



# Agenda

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  - Market Overview
  - Goals
- Methodology
  - Risk Adjusted Return On Capital
  - Capital Management
  - Example
- Results
- Final Remarks
- Q & A



# CRIF

**CRIBIS CORP**



Tampa, USA

**MAGNUM**

Atlanta, USA



**CRIF DECISION SOLUTIONS Ltd.**

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**CRIF DECISION SOLUTIONS**

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Data4Value

Rome, Italy

**CCB CZECH CREDIT BUREAU**  
Prague, Czech Rep.

**CRIF**  
Bangalore, India



Mexico City, Mexico



**SCB SLOVAK CREDIT BUREAU**

Bratislava, Slovak Rep.

- Credit bureau
- Decisioning
- Business information
- Software solutions for integrated lending
- Collection
- Real estate information services
- Software IT & Outsourcing

Edinburgh 26-28 August 2009



**CRIF DECISION SOLUTIONS**

## Background – Market Overview

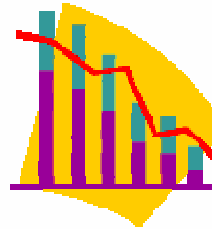


- **Restrictive Privacy Law**



- Does not allow effective marketing strategies for new customers

- **Low penetration of credit cards**



- 17<sup>th</sup> in European ranking  
(source CPP Italy – June 2009)

***Finance Companies try to obtain market share pertaining to credit cards by offering small loans in an attempt to gain new customers***



# Background – Market Overview



<i>SMALL TICKET MARKET</i>	<i>2007</i>	<i>2008</i>	<i>Trend</i>	
<b>Loan term</b>	6-12 months	6-12 months		
<b>Applications</b>	Over 1m	Over 1m	↔	<div style="border: 1px solid black; border-radius: 10px; padding: 10px; text-align: center;"> <p><b>Market size remains stable</b></p> </div>
<b>Funded contracts</b>	80%	85%	↔	
<b>Average Amount</b>	1,080€	1,020€	↔	
<b>Funded Amount</b>	~ 1,000m€	~ 1,000m€	↔	
<b>Lenders</b>	Over 20	The same as 2007 + 2	↑	<div style="border: 1px solid black; border-radius: 10px; padding: 10px; text-align: center;"> <p><b>Competition increases</b></p> </div>
<b>Average Contracts per Lender</b>	~ 55,000	~ 49,000	↓	
<b>Average Contracts first 10 Lenders</b>	~ 110,000	~ 96,000	↓	

