

# Using SAS® Stored Processes To Build a Calibration Tool

Potential  
of One

Power  
of  
**All**

# Using SAS® Stored Processes To Build a Calibration Tool

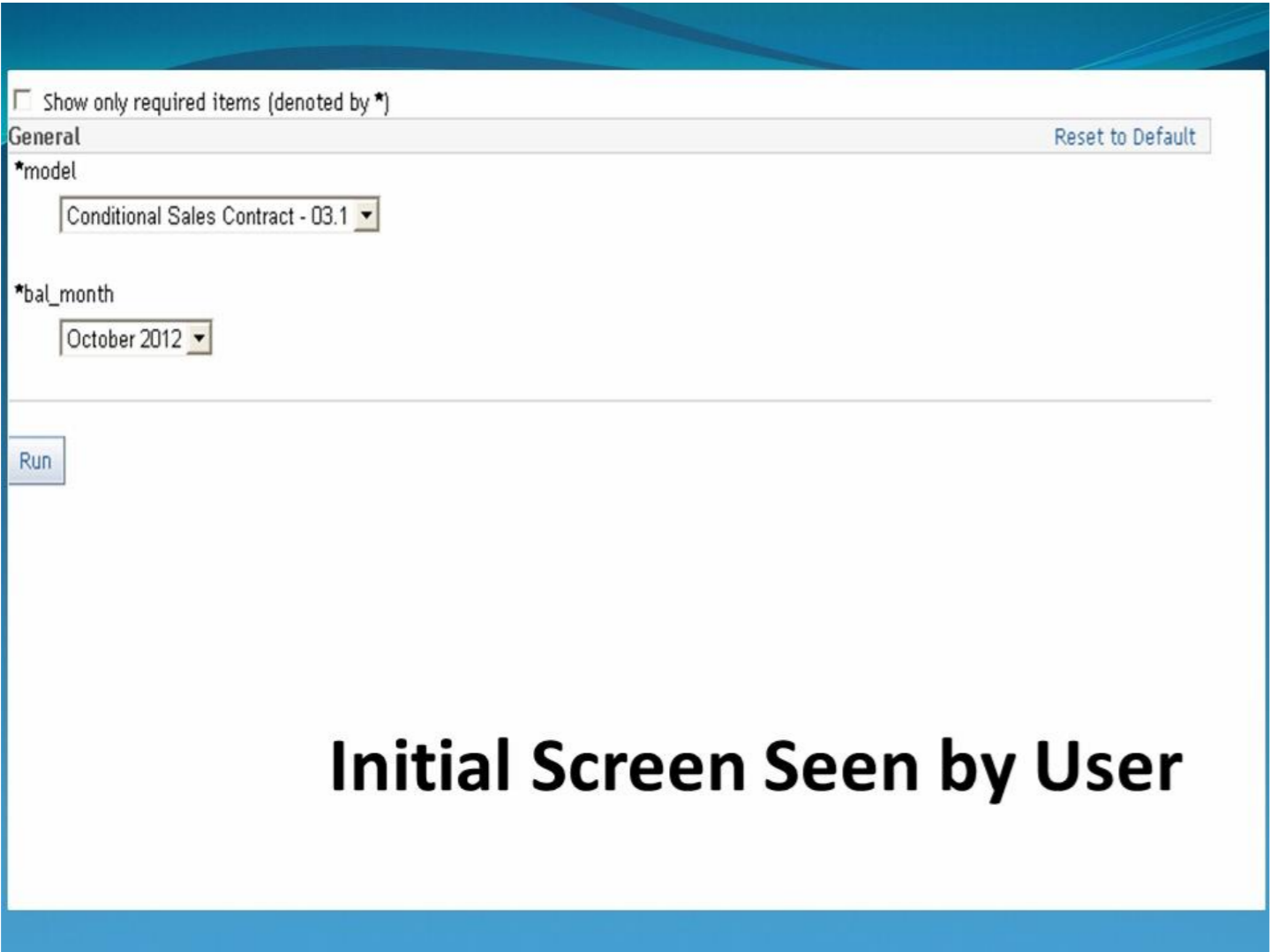
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### Abstract

In the past calibration was done using extremely complicated macros in Base SAS to create an excel workbook with multiple linked spreadsheets making it hard to audit, not reliably or replicable and open to user error. The task was to create a replicable, auditable and locked down application that allowed the user to change certain parameters and allowed them to see the impact of those changes without needing to code. SAS stored processes are used to generate a screen split into 3 sections, one showing static reporting, the second is a data driven custom input form and the third shows test results.

The most important part of the whole process is to know your data and understand what the user needs. For this application response time was the most important part of the process.



Initial Screen Seen by User

### Objective

- Auditable**  
The original spreadsheet allowed users to change the data. The Calibration Tool only allows the user to change parameter inputs.
- Replicable**  
The original spreadsheet allowed users to change anything including data, formulas and parameters and there was no way to replicate. The Calibration Tool only allows parameter inputs to change and each change is captured in SAS tables and can be fully replicated.
- More Secure**  
The Calibration Tool locks down input data and code allowing users to only change the input parameters.

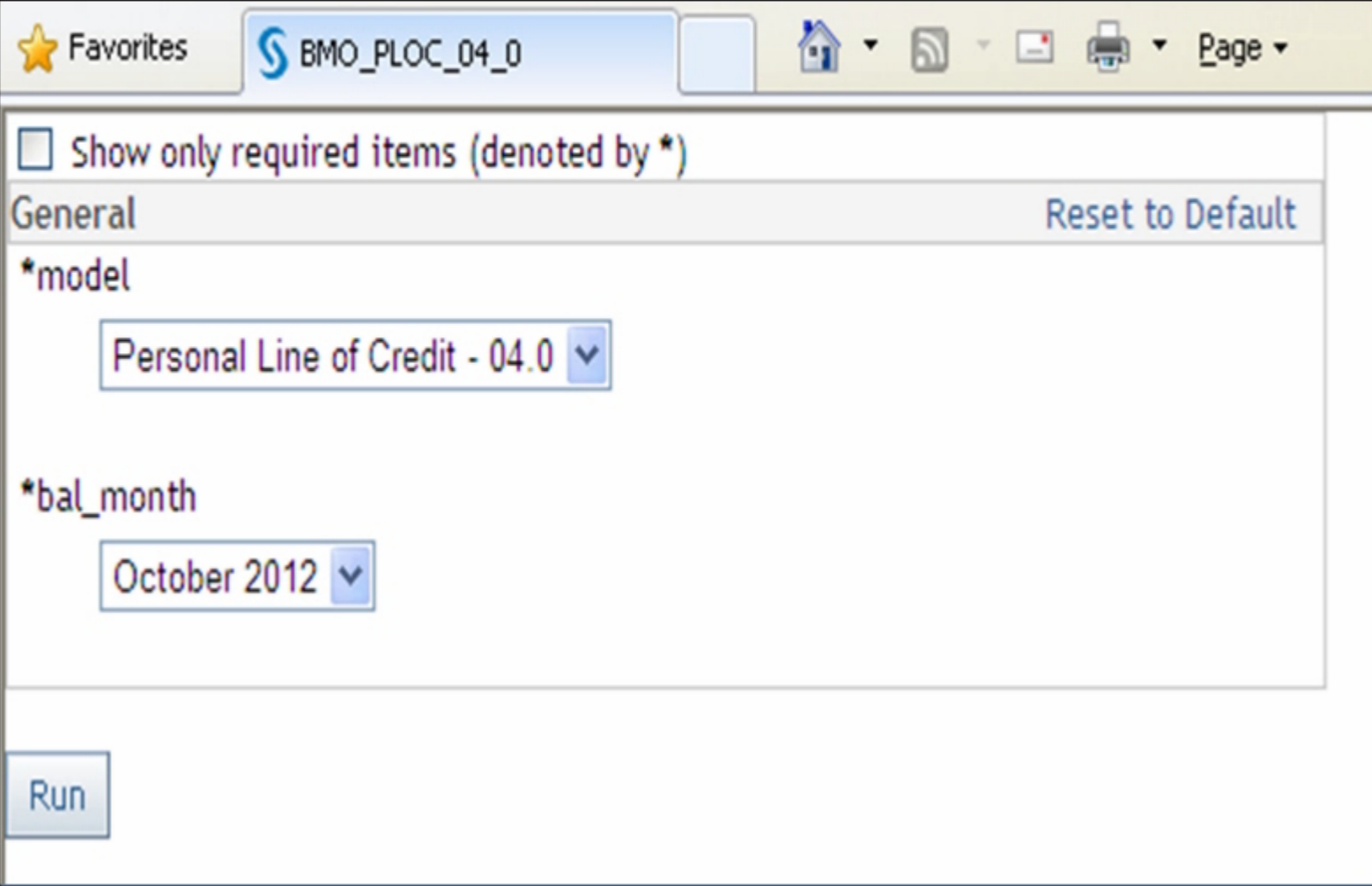
### Data Preparation

- Storage**  
The lowest level of data identified to be used throughout the process was segment intersect level, however this level of data was only used by one test. If this one test was ignored then the next lowest level identified was segment level (segment level data is 10 times smaller than segment intersect level). It was determined that because response time was more important to the user that data would be stored at both levels. This way 98% of the processing would use the segment level data and the one report would use the segment intersect level data. Although this increased storage it meant that the majority of processing would not have to pre-summarize the data for 98% of the processing and therefore speed up response time.

