

Closing the Gap Between Credit Access and Risk Management

Clark R. Abrahams
Chief Financial Architect, SAS Institute, Inc





Agenda

- Introduction
- The Need for Greater Credit Access
- Framework Construction
- Big Picture View – Product Lines / Institutions / Countries
- Conclusion





Credit Access

Banked vs. Unbanked

- Banked consumers obtain lower fees on transactions, higher returns on savings, and lower rates on loans
- The Unbanked
 - **Definition?** – Have no account with a regulated deposit-taking institution
 - **Where?** – In every country!
 - **Scope?** – Varies, but as many as 40-85% of consumers; urban and rural
 - **Who?** – Skewed, but not restricted to, lower income/less formally educated
 - **What?** – ***Dead Capital*** estimates of up to \$1.0 Billion In Mexico alone!
 - **Consequences?** – The Unbanked Pay a ***Poverty Tax***
 - **How Much?** – In some instances 15%, or nearly 2 months of wages





Credit Access May Be Improved By Changes in Status Quo

- **Colombia:** Theme of ***Bancarización*** – Dr. Alberto Carrasquilla, Ministro de Hacienda y Credito Publico [World Bank Policy Research Working Paper 3834 (2006)]

1. Indicators of potential demand
2. Suitability/affordability of loan products offered
3. Review of regulations
4. Technological considerations
5. Physical access to banks in the community
6. Customer culture / norms / financial habits
7. Financial education
8. Trust



- **Mexico:** Similar approaches echoed – World Bank Report No. 32418-MX (2005)

- ☒ Informational (1,7,8)
- ☒ Product (2,6)
- ☒ Price (2,6)
- ☒ Location/neighborhood (5)
- ☒ Technological (4)







Credit Access

Analytic Frameworks and Information Technology Can Help

- **Trust**
 - Greater Transparency / Disclosure – No secret recipes
 - Fosters Understanding -- Borrower View = Lender View
 - Greater Accuracy-- yet more simple; Thorough – yet more concise
 - Considers full context – No *one-size-fits-all*
 - *Grounded in common sense* – fosters confidence
- **Physical banking presence in communities**
 - Measuring market potential – income/spend per acre
 - Informal economy and demand for credit

- On the Surface
- Based on 2000 Census and Public Data
- Upon Deeper Inspection
- Based on *DrillDown Analysis* by Social Compact

Neighborhood of Need		Neighborhood of Opportunity	
	Poverty Rate 2X Nat'l Avg.		Significant Aggregate HH Income
	Unemployment 2X Nat'l Avg.		Significant Aggregate Retail Spending
	Overcrowding 4X Nat'l Avg.		Median Home Values Above Nat'l Avg.
	Aging Housing Stock		Owner Occupancy by Building 75%

Same Neighborhood !! – Is Glass Half Full or Half Empty?!

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Credit Access

Analytic Frameworks and Information Technology Can Help

- **Product focus**
 - Business Practices -- ***Making Money While Doing Good***
 - Better Customer Segmentation
 - Products Geared Towards Low/Moderate Income Tiers
 - How to do automated underwriting of loans for the unbanked
 - ❖ Missing/incomplete data – lack of credit bureau record
 - ❖ Problems of documentation/ verification
- **Pricing**
 - Should be Market-driven
 - Deposit/Loan Aggregation – ***Increase Scale to Lower Cost***
 - Power in numbers – pooled savings can be a cheap source of funds
 - Risk Pooling / Diversification / Risk Sharing on the Lending Side





Latin American Context

Large differences among Latin American credit reporting systems.

CREDIT REPORTING COVERAGE AND COMPREHENSIVENESS IN LATIN AMERICA			
Country	Public registry coverage ⁱ (% adults with files)	Private bureau coverage (% adults with files)	Positive Information on Consumer in Files (% of total) ⁱⁱ
Argentina	22.10%	96.00%	25% to 49%
Bolivia	10.30%	24.60%	< 5%
Brazil	9.60%	53.60%	n/a
Chile	45.70%	22.10%	25% to 49%
Colombia	0.00%	31.70%	75% to 100%
Costa Rica	34.80%	73.40% ⁱⁱⁱ	< 5%
Dominican Republic	19.20%	34.60%	75% to 100%
Ecuador	13.60%	0.00%	25% to 49%
El Salvador	17.30%	78.70%	10% to 24%
Guatemala	0.00%	9.90%	75% to 100%
Honduras	11.20%	18.70%	75% to 100%
Mexico	0.00%	49.40%	75% to 100%
Nicaragua	8.10%	0.00%	n/a
Panama	0.00%	40.20%	n/a
Paraguay	8.70%	52.20%	n/a
Peru	30.20%	27.80%	50% to 74%
Uruguay	5.50%	80.00%	75% to 100%
Venezuela	16.80%	0.00%	n/a
Mean (excl. absent bureaus)	18.1%	46.13%	
Max	45.7%	95.0%	
Min (excl. absent bureaus)	5.5%	46.13%	

iii





Benefits of Reporting Positive Payment Data

Consumers

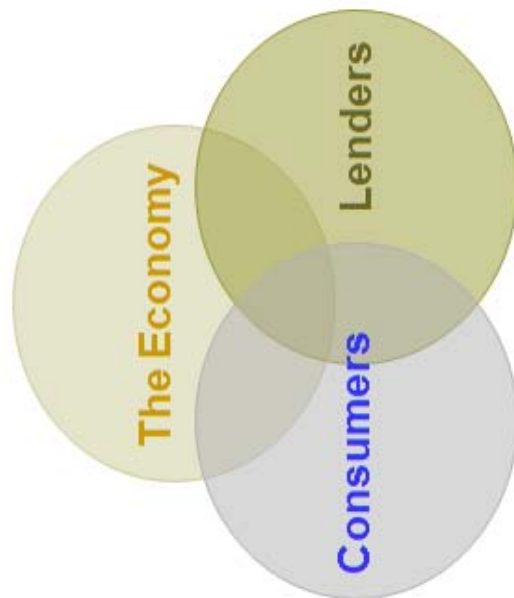
- Reduced probability of over-extension
- Greater and fairer access
- Credit offers reflect credit risk and credit capacity

