Monitoring and Forecasting Trends in the UK Credit Industry

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Credit Scoring and Credit Control X, Edinburgh 2007

Agenda

- Introduction
- Objectives and Key Components
- Data
- Solution overview
- Further work

Introduction

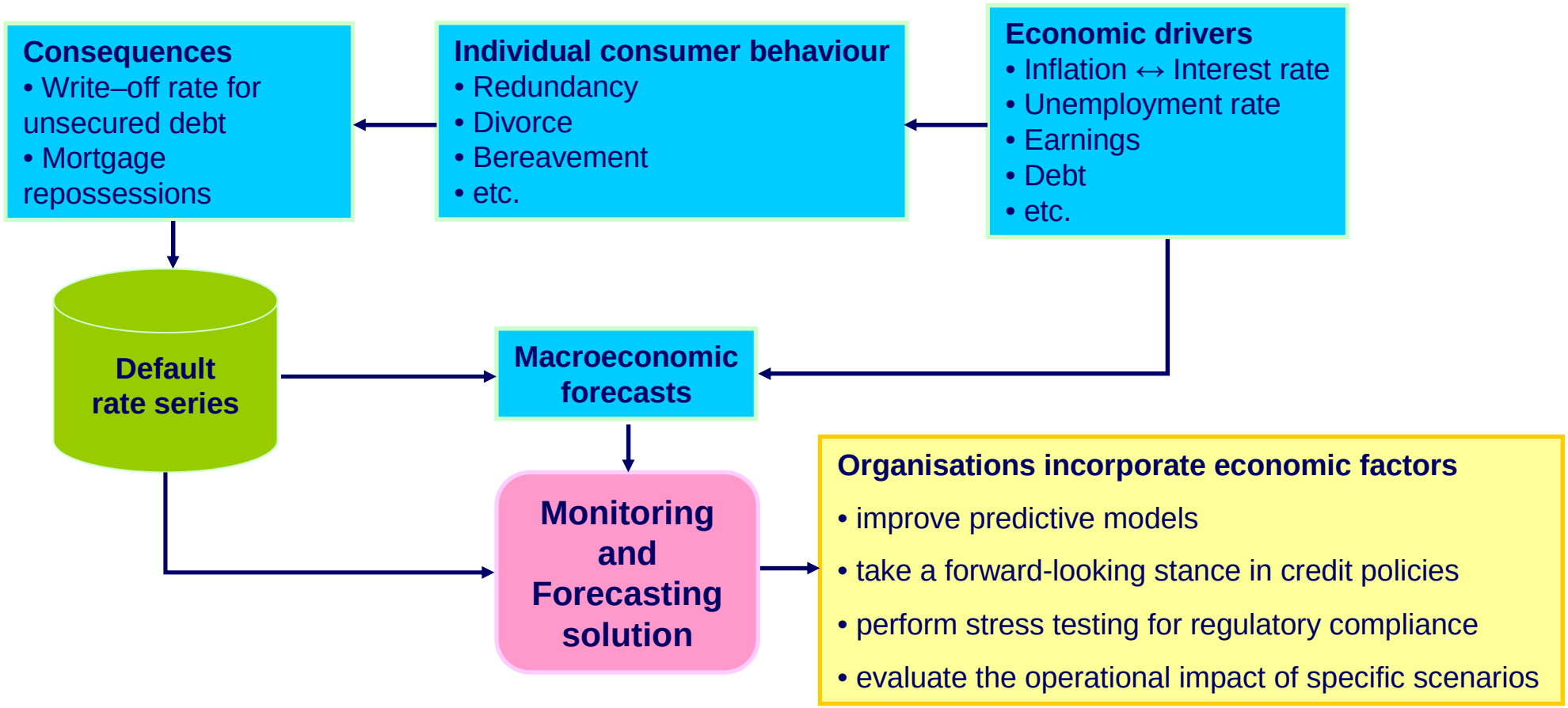
- Decision Analytics
  - Extract information from data
    - Predictive models for credit and fraud
    - Optimisation
  - Consultancy
  - Strategy Management Software

- Business Strategies
  - Consumer profiling
  - Market segmentation
  - Research into drivers of social, economic and market change
  - Economic forecasting

Introduction - rationale

- Economic change impacts on the amount consumers want to borrow, the speed at which they repay, and their likelihood of default
- Keeping informed of this change is necessary to make the best decision possible when managing existing customers or acquiring new ones
- However, performance differs significantly across consumer segments. Understanding the impact on the organisation/portfolio requires, therefore, a granular approach

Introduction – Information flow



Introduction - Economic Scenarios

Press release - Experian Business Strategies (April 2007)

Figure 1: Write-off Rates (unsecured lending)