### Method

- Model and Date Selection**  
Stored process to select model and date. These populate macro variables that are used throughout the process
- History Panel**  
A stored process is launched when “run” is selected from the first stored process. Model and date macro variables are used to subset the history data then Proc Report is used to display output in the panel
- Parameter Input Form**  
A stored process is launched when “run” is selected from the first stored process. The model macro variable is used to determine the number of rows used in the form and Base SAS is used to generate the HTML form
- Test Result Panel**  
A stored process is launched when “run” is selected from the first stored process. The model and date macro variables are used to subset the data and the most recent parameter inputs are incorporated to create tests results using Base SAS then Proc Report is used to display output in the panel

This is the first screen which we chose to launch from a URL



### Conclusions

Calibration Tool is

- Auditable**  
Data cannot be changed, code cannot be changed, parameter inputs can be traced.
- Replicable**  
All results can be replicated with same source data and parameter input history
- Secure**  
User cannot change source data or code and parameter input changes are retained

### References

- [http://support.sas.com/rnd/itech/doc9/dev\\_guide/stprocess/datapass.html](http://support.sas.com/rnd/itech/doc9/dev_guide/stprocess/datapass.html)
- <http://support.sas.com/resources/papers/proceedings09/031-2009.pdf>
- [http://www.w3schools.com/html/html\\_forms.asp](http://www.w3schools.com/html/html_forms.asp)

### Contact Information

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**Washington, D.C.**  
March 23–26, 2014

☐ Show only required items (denoted by ★)

General

Reset to Default

★model

Conditional Sales Contract - 03.1 ▼

★bal\_month

October 2012 ▼

Run

☐ Show only required items (denoted by \*)

General

Reset to Default

\*model

Personal Line of Credit - 03.0

Conditional Sales Contract - 03.1

Financial Linx - 03.1

Homeowner LOC - 02.0

Overdraft - 03.0

Personal Demand Loan - 01.0

Personal Line of Credit - 03.0

Personal Loan Plan - 02.4

Student Line of Credit - 02.0

Credit Cards - 02.1

\*bal

Run

☐ Show only required items (denoted by \*)

General

Reset to Default

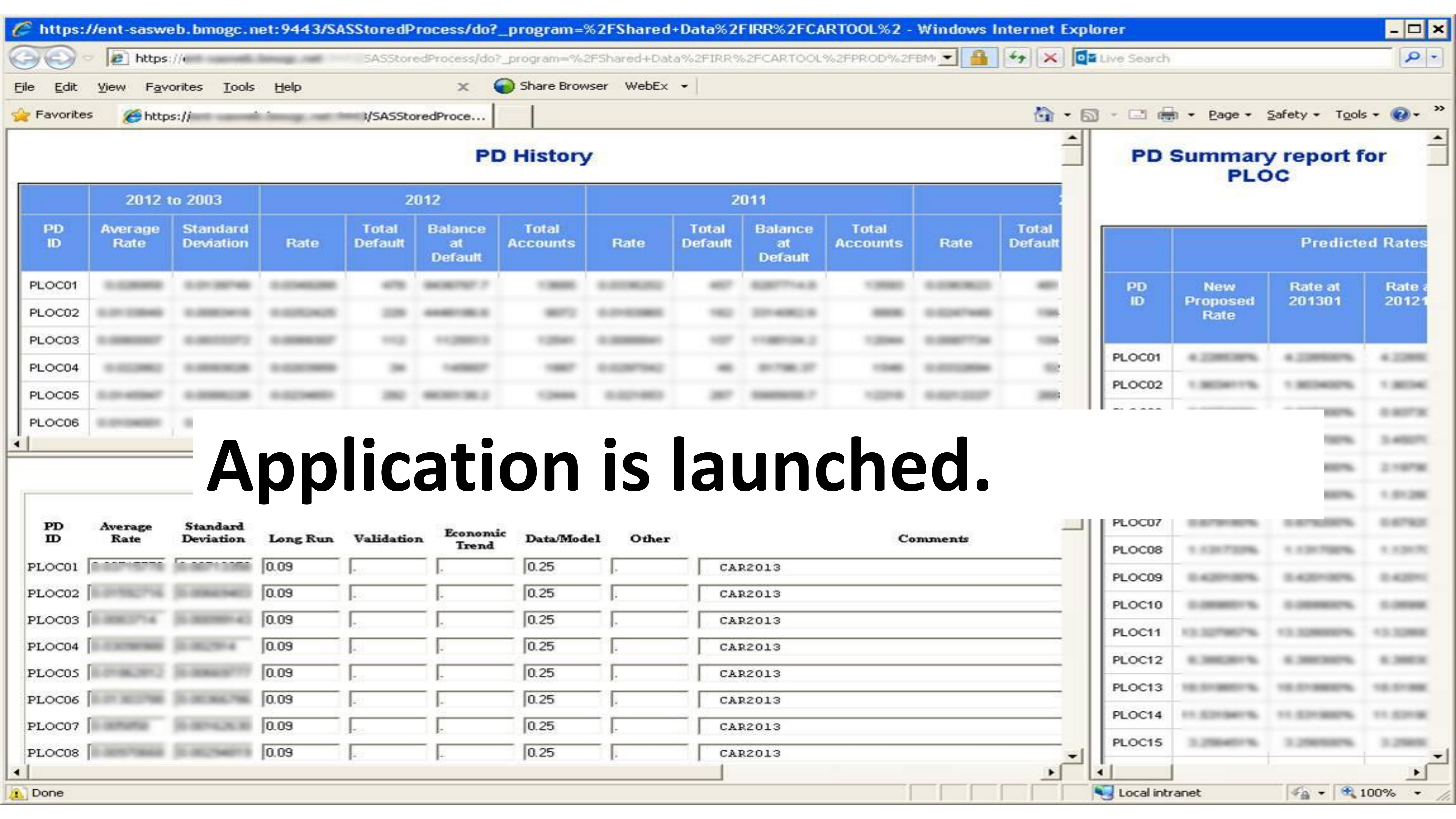
\*model

Personal Line of Credit - 03.0

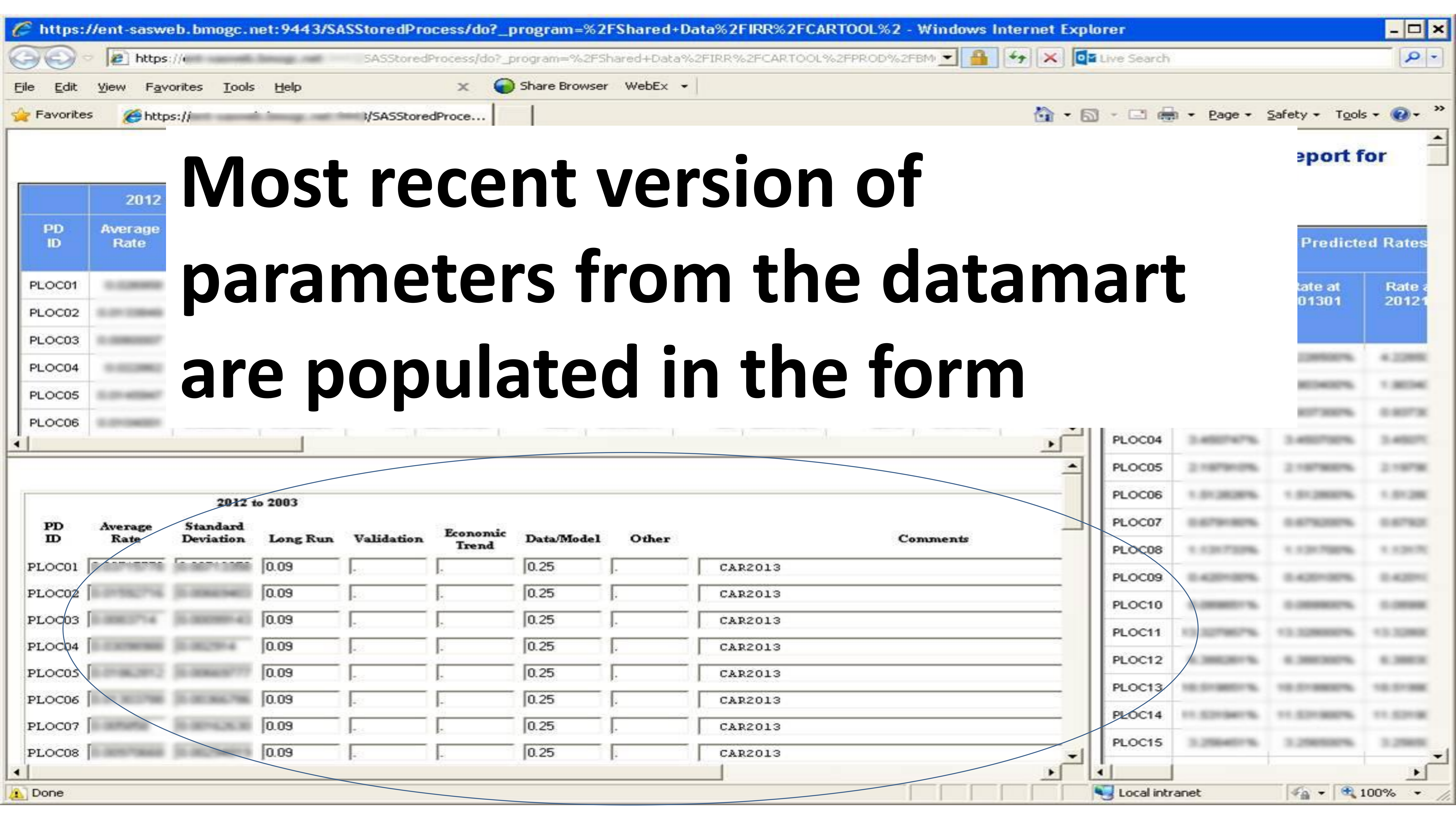
\*bal\_month

October 2012

Run



Application is launched.