Lenders

- Improved loan portfolio performance
- Reduced provisioning and capital adequacy requirements (Basel 2)
- Sustainable & affordable growth into new markets

The Economy

- Better financial services efficiencies
- Affordable growth in domestic consumption





5 C's of Credit

Primary Factors – Must Cover All 5 C's for Secured Loans



TRANSACTION

- Character
- Capacity
- Capital
- Collateral
- Conditions

Secured Loan Model				Vulnerability:		Low	Low	High	High
Pay Hist	Capacity	Capital	Collateral	Secondary Factors:		No	Yes	No	Yes
Poor	Low	Low	Low			1	2	3	4
Poor	Low	Low	Moderate			5	6	7	8
Poor	Low	Low	High			9	10	11	12
Poor	Low	Moderate	Low			13	14	15	16
Poor	Low	Moderate	Moderate			17	18	19	20
Poor	Low	Moderate	High			21	22	23	24
Poor	Low	Strong	Low			25	26	27	28
Poor	Low	Strong	Moderate			29	30	31	32
Poor	Low	Strong	High			33	34	35	36
Poor	Low	Excellent	Low			37	38	39	40
Poor	Low	Excellent	Moderate			41	42	43	44
Poor	Low	Excellent	High			45	46	47	48
Poor	Moderate	Low	Low			49	50	51	52
Poor	Moderate	Low	Moderate			53	54	55	56
Poor	Moderate	Low	High			57	58	59	60
Poor	Moderate	Moderate	Low			61	62	63	64
Poor	Moderate	Moderate	Moderate			65	66	67	68
Poor	Moderate	Moderate	High			69	70	71	72
Poor	Moderate	Strong	Low			73	74	75	76
Poor	Moderate	Strong	Moderate			77	78	79	80
Poor	Moderate	Strong	High			81	82	83	84
Poor	Moderate	Excellent	Low			85	86	87	88

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How to Model Character?

- Performance on existing / past financial obligations
 - Payment history from credit bureau
 - Self-reported and verified
- Persistence
 - Will / determination of the borrower
 - Work ethic – willing to work multiple/different/part-time jobs when needed
 - Work History/job stability/ training/ experience/ education
 - Marketable / transferable skills
 - Dependability of the borrower
 - Letters of Reference – Character
 - Established in the community versus transient
 - Faith
 - Service to country, community, religious organization
 - Social network – family, friends, community
 - Responsible behavior
 - Strength
 - Physical health





Myth-Busting

- 1. Have to be in debt to be worthy of a loan
- 2. Poor people are risky

Meet Estella
My Lifelong Friend & Mentor



1961 – Age 47, no formal education, no permanent job but steady domestic work for several families; Wage: \$1/hr; Life savings \$4,700 = 20% down payment on \$21,000 duplex home in San Francisco, leaving no financial cushion. 15 year fixed rate loan. She rented out the lower flat. Here’s how she rated at loan closing:

Factor	1	2	3	4
Persistence				✓
Strength				✓
Faith				✓
Credit History	✓			
Capacity	✓			
Capital	✓			
Collateral			✓	
Conditions			✓	

1-Poor/None 2- Fair 3- Good 4- Very Strong

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Myth-Busting

1. Have to be in debt to be worthy of a loan
2. Poor people are risky

Rest of the Story ...

- Mortgage paid in full in 13 years into term (at age 60)
- Home sold in 2005 for \$1.4 million, with zero debt

2009 Update

Current Age: 95

Millionaire !!



**2004 – Estella's of 90th Birthday
Party at Her Home of 43 Years**

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What About the Credit Bureau Score?



- Theoretically you could have a separate scoring model for each of the 5 C's of Credit.
- However, the trade-off is loss of transparency – with scoring you are creating more secret sauce!

Poor: < 660

Fair: 660-749

Good: 750+

Black Box Scoring Model

Full Transparency Categorical Ratings

CCAF Primary Factor Ratings

Define Generic Ratings for Each Primary Factor

Factors	Risk Ratings From worst to best			
	1	2	3	4
Payment History	Poor	Fair	Good	n/a
Capacity	Low	Moderate	High	n/a
Capital	Low	Moderate	Strong	Superior
Collateral	Low	Moderate	High	n/a
Vulnerability	High	Low	n/a	n/a
Secondary Factors	No	Yes	n/a	n/a

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Case	Non-Payment	History	Payment	Rating
1	Defaulter	New	Mild	Poor
2	Defaulter	New	Moderate	Poor
3	Defaulter	New	Severe	Poor
4	Defaulter	Established	Mild	Fair
5	Defaulter	Established	Moderate	Poor
6	Defaulter	Established	Severe	Poor
7	Non-Defaulter	New	Mild	Good
8	Non-Defaulter	New	Moderate	Fair
9	Non-Defaulter	New	Severe	Poor
10	Non-Defaulter	Established	Mild	Good
11	Non-Defaulter	Established	Moderate	Good
12	Non-Defaulter	Established	Severe	Poor



Simplified CCAF Example

- Some underwriting metrics associated with primary factor Categories
- Thresholds may vary by product, market, program, or channel

