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Understanding the Canadian D&B Commercial Credit Score

THIS DOCUMENT IS INTENDED TO ADDRESS THE FOLLOWING QUESTIONS:

- What is the Commercial Credit Score?
- What does the Commercial Credit Score predict?
- How is the Commercial Credit Score calculated?
- What is the availability of the Commercial Credit Score?
- How does the Commercial Credit Score perform?

INTRODUCTION

The Canadian D&B Commercial Credit Score predicts the likelihood that a company will pay its bills in a severely delinquent manner (90+ days past term), or seek legal relief from creditors, or cease operations without paying all creditors in full over the next 12 months based on the information in the Dun & Bradstreet Data Cloud. Severe delinquency is defined as greater than or equal to 10% of total payments are 91+ days slow and prompt payments are less than 90% of total payments.

The Commercial Credit Score uses statistical probabilities to classify companies into three risk classifications: 101-690 Credit Risk Score; 1-100 Percentile Ranking, and 1-5 Risk Class segmentation. These classifications are based on the chance of a business experiencing the above definition of "bad" payment performance over the next 12-month period. The Commercial Credit Scoring models utilize the combined power of the Dun & Bradstreet Data Cloud on over 1,100,000 Canadian businesses, including Payment, Public Filing, Demographic and Financial information when available.

The integrity of the information contained in our Data Cloud is driven by our patented DUNSRight™ Quality Process. 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 Data Cloud into actionable business insight, enabling you to confidently make critical risk decisions.

The Canadian Commercial Credit Score System is highly effective in helping to predict the potential delinquent behavior of your existing and prospective customers. The solution allows you to:

- Automate decisions for increased efficiency Process large volumes of transactions more quickly
- Free up resources to look at time-intensive borderline decisions
- Enable more consistent decisions across the entire organization
- Reduce the costs associated with full-scale application and annual risk reviews
- Apply scores across an entire portfolio to quickly identify risk and opportunity
- Manage collection resources with prioritized actions for delinquent accounts
- Satisfy regulatory needs for timely, consistent and objective review of decisions at the account level

This document explains in greater detail how the Canadian Commercial Credit Scoring System was developed.

CANADIAN D&B COMMERCIAL CREDIT SCORE

WHAT THE COMMERCIAL CREDIT SCORE PREDICTS

The Commercial Credit Score predicts a business's likelihood of becoming severely delinquent in its payments over the next 12 month period. Dun & Bradstreet defines a severely delinquent company as one that fails to repay its financial obligation within 90 days past terms, or seeks legal relief from creditors, or ceases operations without paying all creditors in full over the next 12 months, based on the information in the Dun & Bradstreet Data Cloud.

The scores and underlying models are based upon the observed characteristics of hundreds of thousands of businesses in the Dun & Bradstreet Data Cloud and the relationship these characteristics have to the probability of a company experiencing severe delinquency over a period of 12 months.

The Commercial Credit Score assigns three measurements of risk:

1. **A "Score" of 101 – 690,** where 101 represents businesses that have the highest probability of severe delinquency, and a 690 represents businesses with the lowest probability of severe delinquency. 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 business that scores a 240, on a marginal basis, is half as risky as a business that scores a 200. This score enables a customer to utilize more granular cutoffs to drive their automated decision-making process.

2. **A "Percentile" of 1 – 100,** where 1 represents businesses that have the highest probability of severe delinquency, and 100 represents businesses with the lowest probability of severe delinquency. This Percentile illustrates where a company falls among businesses in the 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 "Class" of 1 – 5,** which is a segmentation of the scoreable universe into five distinct risk groups where a one (1) represents businesses that have the lowest probability of severe delinquency, and a five (5) represents businesses with the highest probability of severe delinquency. The Class enables a customer to quickly segment their new and existing accounts into various risk segments to determine appropriate marketing or credit policies.

Table 1: Illustrates the distribution of the Commercial Credit Score Class in the Dun & Bradstreet Canadian Business Universe. In addition, this table displays the associated Percentile Ranking and Score.