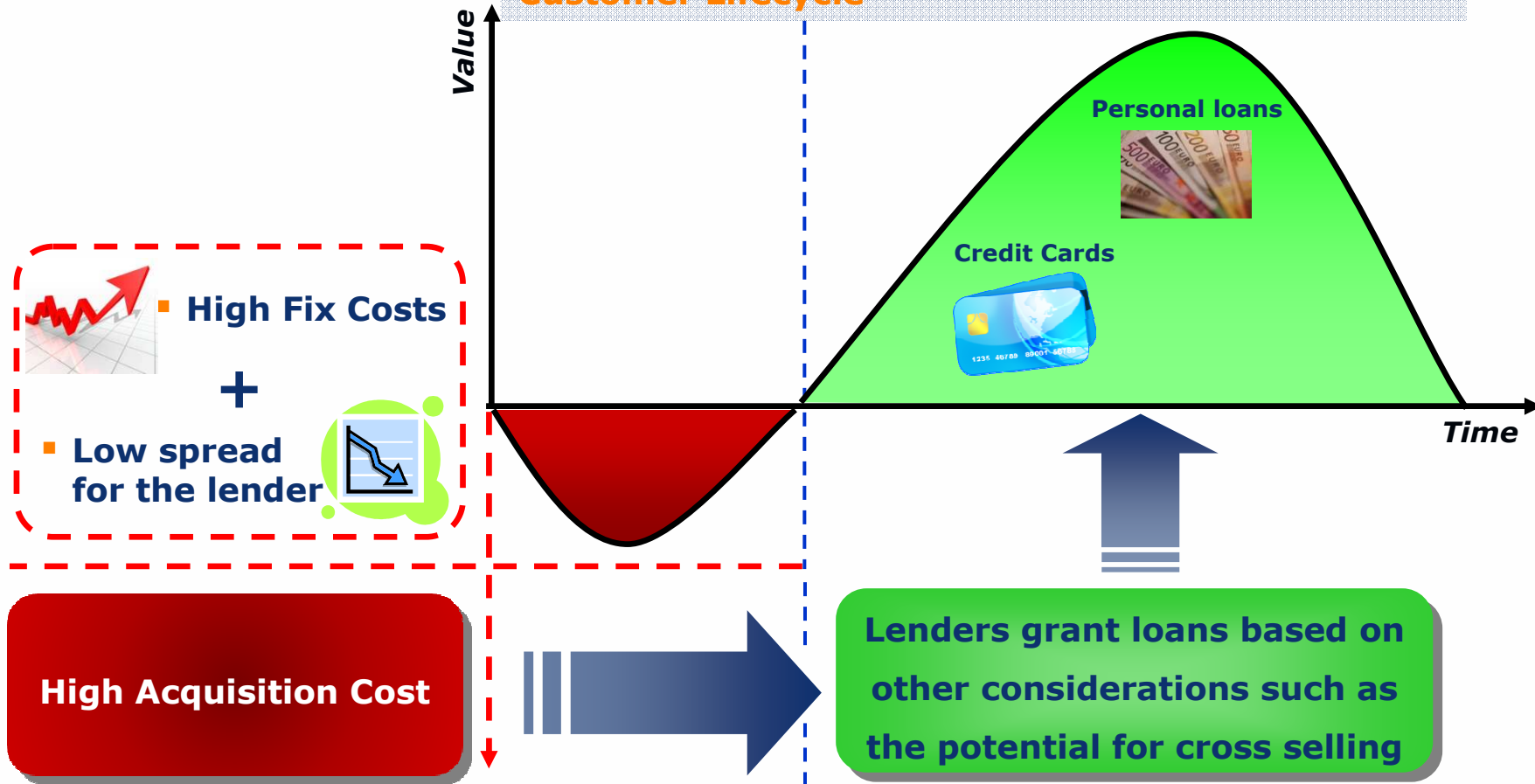
(source CRIF Credit Bureau)

