

Independent, Multi-Bureau Capable Scoring Solutions

TruScores

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Abstract

In the UK it is well known that performing a credit search on a consumer can return different information from each of the three credit bureaux. In some cases these differences can fundamentally change the credit decision. Despite this additional source of unique data and the recent emergence of technology that allows creditors to optimise their use of multi-bureau data, it is often the case that creditors are still overly reliant on a single bureau. While some of this inertia is due to legacy systems and existing commercial agreements, one other key reason is the proprietary scores available exclusively via a given bureau. In order for credit granters to adopt a truly bureau independent credit decisioning framework it is necessary to have independent scores available as alternatives to these proprietary scores.

In this paper DecisionMetrics presents a general framework that utilises raw bureau data to facilitate **BOTH** bureau independent scores as well as the ability to utilise multi-bureau data for enhanced decisioning. We introduce bureau independent scores TruRisk and TruDebt - DecisionMetrics' uniquely designed credit risk and indebtedness scores. Traditional bureau scores are built using proprietary characteristics formulated from a single bureau view of the consumer. TruRisk and TruDebt have been constructed using raw account level data so that multi-bureau data (whenever available) can be used to get the best possible prediction of likely future behaviour.

TruDebt takes a fundamentally different approach. By focusing on customers demonstrating increasing spend behaviour, the score has been developed to isolate consumer sensitivity to future incremental utilization of their credit facilities and infer their tolerance based on their current credit risk profile. TruDebt can be used in conjunction with a credit risk score to offer additional credit risk separation, enabling lenders to make more informed credit risk decisions, whilst at the same time taking into account a consumer's ability to manage future incremental debt.

In this paper we present results from a pool of UK lenders to demonstrate the additional power that can be made available to the credit decisioning process by using independent multi-bureau scores.

Agenda

- Overview of Multi-Bureau
- Multi-Bureau Customer Decisioning
- Independent Decisioning: TruScores
 - TruRisk
 - TruDebt
- Conclusions

Introduction to Multi-Bureau

- Despite the three UK credit bureaux having access to predominately the same data sources, there are inherent differences in the **returned** data from each bureau:
 - Different, loading, storing, matching & retrieval mechanisms
 - Not all lenders report to all three Credit Reference Agencies (CRAs)
- Significant improvements in bureau data coverage can be obtained by making an **additional bureau call** on a proportion of the applicant population. This provides:
 - A more complete view of an applicant's credit profile
 - Access to datasets unavailable at the primary bureau

Multi-Bureau Adoption Difficulties

- Legacy systems utilising the Multi-Bureau data
 - Use 2nd bureau as simple policy rule knock out
 - Use 2nd bureau only as search for no trace
- Bureau summary blocks have historically been restrictive
 - Resulted in adoption of two stage process
- CRA proprietary scores embedded throughout a lenders credit policy

DecisionMetrics developed independent decisioning framework to address these and other constraints

Multi-Bureau Customer Decisioning

Approaches to Multi-Bureau Scorecards

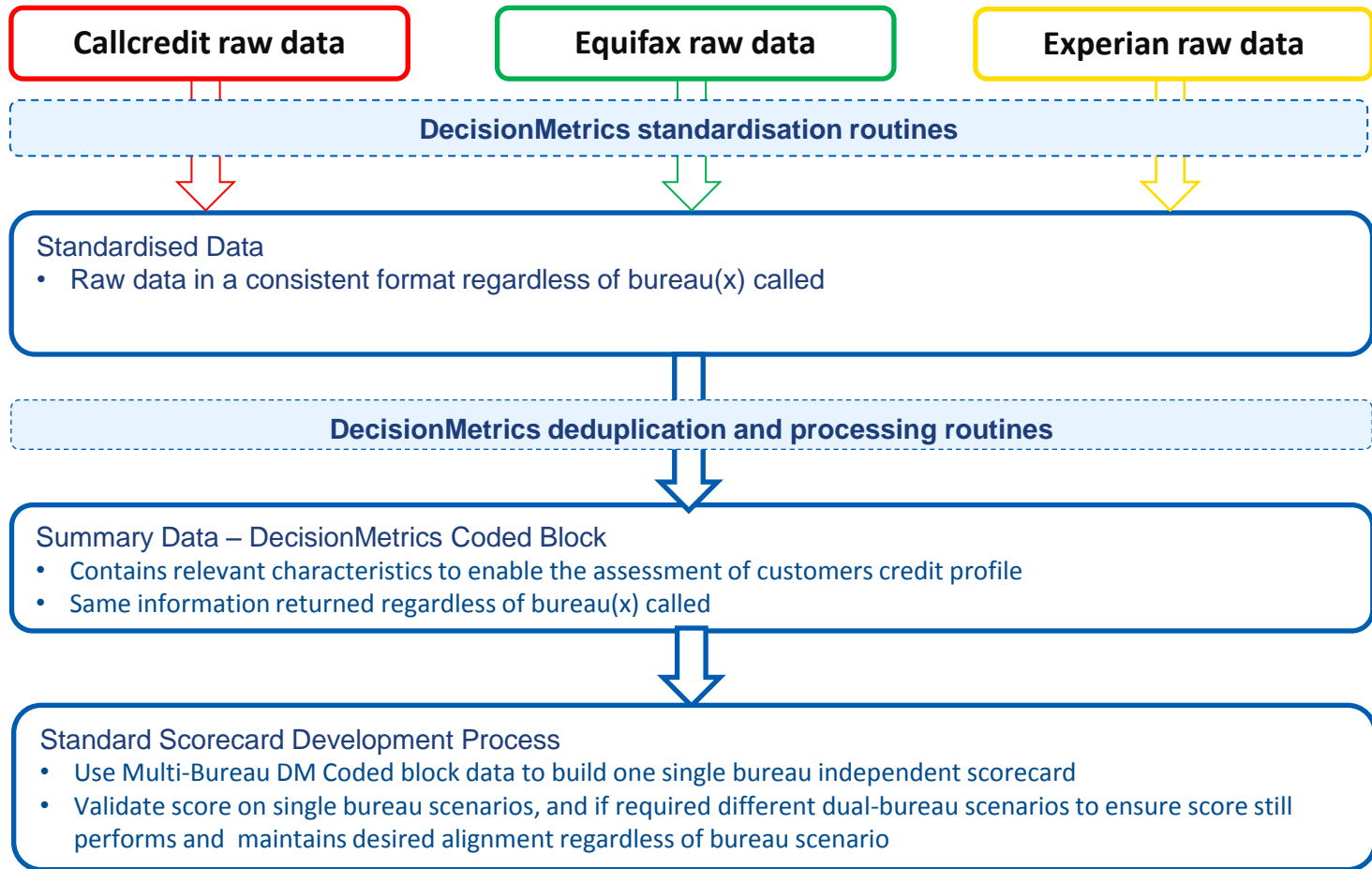
- **Set Primary Bureau:**

- Construct Primary Bureau scorecard on Primary Bureau summary block data
- Supplement Primary Bureau scorecard with incremental data from secondary bureau
 - Primary scorecard still works in isolation
 - Don't need to second search all applications
 - Adds only incremental information found from second search
 - Working model in place if one bureau unavailable
 - Doesn't allow for a switch in bureau order, unless further models are built