<i>Primary Factors</i>	Rating Categories & Value Assignments		
<u>Capital:</u> Liquid Assets (measured as months of reserves)	Good- 8+ months	Fair- 3-7 months	Poor- < 3 months
<u>Character:</u> Credit Payment History for all trade lines	Good- Cases 7, 10, 11 (See Prior Slide!)	Fair- Cases 4, 8, 12	Poor- Cases 1-3, 5-6, 9
<u>Capacity:</u> DTI	Good- <30%	Fair- 31-44%	Poor- 45%+
Savings Rate	>8% (H)	3-7% (M)	< 3% (L)
<u>Collateral:</u> LTV	Good- 70% or less	Fair- 71%-89%	Poor- 90% or more
<u>Conditions:</u> Future DTI Future LTV	Low- <Threshold < 100% in 5yrs	High- All Other Combinations	

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CCAF Example

Secondary Factor Definitions & Ratings

	GOOD	FAIR	POOR
Similar Housing Expense	120% or less of previous payment	>120-135% of previous payment	>135% of previous payment
Time in Profession	5 yrs +	3-4 yrs	<3 yrs
Strong Liquid Assets	>10% Loan Amt.	5 to 9% Loan Amt.	4% or less Loan Amt
History of Handling Higher Debt	3+yrs	1-2yrs	<1yr
Discretionary Income	> \$2M/mo.	\$1 to 2M/mo.	<\$1M/mo.
Relationship	2+ loan, deposit, investment accounts	1 loan, deposit, or investment account	None





CCAF Example

Decision Table

Pymthist	Capacity		Capital		Collatrl	Vlnrabyt	Low		High	
	High	Low	Strong	Weak			No	Yes	No	Yes
Poor	High	Low	Strong	Weak	High	Action	Approve	Approve	Decline	Approve
Poor	High	Low	Superior	Low	Moderate	Action	Decline	Decline	Decline	Decline
Poor	High	Moderate	Superior	Moderate	High	Action	Approve	Approve	Decline	Decline
Fair	Low	Low	Superior	High	Moderate	Action	Approve	Approve	Approve	Approve
Fair	Low	Low	Low	Low	Moderate	Action	Decline	Decline	Decline	Decline
Fair	Low	Low	Low	High	Moderate	Action	Decline	Decline	Decline	Decline
Fair	Low	Moderate	Moderate	Low	Moderate	Action	Approve	Approve	Decline	Decline
Fair	Low	Moderate	Moderate	Moderate	Moderate	Action	Decline	Decline	Decline	Decline
Fair	Low	Moderate	Moderate	High	Moderate	Action	Approve	Approve	Decline	Decline
Good	Moderate	Low	Low	High	Moderate	Action	Decline	Decline	Decline	Decline
Good	Moderate	Moderate	Moderate	Low	Moderate	Action	Approve	Approve	Decline	Decline
Good	Moderate	Moderate	Moderate	Moderate	Moderate	Action	Decline	Decline	Decline	Decline
Good	Moderate	Moderate	Moderate	High	Moderate	Action	Approve	Approve	Approve	Approve
Good	Moderate	Strong	Strong	Low	Moderate	Action	Decline	Decline	Decline	Approve

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CCAF Example

Decline Decision Analysis

SEG	FACTOR 1 NET GAIN	FACTOR 2 NET GAIN	FACTOR 3 NET GAIN	FACTOR 4 NET GAIN	SEG	FACTOR 1 NET GAIN	FACTOR 2 NET GAIN	FACTOR 3 NET GAIN	FACTOR 4 NET GAIN
REF	RESULT	RESULT	RESULT	RESULT	REF	RESULT	RESULT	RESULT	RESULT
NBR	RESULT	RESULT	RESULT	RESULT	NBR	RESULT	RESULT	RESULT	RESULT
102	PYMT HIST	CAPITAL	COLLATRL	SECONDRY	131	PYMT HIST	VLN RABTY	CAPITAL	SECONDRY
	76	56	40	0		57	32	20	16
	APPROVE	APPROVE	APPROVE	DECLINE		APPROVE	APPROVE	APPROVE	APPROVE
103	PYMT HIST	VLN RABTY	COLLATRL	CAPITAL	133	PYMT HIST	COLLATRL	SECONDRY	VLN RABTY
	118	32	32	32		80	60	12	0
	APPROVE	DECLINE	DECLINE	DECLINE		APPROVE	APPROVE	DECLINE	DECLINE
104	PYMT HIST	CAPITAL	VLN RABTY	COLLATRL	134	PYMT HIST	COLLATRL	SECONDRY	VLN RABTY
	118	52	40	40		74	66	0	0
	APPROVE	DECLINE	DECLINE	DECLINE		APPROVE	APPROVE	DECLINE	DECLINE
107	PYMT HIST	VLN RABTY	CAPITAL	SECONDRY	135	PYMT HIST	COLLATRL	VLN RABTY	SECONDRY
	100	52	40	20		122	60	40	20
	APPROVE	APPROVE	APPROVE	DECLINE		APPROVE	APPROVE	DECLINE	DECLINE
108	PYMT HIST	VLN RABTY	CAPITAL	SECONDRY	136	PYMT HIST	COLLATRL	VLN RABTY	SECONDRY
	85	40	40	0		112	60	32	0
	APPROVE	APPROVE	APPROVE	DECLINE		APPROVE	APPROVE	DECLINE	DECLINE
109	PYMT HIST	COLLATRL	CAPITAL	SECONDRY	139	PYMT HIST	VLN RABTY	COLLATRL	SECONDRY
	116	87	47	7		126	72	52	44
	APPROVE	APPROVE	DECLINE	DECLINE		APPROVE	APPROVE	APPROVE	DECLINE
110	PYMT HIST	COLLATRL	CAPITAL	SECONDRY	140	PYMT HIST	VLN RABTY	COLLATRL	SECONDRY
	112	86	52	0		90	44	28	0
	APPROVE	APPROVE	DECLINE	DECLINE		APPROVE	APPROVE	APPROVE	DECLINE
111	PYMT HIST	COLLATRL	CAPITAL	SECONDRY	145	COLLATRL	CAPITAL	CAPACITY	SECONDRY
	112	20	20	13		75	70	38	8
	APPROVE	DECLINE	DECLINE	DECLINE		APPROVE	DECLINE	DECLINE	DECLINE





