

# Understanding the Switzerland D&B Failure Score

THIS DOCUMENT IS INTENDED TO ADDRESS THE FOLLOWING QUESTIONS:

- What is the D&B Failure Score?
- What does the D&B Failure Score predict?
- What is the availability of the D&B Failure Score?
- How is the D&B Failure Score calculated?
- How does the D&B Failure Score perform?
- What is the Relationship between the D&B Failure Score and Failure Rates?



## INTRODUCTION

The D&B Failure Score predicts the likelihood that an organization will seek legal relief from its creditors or cease operations leaving unpaid debts in the next 12 months.

To evaluate risks objectively and consistently Dun & Bradstreet combines a large amount of business information with expert analysis to determine the risk associated with a business.

All Dun & Bradstreet Data has been through Dun & Bradstreet's DUNSRight™ Quality Process which includes over 2,000 separate automated and manual checks to ensure Dun & Bradstreet data meets the highest quality standards.

The Switzerland D&B Failure Score is highly effective in helping to predict the potential risk of failure for a business and enables:

- Automate decisions for increased efficiency
- Faster processing of large volumes of transactions
- Resources to be released to look at time-intensive borderline decisions
- More consistent decisions across the entire organization
- Reduced costs associated with full-scale application of annual risk reviews
- Scores to be applied across an entire portfolio to quickly identify risk and opportunity
- Collection resources to prioritize actions for delinquent accounts
- Compliance with regulatory needs for timely, consistent and objective reviews of decisions at account level

## SWITZERLAND D&B FAILURE SCORE

### WHAT THE D&B FAILURE SCORE PREDICTS

The D&B Failure Score predicts the likelihood that an organization will seek legal relief from its creditors or cease operations leaving unpaid debts in the next 12 months.

Dun & Bradstreet defines a failed business as one that seeks legal relief from its creditors or ceases business operations without paying all its creditors in full.

Events which are defined as failure have at least one of the following events:

- Bankruptcy proceedings
- Liquidation procedure terminated
- Receivership contract
- Disposal of assets under lien

Cases which are not out of business and have one or more of the above events will have a raw score and percentile score of '0'.

Note: Voluntary discontinuance involving no loss to creditors is not defined as failure.

The D&B Failure Score in Switzerland assigns 3 measurements of risk:

1. A **“Score”** of 1001 - 1733 where 1001 represents businesses that have the highest probability of failure, and 1733 which represents businesses with the lowest probability of failure . This Score provides a direct relationship between the score and the level of risk. The marginal odds of being good doubles for each 40 point increase. For example, a score of 1200, on a marginal basis, represents twice the risk of Failure as a score of 1240. This score enables a customer to use more granular cutoffs to drive their automated decision-making process. This score allows decisions to be made across borders as the failure rate for a raw score is the same in each market.
2. A **“Percentile”** of 1 - 100, where 1 represents businesses that have the highest probability of failure and 100 which represents businesses with the lowest probability of failure. This percentile ranking shows you where a business falls among businesses in the Dun & Bradstreet Data Cloud, and is most effectively used by customers to rank order their portfolios from highest to lowest risk of business failure.
3. A **“Risk Indicator”** of 1 - 4 which is a segmentation of the scoreable universe into four distinct risk groups where a one (1) represents businesses that have the lowest probability of failure, and four(4) represents businesses with the highest probability of failure . The Risk Indicator enables a customer to quickly segment their new and existing accounts into various risk groups for high-level analysis and reporting.

Table 1 shows the distribution of the Failure Risk Indicator in the Dun & Bradstreet Data Cloud. In addition, this table also displays the associated Percentile ranking and Score.

Table 1: Distribution of Failure Risk Class in Dun & Bradstreet Universe

RISK INDICATOR	% BUSINESSES WITHIN THIS RISK INDICATOR	FAILURE 1 - 100 SCORE	FAILURE RAW SCORE
1	14%	87 - 100	1489 - 1733
2	39%	48 - 86	1374 - 1488
3	32%	16 - 47	1311 - 1373
4	15%	1 - 15	1001 - 1310

## AVAILABILITY OF THE FAILURE SCORE

The total Data Cloud for Switzerland is 1,000,000 records.

