Risk Premium Offset Initiative
A Statistical Analysis

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Kevin Schindelka
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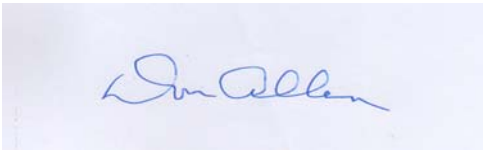
Dear Kevin:

Attached is our report on a statistical analysis of risk rating of recent ACC loans. I hope that it is useful to the Risk Premium Offset Committee.

Regards



Don Allen
President

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EXECUTIVE SUMMARY

A loan risk assessment tool was designed to be used to measure the levels of risk undertaken by Aboriginal Financial Institutions in making loans. A sample of 10 loans was randomly selected from 19 AFIs and the loan risk rating tool was applied to them.

Recent loans made by a representative sample of AFIs had the following attributes, in terms of risk posed for the lender:

Very low risk:	0% of new loans made in the past 24 months
Low risk:	11.1%
Medium risk:	44.2%
High risk:	42.6%
Very high risk:	2.1%

When the loans are **weighted by the dollar value of the loan amounts**, the risk distribution is somewhat different, because larger loans are somewhat lower risk:

Very low risk:	0% of dollar value of new loans made in the past 24 months
Low risk:	14.3%
Medium risk:	41.4%
High risk:	43.1%
Very high risk:	1.2%

The proportions in higher risk categories indicate the degree to which AFIs conduct developmental lending. Unfortunately, AFIs are encountering increasing financial losses, and these can deter them from this high-risk type of loans. The concept of a risk premium offset from government has been advanced as a method in which government programming could enable AFIs to continue to engage in developmental lending.

Suppose that the program would provide interest rate assistance as follows, using a range of scenarios for assistance offered under the program:

1. for medium risk loans, a risk premium offset of 5% to 12%
2. for high risk loans, a risk premium offset of 10% to 18%
3. for very high risk loans, a risk premium offset of 15% to 22%

If AFIs had a new loan volume of $40-50 million per year, this then would be annual financial magnitude of the program, depending on the level of risk premium offset:

1. for medium risk loans, a cost falling in the range of $0.8 million to $2.5 million
2. for high risk loans, a cost falling in the range of $1.7 million to $3.9 million
3. for very high risk loans, a cost falling in the range of $0.07 million to $0.1 million

The resulting financial program requirements would be between $2.6 million and $6.5 million, depending on the level of offset assistance and the volume of new loans.

Generally speaking, it appears feasible to utilize a risk rating tool to classify all new loans. The main limitation is the significant number of loan applicants who have no financial statements. A loans officer will have to make estimates for those aspects of the tool that require financial ratios.

Some aspects of the loan risk assessment tool could be clarified, if it is to play an integral role in a new risk premium offset program. As well, it might be useful to have separate wordings of the instructions to be followed by loans officers for start-ups vs. existing firms.

Risk Premium Offset Initiative – A Statistical Analysis

1. Background

Canada's Aboriginal Financial Institutions (AFIs) are undertaking high-risk developmental lending. A number of studies have shown that the cost of developmental lending undoubtedly exceeds the rates of interest that AFIs have been earning on loans and may exceed what they can realistically charge in the marketplace. As a result, the financial health of AFIs has been shaken in recent years.[1]

This has led to proposals for a Risk Premium Offset program to be provided by government agencies that want AFIs to continue to do developmental lending. RPO is a differential between the market rates of a developmental lender and the validated cost of developmental lending, offering the AFI assistance in the form of a differential to reflect the risk rating of its loans.

2. Statement of Purpose of this Project

To conduct an independent assessment of the risk of recent loans within the network of Aboriginal Financial Institutions (AFIs) utilizing a loan risk assessment tool developed by a Joint AFI Network/Government working committee.

To assist the RPO Committee in establishing the performance and reliability of the tool for purposes of establishing risk premiums and forecasting financial program requirements.

To conduct an assessment which will capture data, representative of diverse regions and markets, economic sectors, large vs. small catchments, and large and small volume clients.