Table 1: Distribution of Commercial Credit Score Risk Class

FAILURE RISK CLASS	% OF BUSINESSES WITHIN THIS CREDIT SCORE CLASS	CREDIT SCORE PERCENTILE	COMMERCIAL CREDIT SCORE
1	16%	85 - 100	566 - 690
2	51%	34 - 84	469 - 565
3	14%	20 - 33	423 - 468
4	13%	7 - 19	310 - 422
5	6%	1 - 6	101 - 309

AVAILABILITY OF THE COMMERCIAL CREDIT SCORE

A Commercial Credit Score is available on approximately 1,100,000 Canadian based businesses. Commercial Credit Scores are not available on business files that fall into the following categories:

- CCS will not be available (blank) for
  - Businesses which are Out of Business
  - Branch locations where the Headquarters is based in another country
  - Businesses where there is a history of unfavorable current or historical information in one or more significant principals of the business (Management) or Dun & Bradstreet's Data Cloud contains unfavorable current or historical information on the business.
  - Businesses in industries that do not lend themselves to scoring through this type of model
    - SIC Codes 90-98 - Public Administration, Government Offices
    - SIC Codes 99 – Unclassifiable
    - SIC Code is missing or unavailable
  - Businesses classified as not 'in date' (not updated in last 24 months based on report date)
- CCS will automatically trade-up to the headquarter location score on business branch locations with headquarters in Canada.

MODEL DEVELOPMENT PROCESS

The Commercial Credit Score scorecards built for Dun & Bradstreet Canada leverage the extensive Dun & Bradstreet Data Cloud. All the information contained within our Data Cloud has passed through our DUNSRight™ Quality Process, driving greater accuracy, completeness, timeliness and consistency. One of the primary reasons our predictive scores are so powerful is the quality of the information used in their development.

The commercial credit scoring models were developed using state-of-the-art statistical modeling techniques to select and weight the data elements that are most predictive of severe delinquency. The resulting Commercial Credit Score models are mathematical equations that consist of a series of variables and coefficients (weights) that have been calculated for each variable.

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. A total of 375,365 businesses were used to develop the Commercial Credit Score models. Of this population, 326,485 were "good", or non-severely delinquent companies in the Data Cloud and 48,880 were "bad" or severely delinquent companies in the Data Cloud.

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 accounts are tracked to examine their payment behavior.

In the development of the Commercial Credit Score, the observation snapshot used was December 2007 and the performance window was the twelve months from January 2008 to December 2008.

From the observation window data, Dun & Bradstreet performed extensive data analysis to determine those variables which are statistically the most significant factors for predicting severe delinquency and calculated the appropriate weights for each. Only Dun & Bradstreet, with its Data Cloud that includes records on over XXX Canadian businesses, is uniquely qualified to demonstrate this impact. Dun & Bradstreet identified hundreds of predictive variables from evaluating a combination of both "good" and "bad" performing businesses in the Data Cloud. Appendix A contains a sampling of data elements.

SCORING SYSTEM AND MODEL SELECTION

Dun & Bradstreet has developed a segmented solution based on availability of payment information contained within the Data Cloud which is supplied by third party accounts payables information. We have segmented the scoring universe into two segments, those with payment information and those without payment information over the last 24 months.

MODEL PERFORMANCE

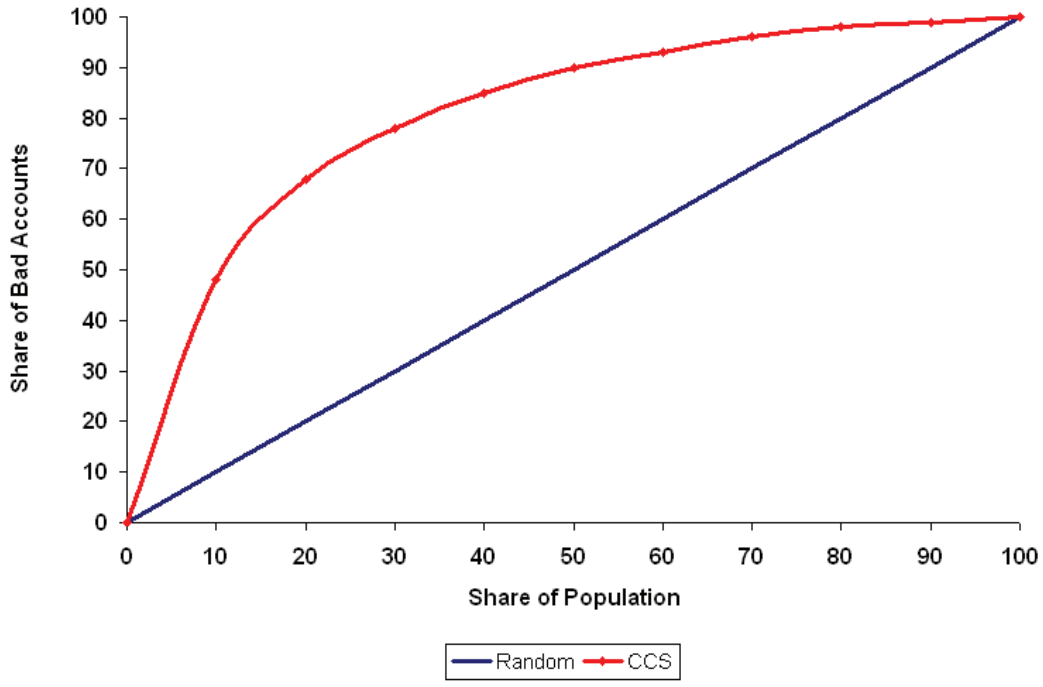
One way to measure model performance is by examining a trade-off curve. Below is a trade-off curve that illustrates the effectiveness of the Commercial Credit Score. A trade-off curve is a plot of ascending accumulation of good accounts vs. bad accounts. It is useful for illustrating model performance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