The following are not considered for scoring, are outside of the universe and will have a score value which is blank (null)

- Businesses which are Out of Business

The D&B Failure Score will automatically trade-up to the headquarter location score on branch locations.

For a case to be scoreable Dun & Bradstreet has put in place a minimum level of data requirement.

- A record must have a primary NOGA\* code
- A record must have a valid current legal form
- A record must have a valid start date or a valid Business Incorporation date

Cases which do not meet this criteria will not have a score i.e. will be blank or null. The risk indicator will be ‘-’.

## MODEL DEVELOPMENT PROCESS

The D&B Failure Scorecards were developed using statistical modeling techniques to identify data characteristics that are common to and most predictive of organizational failure.

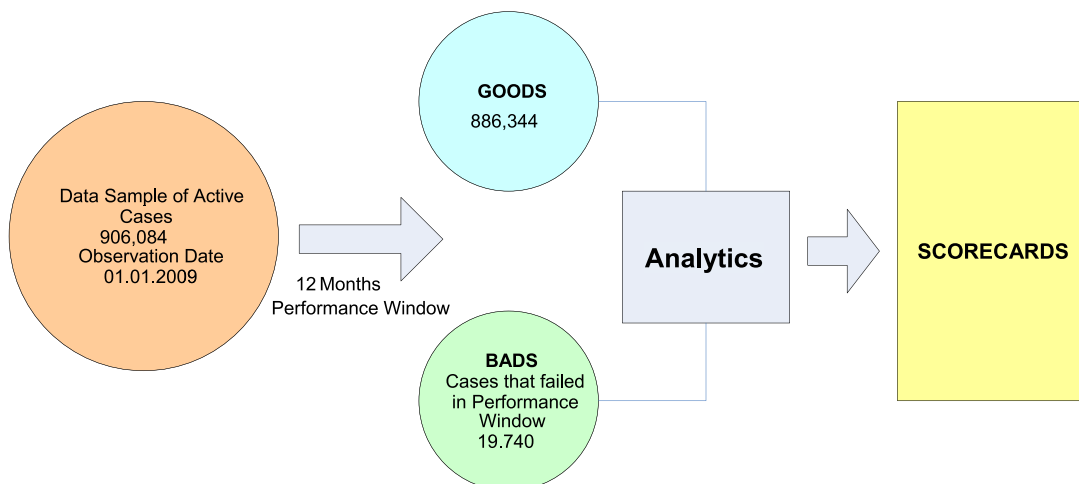
The resulting mathematical equations consist of a series of variables and coefficients (weights) that have been calculated for each variable.

The scorecard development process is to extract data 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 behavior.

In the development of the Switzerland D&B Failure Score, the observation window was 1 January 2009 and the performance window was the twelve months from 2 January 2009 to 1 January 2010. A total of 906,084 businesses were used in model development. Of this population, 886,344 were considered “good” companies and 19,740 were considered “bad”.

Extensive data analysis on the data identified those variables which are statistically the most significant factors for predicting failure and calculated the appropriate weights for each.

The following diagram shows the scorecard development steps



A representative sample of active businesses was monitored for 12 months. Businesses that failed in that period were identified as BAD. The remaining businesses were classified as GOOD. Statistical analysis of the data then identified characteristics that were common to GOOD or BAD businesses. These characteristics are weighted by significance to form rules for our scorecards.