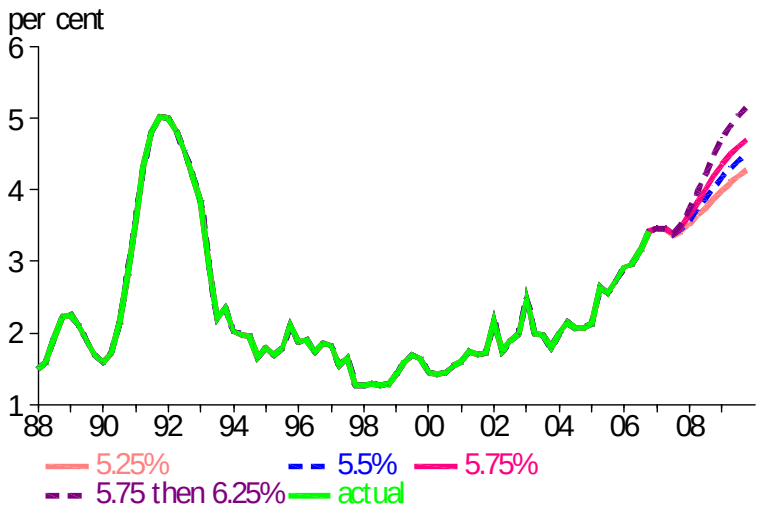
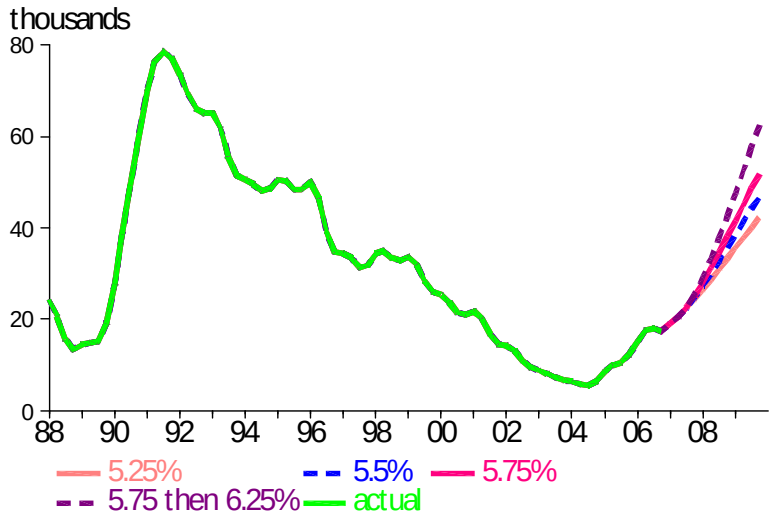
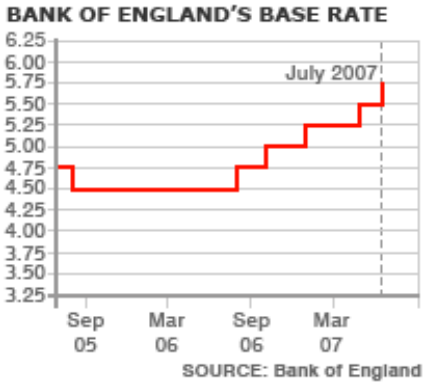


Figure 2: Repossessions



1. **Rates stay at 5¼%**
2. **¼ point increase to 5½% in May and no further change, up or down, until after 2009.**
3. **½ point increase to 5¾% in May and no further change, up or down, until after 2009.**
4. **½ point increase to 5¾% in May and a further ½ point increase to 6¼% in July followed by no further change, up or down, until after 2009.**



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Objectives and Key Components

Objectives

- Monitor Credit Industry trends based on new applications for credit
- Use credit industry and significant macroeconomic trends to forecast future consumer default rates
- Provide forecasts at 'risk segment' (i.e. score band) level
- Provide regular updates to the consumer credit industry on the latest trends and forecasts

Key Components

- Aggregated data source that provides a consistent default rate measure over time for a wide range of risk segments (unsecured lending)
- Mosaic-level macroeconomic default rate models
- Quarterly reporting and forecasting service
- On-going development

Mosaic UK classifies all UK consumers into 61 distinct lifestyle types within 11 groups which comprehensively describe their socio-economic and socio-cultural behaviour

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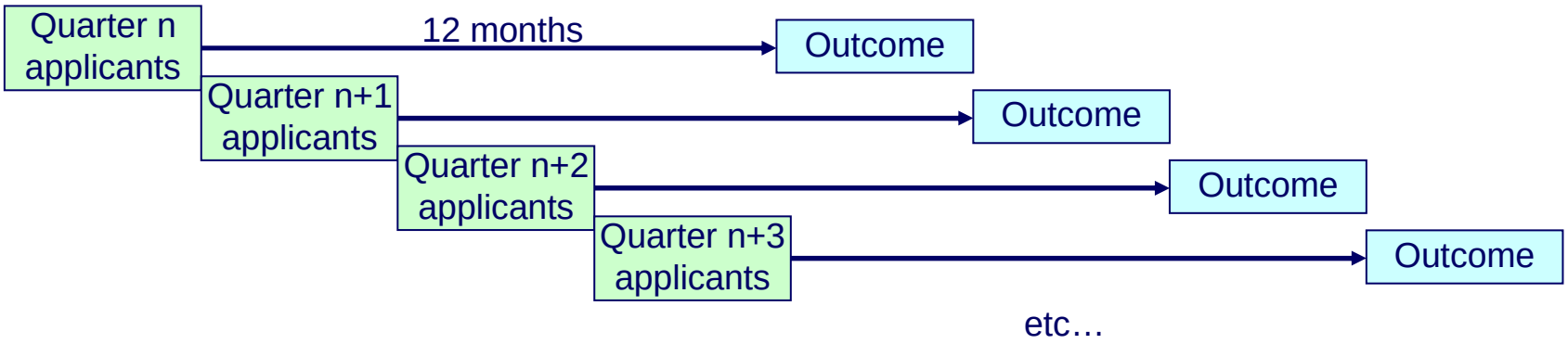
Data part 1: Default rates series

Reciprocity/confidentiality: SCOR

- Large sample of credit applications every quarter (ECAPS)
- Unsecured lending sectors (Retail and Banking & Finance) separated
- Latest Delphi for New Business score - consistent risk measure
- Standard G/B definition - 12 months outcome
- Construct default rate series by risk segment for the recent period
- Aggregation smoothes out fluctuations



Data part 2: Macroeconomic models

- Construct default rate series
  - Requires extended time period - CAIS data
  - Mosaic type level
- Example Mosaic UK types: Corporate Chieftains, Town Gown Transition, Greenbelt Guardians
- Model each observed Mosaic default rate series

Aside – Corporate Chieftains

Top business people returning late at night to their big houses in extensive grounds.

Alistair and Penelope

Key Features

- Married
- Teenage children
- Private education
- Movers and shakers
- Senior managers
- Corporate careers
- Large homes in suburbs
- Extensive investments
- Confident

Musselburgh, EH21

Top Postal areas

- Slough (SL)
- Kingston (KT)
- Watford (WD)
- St Albans (AL)
- Hemel Hempstead (HP)

Aside - Town Gown Transition

Students and academics mix with young professionals in terraces close to universities

Tom and Kate

Key Features

- Singles
- Mature students
- Postgraduates
- Idealistic & headstrong
- Freedom before career-dom
- Low incomes
- Alternative lifestyles
- Liberal minded
- Socialising with friends