Most recent version of parameters from the datamart are populated in the form

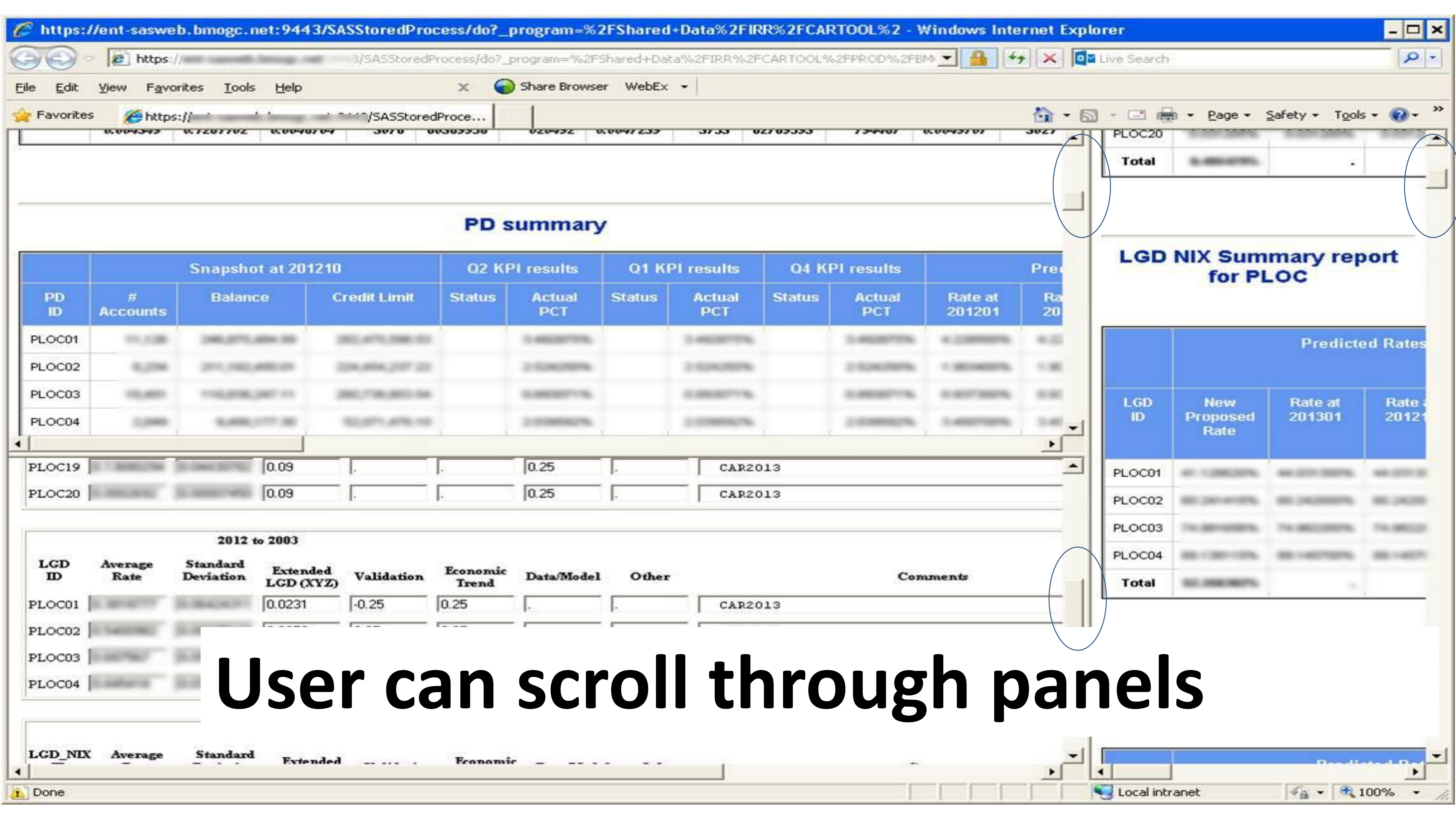
PD ID	Average Rate
PLOC01	
PLOC02	
PLOC03	
PLOC04	
PLOC05	
PLOC06	

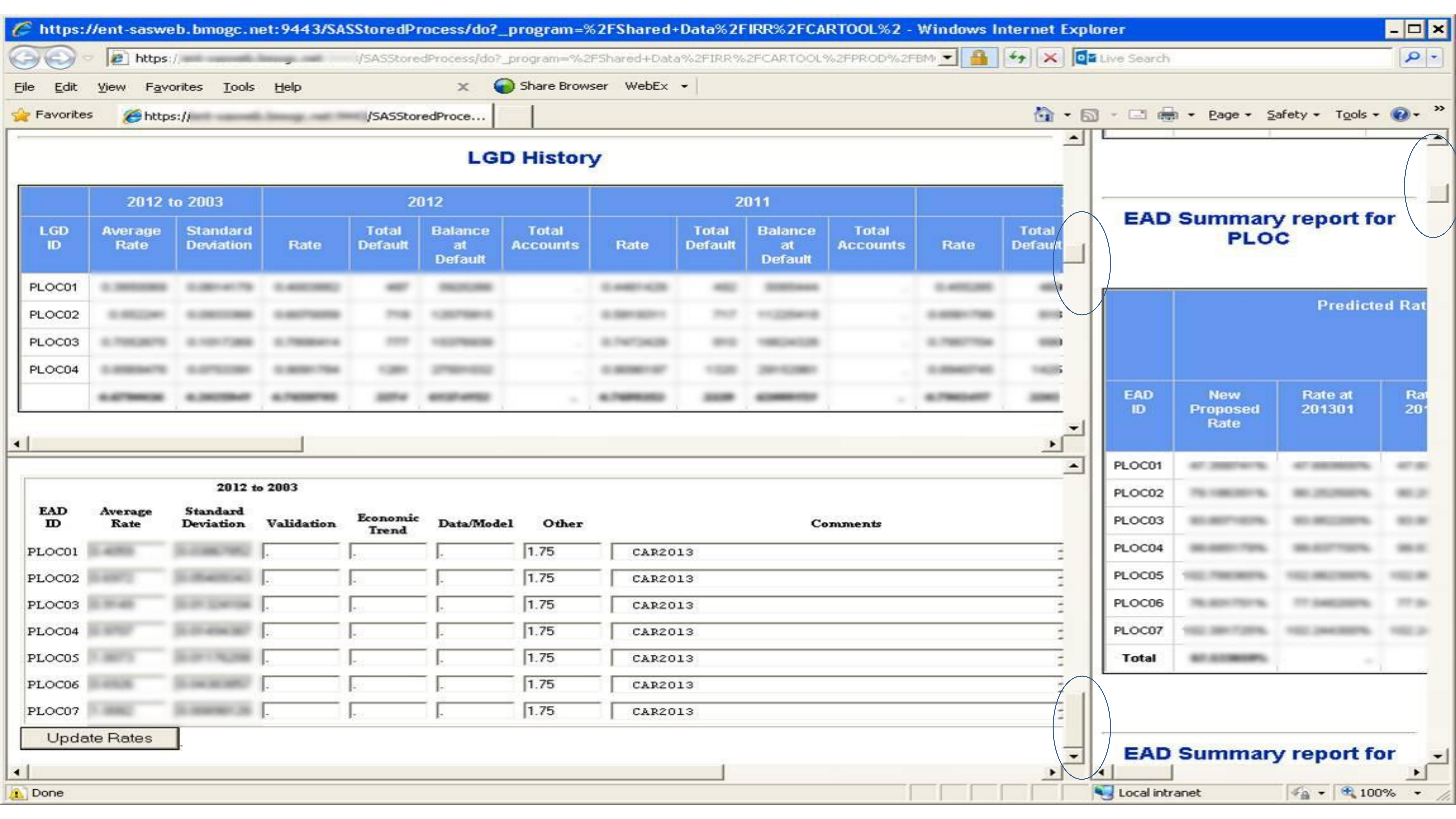
Report for

Predicted Rates	
Rate at 01301	Rate at 2012

2012 to 2003								
PD ID	Average Rate	Standard Deviation	Long Run	Validation	Economic Trend	Data/Model	Other	Comments
PLOC01			0.09			0.25		CAR2013
PLOC02			0.09			0.25		CAR2013
PLOC03			0.09			0.25		CAR2013
PLOC04			0.09			0.25		CAR2013
PLOC05			0.09			0.25		CAR2013
PLOC06			0.09			0.25		CAR2013
PLOC07			0.09			0.25		CAR2013
PLOC08			0.09			0.25		CAR2013