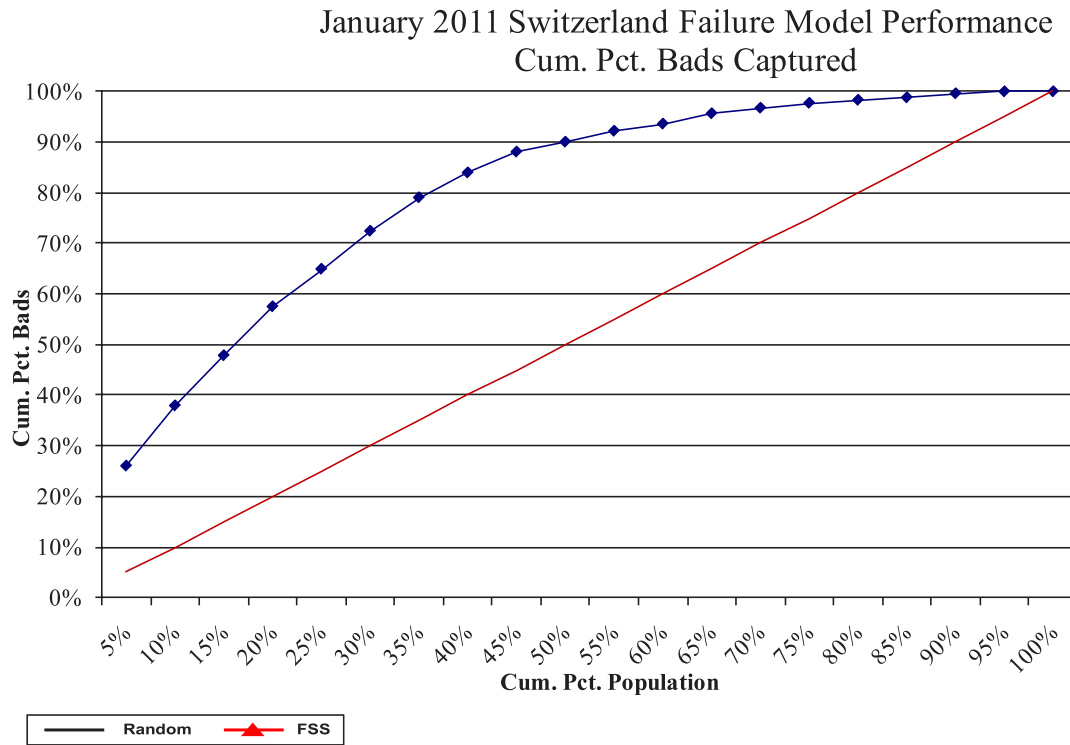
\*a NOGA code is a classification system of industrial/economic activities (Industry Code)

## SCORECARD PERFORMANCE

One way to measure model performance is by examining a trade-off curve. A trade-off curve is a plot of ascending accumulation of “all” businesses vs. “bad” businesses. 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 effectiveness of the Failure Score. For the example, at approximately 20% of the cumulative population, the Failure Scores are projected to identify approximately 57.5% of the cumulative “bads”. This means that if a business focused on the worst scoring 20% of their portfolio by using the Failure Score they would capture 57.5% of the “bads” in that group.

Graph 1: Failure Score Performance across All Size Segments



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

Regular analytical performance monitoring of the scorecards assures continual robustness of the scores in identifying risk.

## RELATIONSHIP BETWEEN THE D&B FAILURE SCORE AND PROJECTED FAILURE RATES

The national average failure rate, based on 2009 failure statistics within the Dun & Bradstreet Data Cloud, is 2.18%.

Table 2 provides the average failure rates and cumulative percent of failures identified, based on information in the Dun & Bradstreet Data Cloud, for each Failure Risk Indicator.

Table 2: National Average Failure Rate by Risk Indicator (Based on Failure Statistics within the Dun & Bradstreet Data Cloud)

RISK INDICATOR	% OF DUN & BRADSTREET FILE REPRESENTED	PROJECTED FAILURE RATE WITHIN RISK INDICATOR	PROJECTED CUMULATIVE % OF FAILURES ELIMINATED
1	14%	0.10%	99.38%
2	39%	0.73%	86.20%
3	32%	2.55%	48.56%
4	15%	7.15%	0.00%

Each Failure Risk Indicator has a failure rate that can be compared with the national average of Failure. For example, the table above shows that 7.08 % of all businesses scoring 4 in January 2009 failed in the following 12 month. What this means is that businesses scoring in the Failure Risk Class of 4 are almost 3 times (7.08% / 2.18%) more likely to fail than the national average. Similarly, businesses with a Risk Indicator of 1 are 13 times (2.18% / 0.17%) less likely to fail than the national average.