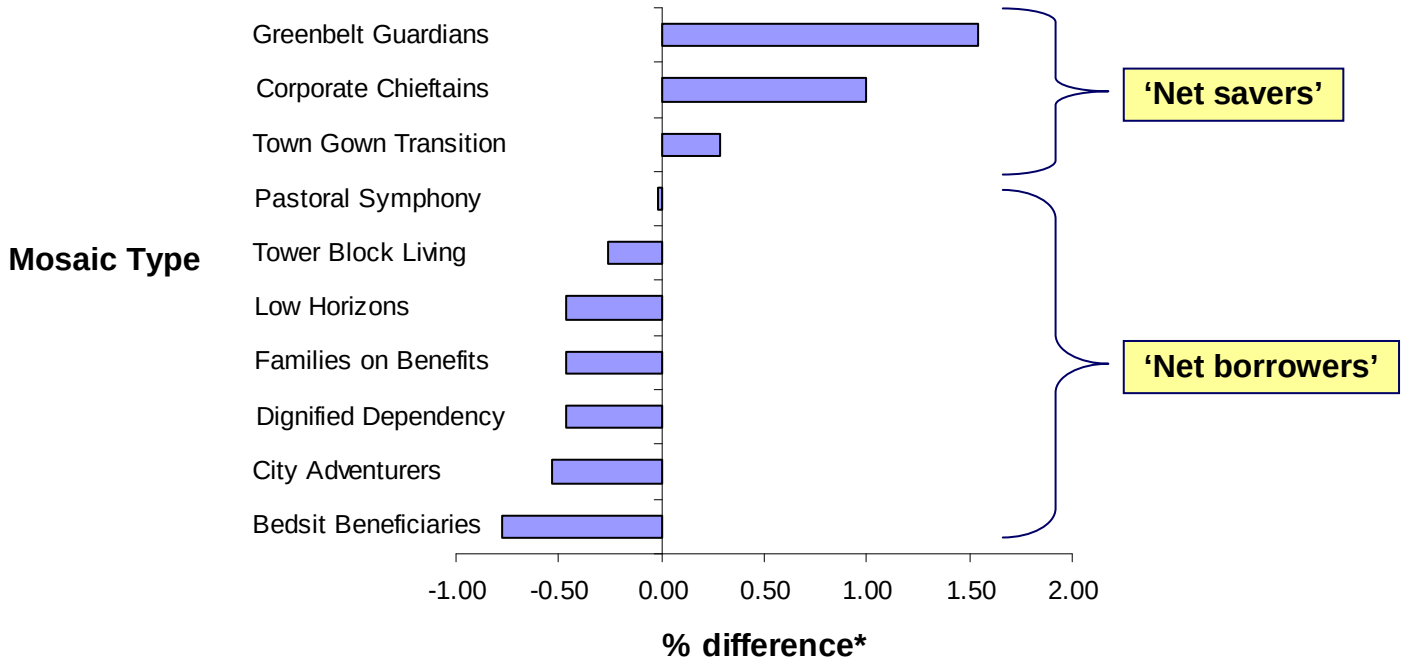
Plymouth, PL4

Top Postal areas

- London (WC)
- Edinburgh (EH)
- Oxford (OX)
- Southampton (SO)
- Leeds (LS)

Aside - Impact of Interest rate increases

Impact of Interest Rate Increases since mid-2006 on Disposable Incomes in 2007 by Mosaic Type



* per cent difference from what they would otherwise have been

Data part 2: Macroeconomic models

- Construct default rate series
  - Requires extended time period - CAIS data
  - Mosaic type level
- Example Mosaic types: Corporate Chieftains, Town Gown Transition, Greenbelt Guardians
- Model each observed Mosaic default rate series

$$\ln\left(PD_{m,t}\right) = \beta_1 \ln\left(PD_{m,t-1}\right) + \beta_2 \ln\left(GEARING_{m,t-1}\right) + \beta_3 \ln\left(\frac{LIAHON_{m,t-1}}{DISPINC_{m,t-1}}\right) + \beta_4 \Delta \ln\left(UNEMPLT_{m,t-1}\right) + \beta_0 + r_t$$

$$GEARING_{m,t} = \frac{(INTRATEM_t.CDWELHHN_{m,t} + INTRATEU_t.CCREDHHN_{m,t})}{(DISPINC_{m,t} + INTRATEM_t.CDWELHHN_{m,t} + INTRATEU_t.CCREDHHN_{m,t})}$$