# Background – Market Overview

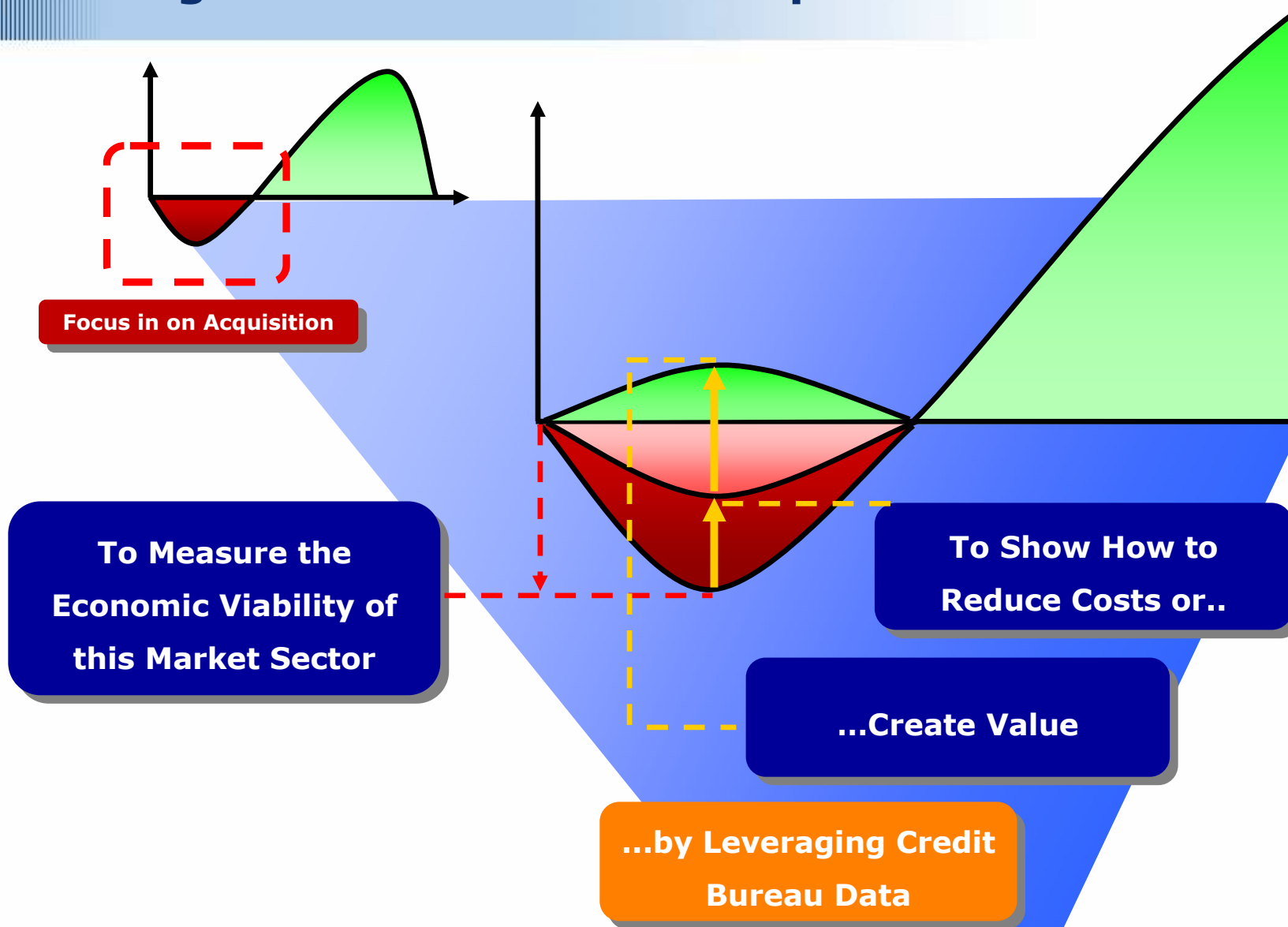
Step 1: Acquisition

Step 2: Account Management

## Customer Lifecycle



# Background – Goals of the Paper



## Methodology – Risk Adjusted Return on Capital (RAROC)

- Lenders operate in this market as “price takers”: an attractive rate (not differentiated by the risk of the borrower) is proposed in order to provide better offers which will obtain more clients
- Starting with interest rate, the economic viability of these loans can be assessed as follows:

$$\text{RAROC} = \frac{(\text{Interest Rate} * (1 - \text{ELR}^1) - \text{Internal Transfer Rate} - \text{ELR})}{\text{Capital at Risk}}$$

External Input / Computed  
1. Expected Loss Rate



This Risk Adjusted Performance (expressed as a spread) must be compared with lender's return target (also expressed as a spread over the risk free rate)