The overall objective is to measure a randomly selected sample of recent Aboriginal Financial Institution loans within the last 24 months, against the risk assessment tool in order to determine the incidence of risk ratings across the range of risk categories. The findings will assist in providing the various category weighting and premium rate settings.

3. Study Approach

This is a data-based study, in which a data base was created from a large sample of AFI loans, in order to document the risk levels that were encountered by AFIs.

[1] This has been documented, for example, in Growth Connections, Review of Financial Health of ACC Network, Final Draft Report, October, 2006

We are undertaking to answer the question "What levels of risk are being undertaken by Canada's AFIs?"

A good cross-section of Canada's AFIs agreed to participate in the study. They provided lists of their loans disbursed during 2005-2006. There were more than 1100 loans, totaling almost $55 million.

By looking at sample of 10 loans by each of 19 AFIs, we built up a database and classified all the loans according to risk level, as implied by the loan risk assessment tool. A random sample was selected for each AFI, designed to reflect the distribution of that AFI's loans, by loan size. The list of loans made by each AFI was divided into 10 groups, according to size of loan, and one loan was selected randomly from each size group. That is, one loan was selected from the one-tenth of loans that were the smallest, and then one loan from the next largest group, up to the largest one-tenth of loans, from which one loan was selected. This approach was used for each of the 19 AFIs.

Each of 190 loan files was examined, looking for these documents:

Loan application
Credit Reports
Business plan and supplemental notes whether hand written or as an addendum to the Business Plan – completed after it was submitted.
Any financial statements that may have formed part of the business plan and loan assessment.
Loan assessment
Letter of Offer

The risk rating methodology classified risk based upon these variables:

Management
Age of business
Market
Credit history
Staying power
Debt leverage
Working capital
Repayment ability
Security
Industry sector

This led to each loan being allocated to these risk groups:

Very low	High
Low	Very high
Medium	

The distribution of loans was compiled according to level of risk. A summary of the ratings was tabulated for the entire sample and then several breakdowns were tabulated according to the profiles of the selected AFIs and according to certain aspects of the client firm.

4. Participating AFIs

Based upon recent volumes of start-up loan activity, the following AFIs were invited to participate in the study.

Dana Naye Ventures, Whitehorse, Yukon
Tribal Resources Investment Corporation, Prince Rupert, B.C.
Nu-Chah-Nulth Economic Development Corporation, Port Alberni, B.C.
Tale Awxtw Aboriginal Capital Corporation, West Vancouver, B.C.
First Nat ions Agricultural Lending Association, Kamloops, B.C.
Alberta Indian Investment Corporation, Enoch, Alberta
Indian Business Corporation, Calgary, Alberta
Apeetogosan (Métis) Development Inc., Edmonton, Alberta
Settlement Investment Corporation, Edmonton, Alberta
Saskatchewan Indian Equity Foundation Inc., Saskatoon, Saskatchewan
SaskNative Economic Development Corporation, Saskatoon, Saskatchewan
Tribal Wi-chi-way-win Capital Corporation, Winnipeg, Manitoba
Louis Riel Capital Corporation, Winnipeg, Manitoba
Nishnawbe Aski Development Fund, Thunder Bay, Ontario
Tecumseh Development Corporation, Muncey, Ontario
Two Rivers Community Development Centre, Ohsweken, Ontario
Indian Agricultural Program of Ontario, Stirling, Ontario
SOCCA (Native Commercial Credit Corporation), Wendake, Quebec
Ulnooweg Development Group Inc., Truro, Nova Scotia

5. Statistical Results – with Breakdowns for Various Categories

The classification of the sample of loans as a whole broke down as follows:

Table 1: Overall Risk Distribution of Entire Sample

	Number	%
Very low	0	0
Low	21	11.1
Medium	84	44.2
High	81	42.6
Very high	4	2.1

Developmental lending by these AFIs is reflected in the fact the 42.6% of loans were high risk and 2.1% very high risk.