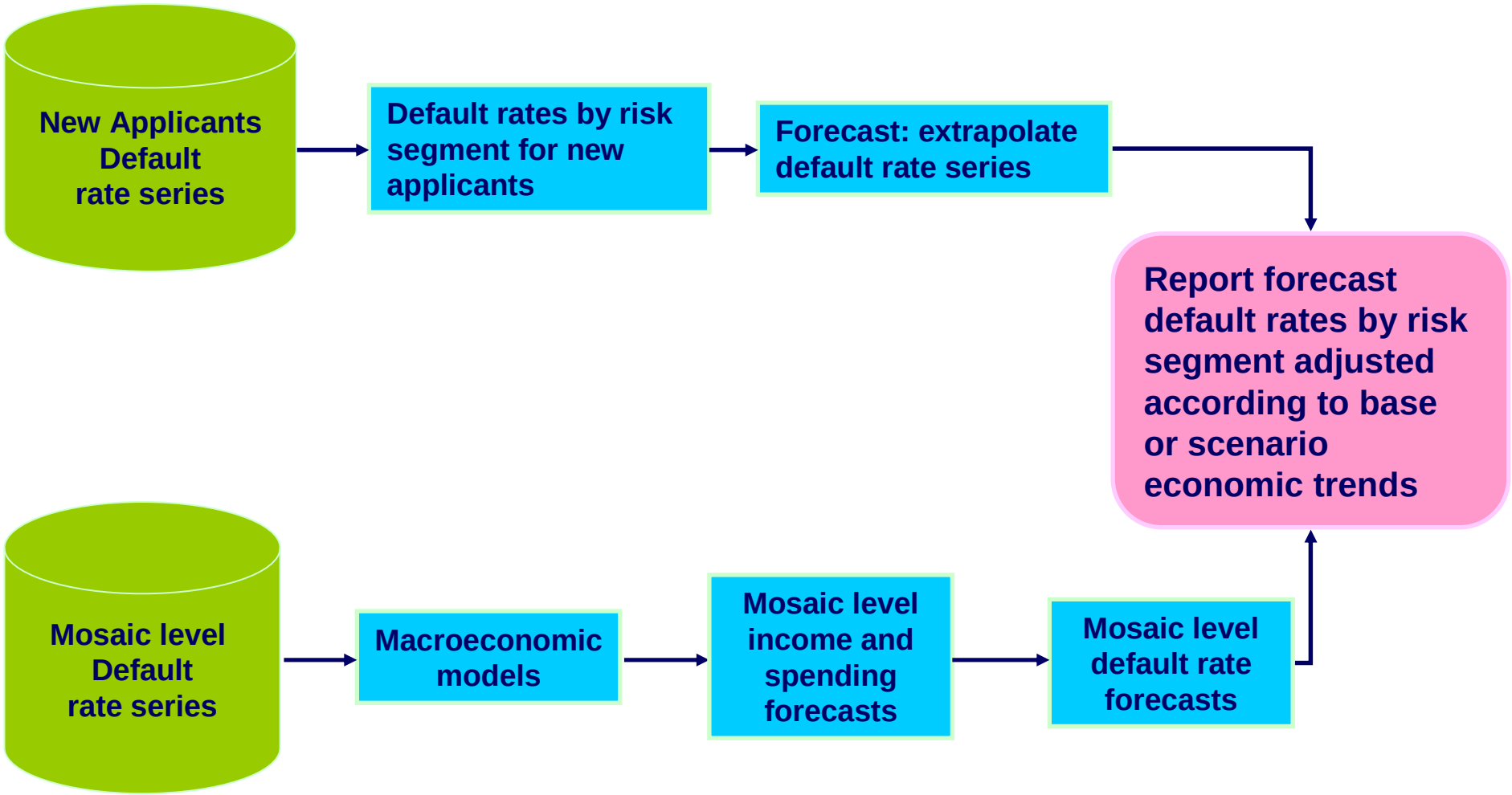
GEARING	=	Income gearing
LIAHON	=	Financial liabilities of households
DISPINC	=	Disposable income (after interest payments)
UNEMPLT	=	Long-term unemployment rate
INTRATEM	=	Average interest rate on mortgages
CDWELHHN	=	Mortgage debt outstanding
INTRATEU	=	Average interest rate on unsecured debt
CCREDHHN	=	Unsecured debt outstanding

Data part 2: Macroeconomic models

Use the PD models to evaluate the impact of specific economic scenarios for each Mosaic type

- Interest Rate Changes
- Unemployment Changes

Data flow



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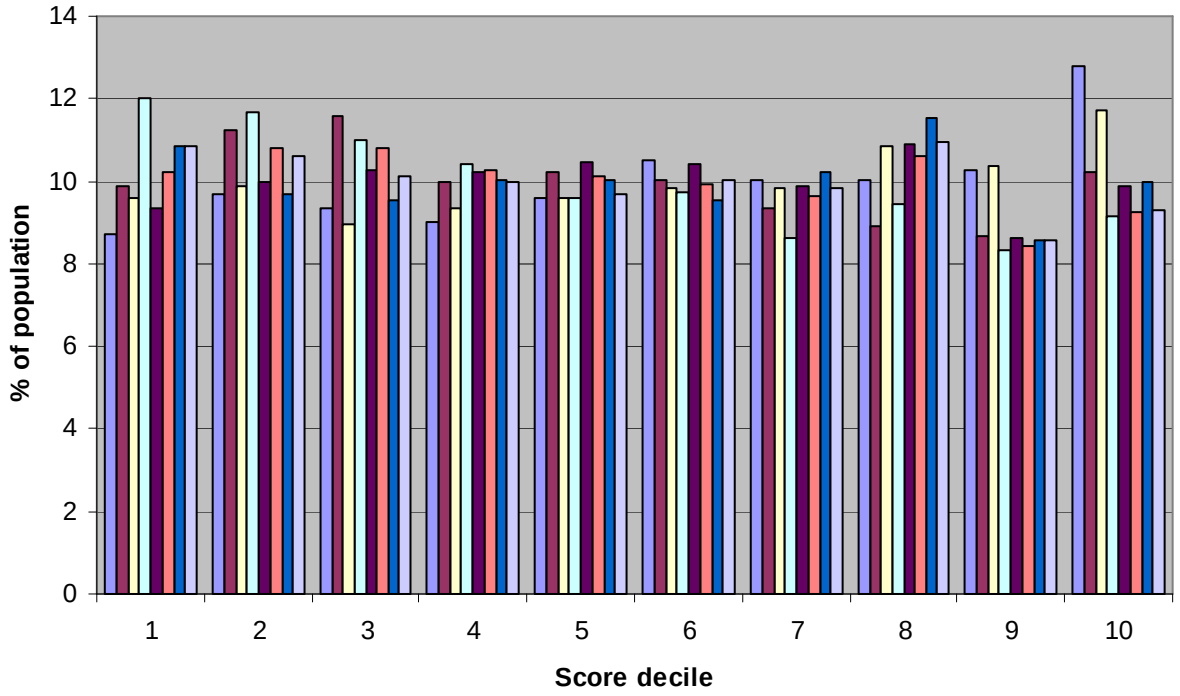
The Consumer Credit Monitor Report

- Population stability and Score robustness
- Extrapolation of Observed Default rates
- Macroeconomic forecasts
- Adjustment to Default rate extrapolations
- Conclusions

