

# Calculation Methodology: Vintage Analysis a model or disclosure? How can I use it for Loss Rate Projection?

**NC STATE UNIVERSITY**

Financial Mathematics Program

## Introduction

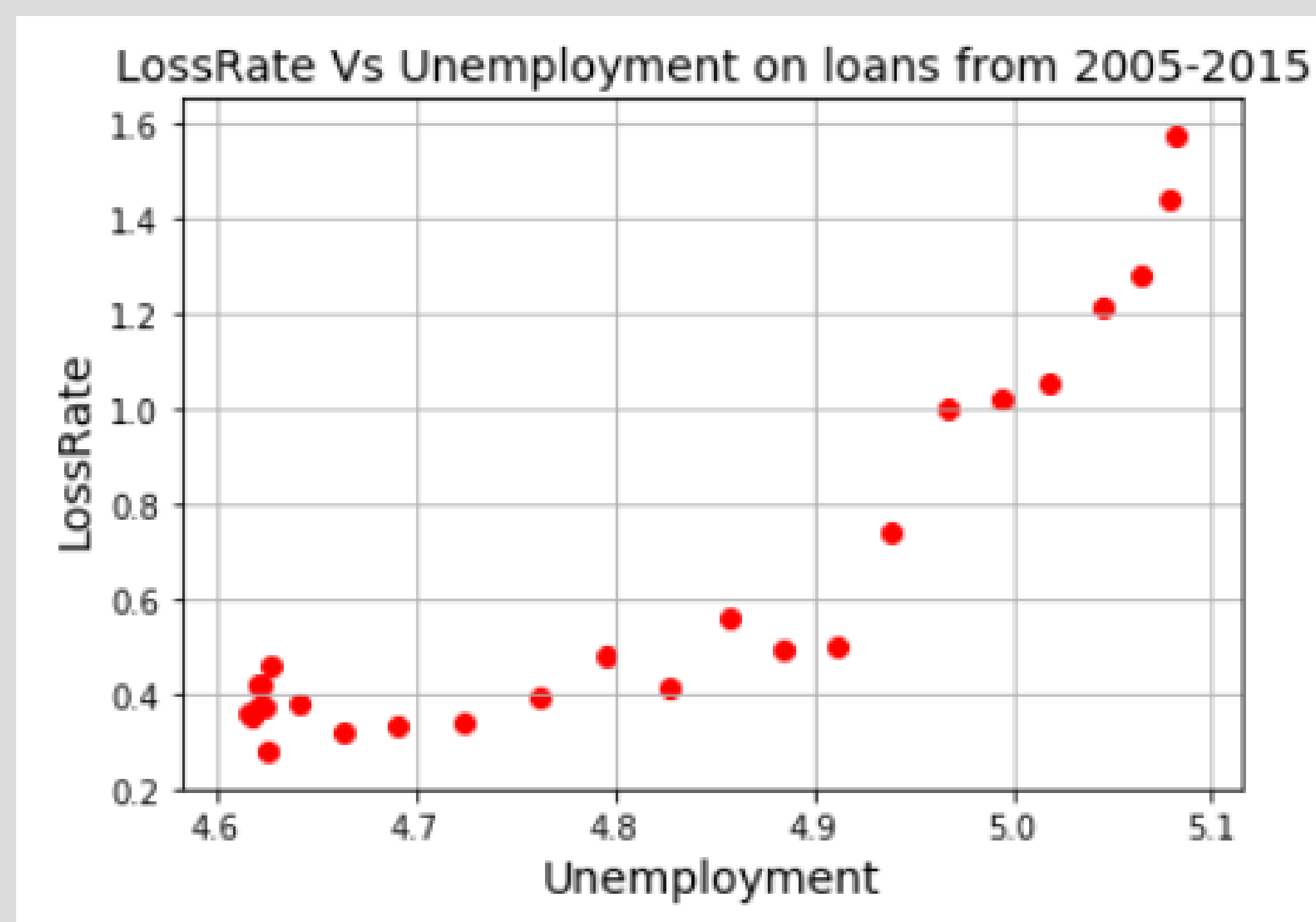
- Vintage analysis measures losses based on the origination data and the historical performances of loans with similar risk characteristics.
- Vintage methodology works well with loans that follow patterns similar and predicative for subsequent generations of loans (homogeneous).
- Vintage analysis requires segmentation of the loan portfolio, with the additional requirement that loans be stratified by origination period.

## Forecasting loss rates based on Q factor and Historical losses

Loss rate forecasting							
Origination	Y1	Y2	Y3	Y4	Y5	Y6	
2005	0.00%	0.03%	0.13%	0.28%	0.52%	1.04%	
2006	0.01%	0.09%	0.40%	0.86%	1.68%	0.78%	
2007	0.01%	0.19%	0.74%	1.83%	0.89%	0.78%	
2008	0.01%	0.24%	0.83%	0.98%	0.89%	0.78%	
2009	0.00%	0.04%	0.61%	0.98%	0.89%	0.78%	
2010	0.00%	0.16%	0.61%	0.98%	0.89%	0.78%	
Average	0.01%	0.12%	0.53%	0.99%	1.10%	1.04%	
LOSS/Q Fact	0.15%	1.77%	7.23%	12.03%	11.64%	10.83%	

Pros	Cons
<ul style="list-style-type: none"> <li>• Initial CECL loss rate calculation is simplified</li> <li>• Easy to understand</li> </ul>	<ul style="list-style-type: none"> <li>• Database modeling techniques required</li> <li>• Still a long way to go on the analysis of Q factors</li> </ul>
<ul style="list-style-type: none"> <li>• Information can be used by public business entities when completing the required vintage footnote disclosures</li> </ul>	<ul style="list-style-type: none"> <li>• Not the most precise methodology and likely result in a higher expected losses estimates.</li> </ul>

## Selecting Q- Factor, based on historical regressions on losses



## Forecast of Q-factor- Unemployment rates

Future unemployment rate							
Origination	Y1	Y2	Y3	Y4	Y5	Y6	
2005	5.10%	4.60%	4.60%	5.80%	9.30%	9.60%	
2006	4.60%	4.60%	5.80%	9.30%	9.60%	8.90%	
2007	4.60%	5.80%	9.30%	9.60%	8.90%	8.10%	
2008	5.80%	9.30%	9.60%	8.90%	8.10%	7.40%	
2009	9.30%	9.60%	8.90%	8.10%	7.40%	6.20%	
2010	9.60%	8.90%	8.10%	7.40%	6.20%	5.30%	
Average	6.50%	7.13%	7.72%	8.18%	8.25%	7.58%	

## Historical loss rate based on vintages/Origination year

Historical loss rate							
Origination	Y1	Y2	Y3	Y4	Y5	Y6	
2005	0.00%	0.03%	0.13%	0.28%	0.52%	1.04%	
2006	0.01%	0.09%	0.40%	0.86%	1.68%		
2007	0.01%	0.19%	0.74%	1.83%			
2008	0.01%	0.24%	0.83%				
2009	0.00%	0.04%					
2010	0.00%						
Average	0.01%	0.12%	0.53%	0.99%	1.10%	1.04%	
LOSS/Q Fact	0.15%	1.77%	7.23%	12.03%	11.64%	10.83%	

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