businesses. Following are the availability rules for the Supplier Evaluation Risk Rating:

- SER Rating will automatically trade-up to the U.S. headquarter score for U.S. branch locations

- Businesses designated as “Open Bankruptcy”, “Business Deterioration”, and “High/Severe Risk” will automatically be assigned a SER score of 9

- SER Rating will not be available (blank) on:

    - Business records that are missing or have an invalid address
    - Businesses on stop distribution
    - US Branch locations with a foreign headquarter
    - Businesses that have been self-requested a DUNS Number and D&B has not yet conducted an investigation
    - Businesses in industries that do not lend themselves to scoring through this type of model – specifically, SIC Code 43 (United States Postal Service) and SIC Codes 90-97 (Public Administration, Government Offices)

Model Development Process

The SER Rating models were developed using state-of-the-art statistical modeling techniques to select and weight the data elements that are most predictive of business inactivity and closure. The resulting SER Rating models are mathematical equations that consist of a series of variables and coefficients (weights) that have been calculated for each variable.

In the model development process, data is collected from two time periods designated as an observation window and a performance window. The *observation* window defines the sample used in the model and all identification and characteristic data are collected from this time period. The predictive variables and segmentation schemes are defined from this snapshot. The *performance* window defines the length of time the businesses in the sample are tracked to examine their performance.

In the development of the SER Rating, the *observation* window was December 2010 and the *performance* window was the twelve months from January 2011 to December 2011. A total of 1,660,000 businesses were used in development. Of this population, approximately 14%

went out of business, became inactive or filed for bankruptcy during the performance window and were considered "bad" companies in the development sample.

From the observation window data, D&B performed extensive data analysis to determine those variables that are statistically the most significant factors for predicting inactivity and closure and calculate the appropriate weights for each. Only D&B, with its access to a vast database of approximately 30 million quality U.S. business records, is uniquely qualified to demonstrate this impact. D&B identified hundreds of predictive variables from evaluating a combination of both "good" and "bad" performing businesses in the D&B database.

D&B's investments in data and insight activities have enabled the use of business activity "signals" generated by our patented and proprietary, rules-driven, data collection system known as D&B Intelligence Engine in our predictive scores. These "signals" are particularly beneficial to differentiate between low and high risk on small businesses that tend to have limited or no commercial trade history. D&B has also enhanced the depth of data utilized by the scores through the use of Detailed Trade data on businesses with established commercial trade history. Detailed Trade uses granular payment data and captures month-to-month fluctuations in payment behavior, and provides predictive lift to the scores.

Appendix B contains a sampling of data elements used by the SER Rating.

Scoring System and Model Selection

The ability to accurately assess risk is dependent on the availability of robust underlying data elements, so D&B has developed a scoring system that accounts for the correlation between depth of predictive data and future supplier viability.

The result is a suite of models consisting of multiple unique scorecards, with each scorecard driven by depth of predictive data elements such as demographics, commercial trade, financial data attributes available on a business. Each model was developed and optimized on a more homogenous subpopulation to account for the amount of information contained in our database on the business and the difference is bad rates.