Population stability

Retail Sector Score distribution by Risk segment and Quarter



Key

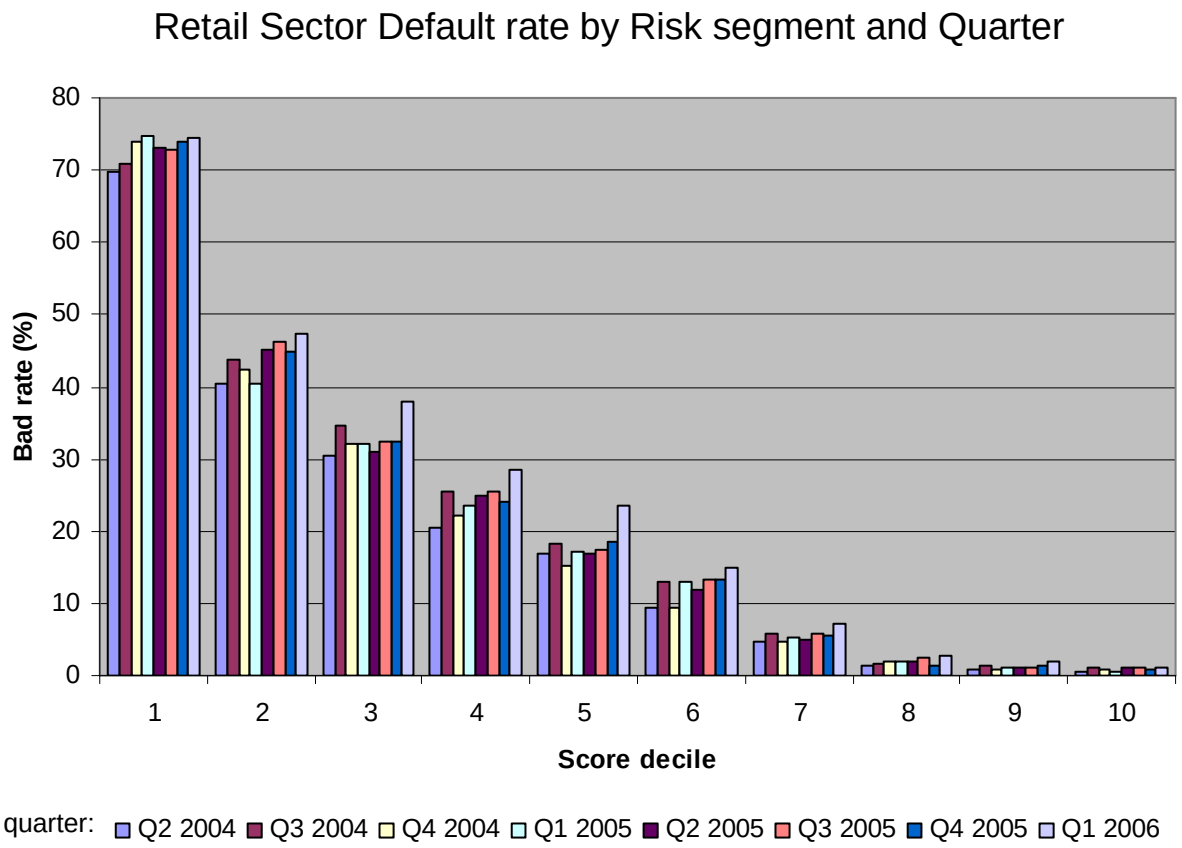
Observation quarter: (ie. Quarter in which application was made)

Q2 2005 Q3 2005 Q4 2005 Q1 2006 Q2 2006 Q3 2006 Q4 2006 Q1 2007

Risk segments: score deciles based on samples for the last 4 complete Quarters up to the present

Score robustness

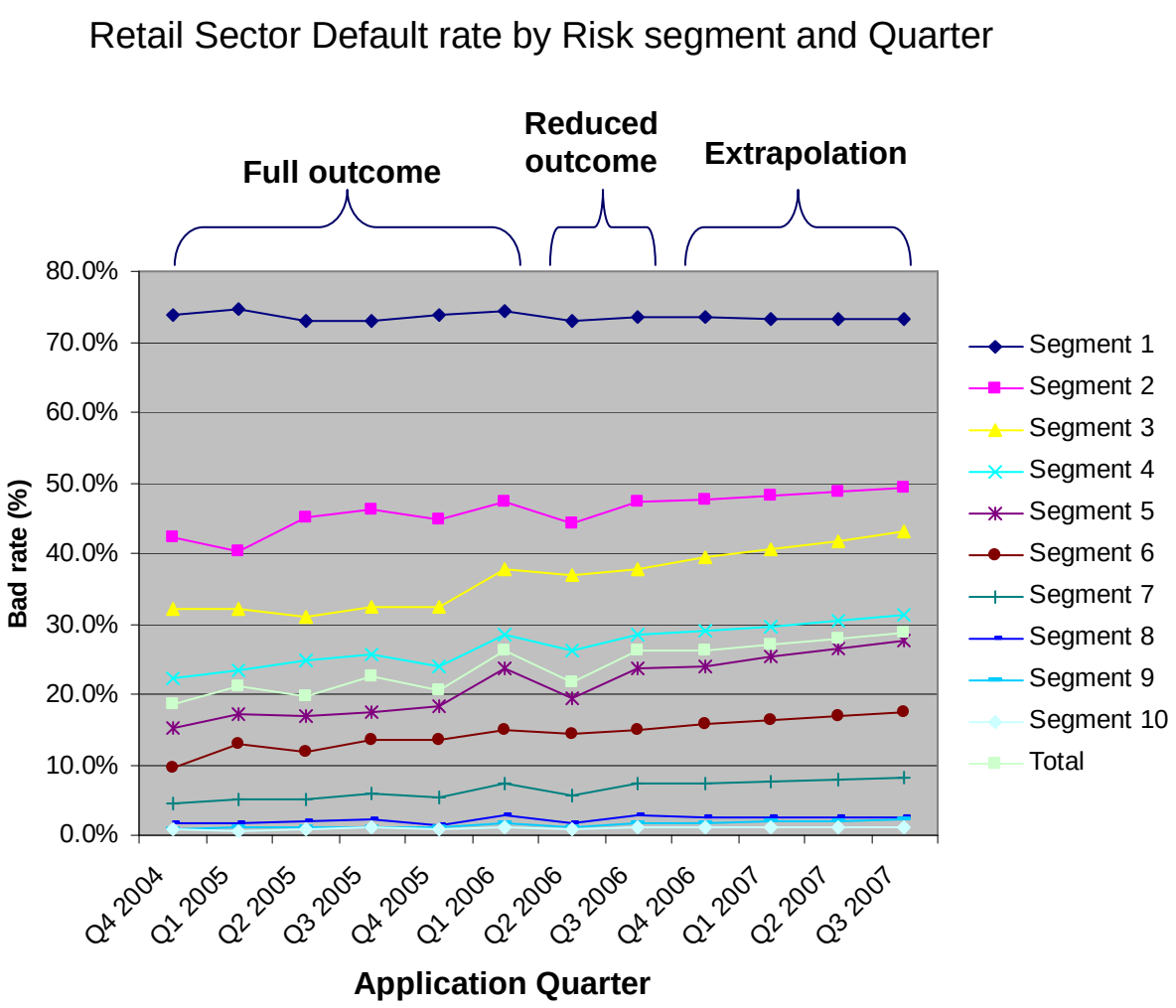
1.