There were enough AFIs in the survey to permit a regional breakdown to be tabulated.

Table 2: Regional Risk Distribution of Sample Loans

	BC/Yukon		Alberta		Man/Sask		East	
# of AFIs	5		4		4		6	
Risk Level	#	%	#	%	#	%	#	%
Very low	0	0	0	0	0	0	0	0
Low	8	16	6	15	5	12	2	3
Medium	19	38	17	43	18	45	30	50
High	21	42	17	43	17	43	26	43
Very high	2	4	0	0	0	0	2	3

There were very minor differences between regions. These are the regional highlights of the comparative data.

- Every region had about 43% high risk loans.
- BC/Yukon and Alberta: slightly more lower risk loans than elsewhere
- Eastern Canada – very few low risk loans, more in medium risk.

There were only four AFIs in the sample that were considered to have relatively small catchment areas. They were NEDC, TACC, Tecumseh and Two Rivers. The other 15 AFIs covered entire provinces or large sections of provinces that included vast remote areas. These are the comparative risk levels for the two groups.

Table 3: Catchment Area Risk Distribution of Sample Loans

	Small area		Large area	
	#	%	#	%
Very low	0	0	0	0
Low	4	10	17	11
Medium	16	40	68	45
High	18	45	63	42
Very high	2	5	2	1

These were the catchment area highlights of the comparative data:

- Small area: slightly higher risk loans – 45% high risk and 5% very high risk.
- Large area: slightly lower risk loans – 45% medium risk, only 1% very high

AFIs can also be divided into small, medium and large, based on amount of lending during the period 2005-2006, which was the basis for loan lists from which the sample was drawn for this study.

Table 4: Risk Distribution based upon Size of AFI

	Small	Medium	Large	Avg.
# of AFIs	7	6	6	19
Amount of loans in 24 months	$750,000-$1,700,000	$1,900,000-$3,000,000	$3,500,000-$8,700,000	
Low risk	7%	13	13	11
Medium risk	43	52	38	44
High risk	47	33	47	43
Very high risk	3	2	2	2

Here are the findings:

- Small AFIs - higher risk loans – very few low risk and above-average high risk
- Medium-sized AFIs - a preponderance of medium risk loans
- Large AFIs - slightly more high risk and substantially less medium risk loans

A number of economic sectors were represented in the loans sample, and they showed some risk differences.

Here is how the risk rating tool defines the sectors:

Sector 1: Mining and oil and gas extraction. Utilities. Information and cultural industries. Finance and insurance. Real estate and rental and leasing. Management of companies and enterprises. Educational services. Health care and social assistance. Arts entertainment and recreation. Public administration.

Sector 2: Agriculture, forestry, fishing, hunting. Wholesale trade. Professional, scientific, technical services. Administrative, waste management, remediation services.

Sector 3: Manufacturing, transportation and warehousing. Other services.

Sector 4: Accommodation and food.

Sector 5: Construction. Retail trade.

Table 5: Sectoral Risk Distribution of Sample Loans

	Sector 1		Sector 2		Sector 3		Sector 4		Sector 5	
	#	%	#	%	#	%	#	%	#	%
Very low	0	0	0	0	0	0	0	0	0	0
Low	0	0	9	16	10	11	1	10	1	3
Medium	0	0	30	52	37	42	5	50	12	38
High	1	100	19	33	40	45	4	40	17	53
Very high	0	0	0	0	2	2	0	0	2	6

These were the sectoral highlights of the comparative data:

- Sector 2 (agriculture, forestry, fishing): lowest risk – 16% low risk, 52% medium
- Sector 3 (manufacturing, transportation, other services): above-average risk – 45% high risk, 2% very high risk
- Sector 4 (accommodation and food): average risk – 50% medium
- Sector 5 (construction, retail trade): high risk – 53% high risk, 6% very high risk

Loan client firms were divided into start-ups and existing firms.