Policy Adjustment

C-CAF Isolates Impacts of Changes in Risk Tolerance

REFERENCE TABLE ENUMERATING ALL CELLS WHICH CORRESPOND TO EACH RISK LEVEL
INDEX NUMBER CORRESPONDING CELL ADDRESSES (SORTED INTO INCREASING ORDER)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000
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CCAF Model Validation

Ability to Apply *Common Sense*

Handle Number	Observed Probability of Default	Predicted Probability of Default	Risk Rank / Observed	Risk Rank / Predicted	Residual
1	0.135	0.198	1	1	-0.063
2	0.466	0.299	3	2	0.167
3	0.179	0.486	2	5	-0.307
4	0.485	0.338	4	3	0.147
5	0.564	0.594	7	6	-0.03
6	0.525	0.772	6	10	-0.247
7	0.511	0.469	5	4	0.042
8	0.704	0.662	8	8	0.042
9	0.803	0.752	10	9	0.051
10	0.772	0.62	9	7	0.152

Handle	Liquid Assets	Credit History	Debt-to-Income Ratio	Loan-to-Value Ratio
1	Good	Good	Low	Low
2	Good	Good	High	Low
3	Good	Fair	Low	Low
4	Good	Fair	High	Low
5	Good	Poor	Low	Low
6	Good	Poor	High	Low
7	Fair	Good	Low	Low
8	Fair	Good	High	Low
9	Fair	Fair	Low	Low
10	Fair	Fair	High	Low
11	Fair	Poor	Low	Low
12	Fair	Poor	High	Low
13	Poor	Good	Low	Low
14	Poor	Good	High	Low
15	Poor	Fair	Low	Low
16	Poor	Fair	High	Low





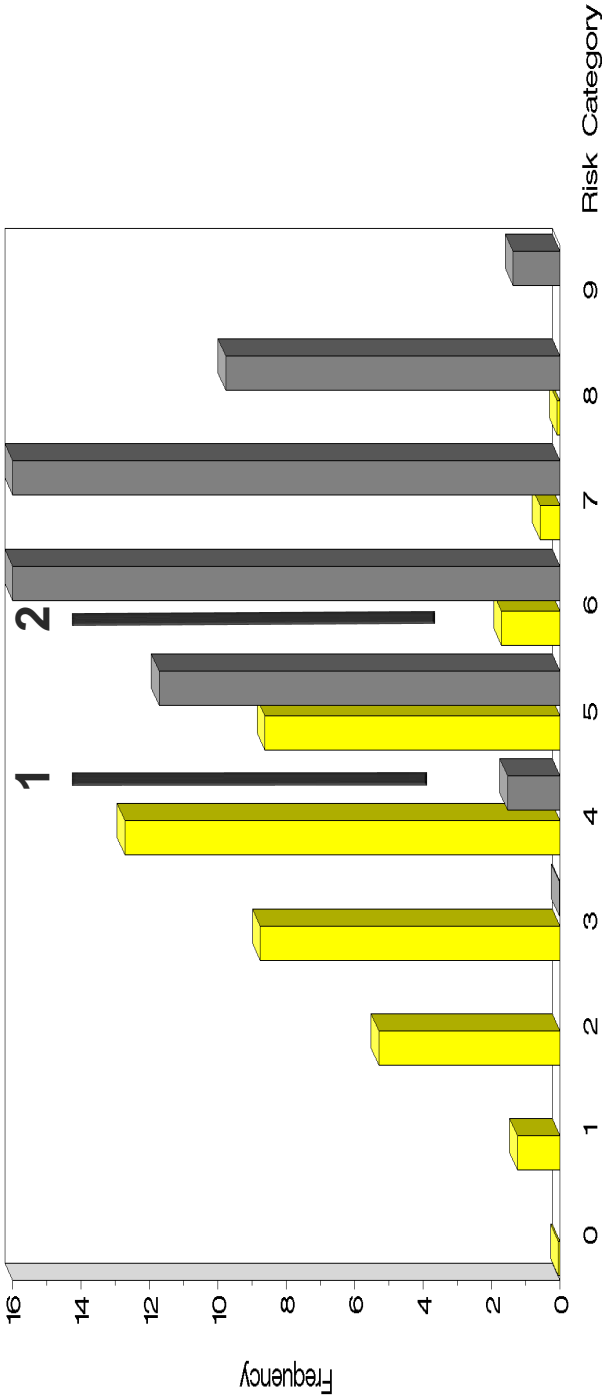
How does CCAF Address Issues Better?