2. Gini index variation over time

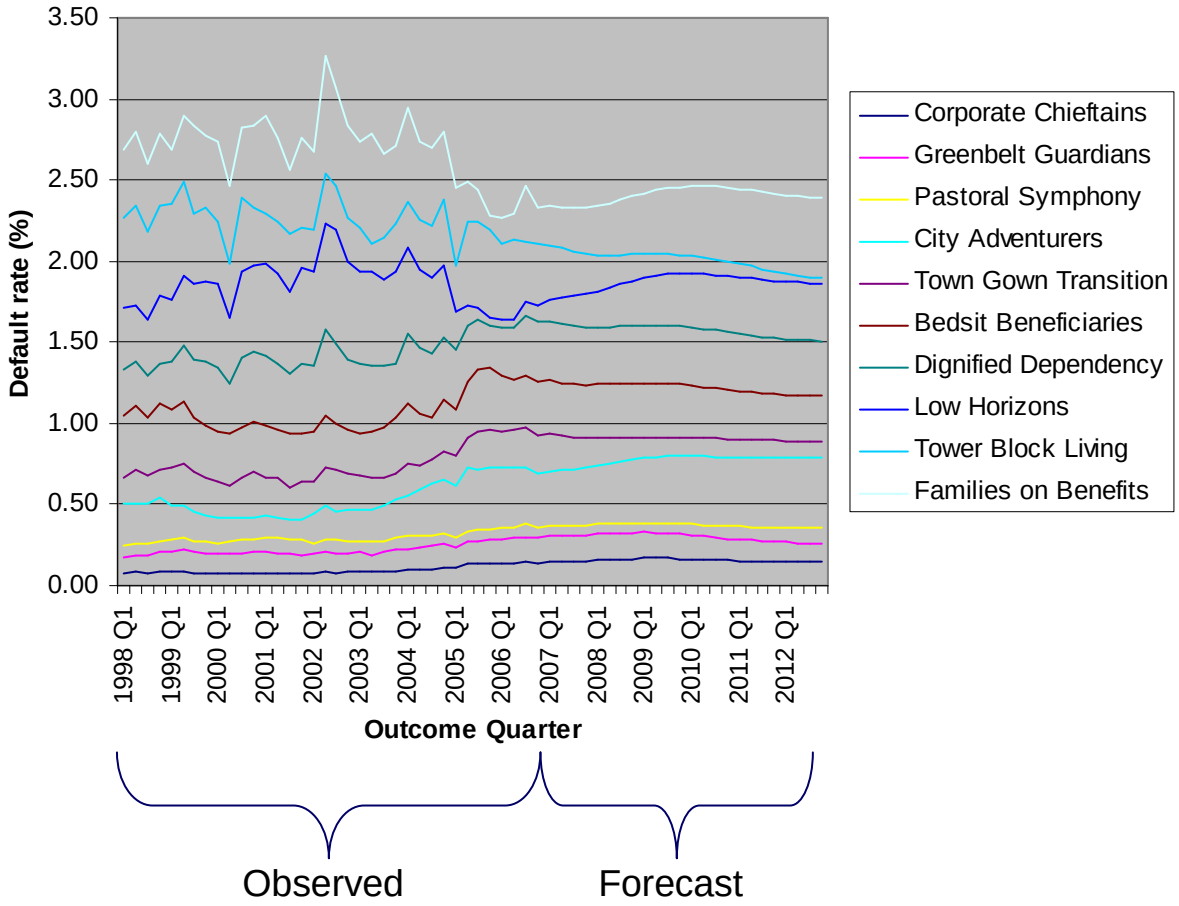
Extrapolation of Observed Default rates

- ‘Status quo’ economic scenario
- Observe trend with full outcome over 18 months
- Enhance with ‘scaled up’ rates where only 6 or 9 months outcome available
- Weight recent data preferentially