Table 3 provides the national average failure rates, based on information in the Dun & Bradstreet Data Cloud, by major industry group.

Table 3: National Average Failure Rate by Industry

MAJOR INDUSTRY GROUP	FAILURE RATE
Agricult., Forestry and Fishing	2,12%
Mining and Quarrying	0,00%
Manufacturing	2,18%
Electricity, Gas A. Steam Supply	0,00%
Water Supply	0,70%
Construction	2,48%
Trade; Rep. Of Motor Vehicles A. Moto.	1,83%
Transportation and Storage	2,26%
Accomod. and Food Serv. Act.	4,94%
Information and Communication	1,96%
Financial and Insurance Activities	2,01%
Real Estate ActivitieS	1,87%
Prof., Scientific and Tech. Act.	2,48%
Admin. and Support Serv. Act.	3,21%
Public Administration and Defence	6,36%
Education	1,81%
Human Health and Social Work Act.	1,33%
Arts, Entertainment and Recreation	3,31%
Other Service Activities	2,02%
Transportation, Communications	0,93%
Wholesale Trade	0,80%

# APPENDIX A

## EXAMPLES OF DATA ELEMENTS ANALYZED WHEN DEVELOPING THE FINANCIAL STRESS SCORING MODEL

Following is a list of some of the data elements used in the Financial Stress Scoring Model:

### Demographic/Public Records Information

FACTOR
Geographical region
Industry
Legal Form
Child Company
Parent Company
Years in business

### Payment Information (Trade)

FACTOR
Number of invoices paid prompt
Total amount of overdue invoices about 90 days
Number of overdue invoices between 91 and 120 days

### Court Information (Claims)

FACTOR
Total event quantity
Most severe events status

## APPENDIX B

The following Summary and Detailed Projected Performance Tables are based on a representative sample and actual performance may vary based on individual customer portfolios.

### SUMMARY PROJECTED PERFORMANCE TABLES

CUMULATIVE FAILURE SCORE PERFORMANCE						
RISK INDICATOR	RAW SCORE RANGE	PERCENTILE SCORE RANGE	% OF BUSINESSES (APPROX.)	FAILURE RATE	% OF FAILURES ELIMINATED	GOOD-BAD RATIO
1	1489 - 1733	87 - 100	14%	0.10%	99.38%	1046
2	1374 - 1733	48 - 100	53%	0.56%	86.20%	177
3	1311 - 1733	16 - 100	85%	1.31%	48.56%	76
4	1001 - 1733	1 - 100	100%	2.17%	0.00%	45

FAILURE SCORE PERFORMANCE WITHIN RANGE				
RAW SCORE RANGE	PERCENTILE SCORE RANGE	% WITHIN RANGE (APPROX.)	FAILURE RATE	% OF FAILURES IDENTIFIED
1489 - 1733	87 - 100	14%	0.10%	0.62%
1374 - 1488	48 - 86	39%	0.73%	13.18%
1311 - 1373	16 - 47	32%	2.55%	37.64%
1001 - 1310	1 - 15	15%	7.15%	48.56%