Pain	Credit Bureau Score	CCAF
Safely Affords Greater Credit Access	Too Blunt and Too Harsh an Instrument	Locates Pockets of Opportunity & Approves Qualified Borrowers Declined by Scoring
Reliability	Assumes Past Determines the Future Less Relevant Going Forward; <u>Loses</u> Power Over Time	Incorporates Future Scenarios; Factors in Economy & Markets; <u>Gains</u> Power Over Time
Clarity	Black Box	Full Disclosure
Ambiguity	Identical Scores for Borrowers Having <u>Different</u> Qualifications	Identical Handles for Borrowers With <u>Same</u> Qualifications
Credibility	Not Intuitive, Cannot Tell by Inspection	Makes Sense, Can Be Logically Validated
Comprehensiveness	<ul style="list-style-type: none"> Narrow ⇒ Resulting in Over-emphasis of Credit Bureau Information / Inclusion of Irrelevant Factors (Relates to Lack of Coherence) One-Size Fits All 	<ul style="list-style-type: none"> Covers All 5 C's of Credit Considers full context of borrower, collateral, loan product, and economic/market factors
Costly Model Re-Development	<ul style="list-style-type: none"> Static Scorecard Becomes Less Predictive Over Time. Changes In Economy/Markets/Borrowing Population Accelerate Loss of Power. Worsening Performance Looms More Heavily as Model Replacement Approaches 	<ul style="list-style-type: none"> Adaptive System Becomes More Predictive Over Time. Relies on Proven Lending Principles and Reason, Not Purely on Statistical Correlations Continuously Updates Data and Loan Performance.



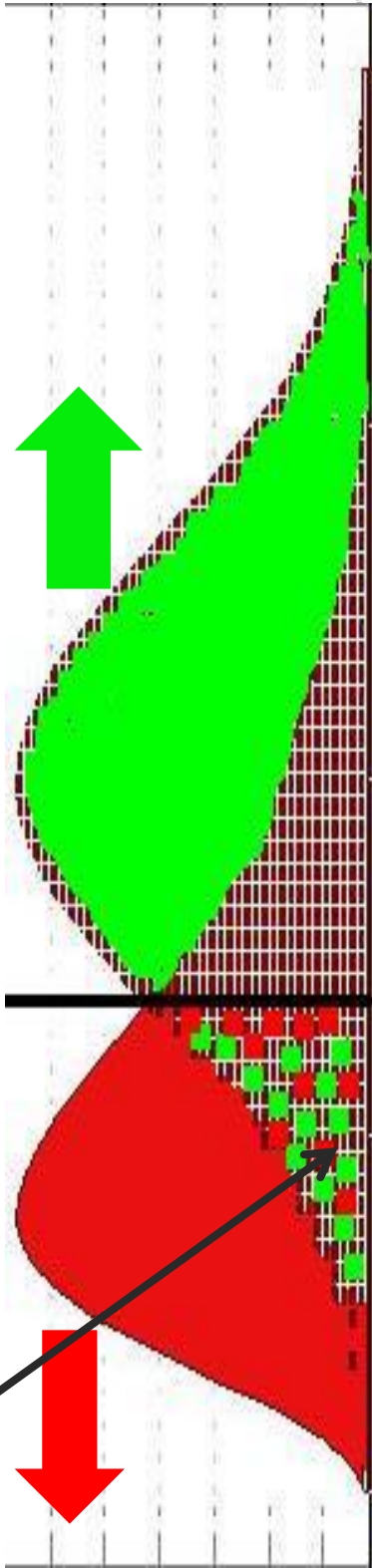
CCAF

TRADITIONAL CREDIT SCORING CUT-OFF ANALOGY



Greater Credit Access

- Better Separation Achieved by Closing U/W Gap (above)
- Further Predictive Strength Via Secondary Factors (below)



See USA registration.