- **Pool Bureau Summary Blocks:**

- Build a single scorecard, using data from all available bureau summary blocks
 - Multiple bureau searches required for all applications
 - Correlations across bureaux difficult to deal with
 - No redundancy if either bureau is unavailable

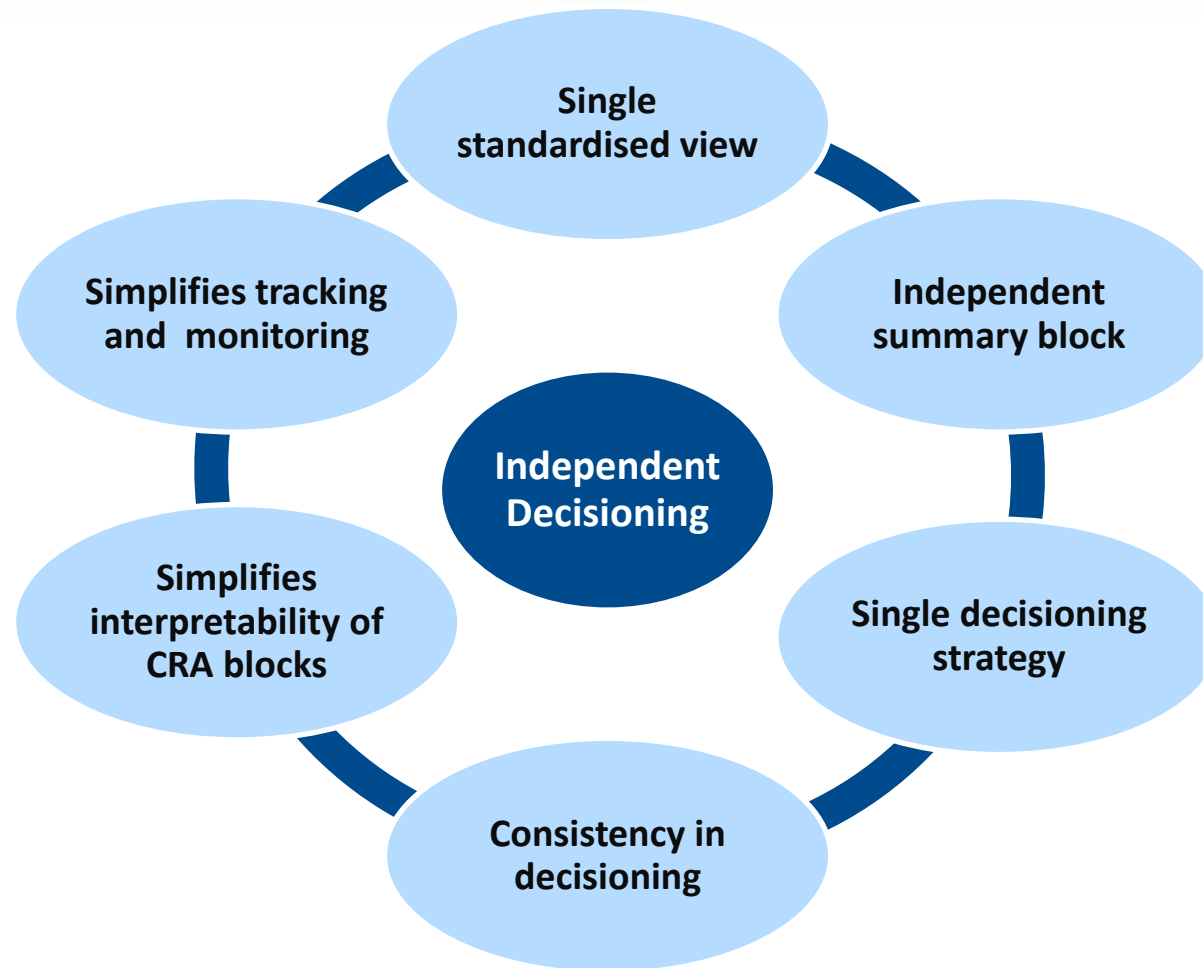
DecisionMetrics' Framework to Multi-Bureau



DecisionMetrics' Unique Approach

- **Bureau Independent:**
 - Due to DM's unique matching and standardising approach, any single bureau or bureau combination can be used
 - Aggregates all available data generating the most complete credit history
 - Incorporates all incremental information from 2nd (or even 3rd) bureau
- **Build Multi-Bureau scorecards from bespoke coded block calculated from raw data retros:**
 - Allows a bespoke bureau independent coded block to be constructed
 - Gives access to new data concepts and tailored characteristics and unlocks bureau independence
 - Removes reliance on bureau specific, non-comparable characteristics

DecisionMetrics' Independent Decisioning



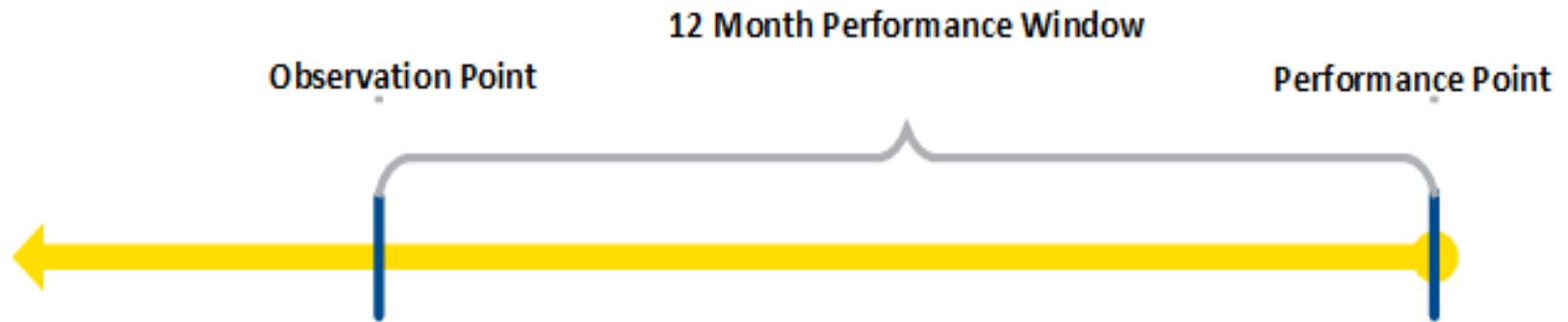
Independent Decisioning: TruScores

What is TruRisk?