## EXPLANATIONS

### CUMULATIVE FAILURE SCORE PERFORMANCE

- **% of Businesses:** To set an approval rate, select the appropriate percentile range that yields the desired approval rate. For example, to develop a credit policy that approves a projected 85.30 % of all customers requires accepting businesses scoring at or above 1,311 Businesses scoring below the cutoff score (1001 - 1310) are reviewed, declined, etc.
- **Failure Rate:** The failure rate represents those businesses that score between the lowest value in the score range (or percentile) and 1733 (or 100 percentile). For example, the failure rate for a credit policy which approves all businesses with a score at or above 1,311 (or 16 - 100 percentile) is expected to be 1.33 %.
- **% of Failures Eliminated:** The percentage of total failed businesses that score between 1,001 and the cutoff point for the approval rate. For example, approving businesses with a score at or above 1311 (or 16 - 100 percentiles) is expected to eliminate 47.80 % of the “bad” businesses.
- **Good-Bad Ratio (Odds):** The ratio of “Good” businesses to “Bad” businesses among those businesses that score between the lowest value in the score range and 1733 (or 100 percentile). For example, a credit policy that approves all businesses scoring at or above 1,311 (or 16 - 100 percentiles) should result in a portfolio with 74 “Good” businesses for every “Bad” business in the portfolio.

### FAILURE SCORE PERFORMANCE WITHIN RANGE:

- **Failure Rate within Range:** The failure rate for those businesses that score within the score range. For example, the failure rate for businesses scoring between 1,001 - 1,310 (or 1 - 15 percentiles) is expected to be 7.08 %.
- **% Of Failures Identified:** The percentage of total failed businesses within the score range. For example, 47.80 % of failed businesses are expected to score between 1,001 - 1,310 (or 1 - 15 percentiles).

DETAILED PROJECTED PERFORMANCE TABLE

CUMULATIVE FAILURE SCORE PERFORMANCE						FAILURE SCORE PERFORMANCE WITHIN RANGE			
RAW SCORE RANGE	PERCENTILE SCORE RANGE	% OF BUSINESSES (APPROX.)	FAILURE RATE	% OF FAILURES ELIMINATED	GOOD-BAD RATIO	RAW SCORE RANGE	PERCENTILE SCORE RANGE (APPROX.)	FAILURE RATE	% OF FAILURES IDENTIFIED
1557 - 1733	96 - 100	5%	0.04%	99.91%	2710	1557 - 1733	96 - 100	0.04%	0.09%
1513 - 1733	91 - 100	10%	0.07%	99.69%	1507	1513 - 1556	91 - 95	0.10%	0.22%
1483 - 1733	86 - 100	15%	0.10%	99.27%	960	1483 - 1512	86 - 90	0.18%	0.42%
1462 - 1733	81 - 100	20%	0.14%	98.66%	690	1462 - 1482	81 - 85	0.27%	0.62%
1445 - 1733	76 - 100	25%	0.19%	97.81%	527	1445 - 1461	76 - 80	0.37%	0.84%
1428 - 1733	71 - 100	30%	0.24%	96.63%	412	1428 - 1444	71 - 75	0.50%	1.18%
1413 - 1733	66 - 100	35%	0.30%	95.11%	331	1413 - 1427	66 - 70	0.65%	1.52%
1401 - 1733	61 - 100	40%	0.37%	93.24%	273	1401 - 1412	61 - 65	0.83%	1.87%
1391 - 1733	56 - 100	45%	0.43%	90.98%	229	1391 - 1400	56 - 60	0.99%	2.26%
1380 - 1733	51 - 100	50%	0.51%	88.06%	194	1380 - 1390	51 - 55	1.18%	2.91%
1370 - 1733	46 - 100	55%	0.59%	84.83%	167	1370 - 1379	46 - 50	1.42%	3.24%
1361 - 1733	41 - 100	60%	0.68%	80.99%	145	1361 - 1369	41 - 45	1.67%	3.84%
1351 - 1733	36 - 100	65%	0.78%	76.60%	127	1351 - 1360	36 - 40	1.96%	4.39%
1342 - 1733	31 - 100	70%	0.89%	71.33%	112	1342 - 1350	31 - 35	2.33%	5.27%
1332 - 1733	26 - 100	75%	1.02%	64.37%	97	1332 - 1341	26 - 30	2.73%	6.96%
1323 - 1733	21 - 100	80%	1.14%	57.80%	87	1323 - 1331	21 - 25	3.17%	6.57%
1311 - 1733	16 - 100	85%	1.31%	48.56%	76	1311 - 1322	16 - 20	3.78%	9.24%
1299 - 1733	11 - 100	90%	1.49%	38.05%	66	1299 - 1310	11 - 15	4.62%	10.51%
1282 - 1733	6 - 100	95%	1.71%	24.87%	57	1282 - 1298	6 - 10	5.86%	13.18%
1001 - 1733	1 - 100	100%	2.17%	0.00%	45	1001 - 1281	1 - 5	10.98%	24.87%