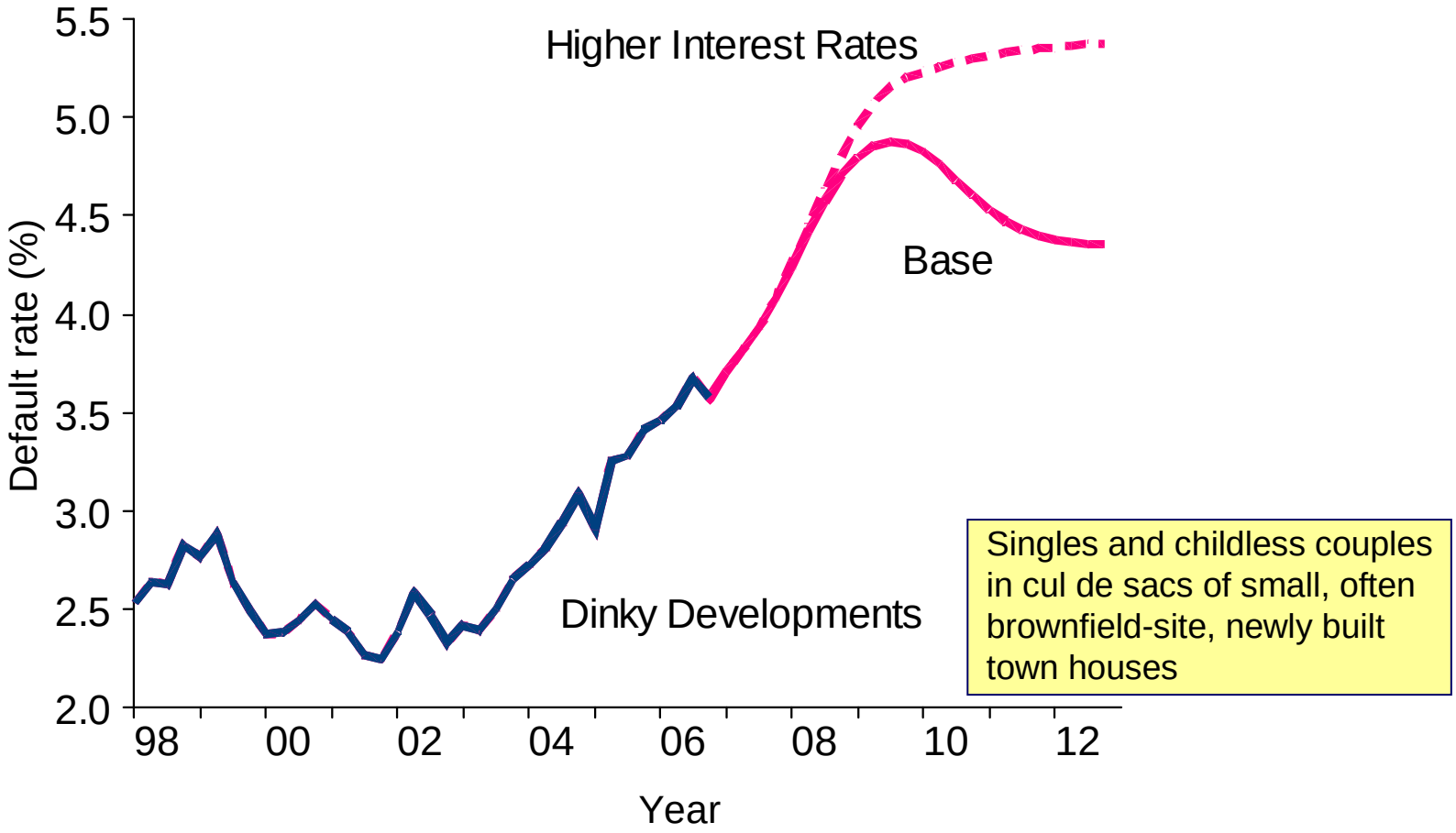


Macroeconomic forecasts

Observed and Forecast Default rate by Mosaic Type – Expected (base) economic scenario