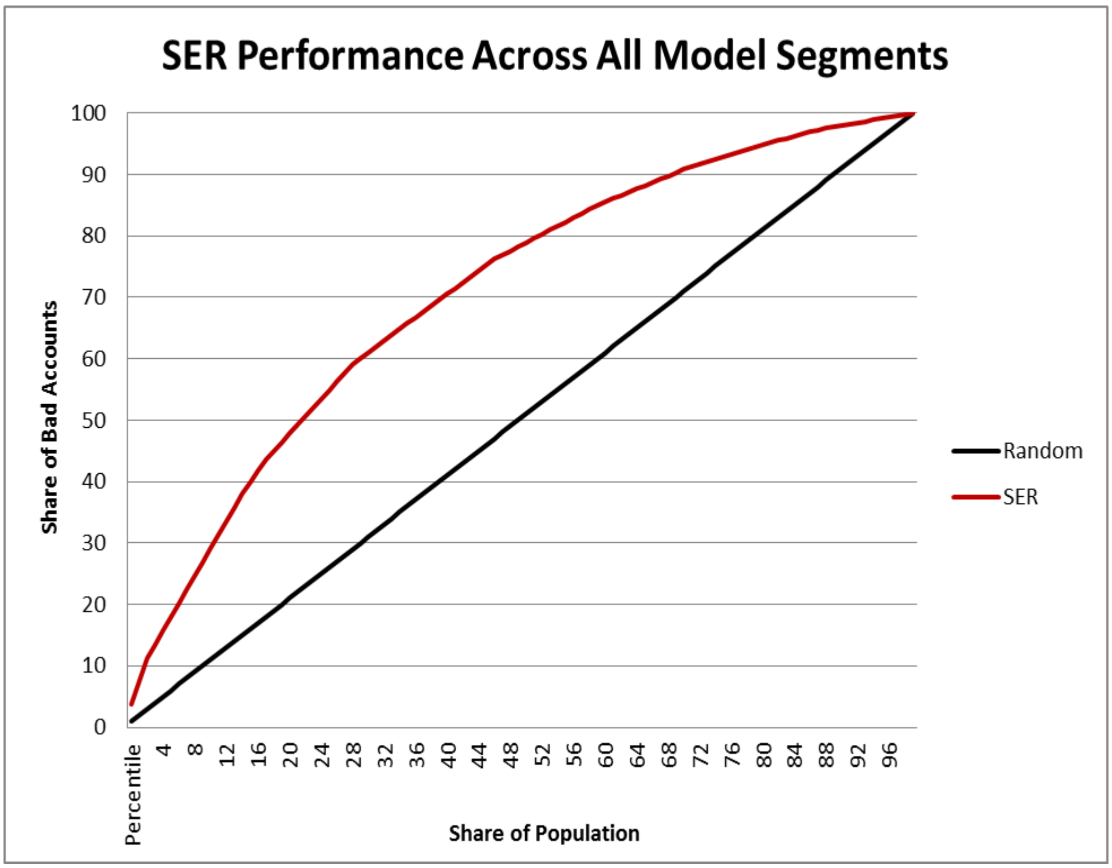
Having a system of models allows for better separation of "goods" and "bads" by focusing on unique populations. It also provides for the most predictive score possible, optimized on the data available. The SER Rating, therefore, provides maximum risk discriminatory power with segmented scorecards for improved supplier risk management decisions.

Financial Statement Data Available	**Established Trade Payments**	**Limited Trade Payments**	**No Trade Payments**
Rich firmographics, extensive commercial trading activity, and financial attributes (basic and comprehensive)	Rich firmographics, extensive commercial trading activity, and no financial attributes	Rich firmographics, partial commercial trading activity, and no financial attributes	Basic firmographics, trace or no commercial trading activity, and no financial attributes

One way to measure model performance is by examining a trade-off curve. 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.

The trade-off curve in Graph 1 illustrates the screening effectiveness of the SER Rating. For example, in the worse scoring 15% of the cumulative population, the models identify approximately 38% of the cumulative "bads". This means that by monitoring the worst scoring 15% (businesses with SER Ratings of 8 or 9), you would expect to capture 38% of the "bads" in your portfolio of critical suppliers.

Graph 1: Supplier Evaluation Risk Rating Performance across all Model Segments



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 policy related to the use of the models. For several reasons, however, statistics from model development 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 businesses perform better than lower scoring businesses. Tracking the score distributions and the actual performance of accounts provides the most accurate projections for individual portfolios.

Relationship between the SER Rating and Projected Out of Business Rates

The 2013 projected "bad" rate, also referred to as Out of Business (OOB) rate, is 5.63%

Table 1 provides the projected OOB rate based on a recent out-of-time sample from the D&B database as of September 2012.