**RAROC > Target Rate - ITR**



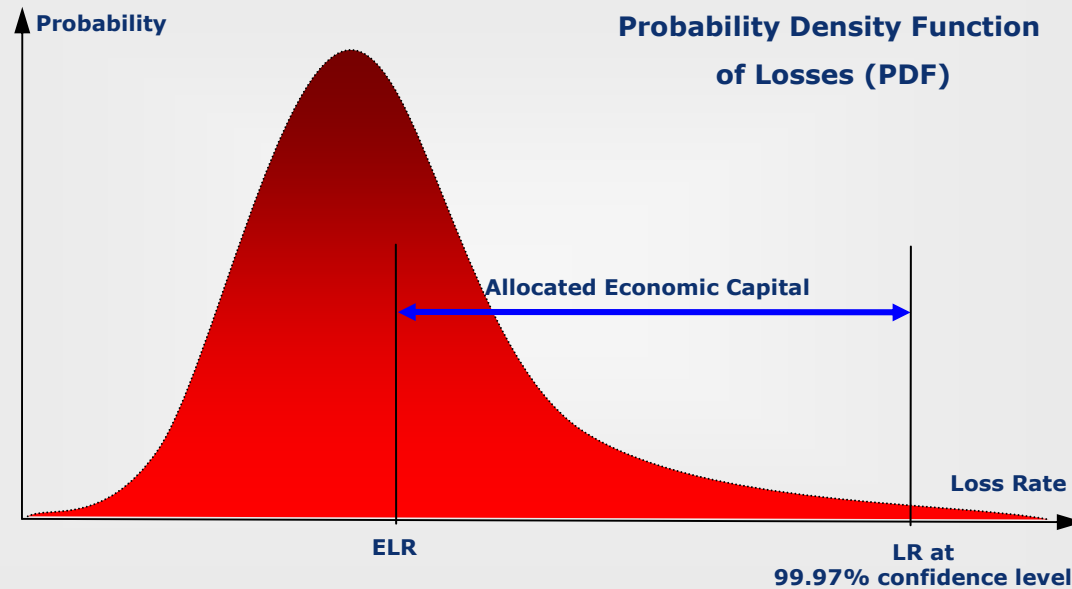
**Creating Value**

**RAROC < Target Rate - ITR**



**Destroying Value**

# Methodology – Capital Management



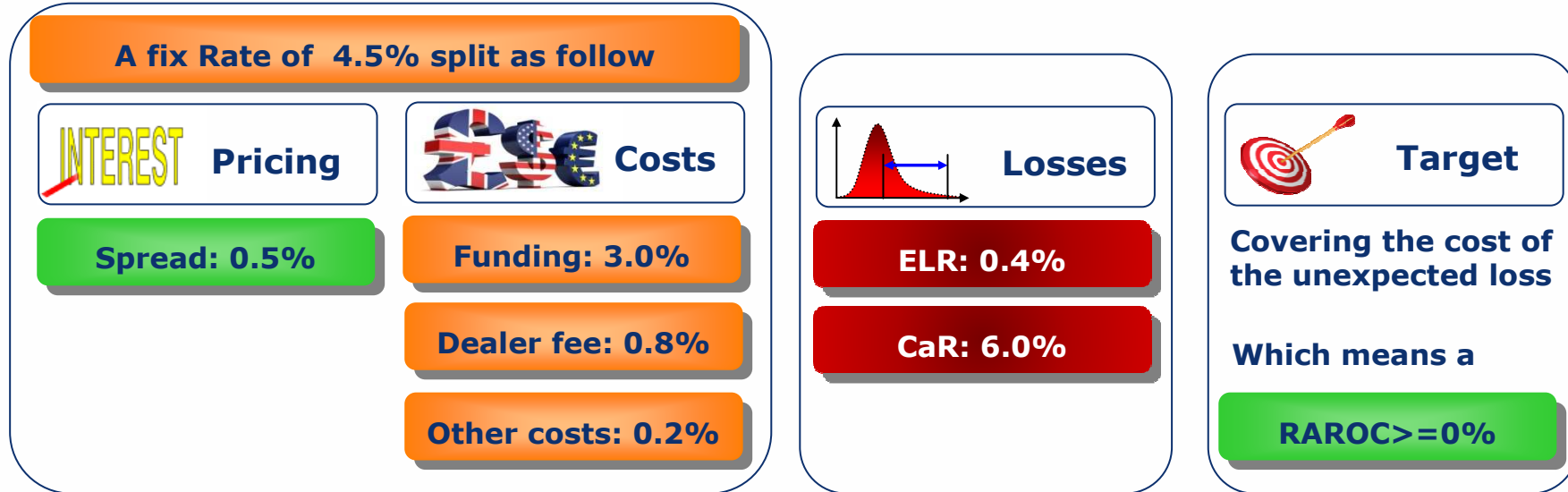
- **Capital at Risk** is the amount of capital needed to “reasonably” cover the risks being faced by a lender
- It can be measured using the concept of **Value at Risk**, as the maximum loss expected with a certain confidence interval, over a given period of time

There are many techniques to measure Capital at Risk, but in this case we use two specific approaches:

1. **Basel II model:** it measures capital requirements for regulatory purposes and is the most common in the Credit Industry
2. **Beta model:** another parametric approach used in order to define a more pessimistic scenario; empirical tests show that the Beta function is applicable, because of its asymmetric shape, which provides the highest value of CaR (higher unexpected losses)

# Methodology – RAROC: An Example

Suppose we have the following loan scenario:



From the previous equation we get:

$$\text{RAROC} = \frac{(4.5\% * (1 - 0.4\%) - 4\% - 0.4\%)}{6\%} = 1.6\%$$



**Creating Value**

## Results – Simulations (1)

The Credit Bureau Score at time of application was used to split the 2007 portfolio (booked) into 4 score bands.

For each score band, the Probability of Default, Expected Loss Rate and Capital at Risk were calculated.