Credit Access

Viewed Through 4 of 5C's of Credit Plus Credit History Rating

Home Loan Origination Mix For Good and Poor/None Credit History Rating

ACCEPTEE POPULATION VLNABTY BY COLLATRL BY CAPITAL BY CAPACITY BY PYNTHIST

ACCEPTEE POPULATION CONDITIONS BY COLLATRL BY CAPITAL BY CAPACITY BY PYNTHIST

			CONDITIONS			LOW			HIGH			LOW		
PYNTHIST	CAPACITY	CAPITAL	COLLATRL	PYNTHIST	CAPACITY	CAPITAL	COLLATRL	PYNTHIST	CAPACITY	CAPITAL	COLLATRL	CONDITIONS	HIGH	LOW
GOOD	LOW	LOW	LOW	POOR	LOW	LOW	LOW	POOR	LOW	LOW	LOW	0.00	0.00	0.00
GOOD	LOW	LOW	MODERATE	POOR	LOW	LOW	MODERATE	POOR	LOW	LOW	MODERATE	0.32	0.00	0.12
GOOD	LOW	LOW	HIGH	POOR	LOW	LOW	HIGH	POOR	LOW	LOW	HIGH	0.59	0.00	1.18
GOOD	LOW	MODERATE	LOW	POOR	LOW	MODERATE	LOW	POOR	LOW	MODERATE	LOW	0.00	0.00	0.00
GOOD	LOW	MODERATE	MODERATE	POOR	LOW	MODERATE	MODERATE	POOR	LOW	MODERATE	MODERATE	0.68	0.00	0.23
GOOD	LOW	MODERATE	HIGH	POOR	LOW	MODERATE	HIGH	POOR	LOW	MODERATE	HIGH	0.81	0.00	0.31
GOOD	LOW	STRONG	LOW	POOR	LOW	STRONG	LOW	POOR	LOW	STRONG	LOW	0.00	0.00	0.00
GOOD	LOW	STRONG	MODERATE	POOR	LOW	STRONG	MODERATE	POOR	LOW	STRONG	MODERATE	0.53	0.00	0.04
GOOD	LOW	STRONG	HIGH	POOR	LOW	STRONG	HIGH	POOR	LOW	STRONG	HIGH	0.48	0.00	0.18
GOOD	LOW	SUPERIOR	LOW	POOR	LOW	SUPERIOR	LOW	POOR	LOW	SUPERIOR	LOW	0.47	0.00	0.00
GOOD	LOW	SUPERIOR	MODERATE	POOR	LOW	SUPERIOR	MODERATE	POOR	LOW	SUPERIOR	MODERATE	0.63	0.00	0.03
GOOD	LOW	SUPERIOR	HIGH	POOR	LOW	SUPERIOR	HIGH	POOR	LOW	SUPERIOR	HIGH	0.29	0.00	0.14
GOOD	LOW	SUPERIOR	LOW	POOR	LOW	SUPERIOR	LOW	POOR	LOW	SUPERIOR	LOW	0.57	0.00	0.00
GOOD	MODERATE	LOW	LOW	POOR	MODERATE	LOW	LOW	POOR	MODERATE	LOW	LOW	0.00	0.00	0.00
GOOD	MODERATE	LOW	MODERATE	POOR	MODERATE	LOW	MODERATE	POOR	MODERATE	LOW	MODERATE	0.39	0.00	0.13
GOOD	MODERATE	LOW	HIGH	POOR	MODERATE	LOW	HIGH	POOR	MODERATE	LOW	HIGH	0.18	0.00	0.22
GOOD	MODERATE	MODERATE	LOW	POOR	MODERATE	MODERATE	LOW	POOR	MODERATE	MODERATE	LOW	0.28	0.00	0.00
GOOD	MODERATE	MODERATE	MODERATE	POOR	MODERATE	MODERATE	MODERATE	POOR	MODERATE	MODERATE	MODERATE	0.00	0.00	0.00
GOOD	MODERATE	MODERATE	HIGH	POOR	MODERATE	MODERATE	HIGH	POOR	MODERATE	MODERATE	HIGH	0.68	0.00	0.24
GOOD	MODERATE	STRONG	LOW	POOR	MODERATE	STRONG	LOW	POOR	MODERATE	STRONG	LOW	1.00	0.00	0.22
GOOD	MODERATE	STRONG	MODERATE	POOR	MODERATE	STRONG	MODERATE	POOR	MODERATE	STRONG	MODERATE	0.38	0.00	0.00
GOOD	MODERATE	STRONG	HIGH	POOR	MODERATE	STRONG	HIGH	POOR	MODERATE	STRONG	HIGH	0.48	0.00	0.33
GOOD	MODERATE	STRONG	LOW	POOR	MODERATE	STRONG	LOW	POOR	MODERATE	STRONG	LOW	0.35	0.00	0.51
GOOD	MODERATE	SUPERIOR	LOW	POOR	MODERATE	SUPERIOR	LOW	POOR	MODERATE	SUPERIOR	LOW	0.41	0.44	0.00
GOOD	MODERATE	SUPERIOR	MODERATE	POOR	MODERATE	SUPERIOR	MODERATE	POOR	MODERATE	SUPERIOR	MODERATE	0.76	0.00	0.57
GOOD	MODERATE	SUPERIOR	HIGH	POOR	MODERATE	SUPERIOR	HIGH	POOR	MODERATE	SUPERIOR	HIGH	1.11	0.00	0.63
GOOD	MODERATE	SUPERIOR	LOW	POOR	MODERATE	SUPERIOR	LOW	POOR	MODERATE	SUPERIOR	LOW	1.28	0.00	0.66
GOOD	MODERATE	SUPERIOR	HIGH	POOR	MODERATE	SUPERIOR	HIGH	POOR	MODERATE	SUPERIOR	HIGH	0.42	0.00	0.66
GOOD	HIGH	LOW	LOW	POOR	HIGH	LOW	LOW	POOR	HIGH	LOW	LOW	0.94	0.00	0.00
GOOD	HIGH	LOW	MODERATE	POOR	HIGH	LOW	MODERATE	POOR	HIGH	LOW	MODERATE	1.53	0.00	0.25
GOOD	HIGH	LOW	HIGH	POOR	HIGH	LOW	HIGH	POOR	HIGH	LOW	HIGH	1.28	0.00	0.66
GOOD	HIGH	LOW	LOW	POOR	HIGH	LOW	LOW	POOR	HIGH	LOW	LOW	1.44	0.00	0.00
GOOD	HIGH	MODERATE	LOW	POOR	HIGH	MODERATE	LOW	POOR	HIGH	MODERATE	LOW	1.15	0.00	0.44
GOOD	HIGH	MODERATE	MODERATE	POOR	HIGH	MODERATE	MODERATE	POOR	HIGH	MODERATE	MODERATE	0.35	0.00	0.61
GOOD	HIGH	MODERATE	HIGH	POOR	HIGH	MODERATE	HIGH	POOR	HIGH	MODERATE	HIGH	0.41	0.00	0.15
GOOD	HIGH	MODERATE	LOW	POOR	HIGH	MODERATE	LOW	POOR	HIGH	MODERATE	LOW	2.23	0.00	0.56
GOOD	HIGH	STRONG	LOW	POOR	HIGH	STRONG	LOW	POOR	HIGH	STRONG	LOW	1.52	0.00	1.01
GOOD	HIGH	STRONG	MODERATE	POOR	HIGH	STRONG	MODERATE	POOR	HIGH	STRONG	MODERATE	1.68	0.29	0.90
GOOD	HIGH	STRONG	HIGH	POOR	HIGH	STRONG	HIGH	POOR	HIGH	STRONG	HIGH	0.72	0.77	0.75
GOOD	HIGH	STRONG	LOW	POOR	HIGH	STRONG	LOW	POOR	HIGH	STRONG	LOW	1.44	0.00	0.90
GOOD	HIGH	SUPERIOR	LOW	POOR	HIGH	SUPERIOR	LOW	POOR	HIGH	SUPERIOR	LOW	1.82	0.00	0.90
GOOD	HIGH	SUPERIOR	MODERATE	POOR	HIGH	SUPERIOR	MODERATE	POOR	HIGH	SUPERIOR	MODERATE	1.77	0.25	0.75
GOOD	HIGH	SUPERIOR	HIGH	POOR	HIGH	SUPERIOR	HIGH	POOR	HIGH	SUPERIOR	HIGH	0.85	0.49	0.92
GOOD	HIGH	SUPERIOR	LOW	POOR	HIGH	SUPERIOR	LOW	POOR	HIGH	SUPERIOR	LOW	2.14	0.00	0.92
GOOD	HIGH	SUPERIOR	HIGH	POOR	HIGH	SUPERIOR	HIGH	POOR	HIGH	SUPERIOR	HIGH	0.53	0.00	0.92