Table 1 – Projected Average OOB Rate by SER Rating

SER Rating	% of Businesses in D&B Supplier Database (Approx.)	Projected OOB Rate	% of OOBs Identified (Approx.)
1	13%	1.28%	3%
2	15%	2.14%	6%
3	12%	3.06%	7%
4	13%	3.74%	9%
5	18%	5.37%	17%
6	11%	8.02%	15%
7	3%	9.27%	6%
8	12%	12.96%	26%
9	3%	21.05%	11%

Each SER Rating has a "bad" rate that can be compared with the average. For example, the table above shows that 21.05% of all companies scoring a 9 in 2012 are projected to go out of business, become inactive or file for bankruptcy. What this means is that businesses with a SER of 9 are approximately 4 times (21.05/5.63 = 3.73) more likely to become inactive or go out of business than the average. Similarly, businesses with a SER of 1 are 4 times (5.63/1.28 = 4.39) are less likely than the average.

Table 2 provides the projected average OOB rates by major industry group.

Table 2: Projected OOB Rate by Major Industry Group

Industry	Projected OOB Rate
Agriculture, Forestry, Fishing,	4.71%
Mining	5.32%
Construction	5.94%
Manufacturing	5.62%
Transportation, Communications	5.72%
Wholesale Trade	5.44%
Retail Trade	5.62%
Finance, Insurance, Real Estate	6.58%
Missing	12.78%

APPENDIX A

The Data Depth measure uses a combination of Firmographic, Trade, and Financial attributes that are critical to assessing the future viability of a business to determine the depth of predictive data elements available on the business. In general, higher the percentage of predictive data attributes, greater is the Data Depth value. The following table outlines the most common scenarios associated with the different Data Depth values.

<table>
<tr><th>Depth of Data</th><th>Description</th><th>Level of Insight</th><th rowspan="8">Descriptive ----------> Predictive</th></tr>
<tr><td>A</td><td>Rich Firmographics, Extensive commercial trading activity, and Comprehensive Financial attributes</td><td rowspan="2">Robust Predictions</td></tr>
<tr><td>B</td><td>Rich Firmographics, Extensive commercial trading activity, and/or Basic Financial attributes</td></tr>
<tr><td>C</td><td>Rich Firmographics, Extensive commercial trading activity, and no Financial attributes</td><td>Decision Support</td></tr>
<tr><td>D</td><td>Rich Firmographics, Partial commercial trading activity, and no Financial attributes</td><td rowspan="2">Directional</td></tr>
<tr><td>E</td><td>Rich Firmographics, Sparse commercial trading activity, and no Financial attributes</td></tr>
<tr><td>F</td><td>Basic Firmographics, Trace commercial trading activity and no Financials attributes</td><td rowspan="2">Basic</td></tr>
<tr><td>G</td><td>Basic Firmographics and no Financial Attributes</td></tr>
<tr><td>H</td><td colspan="2">Out of Business</td><td rowspan="6"></td></tr>
<tr><td>I</td><td colspan="2">Unable to Confirm Designation</td></tr>
<tr><td>J</td><td colspan="2">Bankruptcy</td></tr>
<tr><td>K</td><td colspan="2">High Risk - Severe Risk</td></tr>
<tr><td>L</td><td colspan="2">Self Reported Duns Support Record</td></tr>
<tr><td>M</td><td colspan="2">Business Deterioration - Severe Risk</td></tr>
</table>

H	Out of Business	Business is either Chapter 7 bankruptcy (liquidation) or an officer or owner of the business confirmed they no longer operate and are out of business.
I	Unable to Confirm Designation	Business shows limited to no business activity and has multiple signs of inactivity (e.g. disconnected phone, vacant address, no longer in a telephone directory etc.) and we are unable to confirm active operations at a specific location.
J	Bankruptcy	Business has filed for Chapter 9, 11, 12, 13 Bankruptcy and the plan of reorganization is not yet confirmed
K	High Risk - Severe Risk	A company which displays characteristics of misrepresentation
L	Self Reported Duns Support Record	A company that has self-requested a Duns number and D&B has not yet conducted an investigation .
M	Business Deterioration - Severe Risk	A company which displays signs of financials distress, including signs of current or imminent business failure or operating difficulty

APPENDIX B

List of Data Elements Used in the SER Rating

Following is a list of some of the data elements used in the model. The variables used and their weights vary by scorecard.