Credit Bureau Independent Scoring

- **DecisionMetrics' Independent Credit Bureau Score**
 - Gives the lender an industry wide view of a credit applicant distilled into a single highly predictive credit score that combines ALL available data
 - Developed from a complete set of Multi-Bureau characteristics covering indebtedness, credit facilities, account performance and public information
- **Can be calculated from any combination of data**
 - Stable risk score on same score to odds relationship
 - Commercially flexible
 - Utilises Multi-Bureau data where available
 - Overcomes difficulties of tracking and monitoring proprietary bureau scores

TruRisk Scorecard Suite



- Design

- Monthly snapshots 2012 and 2013
- 12 Month outcome window
- Account level performance
 - Good 0 and 1 cycles delinquent
 - Indeterminates 2 cycles delinquent
 - Bad 3+ cycles delinquent

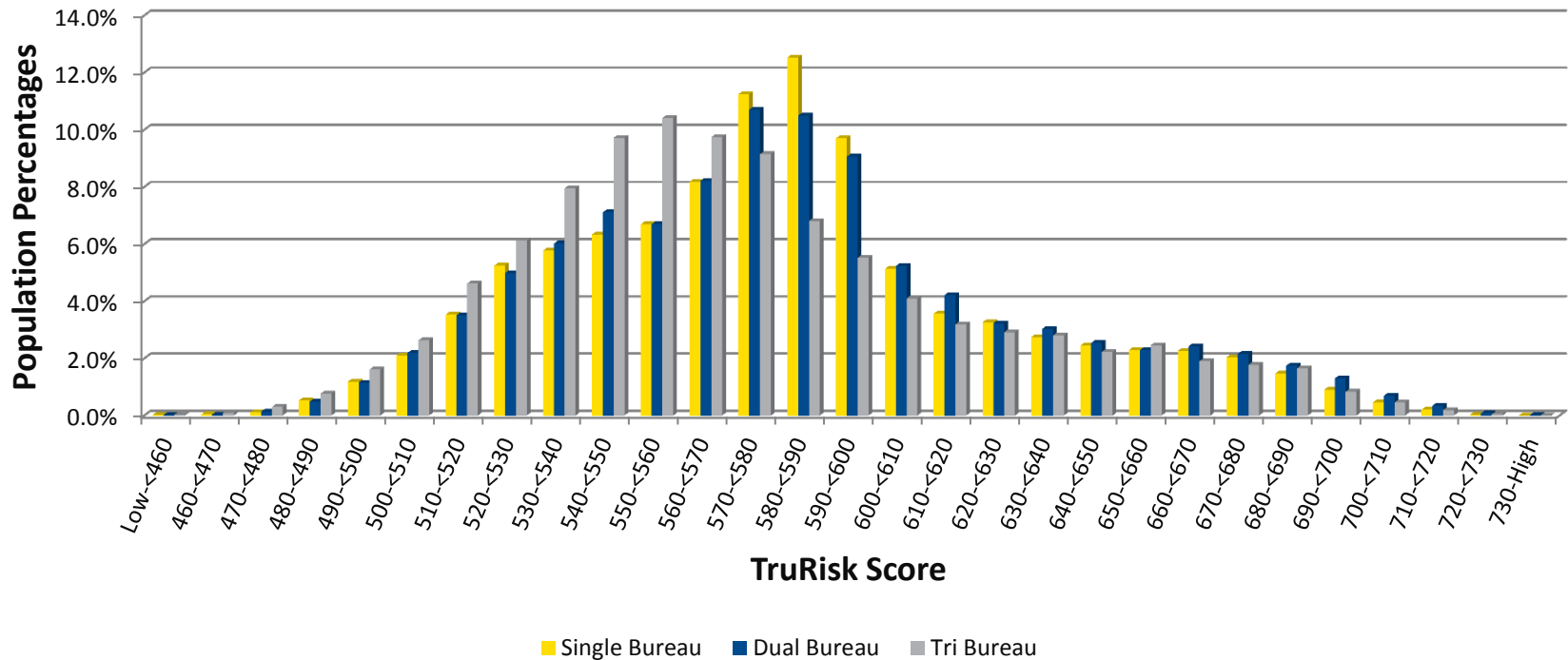
- Segmentation Splits

- Thin
- Non-derogatory