Table 6: Start-up vs. Existing Firm Risk Distribution of Sample Loans

	number of loans				dollar value of loans	
	Start-ups		Existing		Start-ups	Existing
	#	%	#	%	%	%
Very low	0	0	0	0	0	0
Low	1	1	20	18	1	28
Medium	13	16	70	64	15	71
High	63	78	19	17	82	7
Very high	3	5	1	1	2	0

Startups firms are far and away higher risk than existing firms. 82% of the dollar value of start-up loans were high risk, compared to only 7% for existing firms.

Table 7: Start-up vs. Existing Firm Clients by Region

	BC/Yukon	Alberta	Man/Sask	East	All
Start-ups	52%	37.5%	40%	40%	43%
Existing	48%	62.5%	60%	60%	57%

BC/Yukon AFIs had a much higher proportion of start-up clients. Other regions were near 40%.

6. Risk Distribution of Loans Weighted by Amount of Loan

Size of loan is an aspect of the loan that might provide some risk difference. If start-ups tend to receive smaller loans than existing firms, then large loans could have lower risk than small loans. This would imply that the financial risk for a lender in terms of dollars deployed could be different than that which is shown by the numbers of loans at different risk levels. Therefore, weighting the loans in each risk group by the dollar value of each loan will provide a better picture of the financial risks for the lender.

The amount of interest being paid on a large loan is greater than the amount for a smaller loan. If an offset program makes a contribution in terms of interest rate points, then the size of the loan will determine the cost of the program contribution. Therefore, the table that follows below will be most important for forecasting financial requirements for a risk premium offset program.

Table 8: Loan Size Risk Distribution of Loans Weighted by Amount of Loan

	% of number of loans	% of dollar value of amounts loaned
Very low	0	0
Low	11.1	14.3
Medium	44.2	41.4
High	42.6	43.1
Very high	2.1	1.2

The data do confirm that large loans on the whole are somewhat lower risk than small loans. 11.1% of loans are low risk, but represent 14.3% of loan amounts. On the other hand, 2.1% of loans are very high risk, but they represent only 1.2% of loan amounts.

7. Usability of the Risk Rating Tool

The risk rating tool was applied to all the loans in the sample. As noted above, it is designed to first classify loans according to these ten dimensions:

Management
Age of business
Market
Credit history
Staying power
Debt leverage
Working capital
Repayment ability
Security
Industry sector

Then the value for each of these aspects is summed up to a total value which then categorizes the loan into these risk levels:

Very low
Low
Medium
High
Very high

The main limitation in using this risk measurement approach for previous AFI loans results from the fact that the ten aspects of each loan to be evaluated require a long list of information. When one designs a risk measurement tool in 2007, it is possible that year 2005, 2006 loan files do not have all data required to fully complete the rating from the new tool. In many 2005, 2006 loan files, not all the information exists for the 2007 tool.

For example, the definition of "Staying power" requires both data on other incomes of the family than the business, as well as home ownership – house value and mortgage amount. Information on other income was present in less than 50% of ACC loan files examined in this study. For borrowers living on reserve, home ownership may not be applicable.

All files have information on management experience of the applicant. However, less than 50% of files on existing business that were examined had precise data on the age of the business. Yet this aspect carries 10% of the weight in the risk rating tool. One must estimate age of business from the text on the career of the applicant.

As well, several of the tool's calculations must be done from financial statements. If these do not exist in the loan file, it is very difficult to compute these particular measures of loan risk. Many loan files have loan assessments with references to "attached financial statements", but these statements were nowhere to be found in many loan files. In about 50% of cases where income statements are on file, there is no balance sheet, particularly when only pro formas are on file. Only income statements and cash flows are projected. However, balance sheet items are essential to calculate Debt leverage, Working capital and Repayment ability in the risk measurement tool.

Therefore, if this particular risk rating tool is to be used in a new RPO program, the checklist of items to be included in every file must be updated to cover all inputs in the new risk rating tool.

Despite the above-noted information gaps or questions in the 190 files that we accessed in this loan survey, we used the available information to make this risk rating tool into a workable approach to classifying loans, covering as many components of the tool for which data were on file, and making estimates for the others. With the information that was available, an approximate risk level was able to be determined for each loan in the sample.