Demographic/Public Records/Business Activity Information

Factor	Impact on Model
Business Activity Signals	D&B's proprietary data used for D&B database maintenance and updates via the Intelligence Engine. Businesses that have more transactions within D&B's Intelligence Engine and more transactions with high confidence matches within Intelligence Engine are less risky.
History Indicator	A "Business" or "Management" history adversely impacts the score. Business History relates to the firm/ parent/ subsidiary when it is the defendant in criminal proceedings, files bankruptcy or debt arrangement, or has significant public filings. Management history relates to owners/ managers of a firm when there are criminal actions against those persons, individual bankruptcies, or bankruptcies/ unpaid obligations relations to companies affiliated to the same individual.
Ownership of Facility	If a firm owns its facilities, the score is positively impacted. Owned facilities provide a firm with additional control over associated costs and the working environment as a whole.
Suits, Liens, Judgments,	The presence, as well as the number, of open suits, liens, or judgments. These are typically unforeseen circumstances that may negatively impact a business. The absence of

and Prior Bankruptcies	public filings is considered a positive factor.
Age of the business	How long a business has been operating is a measure of stability. The more years the business has been operating, lower the risk.
Years Since Change in Management	How long a business has been operating under the same management, is a measure of stability. The more years the firm is under the same management, the lower the risk.
Employee Size, SIC and State	"Bad" are calculated by employee size segments, by SIC or Industry segments and by state. Those segments with lower "bad" rates are less risky.
Total Number of UCC Filings	The presence of and volume of UCC filings impact the score

Financial Information

Factor	Impact on Model
Age and existence of Balance Sheets	A more recent balance sheet indicates lower risk.
Net Worth Indicator	A negative Net Worth is an indication of higher risk. An increase in the dollar amount of Net Worth is an indication of lower risk.
Return on Assets	Generally, the greater the return on assets, the lower the likelihood of risk.
Total Liabilities to Net Worth Ratios	Generally, the lower the business's liabilities to Net Worth ratio, the lower its overall likelihood of risk.

Payment Information

Factor	Impact on Model
Number of Payment Experiences	The higher the number of trade experiences that D&B, the lower the risk. With absence of trade the model will rely on demographic factors and internal D&B proprietary data used for D&B database maintenance and updates.
Negative Payment Experiences	The model weights the percentage and dollar amount of negative payment experiences in the D&B database. They consist of unsatisfactory, bad debt, suit-filed, non-sufficient funds, credit refused, placed for collection or repossession trade experiences. The higher the percentage, the higher the risk.
Payment Experiences 31-60 Days Past Due	The model weights the percentage and dollar amount of payment experiences 31 to 60 days past terms in the D&B database. The higher the percentage of payment experiences of the firm that fall within the 31-60 days past due category, the higher the risk.
Payment Experiences 61-90 Days Past Due	The model weights the percentage and dollar amount of payment experiences 61 to 90 days past terms in the D&B database. The higher the percentage of payment experiences of the firm that fall within the 61-90 days past due category, the higher the risk.
Trending Payment Details	The model weights the most recent total amounts owing, amounts past due, and the percentage of total balances owing and past due. The higher the percentage of the most recent amounts owing and past due when compared to past time periods, the higher the risk

APPENDIX C

Key Business Commentaries

Following are some examples of commentary messages that may appear with the SER score. These commentaries will appear in a rank order based on their prioritization in the model.