- Derogatory

TruRisk - Score Distribution

Current Accounts

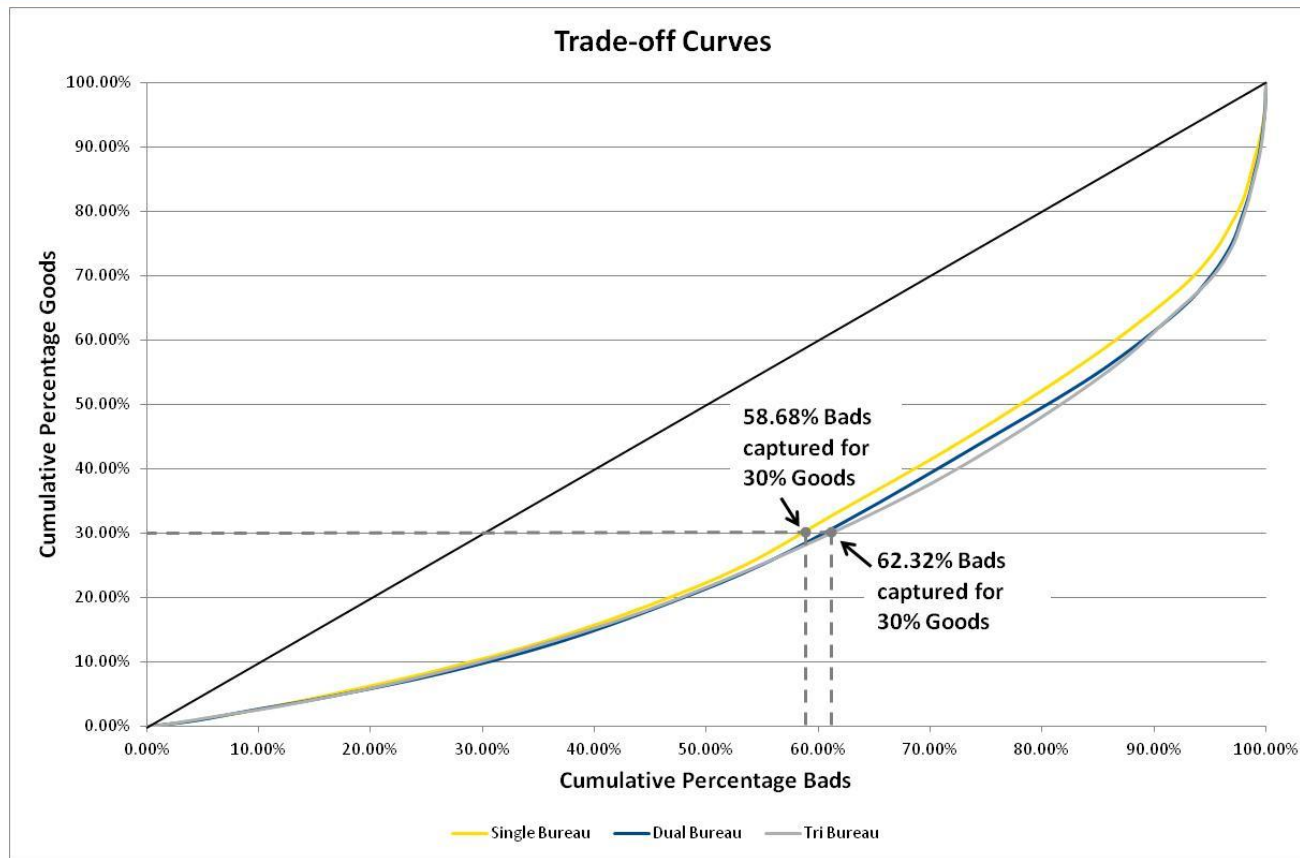
Score Distributions



Including Multi-Bureau data significantly alters the score distribution

TruRisk - Trade-off Curve Comparisons

Current Accounts

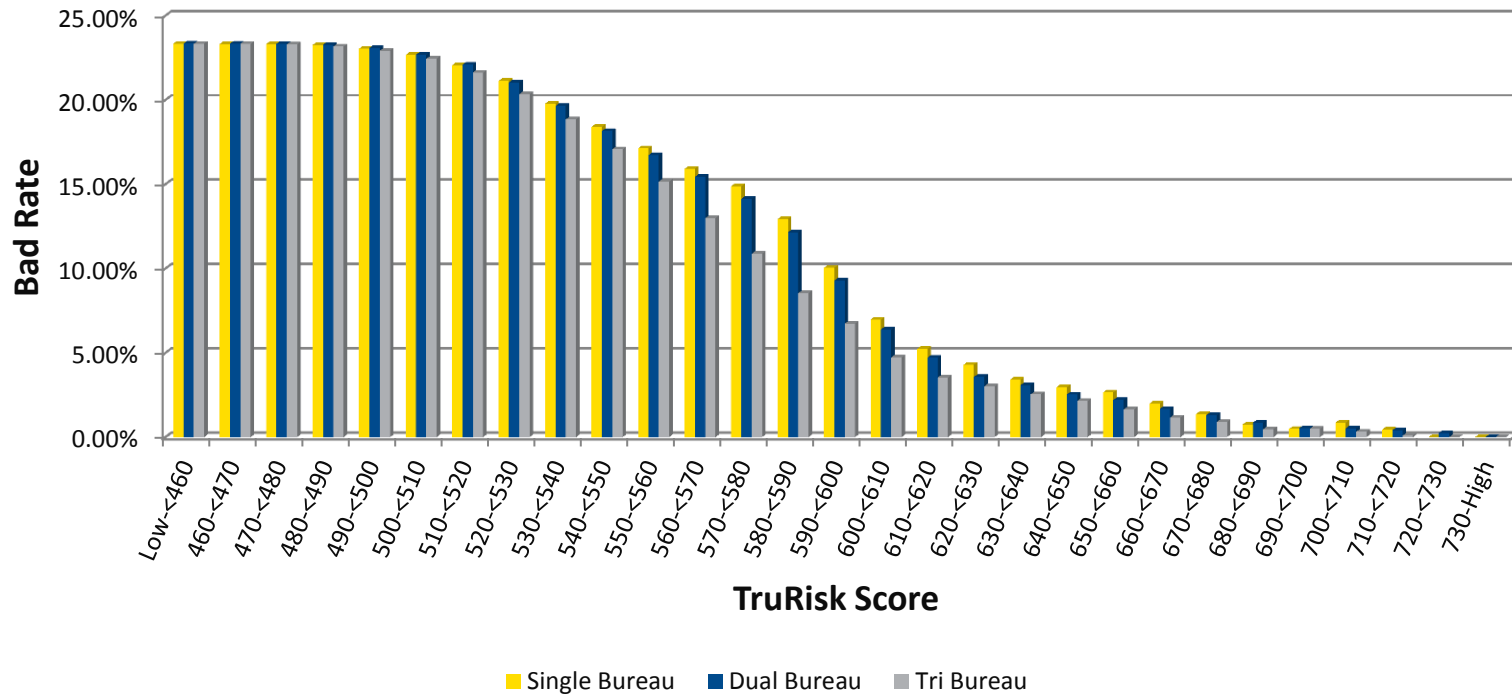


Tri Bureau yields performance uplift of 6.21%

TruRisk – Cumulative Bad Rate by Score

Current Accounts

Descending Cumulative Bad Rates by Score

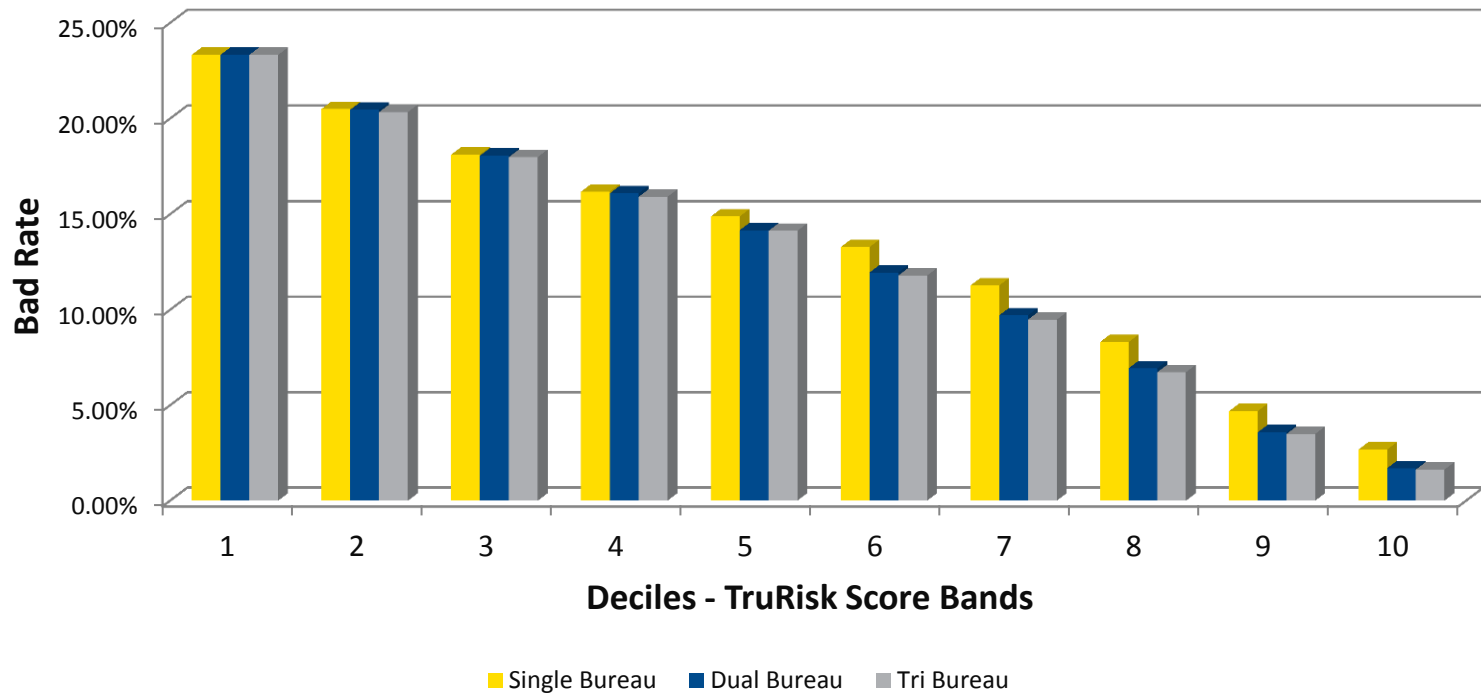


TruRisk ranks risk across all three bureau combinations, with Tri Bureau offering superior prediction

TruRisk – Cumulative Bad Rate by Deciles

Current Accounts

Descending Cumulative Bad Rates by Score Deciles



Maintain the same proportions within each score band further illustrates the rank ordering ability of TruRisk using Multi-Bureau data

TruRisk – Acceptance Rate Improvements

Current Accounts

Single Bureau

TruRisk Score	Acceptance Rate	Observed Bad Rate