PLOC04			
PLOC05			
PLOC06			
PLOC07			
PLOC08			
PLOC09			
PLOC10			
PLOC11			
PLOC12			
PLOC13			
PLOC14			
PLOC15			





### LGD History

LGD ID	2012 to 2003		2012				2011					
	Average Rate	Standard Deviation	Rate	Total Default	Balance at Default	Total Accounts	Rate	Total Default	Balance at Default	Total Accounts	Rate	Total Default
PLOC01	1.000000	0.000000	1.000000	0.00	0.000000	0.00	1.000000	0.00	0.000000	0.00	1.000000	0.00
PLOC02	1.000000	0.000000	1.000000	0.00	0.000000	0.00	1.000000	0.00	0.000000	0.00	1.000000	0.00
PLOC03	1.000000	0.000000	1.000000	0.00	0.000000	0.00	1.000000	0.00	0.000000	0.00	1.000000	0.00
PLOC04	1.000000	0.000000	1.000000	0.00	0.000000	0.00	1.000000	0.00	0.000000	0.00	1.000000	0.00
	1.000000	0.000000	1.000000	0.00	0.000000	0.00	1.000000	0.00	0.000000	0.00	1.000000	0.00

### EAD Summary report for PLOC

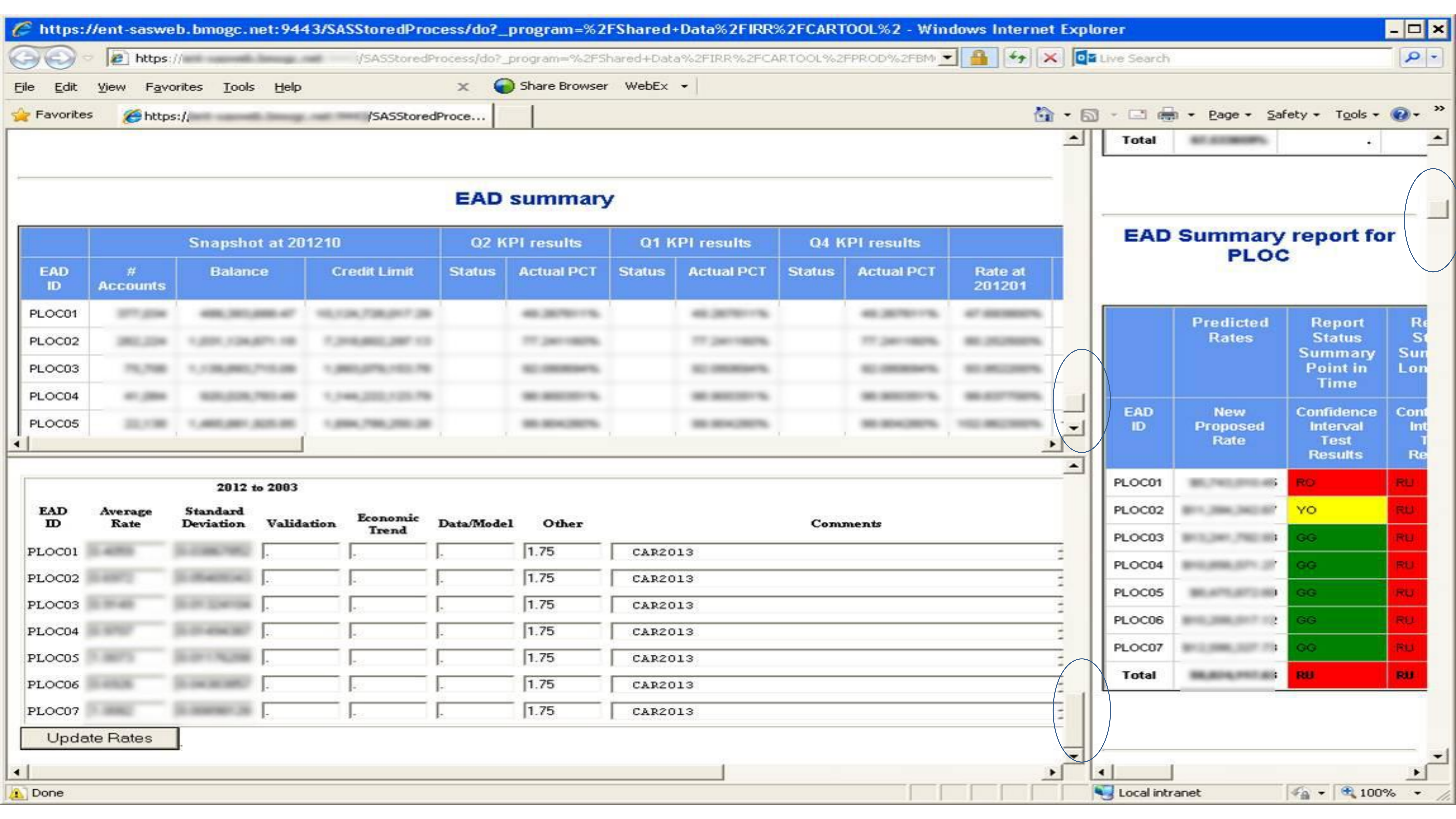
EAD ID	Predicted Rate		
	New Proposed Rate	Rate at 201301	Rate at 201301
PLOC01	1.000000	1.000000	1.00
PLOC02	1.000000	1.000000	1.00
PLOC03	1.000000	1.000000	1.00
PLOC04	1.000000	1.000000	1.00
PLOC05	1.000000	1.000000	1.00
PLOC06	1.000000	1.000000	1.00
PLOC07	1.000000	1.000000	1.00
Total	1.000000	1.000000	1.00

### 2012 to 2003

EAD ID	Average Rate	Standard Deviation	Validation	Economic Trend	Data/Model	Other	Comments
PLOC01	1.000000	0.000000	1.00	1.00	1.00	1.75	CAR2013
PLOC02	1.000000	0.000000	1.00	1.00	1.00	1.75	CAR2013
PLOC03	1.000000	0.000000	1.00	1.00	1.00	1.75	CAR2013
PLOC04	1.000000	0.000000	1.00	1.00	1.00	1.75	CAR2013
PLOC05	1.000000	0.000000	1.00	1.00	1.00	1.75	CAR2013
PLOC06	1.000000	0.000000	1.00	1.00	1.00	1.75	CAR2013
PLOC07	1.000000	0.000000	1.00	1.00	1.00	1.75	CAR2013

Update Rates

### EAD Summary report for



### EAD summary

EAD ID	Snapshot at 201210			Q2 KPI results		Q1 KPI results		Q4 KPI results		Rate at 201201
	# Accounts	Balance	Credit Limit	Status	Actual PCT	Status	Actual PCT	Status	Actual PCT	
PLOC01	177,204	488,392,888.47	14,134,784,817.28		86.28761%		86.28761%		86.28761%	47.88888%
PLOC02	282,204	1,289,134,871.18	1,294,862,287.13		77.28148%		77.28148%		77.28148%	86.28888%
PLOC03	75,706	1,138,862,714.88	1,284,276,143.76		82.08884%		82.08884%		82.08884%	86.28888%
PLOC04	41,204	884,026,761.48	1,194,222,123.76		86.88881%		86.88881%		86.88881%	86.28778%
PLOC05	22,178	1,488,881,822.88	1,284,784,276.28		86.88428%		86.88428%		86.88428%	100.88888%