- Age of financial statement indicates higher risk
- Business does not own facilities
- Change in net worth
- Absence of information on ownership of facilities
- Total number of employees not available
- Evidence of open judgments
- Evidence of open liens
- Evidence of open liens, and judgments
- Evidence of open suits
- Evidence of open suits and judgments
- Evidence of open suits and liens
- Evidence of open suits, liens, and judgments
- Total Liabilities to Net Worth influencing the score
- Return on Assets ratio influencing the score
- Financial Statements not reported
- Business belongs to an industry with above average risk of ceasing operations or becoming inactive
- Business belongs to a region with above average risk of ceasing operations or becoming inactive
- Historical information on the business or principals not Reported
- Limited financial information reported
- Limited number of payment experiences reported
- Limited time in business
- Limited time under present management control
- Negative Net Worth
- Limited business activity signals reported in the past 12 months
- Business information cannot be confirmed due to lack of telephone response
- Recent payment experiences suggest delays in meeting payment terms
- Phone number not reported
- Proportion of past due balances to total amount owing
- Proportion of slow payment experiences to total number of payment experiences reported
- Recent high balance past due
- Special Event in the D&B Report
- Unstable Paydex over last 12 months
- No payment experiences reported
- Indication of open bankruptcy
- UCC filings reported

APPENDIX D

The following Projected Performance Tables are based on a representative sample. Actual performance may vary based on individual supplier portfolios.

SER RATING PROJECTED PERFORMANCE TABLE

SER Rating	% of Businesses in D&B Supplier Database (Approx.)	Projected OOB Rate	% of OOBs Identified (Approx.)
1	13%	1.28%	3%
2	15%	2.14%	6%
3	12%	3.06%	7%
4	13%	3.74%	9%
5	18%	5.37%	17%
6	11%	8.02%	15%
7	3%	9.27%	6%
8	12%	12.96%	26%
9	3%	21.05%	11%

Explanation:

SER Rating: SER Rating ranges from 1 to 9, with 1 representing least likelihood of ceasing operations or becoming inactive and 9 representing highest likelihood of ceasing operations or becoming inactive.

% of Businesses in D&B Supplier Database: Indicates what percent of U.S. businesses within D&B supplier database has a specified SER Rating. For e.g. 12% of U.S. businesses have a SER Rating of 8.

Projected OOB Rate: Indicates what percent of U.S. businesses is expected to cease operations or become inactive over next 12 months. For e.g., the OOB rate associated with a SER of 8 is 12.96%. This means approximately 13 out of 100 suppliers with a SER rating of 8 are predicted to go out of business or inactive over the next 12 months.

% of Business Closures Identified: Represents percentage of businesses that have a specified SER Rating prior to going out of business or becoming inactive. For e.g. 26% of businesses that cease operations or become inactive have a SER of 8.

Appendix E:
SER RATING:
CUMULATIVE PROJECTED PERFORMANCE TABLE

SER Rating	% of Businesses in D&B Supplier Database (Approx.)	Projected OOB Rate	% of OOBs Identified (Approx.)
1-9	100%	5.63%	100%
2-9	87%	6.28%	97%
3-9	72%	7.15%	91%
4-9	60%	7.99%	85%
5-9	47%	9.17%	76%
6-9	29%	11.49%	59%
7-9	18%	13.59%	44%
8-9	15%	14.63%	38%
9	3%	21.05%	11%

Explanations

Cumulative SER Rating Performance

In order to set monitoring thresholds, it is useful to display the cumulative projected performance table, ranking businesses from highest risk to lowest risk. To use the cumulative projected performance table shown above, select the appropriate SER Rating cutoff that yields the desired OOB Rate, Capture Rate (% of OOBs or inactive identified), or volume for reviewing/monitoring suppliers. For example, a supply monitoring policy that requires monitoring of businesses with a SER Rating of 9 would include approximately 3% of your supply base and capture approximately 11% of all suppliers that will cease operations or become inactive over the next 12 months. For users who have the resources to monitor a greater percentage of suppliers in order to proactively avoid more supply chain disruptions, they may choose to monitor suppliers with SER Ratings 8 or 9. Based on the expected results shown in the Cumulative Projected Performance Table above, you would be monitoring approximately 15% of your supply base and capturing approximately 38% of all “bad” suppliers.