570	60.28%	14.88%
579	50.39%	13.28%
588	40.31%	11.27%

Dual Bureau

Target Bad Rate	TruRisk Score	Acceptance Rate	Observed Bad Rate	Uplift in Acceptance Rate
14.88%	565	64.09%	14.82%	6.33%
13.28%	577	52.91%	13.10%	5.00%
11.27%	585	43.69%	10.83%	8.37%

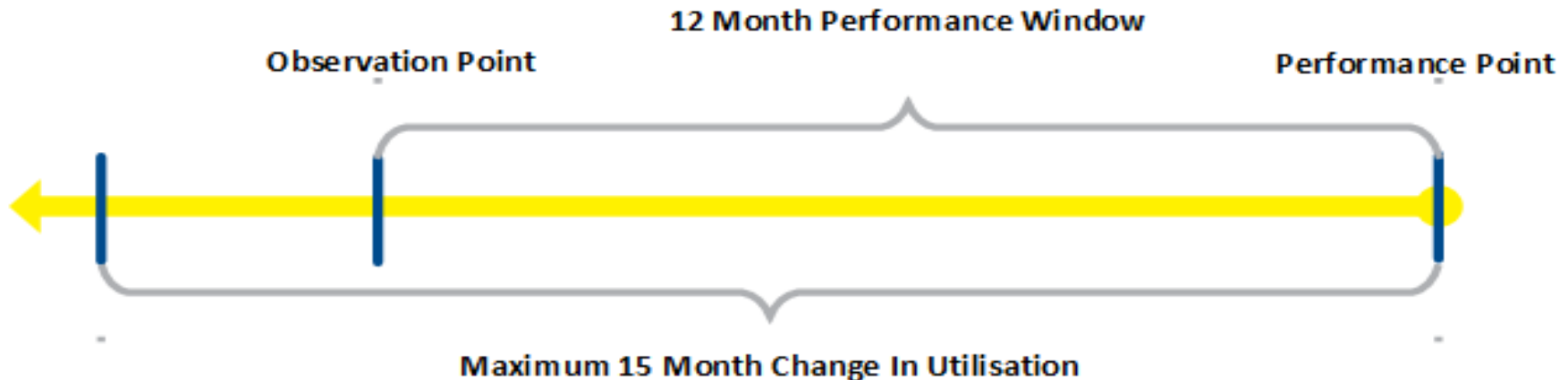
Tri Bureau

Target Bad Rate	TruRisk Score	Acceptance Rate	Observed Bad Rate	Uplift in Acceptance Rate
14.88%	552	64.17%	14.79%	6.47%
13.28%	559	56.41%	13.19%	11.95%
11.27%	569	46.73%	10.99%	15.91%

DecisionMetrics' Independent Credit Bureau Indebtedness Score that provides an industry wide view of a credit applicant's sensitivity to future incremental utilization of credit facilities based on their current behaviour

TruDebt

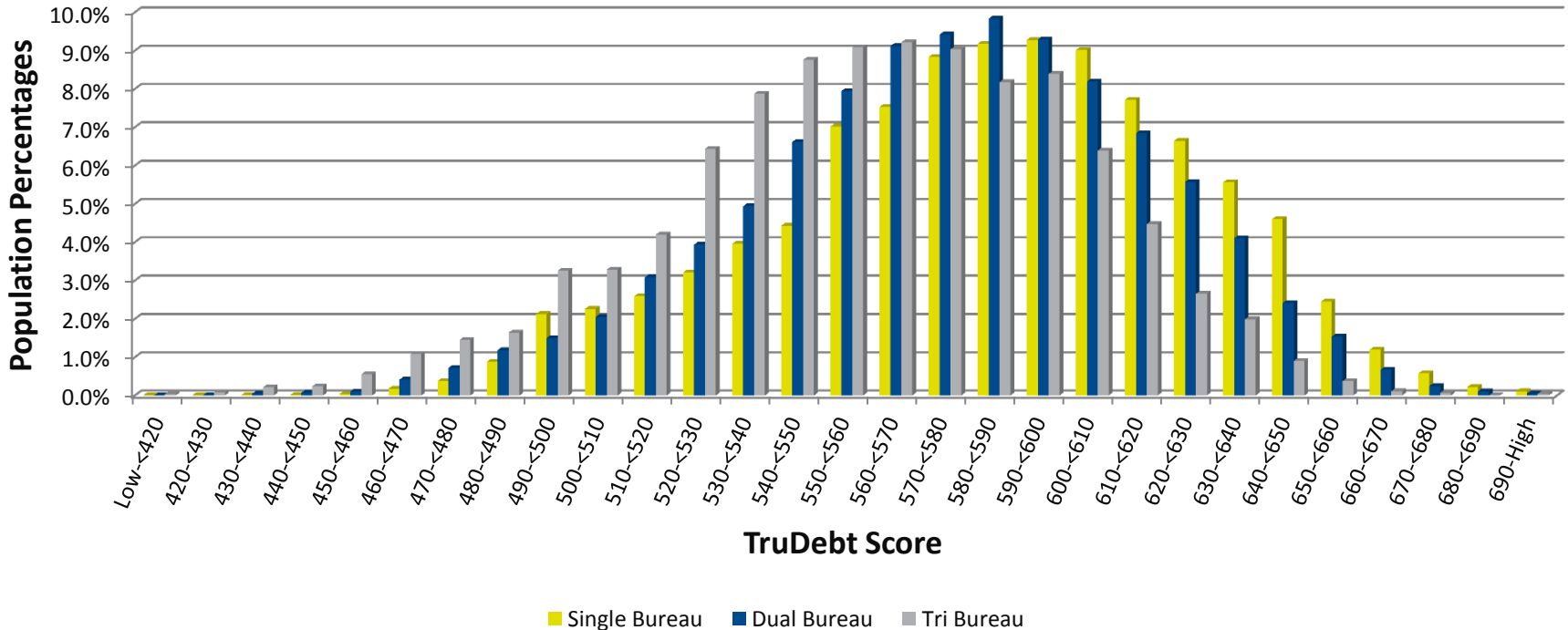
- Multi-Bureau risk prediction which focuses on indebtedness
- Fundamentally different design from typical bureau risk models
 - Focuses on consumers who increase their utilisation over the outcome period