For the example in the graph below, at approximately 20% of the cumulative population, the Commercial Credit Score models identify approximately 68% of the cumulative "bads". This means that if a business focused on the lowest 20% of their portfolio using the Commercial Credit Score, there would be 68% of the "bads" in that group.

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 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.



APPENDIX A

LIST OF DATA ELEMENTS USED IN THE COMMERCIAL CREDIT SCORING MODEL

Following is a list of some of the data elements used in the Commercial Credit Scoring Model:

Demographic/Public Records Information

FACTOR	IMPACT ON MODEL
Company Type	Businesses that are corporations are considered less risky. These businesses typically have the ability to utilize additional support if necessary.
Presence of Suits, Liens, Judgments	The presence of open suits, liens, or judgments. These are typically unforeseen circumstances that may negatively impact a business. The absence of public filings is considered a positive factor.
Age of the business	How long a business has been operating is a measure of stability. The longer the business has been operating, the lower the risk.
Industry	The industry that a business operates in can have a higher of lower rate of business failure.

Financial Information

FACTOR	IMPACT ON MODEL
Age and existence of Balance Sheets	Availability of current Balance Sheets is considered to be a positive indication of a healthy company. When publication of balance sheets is allowed to lapse this can reflect instability.
Current Ratio	Current ratio demonstrates the working capital relationship of current assets to cover current liabilities. The greater the current ratio, the lower the risk.
Current Assets	A company's creditors will often be interested in how much that company has in current assets, since these assets can be easily liquidated in case the company goes bankrupt. In addition, current assets are important to most companies as a source of funds for day-to-day operations.
Net Working Capital	Higher Working Capital indicates lower risk of failure. Working Capital is a balance sheet item which equals the sum of cash and cash equivalents, accounts receivable, inventory, marketable securities, prepaid expenses, and other assets that could be converted to cash in less than one year.

Payment Information

FACTOR	IMPACT ON MODEL
Number of Payment Experiences	Payment experiences give a good indication of the turnaround time a business settles its invoices. With the absence of trade information, the model will rely upon other data available.
Negative Payment Experiences	The model weights the percentage and dollar amount of negative payment experiences in the Data Cloud.
Percentage negative Payments Experiences within a time frame	Negative payments adversely affect the score. Number and recency of negative payment experiences is an important indicator a businesses having cash flow difficulties.
Latest Paydex® Score	Paydex® is a proprietary Dun & Bradstreet index, summarizing past payment behavior. The higher the Paydex, the lower the risk.
Paydex® Variance in the last 12 months	Paydex® is a proprietary Dun & Bradstreet index, summarizing past payment behavior. The higher the Paydex®, the lower the risk. Steady payment behaviour is a indication of lower risk and if there is a variance in payment behavior this is an indication of unsteady cash flow.
No slow payments in last 6 months	Indication that this business pays its invoices within terms

APPENDIX B

KEY BUSINESS COMMENTARIES

Following are some examples of commentary messages that may appear in the Commercial Credit Scoring Report. These commentaries will appear in a rank order based on their prioritization in the model.