Score Band	% Total	PD	ELR	Capital at Risk (Basel Formula)	Capital at Risk (Beta 99.97%)
High	1.8%	6.6%	3.0%	6.0%	8.1%
Medium-High	7.9%	4.1%	1.9%	5.7%	7.8%
Medium-Low	13.8%	2.9%	1.3%	5.3%	7.2%
Low	76.5%	0.8%	0.4%	3.6%	5.7%
<b>Total</b>	<b>100%</b>	<b>1.5%</b>	<b>0.7%</b>		

Credit Bureau Score at application time  
 Probability of Default at the end of loan term  
 LGD 45%    EAD 100%  
 CaR computed with the two approaches presented above

## Results – Simulations (2)

Several simulations were made changing the credit spread from a range of 30BP to 90BP. The following table shows the results for a spread of **70BP**:

Parameters: **Cost of funding 4.5%**

**Other costs 1.2%**

**Target Rate 5.7%**

Score Band	% Total	Min Spread*	RAROC	RAROC Band
High	1.8%	3.3%	-30.3%	Destroying Value
Medium-High	7.9%	2.3%	-20.0%	Destroying Value
Medium-Low	13.8%	1.2%	-7.4%	Destroying Value
Low	76.5%	0.4%	5.1%	Creating Value
Total	100%		1.8%	Creating Value

- For each score band we can measure:
  - Risk Adjusted Performance
  - Minimum requested credit spread to achieve the Target Rate
  - If these loans would create/destroy value

$$* \text{Min Spread} = \left[ \frac{(((\text{Target Rate} - \text{Costs}) * \text{CaR}) + \text{ELR} + \text{Costs})}{1 - \text{ELR}} \right] - \text{Costs}$$

## Results – Simulations (3)

The impact of the “**High Risk**” score band on the risk adjusted performance was calculated as follow:

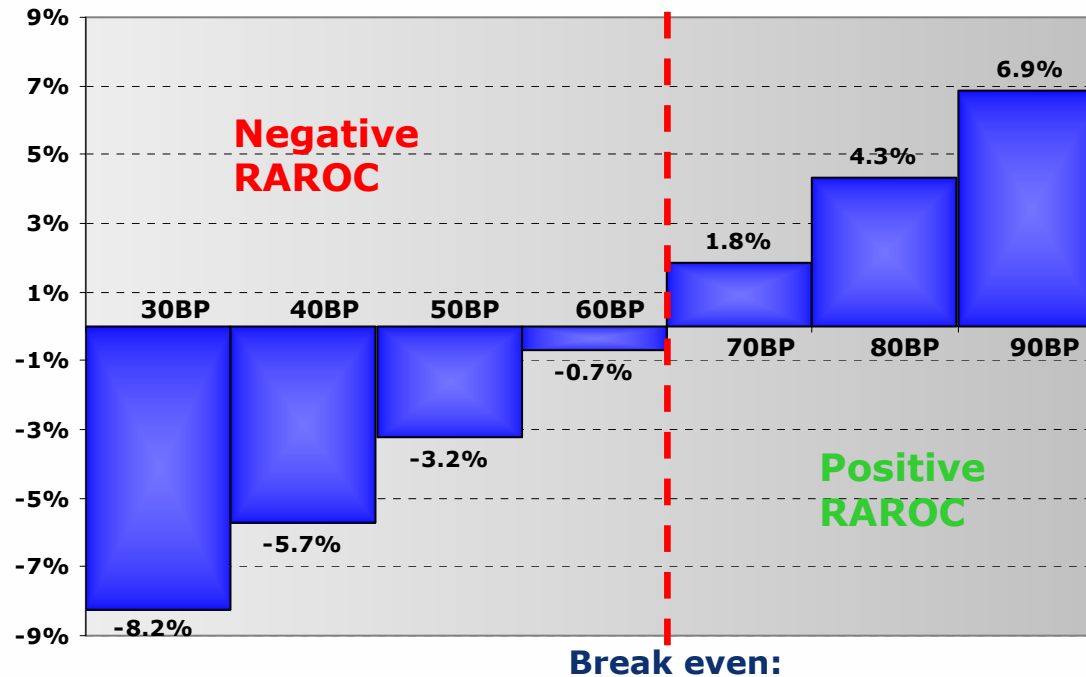
Score Band	% Total	RAROC	1. 20% overrides		2. 10% overrides		3. Without High Risk	
			% Total	RAROC (2)	% Total	RAROC (3)	% Total	RAROC (4)
High	1.8%	-30.3%	0.4%	-30.3%	0.2%	-30.3%		
Medium-High	7.9%	-20.0%	8.0%	-20.0%	8.0%	-20.0%	8.0%	-20.0%
Medium-Low	13.8%	-7.4%	14.0%	-7.4%	14.0%	-7.4%	14.1%	-7.4%
Low	76.5%	5.1%	77.6%	5.1%	77.8%	5.1%	77.9%	5.1%
<b>Total</b>	<b>100%</b>	<b>1.82%</b>	<b>100%</b>	<b>2.46%</b>	<b>100%</b>	<b>2.54%</b>	<b>100%</b>	<b>2.62%</b>

How RAROC changes under different hypothesis:

1. Accepting 20% of **High Risk** band
2. Accepting 10% of **High Risk** band
3. Rejecting all **High Risk** band

## Results - Economic Viability of this Market Sector

The Graph shows the Portfolio RAROC (Basel approach) for the chosen spread range.