## EXPLANATIONS

### CUMULATIVE FAILURE SCORE PERFORMANCE

- **Approval Rate:** To use, select the appropriate projected score or percentile cutoff that yields the desired approval rate. Approved businesses are companies scoring between the lowest value in the score range (or percentile) and 1733 (or 100 percentile). For example, a credit policy that approves 70% of all businesses requires accepting businesses between 1342 and 1733 (or 31 to 100 percentile). Businesses scoring below the cutoff (1001 - 1341) are reviewed, declined, etc.
- **Failure Rate:** Represents those businesses that score between the lowest value in the score range and 1733. For example, the failure rate for a credit policy which approves all businesses with a score at or above 1342 (or 31 - 100 percentiles) is expected to be 0.86 %.
- **% of Failures Eliminated:** The percentage of total failed businesses that score between 1001 and the cutoff point for the approval rate. For example, approving businesses with a score at or above 1342 (31 - 100 percentiles) is expected to eliminate 72.42 % of the “bad” businesses.
- **Good-Bad Ratio (Odds):** The ratio of “Good” businesses to “Bad” businesses among those businesses that score between the lowest value in the score range and 1733 (or 100 percentile). For example, a credit policy which approves all businesses scoring at or above 1342 (or 31 - 100 percentiles) should result in a portfolio with 116 “Good” businesses for every “Bad” business in the portfolio.

### FAILURE SCORE PERFORMANCE WITHIN RANGE:

- **Failure Rate:** The incidence of failure for those businesses that score within the score range. For example, the failure rate for companies scoring between 1332 and 1341 (or 26 - 30 percentile) is expected to be 2.97 %.
- **% of Failures Identified:** The percentage of total failed businesses within the score range. For example, 7.52 % of all failed companies are expected to score between 1332 and 1341 (or 26 - 30 percentiles).

# APPENDIX C

## GLOSSARY OF SCORING TERMS

TERM	EXPLANATION
D&B Financial Stress Score	A Failure score build to D&B Standards and also known as the D&B Failure Score
D&B Failure Score	A Failure score build to D&B Standards and also known as the D&B Financial Stress
Percentile Score	Score which has been ranked within the local market Data Cloud with a value between 1 and 100 where 1 is the highest probability of Financial Stress
Raw Score	Score with a direct relationship with level of Financial Stress
Risk Indicator	Segmentation of the percentile score into 4 different segments where 1 is lowest probability of risk
Scoreable Universe	Segment of the Data Cloud which is presented to be assigned a score
Scored Universe	All cases which have a score
Observation Window	Date at which the data sample of active businesses is extracted.
Performance Window	Period where the data sample is monitored to identify businesses which hit the bad definition
Financial Stress BAD definition	Events that are defined as a business's having failed
Out of Business	Business is no longer trading
GOOD	A Business which does not have any information listed within the BAD definition



### ABOUT DUN & BRADSTREET

Dun & Bradstreet, a leading global provider of business decisioning data and analytics, enables companies around the world to improve their business performance. Dun & Bradstreet's Data Cloud fuels solutions and delivers insights that empower customers to accelerate revenue, lower cost, mitigate risk, and transform their businesses. Since 1841, companies of every size have relied on Dun & Bradstreet to help them manage risk and reveal opportunity. Twitter: [@DunBradstreet](https://twitter.com/DunBradstreet)