KEY BUSINESS COMMENTARIES
Businesses in this industry have a higher risk of failure
This business is well-established
No Suits, Liens or Judgments have been filed in the last 3 years
Suits, Liens and/or Judgments have been filed in the last 3 years
This is a low risk legal form
The majority of trade experiences are not paid prompt or within 30 days
Some trade experiences are paid prompt or within 30 days
Payment experiences suggest potential lower risk.
Payment information indicates slow payments are present
The majority of trade experiences are paid prompt or within 30 days
We do not hold a current financial statement
12 Month analysis shows that the payment trend is not consistent
Current Ratio indicates higher risk
Working Capital Turnover indicates moderate risk
Net Income indicates lower risk
Dun & Bradstreet does not calculate the likelihood of this enterprise failing as it is State or Government owned
The business operates in an unclassified industry. The likelihood of failure cannot be determined

APPENDIX C

SUMMARY PROJECTED PERFORMANCE TABLES

Credit Score Performance Within Range						
RISK CLASS	SCORE RANGE	PERCENTILE RANGE	% OF ACCOUNTS	DELINQUENCY RATE	% OF BADS IDENTIFIED	GOOD-BAD RATIO
1	566 - 690	85 - 100	15%	1.49%	99.53%	66
2	469 - 690	34 - 100	68%	4.18%	94.23%	23
3	423 - 690	20 - 100	82%	5.80%	90.29%	16
4	310 - 690	7 - 100	94%	9.88%	81.01%	9
5	101 - 690	1 - 100	100%	13.02%	0.00%	6

Credit Score Performance Within Range			
SCORE RANGE	PERCENTILE RANGE	DELINQUENCY RATE	% OF BADS IDENTIFIED
566 - 690	85 - 100	1.49%	0.47%
469 - 565	34 - 84	4.97%	5.31%
423 - 468	20 - 33	13.43%	3.93%
310 - 422	7 - 19	37.38%	9.29%
101 - 309	1 - 6	73.37%	81.01%

EXPLANATIONS

CUMULATIVE CREDIT SCORE PERFORMANCE

- **% of Accounts:** The percentage of businesses projected to receive a score (or percentile) between the cutoff and 690 (or 100th percentile). Businesses below the cutoff score are reviewed, declined, etc. For example, to develop a credit policy, which approves a projected 82% of all customers requires accepting accounts scoring at or above 423 (or 20th percentile). Accounts scoring between 101 and 422 (or 1 - 19th percentile) are reviewed, declined, etc.

- **Cumulative Delinquency Rate:** The delinquency rate for those businesses that score between the lowest value in the score range (or percentile) and 690 (or 100 percentile). For example, the delinquency rate for a credit policy, which approves all businesses with a score at or above 423 (or 20th percentile) is expected to be 5.8%.

- **Cumulative % of Bads Identified:** The percentage of total delinquent accounts that score between 101 (or 1st percentile) and the lowest value in the score range. For example, approving businesses with a score at or above 423 (or 20th percentile) and rejecting those scoring below is expected to eliminate 90.29% of the bad accounts.

- **Cumulative Good-Bad Ratio (Odds):** The ratio of "Good" accounts to "Bad" accounts among those businesses that score between the lowest value in the score range and 690 (or 100th percentile). For example, for a credit policy, which approves all accounts scoring at or above 423 (or 20th percentile) should result in a portfolio with 16 "Good" accounts for every "Bad" account.

CREDIT SCORE PERFORMANCE WITHIN RANGE

- **Delinquency Rate Within Range:** The delinquency rate for those businesses that score within the score range. For example, the delinquency rate for companies scoring between 310 (and 7th percentile) and 422 (or 19th percentile) is expected to be 37.38%.

- **% of Bads Identified within Range:** The percentage of total delinquent accounts within the score range. For example, 9.29% of the companies paying in a delinquent manner are expected to score between 310 (or 7th percentile) and 422 (or 19th percentile).