5 C'S OF CREDIT

CLASSIFYING BORROWERS USING CCAF



No.	Borrower	Occupation	CCAF HANDLE	1 st C	2 nd C	3 rd C	4 th C	5 th C	Sec. Factors
1	Nate	Salesman	289	G	L	L	L	H	Y/N
2	Beth	Programmer	293	G	L	L	M	H	Y/N
3	Bob	Paralegal	301	G	L	M	L	H	Y/N
4	Jill	Exec Admin	337	G	M	L	L	H	Y/N
5	Joe	Plumber	247	F	H	L	M	L	Y/N
6	Carl	Construction	200	F	M	L	M	L	Y
7	Salina	Nurse	211	F	M	M	M	L	Y/N
8	Xavier	Accountant	223	F	M	ST	M	L	Y/N
9	Julie	Teacher	167	F	L	M	H	L	Y/N

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5 C'S OF CREDIT

CCAF COMPARED WITH CREDIT BUREAU SCORE

Bureau Score			CCAF Spanning 5 C's		
No.	Borrower	Occupation	Credit Score	Sub-prime?	Loan Decision
1	Nate	Salesman	752	No	DECLINE
2	Beth	Programmer	761	No	DECLINE
3	Bob	Paralegal	756	No	DECLINE
4	Jill	Exec Admin	747	No	DECLINE
5	Joe	Plumber	658	Yes	APPROVE
6	Carl	Construction	645	Yes	APPROVE
7	Salina	Nurse	653	Yes	APPROVE
8	Xavier	Accountant	640	Yes	APPROVE
9	Julie	Teacher	658	Yes	APPROVE

Greater Credit Access

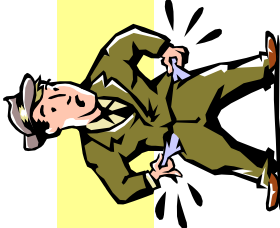
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Early Warning

Monitors and Limits High Risk Pockets of Transactions

ACCEPTEE POPULATION VLNRABTY BY CAPITAL BY CAPACITY

CAPACITY		CAPITAL		VLNRABTY		HIGH		LOW	
LOW	LOW	LOW	LOW			0.00		1.18	
LOW	MODERATE	MODERATE	MODERATE			1.09		3.00	
LOW	STRONG	STRONG	STRONG			2.03		2.53	
LOW	SUPERIOR	SUPERIOR	SUPERIOR			3.56		4.44	
MODERATE	LOW	LOW	LOW			1.54		1.72	
MODERATE	MODERATE	MODERATE	MODERATE			3.05		3.73	
MODERATE	STRONG	STRONG	STRONG			4.00		5.58	
MODERATE	SUPERIOR	SUPERIOR	SUPERIOR			3.99		7.11	
HIGH	LOW	LOW	LOW			3.57		7.38	
HIGH	MODERATE	MODERATE	MODERATE			3.08		7.34	
HIGH	STRONG	STRONG	STRONG			5.72		7.70	
HIGH	SUPERIOR	SUPERIOR	SUPERIOR			5.47		11.19	

Borrowers Living Paycheck-to Paycheck with No Savings and Vulnerable to Changes in Interest Rates and Collateral Value







Levels of CCAF Application



"Aggregate" CCAF Framework
All Loan Types

■ Industry-specific
Not Institution-specific



Instance of CCAF

■ Institution-specific
Product-specific

"Generic" CCAF Framework Templates
Specific Loan Types

■ Industry-specific
Not Institution-specific



Handle
Classification of Borrower and Loan

■ Borrower-specific
■ Transaction-specific

Credit Bureau
Borrower Contour Classification of Borrower

■ Borrower-specific

Refreshed Periodically



CCAF Holistic Score

■ Transaction-specific

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Credit Access Boosted Via Secondary Market

Financial Crisis: Too Many Disconnects!!