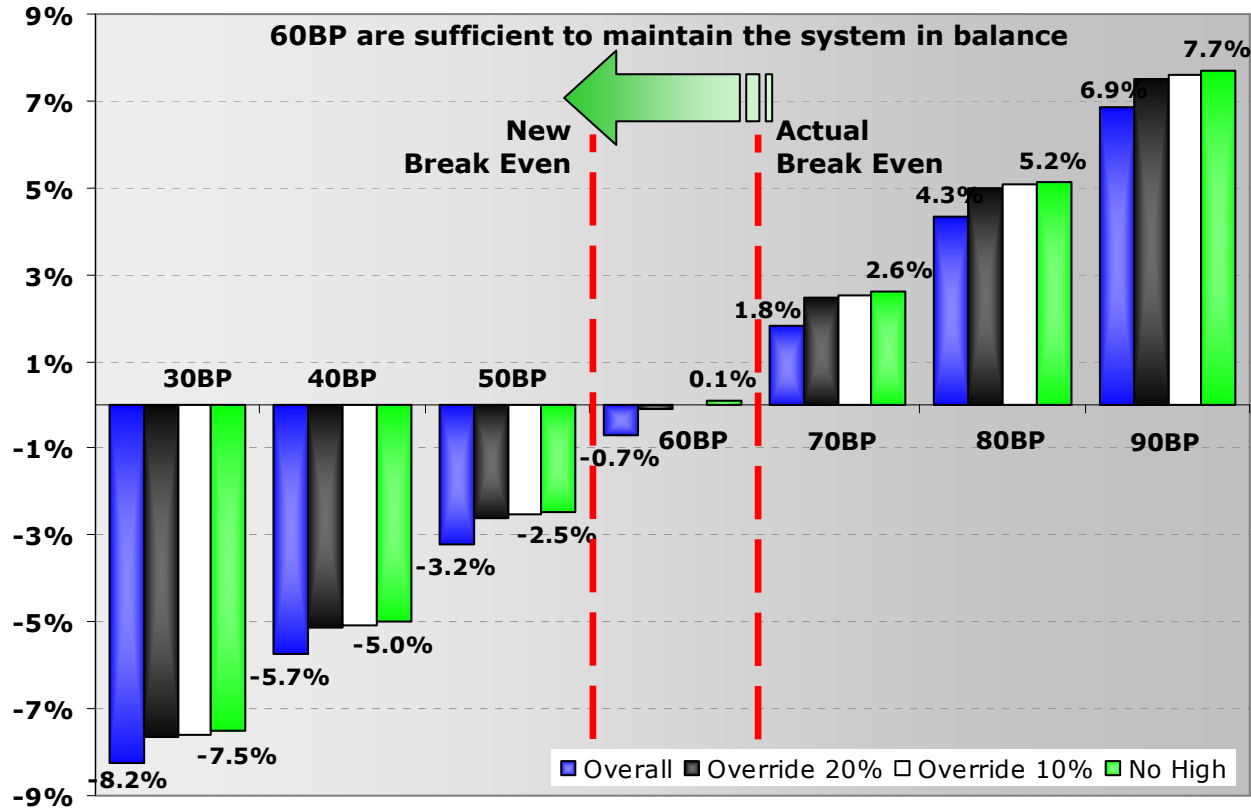


A credit spread of:

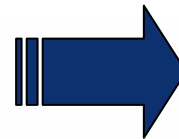
- 30BP means an acquisition cost of about 90€ per client
- 90BP means an earning of about 75€ per client

## Results – Credit Bureau Benefits

The Graph shows RAROC changes with specific credit policies for High Risk Score Band.