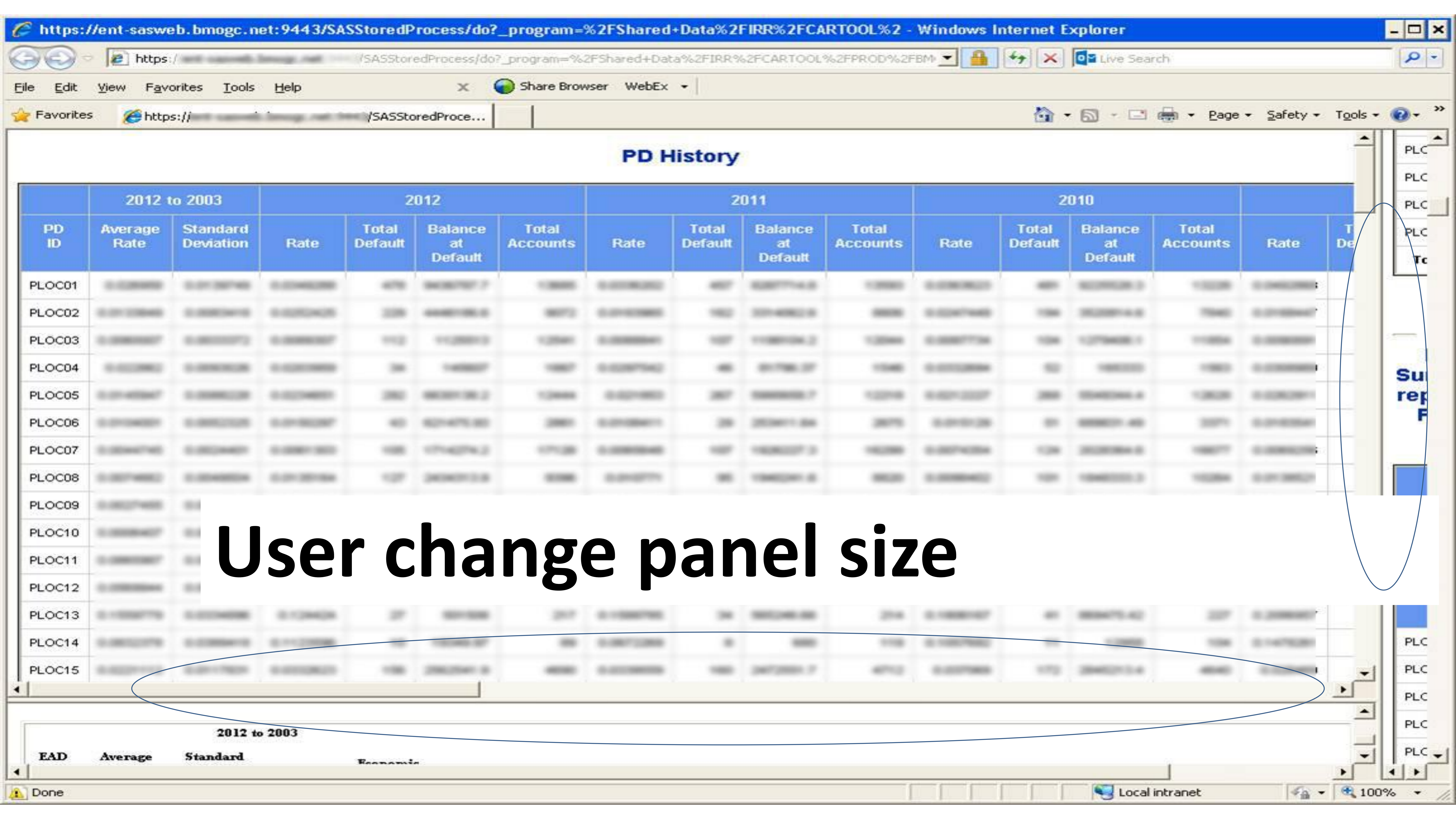
### 2012 to 2003

EAD ID	Average Rate	Standard Deviation	Validation	Economic Trend	Data/Model	Other	Comments
PLOC01	5.488	5.88878%	-	-	-	1.75	CAR2013
PLOC02	5.488	5.88878%	-	-	-	1.75	CAR2013
PLOC03	5.488	5.88878%	-	-	-	1.75	CAR2013
PLOC04	5.488	5.88878%	-	-	-	1.75	CAR2013
PLOC05	5.488	5.88878%	-	-	-	1.75	CAR2013
PLOC06	5.488	5.88878%	-	-	-	1.75	CAR2013
PLOC07	5.488	5.88878%	-	-	-	1.75	CAR2013

Update Rates

### EAD Summary report for PLOC

EAD ID	Predicted Rates	Report Status Summary Point in Time	Re
	New Proposed Rate	Confidence Interval Test Results	Cont Int T Re
PLOC01	86.28761%	RO	RU
PLOC02	86.28761%	YO	RU
PLOC03	86.28761%	GG	RU
PLOC04	86.28761%	GG	RU
PLOC05	86.28761%	GG	RU
PLOC06	86.28761%	GG	RU
PLOC07	86.28761%	GG	RU
Total	86.28761%	RU	RU



User change panel size

https://ent-sasweb.bmogc.net:9443/SASStoredProcess/do?\_program=%2FShared+Data%2FIRR%2FCARTOOL%2 - Windows Internet Explorer

https://ent-sasweb.bmogc.net:9443/SASStoredProcess/do?\_program=%2FShared+Data%2FIRR%2FCARTOOL%2FPROD%2FBM

Live Search

File Edit View Favorites Tools Help

Share Browser WebEx

Favorites

https://ent-sasweb.bmogc.net:9443/SASStoredProce...

Page Safety Tools

PD History

2012 to 2003

2012

2011

2010

PD ID	Average Rate	Standard Deviation	Long Run	Validation	Economic Trend	Data/Model	Other	Comments	Segment D
PLOC01			0.09	.	.	0.25	.	CAR2013	Personal Line of Credit - CUR
PLOC02			0.09	.	.	0.25	.	CAR2013	Personal Line of Credit - CUR
PLOC03			0.09	.	.	0.25	.	CAR2013	Personal Line of Credit - CUR
PLOC04			0.09	.	.	0.25	.	CAR2013	Personal Line of Credit -CURI
PLOC05			0.09	.	.	0.25	.	CAR2013	Personal Line of Credit - CUR
PLOC06			0.09	.	.	0.25	.	CAR2013	Personal Line of Credit - CUR
PLOC07			0.09	.	.	0.25	.	CAR2013	Personal Line of Credit - CUR
PLOC08			0.09	.	.	0.25	.	CAR2013	Personal Line of Credit - CUR
PLOC09			0.09	.	.	0.25	.	CAR2013	Personal Line of Credit - CUR
PLOC10			0.09	.	.	0.25	.	CAR2013	Personal Line of Credit - CUR
PLOC11			0.09	.	.	0.25	.	CAR2013	Personal Line of Credit - 1 CY
PLOC12			0.09	.	.	0.25	.	CAR2013	Personal Line of Credit - 1 CY
PLOC13			0.09	.	.	0.25	.	CAR2013	Personal Line of Credit - 1 CY
PLOC14			0.09	.	.	0.25	.	CAR2013	Personal Line of Credit - 1 CY
PLOC15			0.09	.	.	0.25	.	CAR2013	Personal Line of Credit -1 CY
PLOC16			0.09	.	.	0.25	.	CAR2013	Personal Line of Credit - 1 CY