Our other observations deal with the tool itself, rather than how to complete it from older files.

One might consider re-specifying the definitions to be used for start-ups. At this point, "new business with reasonable projections on file" receives the same rating under Management as existing businesses with "poor financial performance". Yet many new businesses have managers who have an excellent track record in managing small businesses. Classifying them as equivalent to "poor financial performance" might be an unduly severe rating for these cases.

In one of the categories that require financial statements, Repayment ability, there is a classification of High for start-up cases with "debt service ratio based on projections". Some wording should also be introduced for start-ups in other tool categories where pro forma financials could be used, namely, Debt leverage and Working capital. How should pro forma debt:equity and current ratios be handled for start-up cases in rating Debt leverage and Working capital? Should a pro forma debt:equity ratio of less than 1:1 be considered very low risk, just as an actual debt:equity ratio of less than 1:1? Or should it be considered low or medium risk, because it is a projection?

This is actually a clarity issue. Clearer wording on how pro forma information should be treated might be introduced into the risk rating tool wording.

In fact, it would seem useful to prepare two versions of the wording for the risk rating tool. One version would be used for existing firms and the other version for start-ups. For existing firms, it should be indicated which financial ratios should use actuals and which should use pro formas. In other words, when we are looking at future repayment capacity, pro formas may be considered as the key indicators, even though actual financial ratios are available. Wording of the tool should indicate which one is preferred.

One fundamental problem is the significant number of borrowers who do not maintain financial statements or whose business plan has no balance sheet. The loans officer will have to make estimates for those aspects of the tool that are based on financial ratios.

8. Forecasting financial program requirements – low offset scenario

One item in the statement of purpose of this project is:

assist RPO Committee in establishing performance and reliability of the tool for purposes of establishing risk premiums and **forecasting financial program requirements**

Before forecasting financial program requirements, one should consider some of the findings of the Financial Health of ACC Network study:

> ACCs continue their struggle to achieve financial breakeven with collective network profitability progressively declining from a loss of $1.283 million in 2001 to a loss of $3.054 million in 2005 (page 4) . . .
> network operating expenses and net losses may both be understated and suggests that a more systematic and consistent approach be adopted for establishing loan loss provisions (Executive Summary, page 2) …
> Loan loss provisions actually recognized are significantly less than the expected loan loss provision - recent operational reviews and remedial action plans have indicated ACCs may not be recognizing losses in a manner consistent with the normal practice of financial institutions. (page 18)

These factors imply that the aggregate cost of developmental lending for this group of financial institutions is no doubt substantially more than $3.05 million.

We have not tracked the outcomes of the loans in the sample in our study. Therefore, how would the risk classification statistics that we obtained indicate what would be appropriate risk premiums and the resulting financial program requirements?

One could apply postulated risk premiums to the proportions of the portfolio showing various risk levels and compute the implications for program requirements, as well as what contribution would be made to assist AFIs with the cost of developmental lending

Suppose that the program would provide interest rate assistance as follows:

1. for medium risk loans, a risk premium offset of 5%
2. for high risk loans, a risk premium offset of 10%
3. for very high risk loans, a risk premium offset of 15%

Suppose that AFIs eligible for an RPO program had an aggregate new loans volume of $40 million. Suppose that the risk distribution of the value of the portfolio was the same as in Table 7, based on the sample in this study, weighted by size of loan.

If medium and higher risk loans were included, $34.3 million of the portfolio would be eligible for the offset.

With these levels of premium offset, the weighted average amount of offset would be 7.7%.

This then would be financial magnitude of the program:

1. for medium risk loans, $16.6 million of new loans and a risk premium offset of $0.8 million.
2. for high risk loans, $17.2 million of new loans and a risk premium offset of $1.7 million.
3. for very high risk loans, $0.5 million of new loans and a risk premium offset of $0.07 million.
4. total cost of $2.6 million

Suppose that a higher amount of lending occurred, namely, aggregate new loans volume of $50 million.