TruDebt – Score Distribution Comparisons

Personal Loans

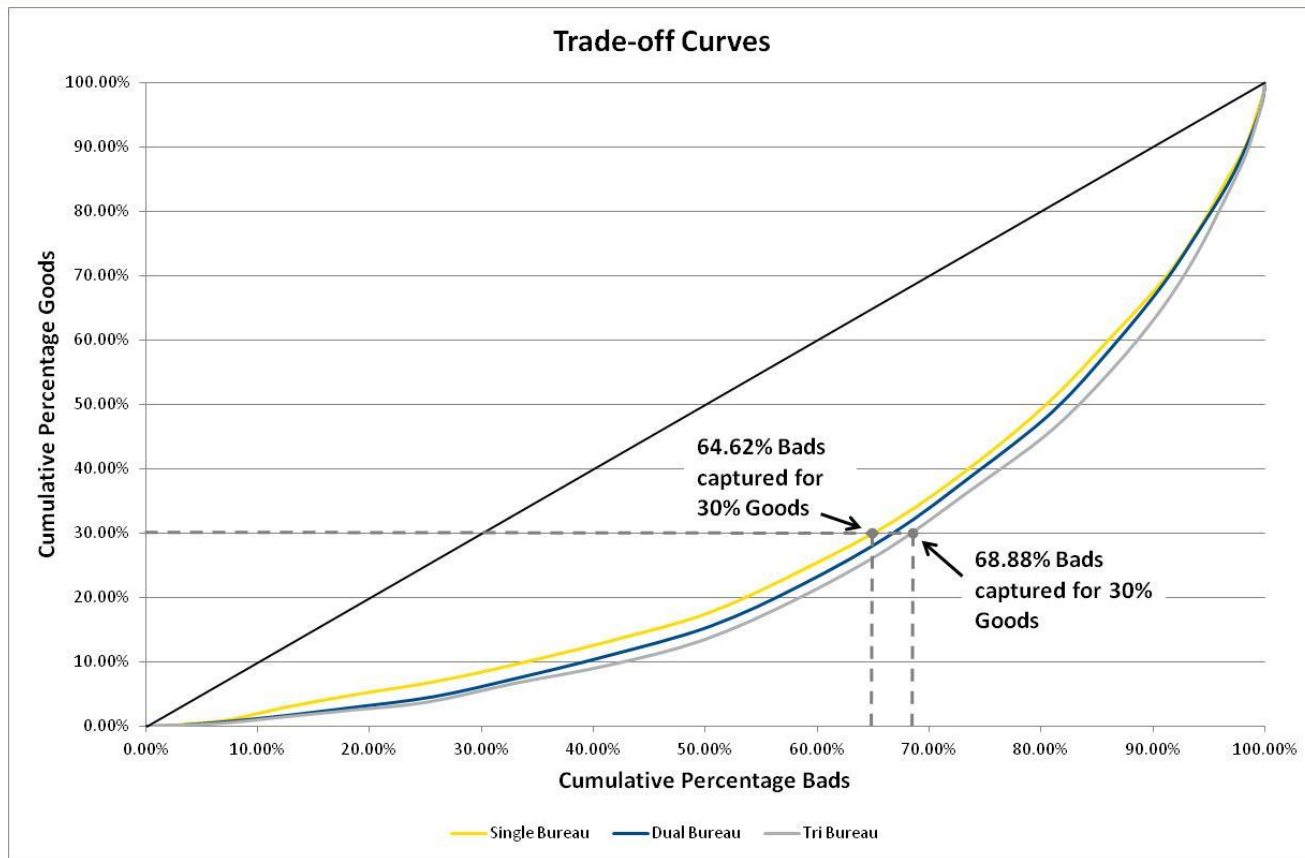
Score Distributions



As with TruDebt, including Multi-Bureau data alters the score distribution

TruDebt – Performance Comparisons

Personal Loans

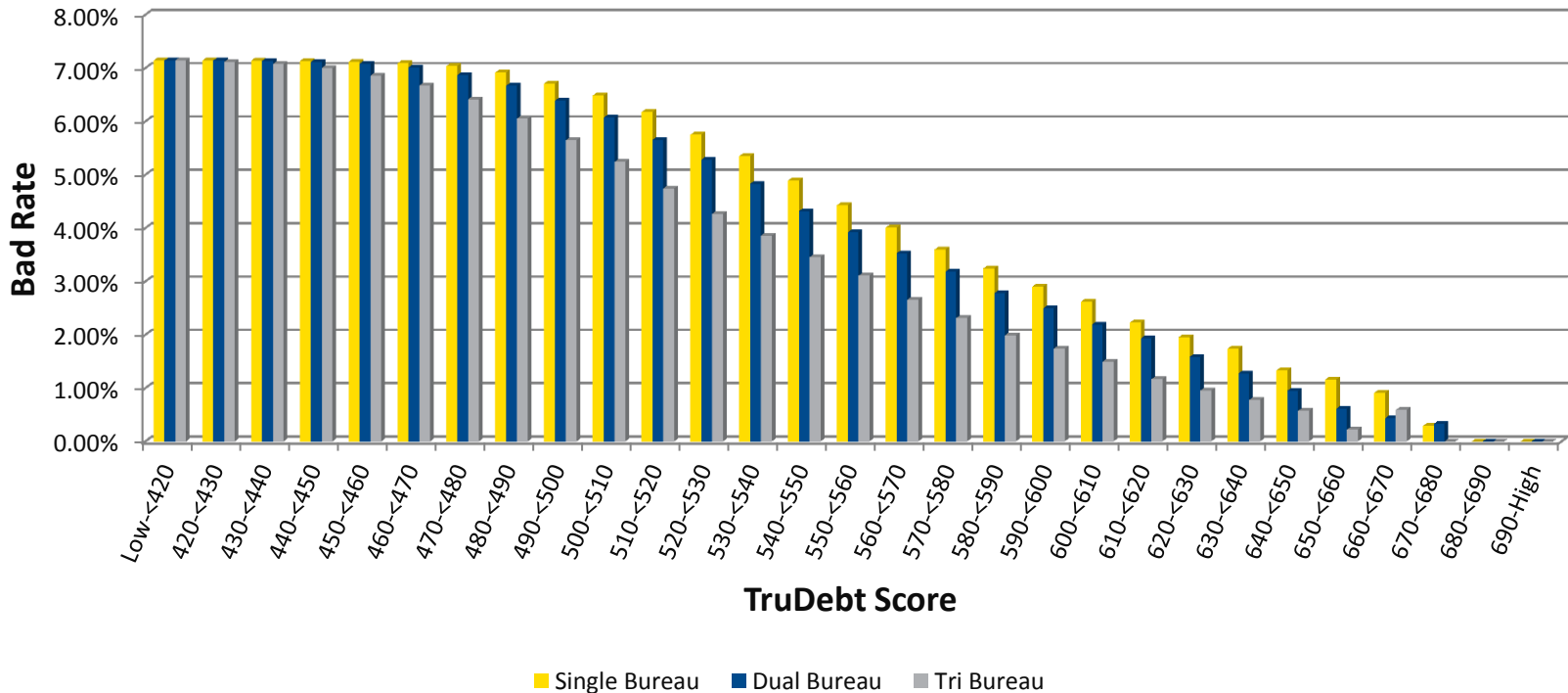


Superior uplift in risk prediction of 6.60% offered by Tri Bureau

TruDebt – Cumulative Bad Rate by Score

Personal Loans

Descending Cumulative Bad Rates by Score

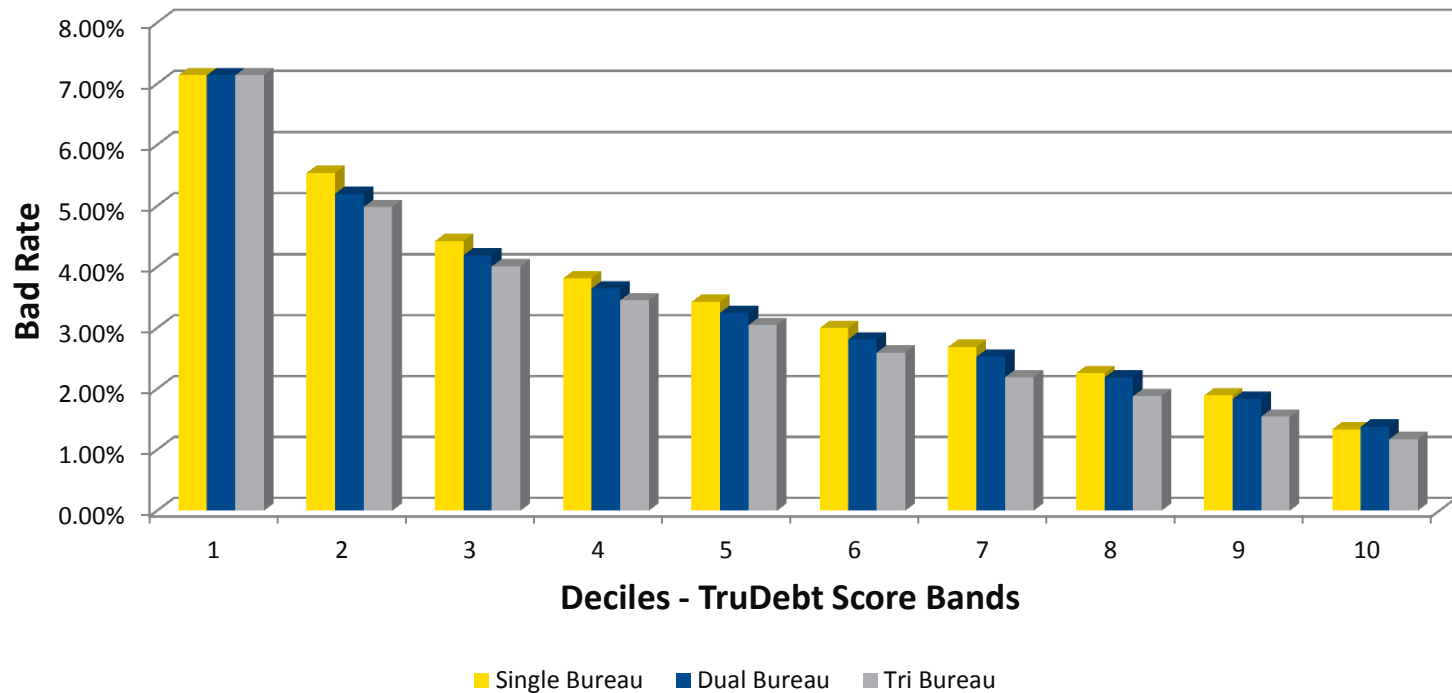


TruDebt ranks risk across all three bureau combinations, with Tri Bureau offering superior prediction

TruDebt – Cumulative Bad Rate by Deciles

Personal Loans

Descending Cumulative Bad Rates by Score Deciles



Maintain the same proportions within each score band further illustrates the rank ordering ability of TruDebt using Multi-Bureau data

TruDebt – Acceptance Rate Improvements

Personal Loans

Single Bureau

TruDebt Score	Acceptance Rate	Observed Bad Rate
576	59.81%	3.43%
587	50.47%	3.00%
598	40.10%	2.69%

Dual Bureau

Target Bad Rate	Score	Acceptance Rate	Observed Bad Rate	Uplift in Acceptance Rate
3.43%	562	65.53%	3.43%	9.57%
3.00%	574	54.42%	3.00%	7.81%
2.69%	584	44.90%	2.68%	11.97%