PLC

PLC

PLC

PLC

To

Sum rep F

PLC

PLC

PLC

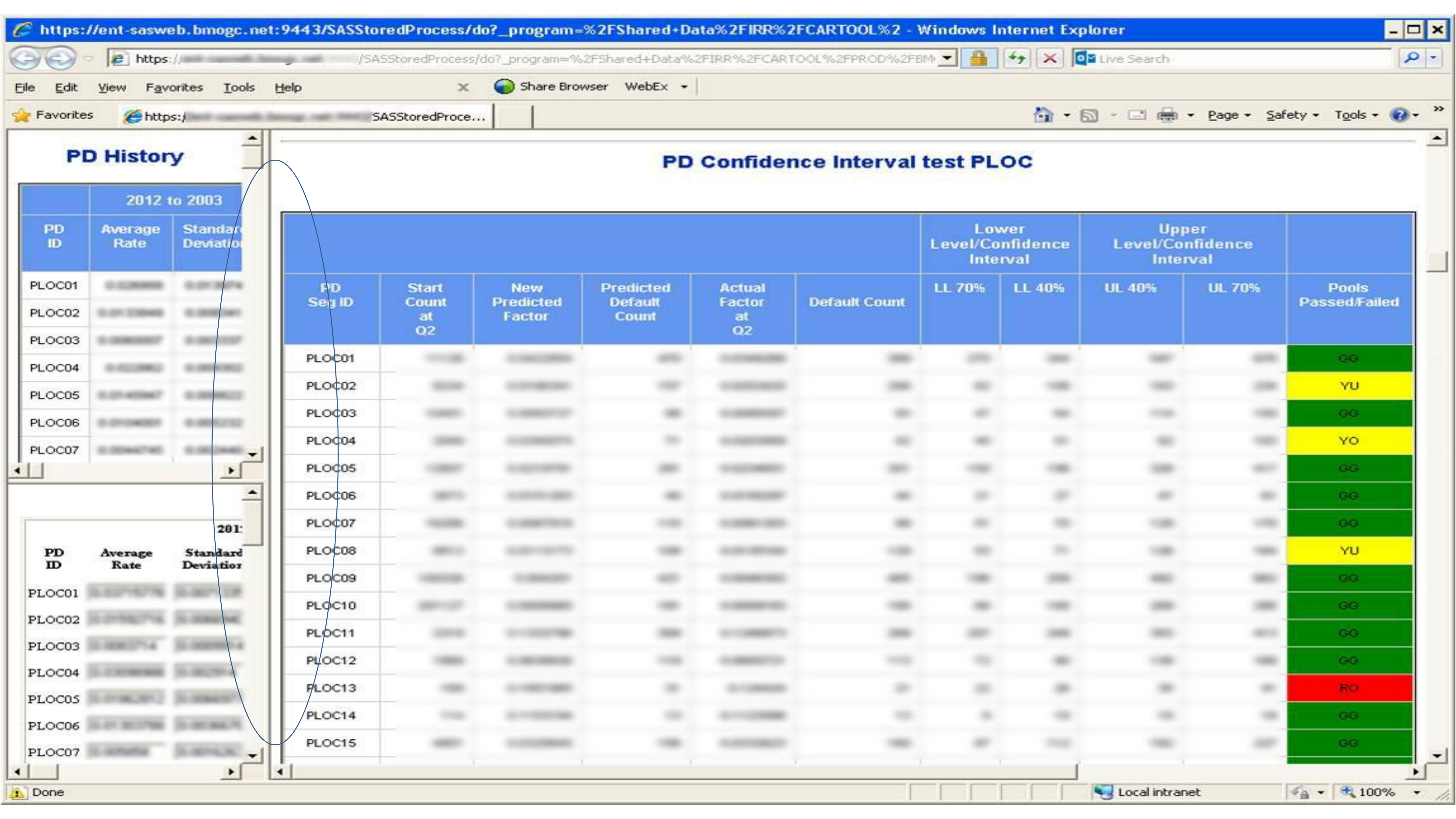
PLC

PLC

Done

Local intranet

100%



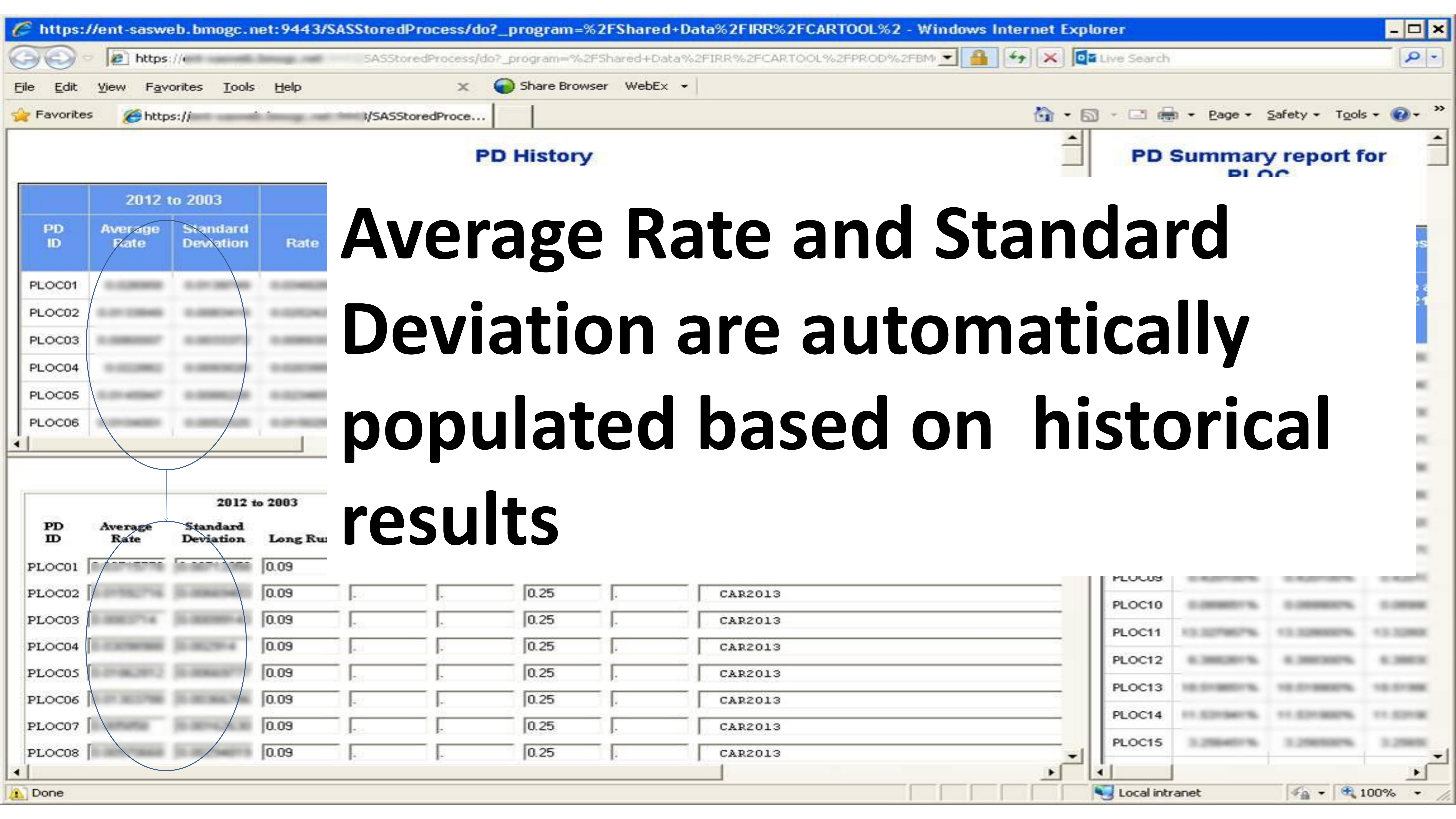
### PD History

2012 to 2003		
PD ID	Average Rate	Standard Deviation
PLOC01	0.000000	0.000000
PLOC02	0.000000	0.000000
PLOC03	0.000000	0.000000
PLOC04	0.000000	0.000000
PLOC05	0.000000	0.000000
PLOC06	0.000000	0.000000
PLOC07	0.000000	0.000000

PD ID	Average Rate	Standard Deviation
PLOC01	0.000000	0.000000
PLOC02	0.000000	0.000000
PLOC03	0.000000	0.000000
PLOC04	0.000000	0.000000
PLOC05	0.000000	0.000000
PLOC06	0.000000	0.000000
PLOC07	0.000000	0.000000

### PD Confidence Interval test PLOC

						Lower Level/Confidence Interval		Upper Level/Confidence Interval		Pools Passed/Failed
PD Seg ID	Start Count at Q2	New Predicted Factor	Predicted Default Count	Actual Factor at Q2	Default Count	LL 70%	LL 40%	UL 40%	UL 70%	
PLOC01	1118	0.000000	0	0.000000	0	0	0	0	0	GG
PLOC02	0	0.000000	0	0.000000	0	0	0	0	0	YU
PLOC03	0	0.000000	0	0.000000	0	0	0	0	0	GG
PLOC04	0	0.000000	0	0.000000	0	0	0	0	0	YO
PLOC05	0	0.000000	0	0.000000	0	0	0	0	0	GG
PLOC06	0	0.000000	0	0.000000	0	0	0	0	0	GG
PLOC07	0	0.000000	0	0.000000	0	0	0	0	0	GG
PLOC08	0	0.000000	0	0.000000	0	0	0	0	0	YU
PLOC09	0	0.000000	0	0.000000	0	0	0	0	0	GG
PLOC10	0	0.000000	0	0.000000	0	0	0	0	0	GG
PLOC11	0	0.000000	0	0.000000	0	0	0	0	0	GG
PLOC12	0	0.000000	0	0.000000	0	0	0	0	0	GG
PLOC13	0	0.000000	0	0.000000	0	0	0	0	0	RO
PLOC14	0	0.000000	0	0.000000	0	0	0	0	0	GG
PLOC15	0	0.000000	0	0.000000	0	0	0	0	0	GG



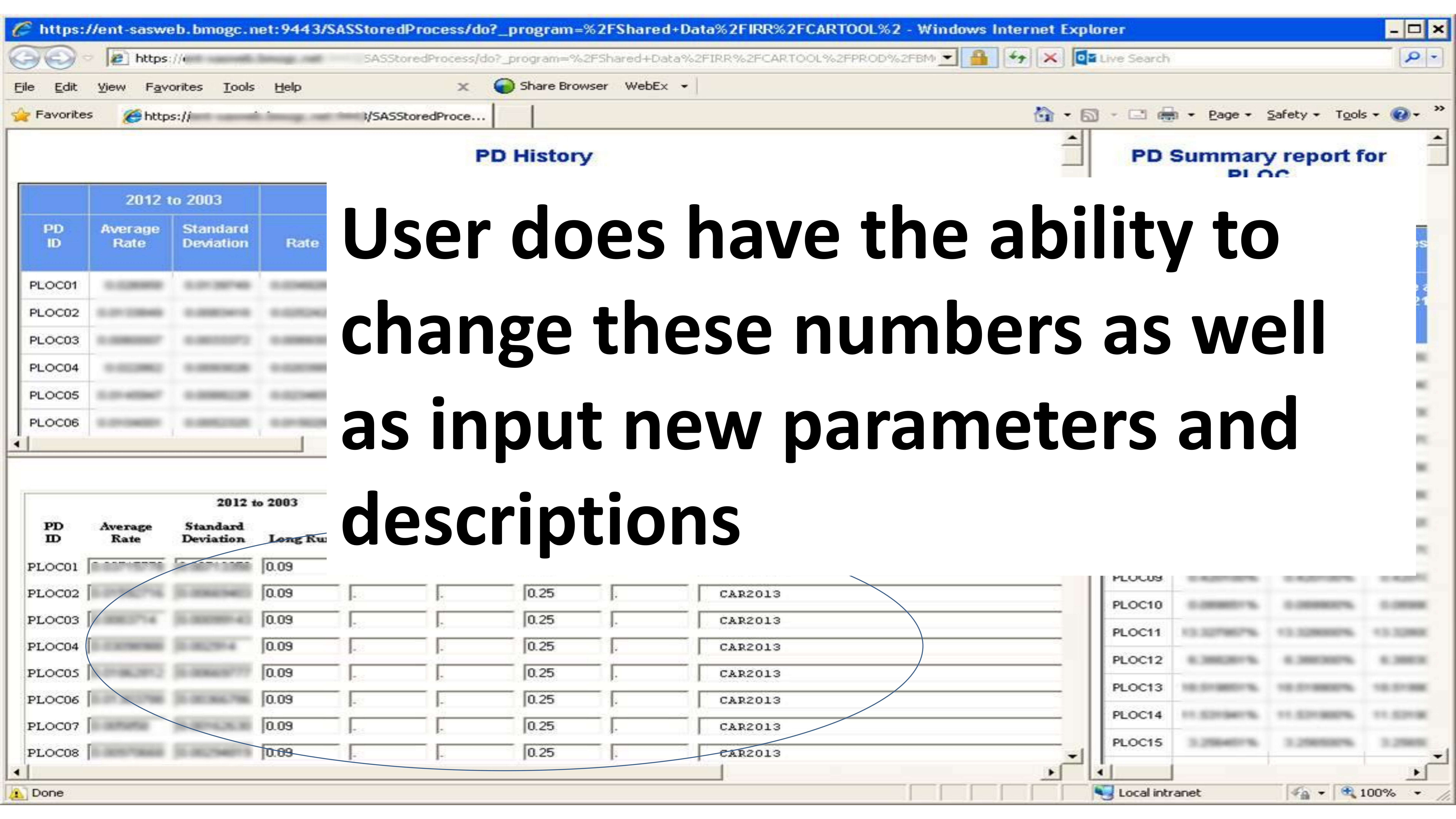
**Average Rate and Standard Deviation are automatically populated based on historical results**