DETAILED PROJECTED PERFORMANCE TABLES

Credit Score Performance Within Range					
CUMULATIVE SCORE RANGE	PERCENTILE RANGE	APPROVAL RATE	DELINQUENCY RATE	% OF BADS IDENTIFIED	GOOD-BAD RATIO
588 - 690	96 - 100	5%	1.10%	99.89%	90
576 - 690	91 - 100	9%	1.30%	99.73%	76
567 - 690	86 - 100	15%	1.47%	99.55%	67
558 - 690	81 - 100	20%	1.63%	99.34%	60
551 - 690	76 - 100	23%	1.73%	99.09%	57
540 - 690	71 - 100	30%	1.97%	98.81%	50
528 - 690	66 - 100	35%	2.17%	98.47%	45
518 - 690	61 - 100	40%	2.40%	98.05%	41
509 - 690	56 - 100	45%	2.67%	97.56%	36
500 - 690	51 - 100	50%	2.97%	97.00%	33
492 - 690	46 - 100	55%	3.28%	96.35%	30
483 - 690	41 - 100	60%	3.62%	95.61%	27
474 - 690	36 - 100	65%	3.99%	94.75%	24
461 - 690	31 - 100	71%	4.46%	93.74%	21
446 - 690	26 - 100	76%	5.01%	92.48%	19
426 - 690	21 - 100	81%	5.70%	90.85%	17
400 - 690	16 - 100	86%	6.52%	88.63%	14
351 - 690	11 - 100	90%	7.90%	85.04%	12
300 - 690	6 - 100	95%	10.55%	79.24%	8
101 - 690	1 - 100	100%	13.02%	0.00%	6

Credit Score Performance Within Range			
MARGINAL SCORE RANGE	PERCENTILE RANGE	DELINQUENCY RATE	% OF BADS IDENTIFIED
588 - 690	96 - 100	1.10%	0.11%
576 - 587	91 - 95	1.51%	0.15%
567 - 575	86 - 90	1.78%	0.18%
558 - 566	81 - 85	2.08%	0.21%
551 - 557	76 - 80	2.38%	0.24%
540 - 550	71 - 75	2.74%	0.28%
528 - 539	66 - 70	3.40%	0.35%
518 - 527	61 - 65	4.08%	0.42%
509 - 517	56 - 60	4.77%	0.49%
500 - 508	51 - 55	5.51%	0.56%
492 - 499	46 - 50	6.33%	0.65%
483 - 491	41 - 45	7.27%	0.74%
474 - 482	36 - 40	8.38%	0.86%
461 - 473	31 - 35	9.89%	1.01%
446 - 460	26 - 30	12.32%	1.26%
426 - 445	21 - 25	15.90%	1.63%
400 - 425	16 - 20	21.70%	2.22%
351 - 399	11 - 15	35.12%	3.59%
300 - 350	6 - 10	56.65%	5.79%
101 - 299	1 - 5	75.49%	79.24%

EXPLANATIONS

CUMULATIVE CREDIT SCORE PERFORMANCE

- **Approval Rate:** To set an approval rate, select the appropriate projected score or percentile range cutoff that yields the desired approval rate. Approved businesses are companies scoring between the lowest value in the score range (or 1st percentile) and 690 (or 100th percentile). Businesses below the cutoff are reviewed, declined, etc. For example, to develop a credit policy, which approves a projected 81% of all customers requires accepting accounts scoring between 426 - 690 (or 21 - 100th percentile). Accounts scoring 425 and under (or 1 - 20th percentile) are reviewed, declined, etc.

- **Delinquency Rate:** The delinquency rate represents those businesses that score between the lowest value in the score range and 690. For example, the delinquency rate for a credit policy, which approves all businesses with a score at or above 426 (or 21st percentile) is expected to be 5.7%.

- **% of Bad Accounts Identified:** The percentage of total delinquent accounts that score between 101(1st percentile) and the cutoff point for the approval rate. For example, approving businesses with a score at or above 426 (21st percentile) is expected to eliminate 90.85% of the bad accounts.

- **Good-Bad Ratio (Odds):** The ratio of "Good" accounts to "Bad" accounts among those businesses that score between the lowest value in the score range and 690 (or 100th percentile). For example, a credit policy, which approves all accounts scoring at or above 426 (or 21st percentile) should result in a portfolio with 17 "Good" accounts for every "Bad" account in the portfolio.

CREDIT SCORE PERFORMANCE WITHIN RANGE

- **Delinquency Rate Within Range:** The incidence of severe delinquency for those businesses that score within the score range. For example, the delinquency rate for companies scoring between 400 and 425 (16 - 20th percentile) is expected to be 21.7%.

- **% of Bad Accounts Identified within Range:** The percentage of total delinquent accounts within the score range. For example, 2.2% of all companies paying in a delinquent manner are expected to score between 400 and 425 (16 - 20th percentile).

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