Tri Bureau

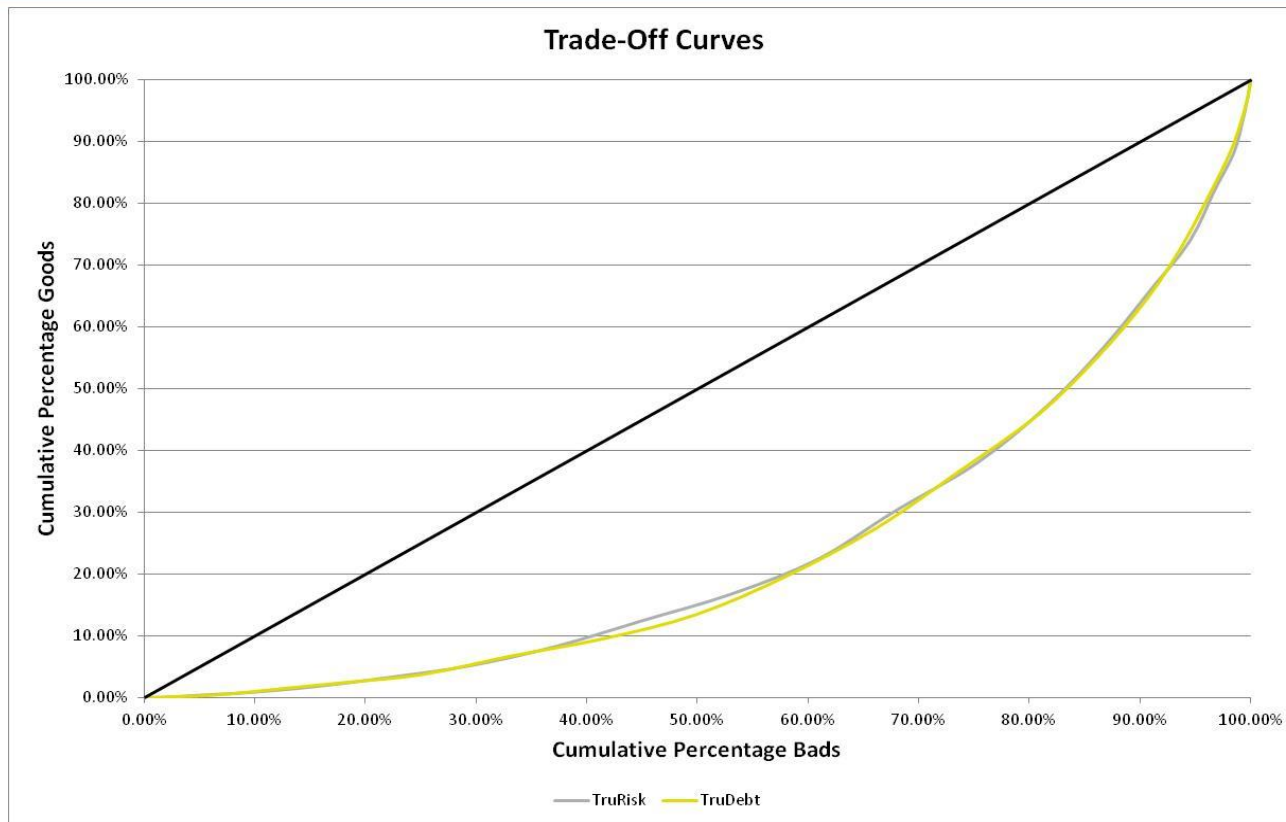
Target Bad Rate	Score	Acceptance Rate	Observed Bad Rate	Uplift in Acceptance Rate
3.43%	541	68.99%	3.39%	15.35%
3.00%	552	59.24%	3.00%	17.36%
2.69%	559	53.05%	2.69%	32.32%

TruScores – Dual Score Matrix

- TruRisk and TruDebt were designed differently to better predict credit risk based off differing risk scenarios
- Through combining TruRisk and TruDebt lenders can maximise predictive power in relation to credit risk and consumer indebtedness across the various Multi-Bureau strategy scenarios
- A TruScore dual matrix demonstrates this improved risk prediction

TruScores – Similarity in Predictive Power

Personal Loans



Credit risk predictive power between the two scores appears similar at the portfolio level...

TruScores – Dual Score Matrix

Personal Loans

Lender Strategy - Maintain Same Bad Rate

Population Percentages by Cell						
TruRisk Tri Bureau	TruDebt Tri Bureau					Total
	Low-<526	526-<551	551-<573	573-<596	596-High	
Low-<608	16.98%	12.07%	6.54%	2.75%	0.76%	39.09%
608-<620	1.36%	2.64%	3.50%	2.23%	1.00%	10.73%
620-<631	0.73%	1.93%	2.91%	2.78%	1.81%	10.17%
631-High	0.71%	3.50%	7.13%	12.12%	16.55%	40.01%
Total	19.78%	20.14%	20.08%	19.87%	20.13%	100.00%

Bad Rates by Cell						
TruRisk Tri Bureau	TruDebt Tri Bureau					Total
	Low-<526	526-<551	551-<573	573-<596	596-High	
Low-<608	21.83%	8.04%	6.74%	5.15%	4.21%	13.53%
608-<620	8.43%	6.28%	4.00%	3.66%	4.13%	5.06%
620-<631	8.21%	4.56%	4.13%	2.95%	2.11%	3.82%
631-High	5.53%	4.70%	3.56%	2.15%	1.20%	2.29%
Total	19.82%	6.89%	4.75%	2.85%	1.55%	7.14%

Decision Rates

Strategy Accept / Decline Rates	Single Score Strategy	Dual Score Strategy
Decline Rate	49.83%	43.77%
Accept Rate	50.17%	56.23%

Decision Bad Rates

Strategy Bad Rates	Single Score Strategy	Dual Score Strategy
Decline Bad Rate	11.71%	12.88%
Accept Bad Rate	2.60%	2.67%

Acceptance Rate Uplift 12.07%

TruScores – Dual Score Matrix Summary

- Maintaining same bad rate

Decisioning Strategy Comparison	Dual Score Strategy		
Single Score Strategy	Accept	Reject	Total
Accept	Always Accept	Swap OUT	Acceptance Rate: 50.17%
	Percent: 48.73%	Percent: 1.44%	Bad Rate: 2.60%
	Bad rate: 2.48%	Bad rate: 6.89%	
Reject	Swap IN	Always Reject	Decline Rate: 49.83%
	Percent: 7.49%	Percent: 42.33%	Bad Rate: 11.71%
	Bad rate: 3.93%	Bad rate: 13.09%	
Total	Acceptance Rate: 56.23%	Decline Rate: 43.77%	
	Bad Rate: 2.67%	Bad Rate: 12.88%	

Conclusions

- Multi-Bureau data adds substantial value to the credit risk decisioning process
- Using a bureau independent framework enables seamless incorporation of Multi-Bureau data into credit risk policy rules and scorecards
- A Multi-Bureau view of indebtedness used in conjunction with traditional risk scores further improves risk discrimination

The logo features a stylized 'X' composed of two overlapping diagonal lines, one purple and one yellow. A thin purple arc curves over the top of the 'X' and extends to the right. To the right of the 'X' is the text 'DecisionMetrics' in a bold, italicized sans-serif font. 'Decision' is in dark blue, and 'Metrics' is in a lighter blue-grey color.

DecisionMetrics