2012 to 2003			
PD ID	Average Rate	Standard Deviation	Rate
PLOC01			
PLOC02			
PLOC03			
PLOC04			
PLOC05			
PLOC06			

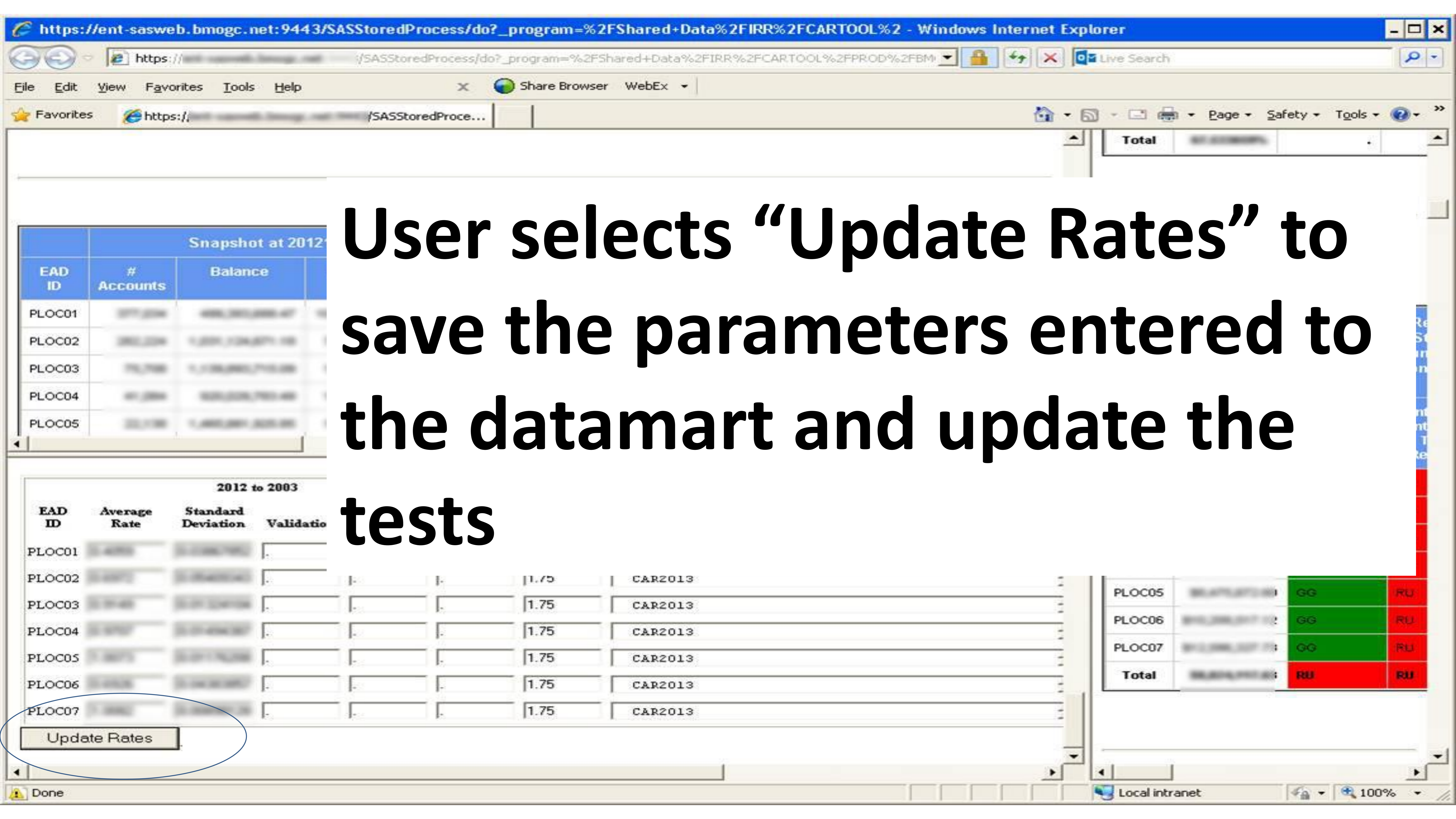
2012 to 2003			
PD ID	Average Rate	Standard Deviation	Long Run
PLOC01			0.09
PLOC02			0.09
PLOC03			0.09
PLOC04			0.09
PLOC05			0.09
PLOC06			0.09
PLOC07			0.09
PLOC08			0.09

			0.25		CAR2013
			0.25		CAR2013
			0.25		CAR2013
			0.25		CAR2013
			0.25		CAR2013
			0.25		CAR2013
			0.25		CAR2013
			0.25		CAR2013

PLOC09			
PLOC10			
PLOC11			
PLOC12			
PLOC13			
PLOC14			
PLOC15			





User does have the ability to change these numbers as well as input new parameters and descriptions




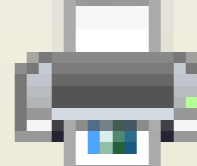



User selects “Update Rates” to save the parameters entered to the datamart and update the tests

# This is the first screen which we chose to launch from a URL

 Favorites


 BMO\_PLOC\_04\_0

    Page 


☐ Show only required items (denoted by \*)

General Reset to Default

\*model

Personal Line of Credit - 04.0 

\*bal\_month

October 2012 

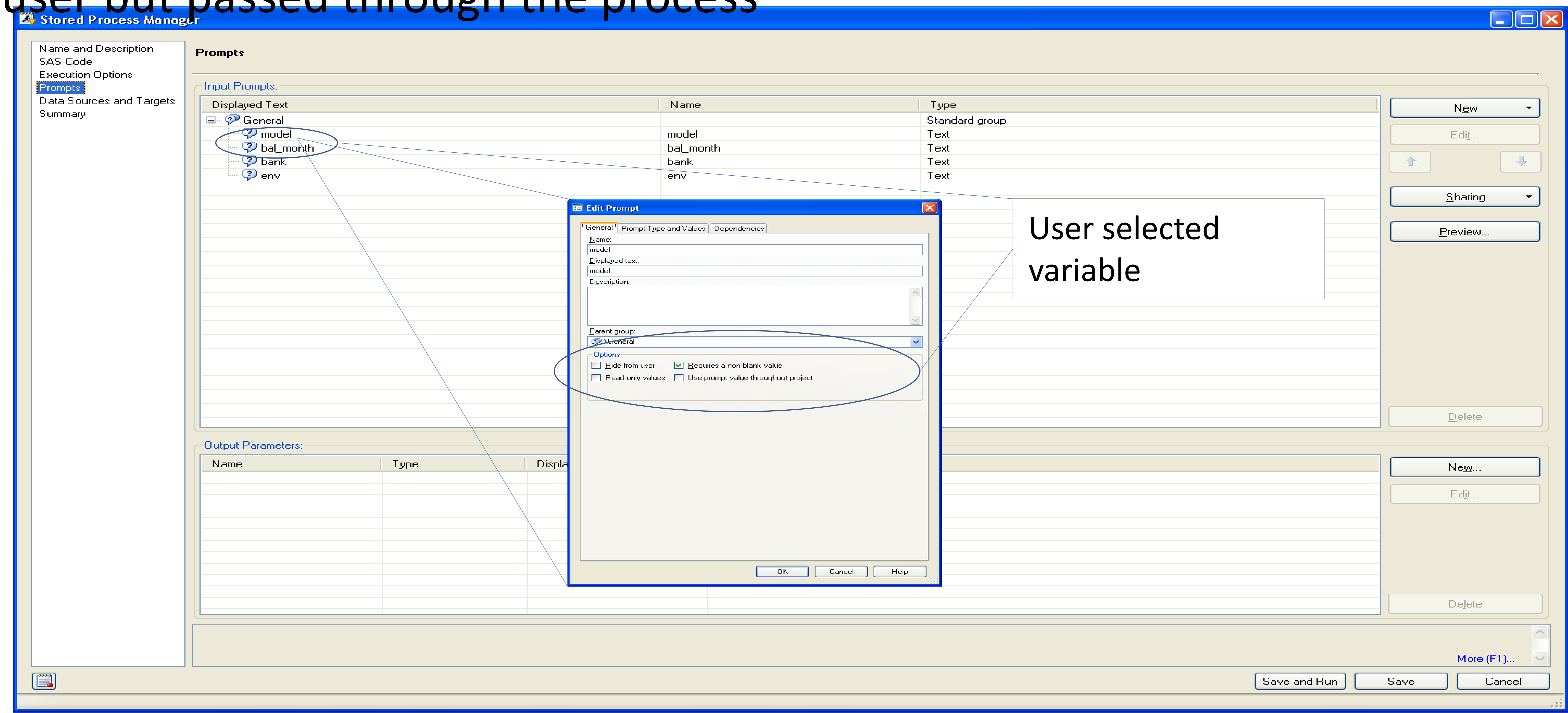
Run

Following are the screens  
from the Stored Process  
Manager showing how this  
first stored process is  
configured.