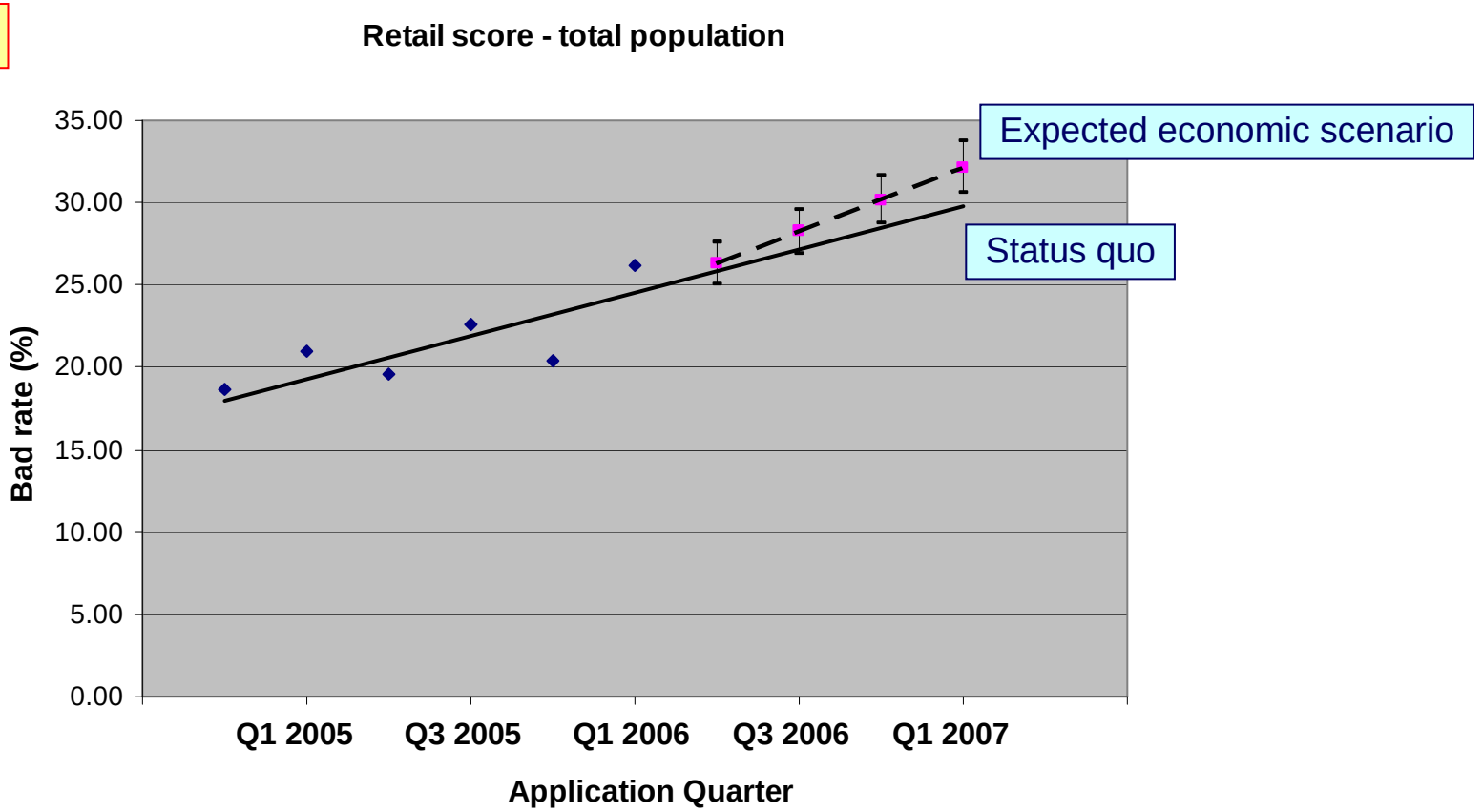


Macroeconomic forecasts - alternative scenario



Adjustment to Default rate extrapolations

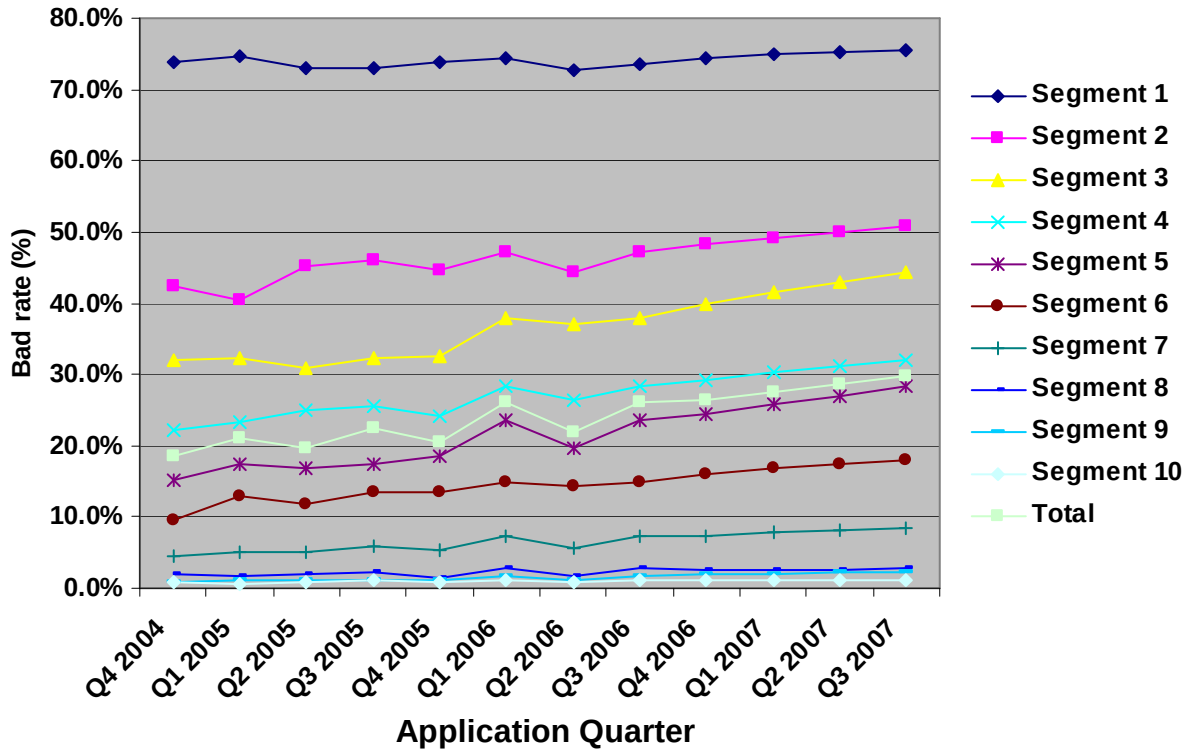
For illustration



Adjustment to Default rate extrapolations

For illustration

Retail Sector Default rate by Risk segment and Quarter

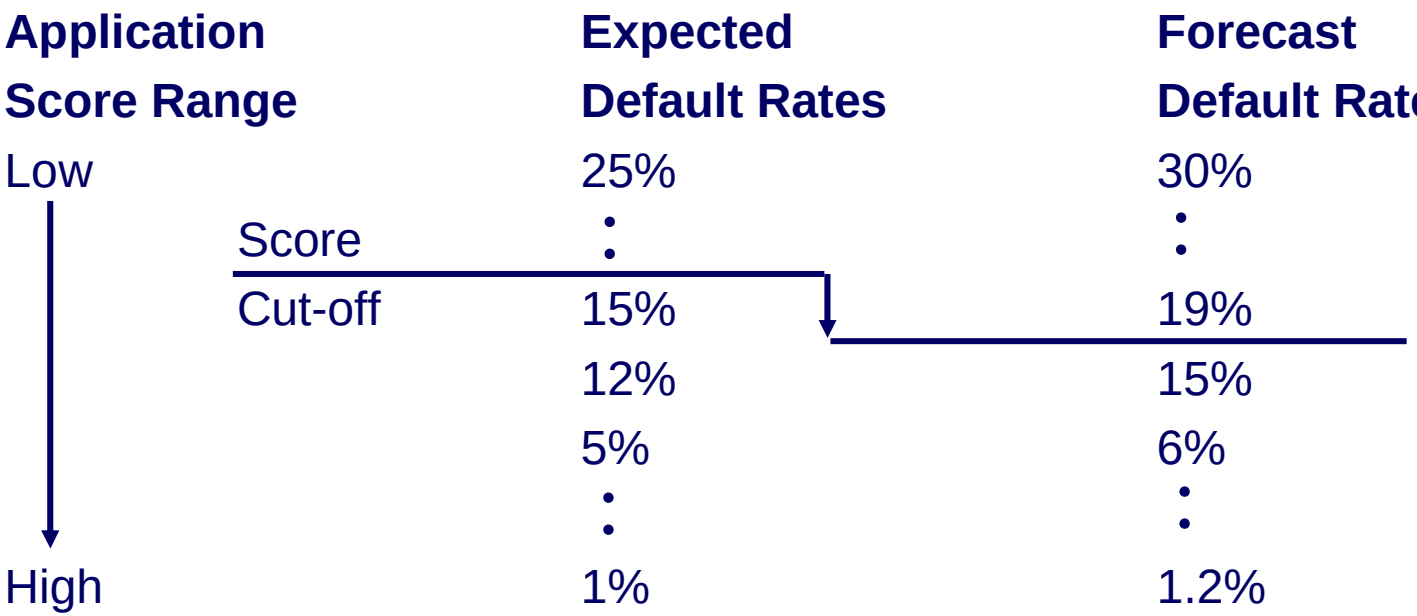


Application of the Default Rate Forecasts

Application Score Range	Expected Default Rates
Low	25%
	⋮
Score Cut-off	15%
	12%
	5%
	⋮
High	1%

Expected default rates calculated from scorecard development sample observation period

Application of the Default Rate Forecasts



Expected default rates calculated from scorecard development sample observation period

Forecast default rates calculated for the next 3 months based on most likely economic scenario

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Further work

CCM Roll-out

- Better, forward-looking, risk-adjusted strategies
  - Targeting, origination, facilities management, collections, revenue growth
- Evaluation of the unexpected (and better communication to financial markets)
  - Volatility, stress
- Compliance
  - Basel II/CRD

Next Steps

- More systematic adjustment of forecast default rates
- Impact of different macroeconomic scenarios
- Longer term forecasts

Questions