- Borrowers Get More Disclosure on How They Rate and Loans They Can Repay**
- Lenders Offer the Right Products at the Right Price at the Right Time**
- Investors Get More Information and Accurate Ratings**
- They ALL Get the Same View and Get More Connected !!**

* Pertains to ALL Types of Consumer and Small Business Lending

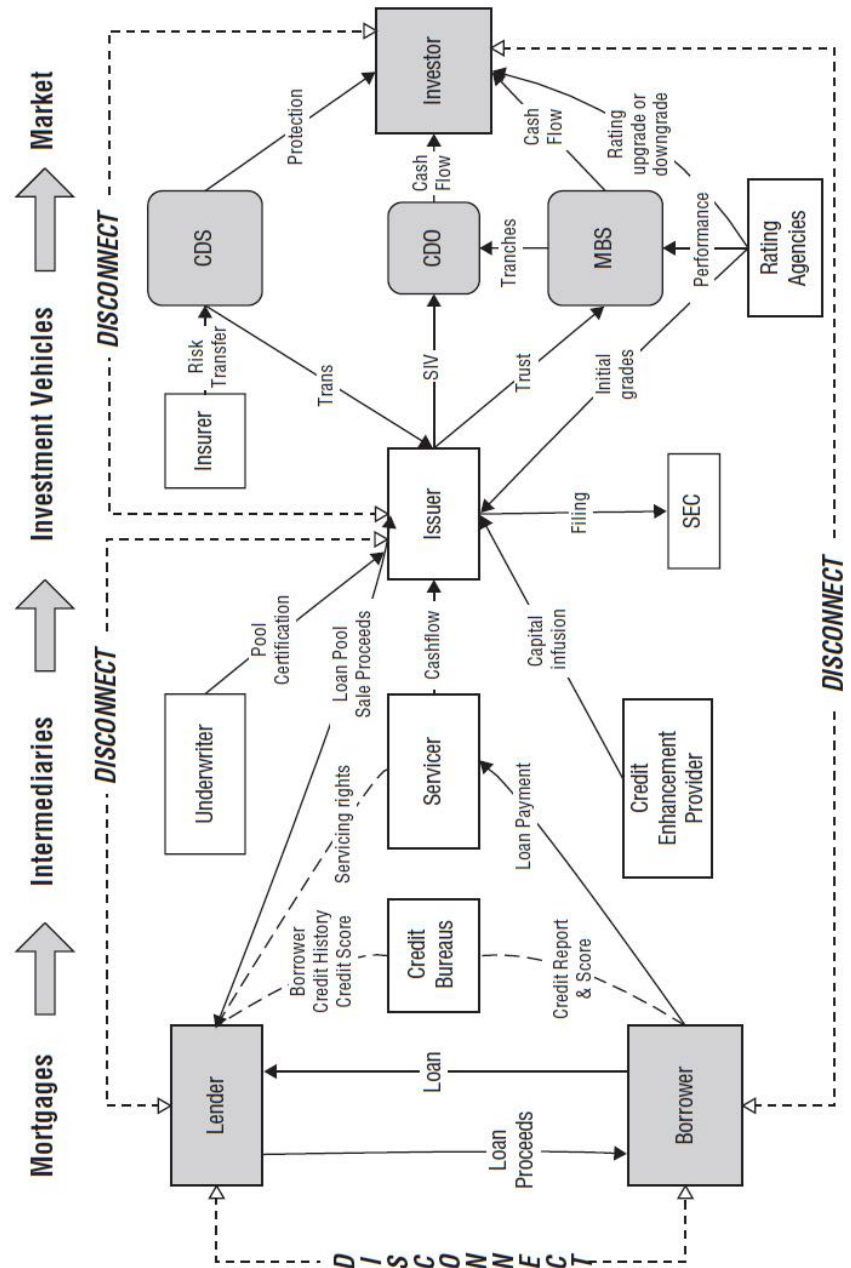


EXHIBIT 5.2 MAIN PROCESS AND MARKET PARTICIPANTS

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Bank Financial Management Implications

Getting a Better Handle on the Customer-Driven Portion of the Balance Sheet!

Security Rating Tiers	Four-Year Average Cumulative Corporate Bond Default Probability	CCAF Four-Year Avg. Cum. Mortgage Default Prob.	CCAF Holistic Score Range	Number of Handles
AAA	0.150	0.147	822 - 833	12
AA	0.250	0.286	818 - 821	5
A	0.440	0.448	811-817	14
Baa	1.270	1.240	770 - 810	103
Ba	8.680	5.502	718 - 766	138
B	19.400	19.596	715-690	86
CCC	35.970	32.045	678 - 684	35
Below CCC	n/a	42.643	652 - 677	39

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Common Framework Definitions Across Countries

CCAF Rating Tiers – Hypothetical % Distribution

CCAF Tiers	Mexico 	Colombia 	Argentina 	Brazil 	Guatemala 	Peru 
1	2	2	3	4	1	2
2	3	4	5	6	7	5
3	5	7	9	10	8	6
4	9	7	11	13	10	11
5	14	10	13	13	11	12
6	16	18	15	14	15	13
7	18	23	19	20	18	19
Below 7	33	29	25	20	30	32
Average Default Rate	6.2	6.6	5.6	5.3	5.7	5.8
Avg. CCAF Score	699	696	708	712	707	705

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Credit Access and Risk Management Gap

■ Why is CCAF particularly applicable to developing countries?

- ✓ easy to understand → handle number is interpretable (unlike credit scores) and fosters borrower financial literacy
- ✓ based on proven lending principles → 5 C's & common sense
- ✓ avoids ill-advised product choices → better loan affordability

■ How can CCAF adoption safely expand credit access?

- ✓ multidimensional framework more effectively captures the business reality and avoids stereotyping based on individual factors
- ✓ does not over-rely on pure quantitative models and can introduce new, or modify existing, compensating factors over time
- ✓ provides adequate monitoring and controls to limit risk → handle policy caps can be enforced to avoid unwanted concentrations

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SEATTLE
WASHINGTON

Closing the Gap Between Credit Access and Risk Management

clark.abrahams@sas.com

<http://blogs.sas.com/fairlending/>

(919) 531-9316 (Office Direct Line, SAS World HQ)