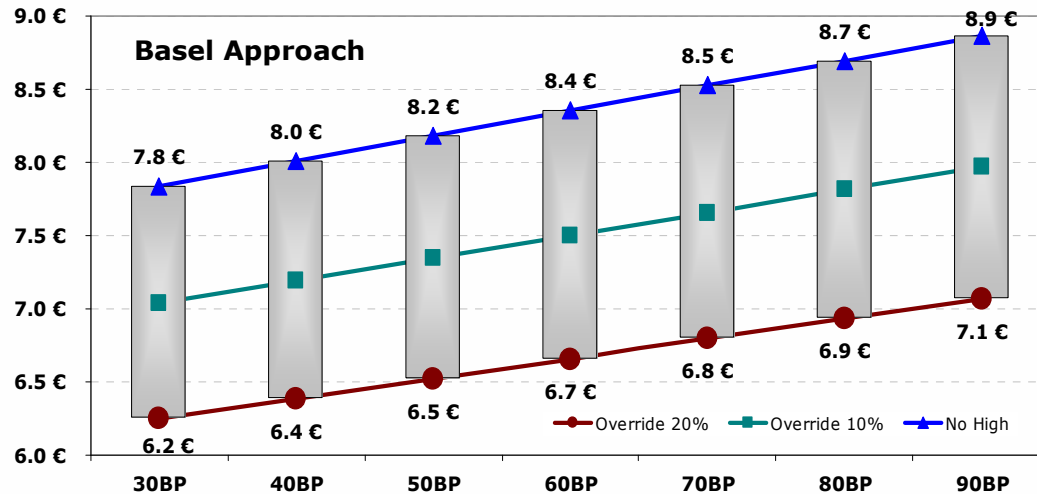


RAROC improvement  
is about 70/80 BP



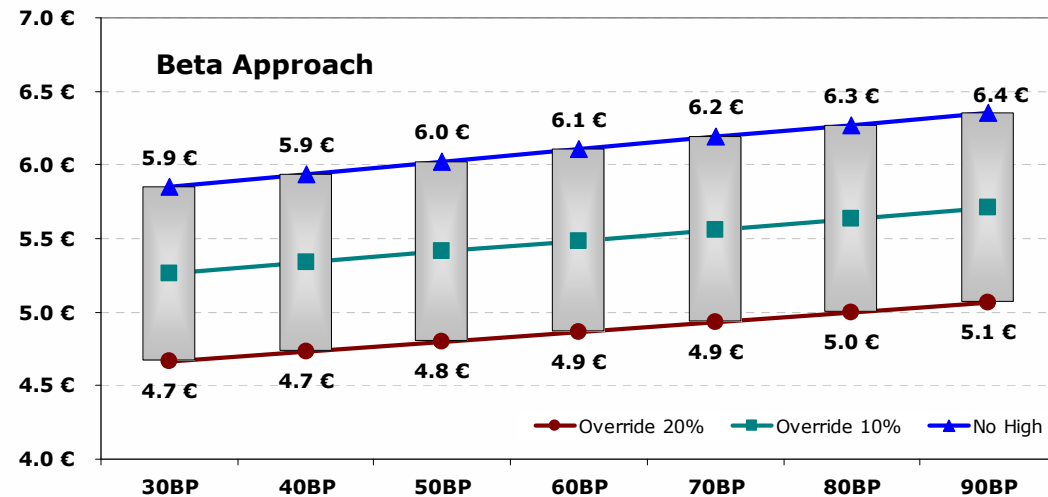
What does it  
mean  
in practice?

# Results – Credit Bureau Benefits



- The graph shows, for each applied credit spread, how the marginal profit per contract may change managing “high risk” clients
- Reducing the number of high risk clients may increase the average profit per contract from about 6€ to 9€.
- For a portfolio of 50,000 contracts per year (the average for the reference market), a premium of about 300,000-450,000€.

- Even in a more pessimistic scenario reducing the number of high risk clients may increase the average profit per contract from about 5€ to 6.5€.
- For a portfolio of 50,000 contracts per year (the average for the reference market), a premium of about 250,000-325,000€.



## Final Remarks

**Historically, not all Italian lenders have utilized the credit bureau data in decisioning for this specific type of portfolio.**

**This is due to:**

- **Low observed risk of default**
- **Reduced fixed costs from not purchasing the credit bureau data**

**This paper demonstrates that the risk is low, *but*:**

- **A small portion of the portfolio has a large impact on the risk adjusted profitability because of the low credit spreads applied**
- **Managing risk via credit bureau data is an opportunity to create more economic value**

**Thank you**

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