This then would be financial magnitude of the program:

1. for medium risk loans, $20.7 million of new loans and a risk premium offset of $1.0 million.
2. for high risk loans, $21.6 million of new loans and a risk premium offset of $2.2 million.
3. for very high risk loans, $0.6 million of new loans and a risk premium offset of $0.09 million.
4. total cost of $3.3 million

The resulting financial program requirements would be $2.6-3.3 million.

This would be a major offset to the cost of developmental lending for all AFIs. Some might argue that it would approximate the cost of developmental lending, for which no precise estimate exists, but it is believed to be well over $3 million for today's group of ACCs.

9. Forecasting financial program requirements – high offset scenario

Suppose that the program would provide more generous interest rate assistance as follows:

1. for medium risk loans, a risk premium offset of 12%
2. for high risk loans, a risk premium offset of 18%
3. for very high risk loans, a risk premium offset of 22%

The weighted average amount of offset would be 15.1%.

With $40 million of new loans, this would be financial magnitude of the program:

1. for medium risk loans, $16.6 million of new loans and a risk premium offset of $2.0 million.
2. for high risk loans, $17.2 million of new loans and a risk premium offset of $3.1 million.
3. for very high risk loans, $0.5 million of new loans and a risk premium offset of $0.1 million.
4. total cost of $5.2 million

With $50 million of new loans, this would be financial magnitude of the program:

1. for medium risk loans, $20.7 million of new loans and a risk premium offset of $2.5 million.
2. for high risk loans, $21.6 million of new loans and a risk premium offset of $3.9 million.
3. for very high risk loans, $0.6 million of new loans and a risk premium offset of $0.1 million.
4. total cost of $6.5 million

The resulting financial program requirements would be $5.2-6.5 million.

10. Conclusions

Recent loans made by a representative sample of AFIs had the following attributes, in terms of risk posed for the lender:

Very low risk: 0% of new loans made in the past 24 months
Low risk: 11.1%
Medium risk: 44.2%
High risk: 42.6%
Very high risk: 2.1%

There were no major regional variations from these norms.

Small catchment area AFIs had slightly higher risk loans.

Small AFIs have higher risk loans – very few low risk and above-average high risk. Medium-sized AFIs have a preponderance of medium risk loans. Large AFIs have slightly more high risk and substantially less medium risk loans

Agriculture, forestry, fishing loans had slightly lower risk than average. Construction and retail trade were high risk.

Start-up loans carried considerably higher risk than loans to existing enterprises.

When the loans are **weighted by the dollar value of the loan amounts**, the risk distribution is somewhat different, because larger loans are somewhat lower risk:

Very low risk: 0% of dollar value of new loans made in the past 24 months
Low risk: 14.3%
Medium risk: 41.4%
High risk: 43.1%
Very high risk: 1.2%

These data on the risk profile of loans have some implications for forecasting financial program requirements.

Suppose that the program would provide interest rate assistance as follows, using a range of scenarios for assistance offered under the program:

1. for medium risk loans, a risk premium offset of 5% to 12%
2. for high risk loans, a risk premium offset of 10% to 18%
3. for very high risk loans, a risk premium offset of 15% to 22%

If AFIs had a new loan volume of $40-50 million per year, this then would be annual financial magnitude of the program, depending on the level of risk premium offset:

1. for medium risk loans, a cost falling in the range of $0.8 million to $2.5 million
2. for high risk loans, a cost falling in the range of $1.7 million to $3.9 million
3. for very high risk loans, a cost falling in the range of $0.07 million to $0.1 million

The resulting financial program requirements would be between $2.6 million and $6.5 million, depending on the level of offset assistance and the volume of new loans.

Generally speaking, it appears feasible to utilize a risk rating tool to classify all new loans. The main limitation is the significant number of loan applicants who have no financial statements. A loans officer will have to make estimates for those aspects of the tool that require financial ratios.

Some loan risk assessment tool aspects could be clarified, for it to play an integral role in a new risk premium offset program. As well, it might be useful to have separate wordings of instructions to be followed by loans officers for start-ups vs. existing firms.