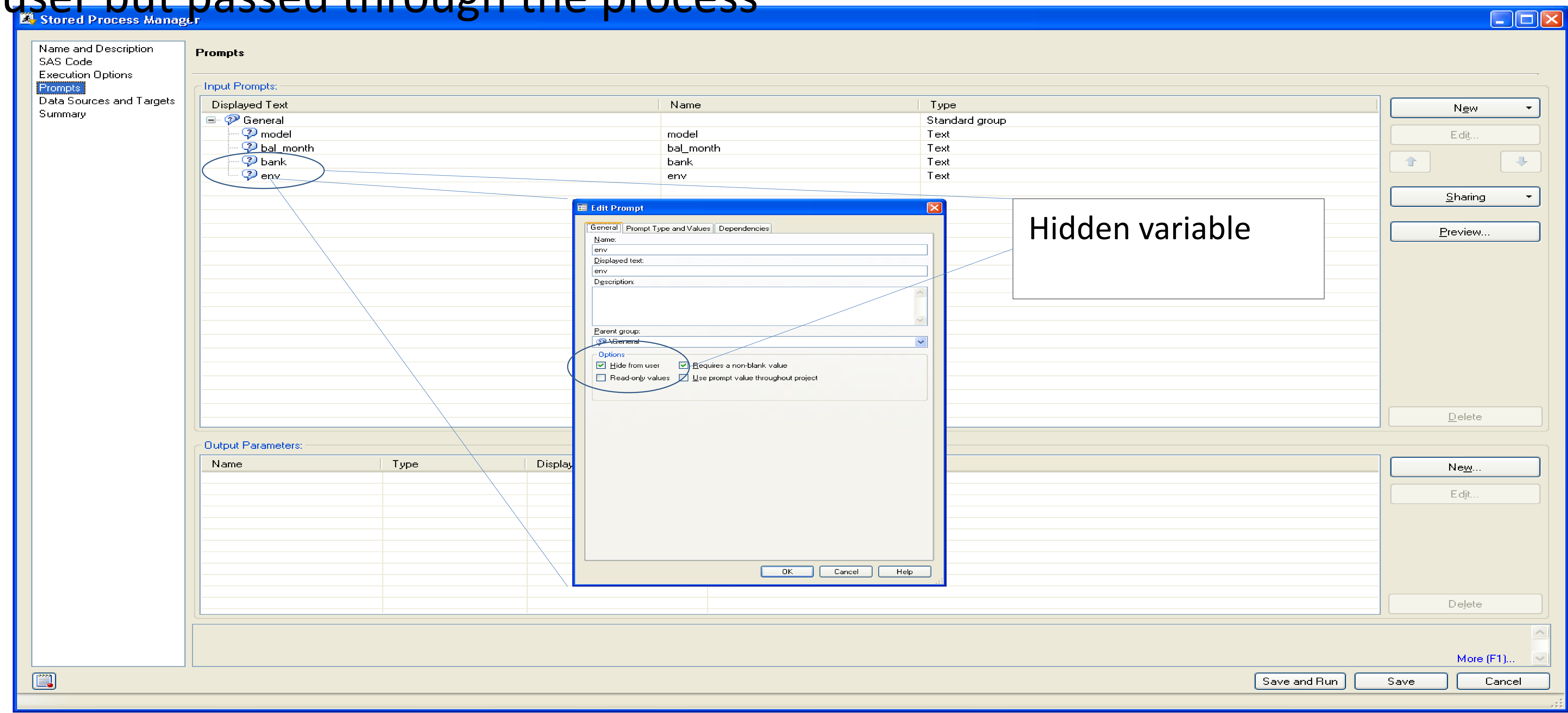
This is prompt panel showing the set up for the 4 prompts used. Model and bal\_month are selected by the user and bank and env are hidden from the user but passed through the process

[illegible]

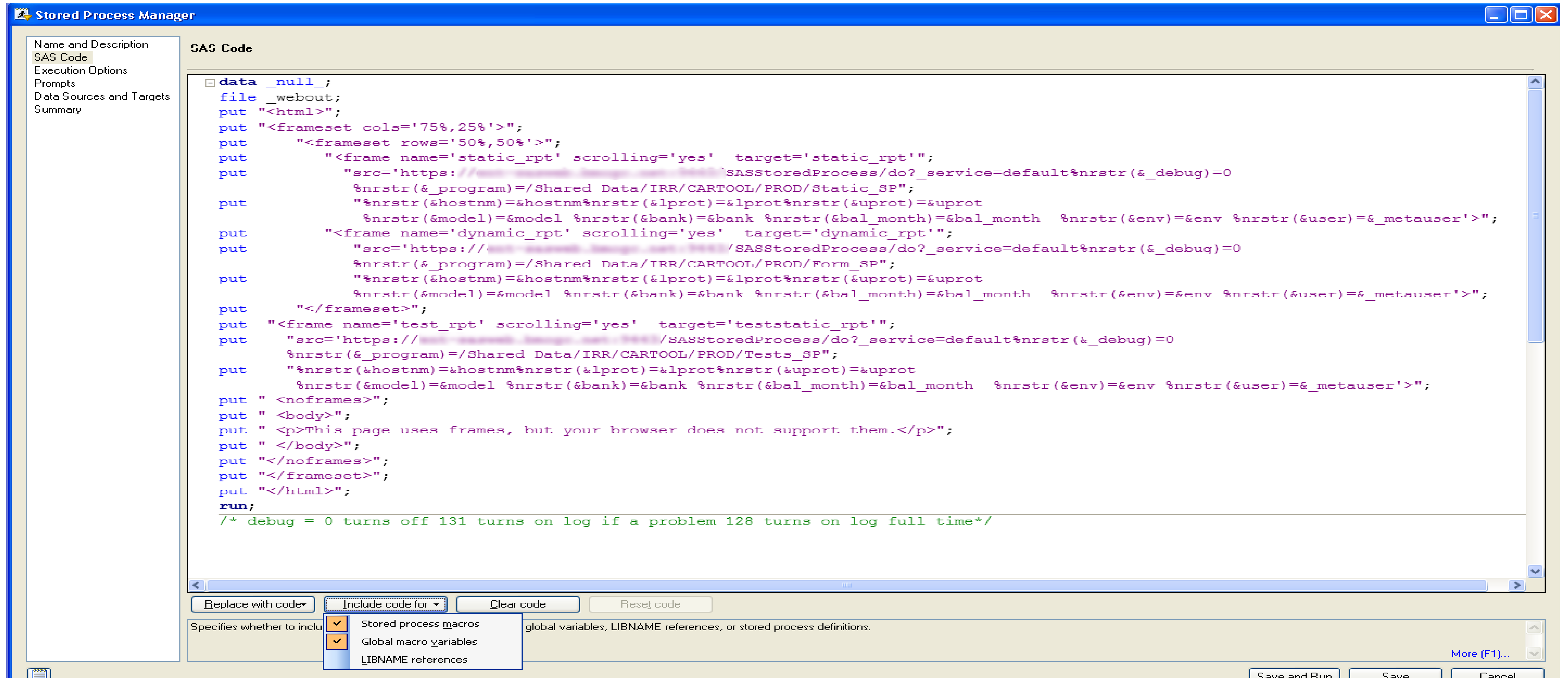
This is prompt panel showing the set up for the 4 prompts used. Model and bal\_month are selected by the user and bank and env are hidden from the user but passed through the process



This is prompt panel showing the set up for the 4 prompts used. Model and bal\_month are selected by the user and bank and env are hidden from the user but passed through the process



This is the code that is launched when the “RUN” button is selected. It launches 3 stored processes that creates the Calibration Tool.



The screenshot shows the SAS Stored Process Manager window. The left sidebar contains a tree view with the following items: Name and Description, SAS Code (selected), Execution Options, Prompts, Data Sources and Targets, and Summary. The main area displays SAS code for a stored process. The code is as follows:

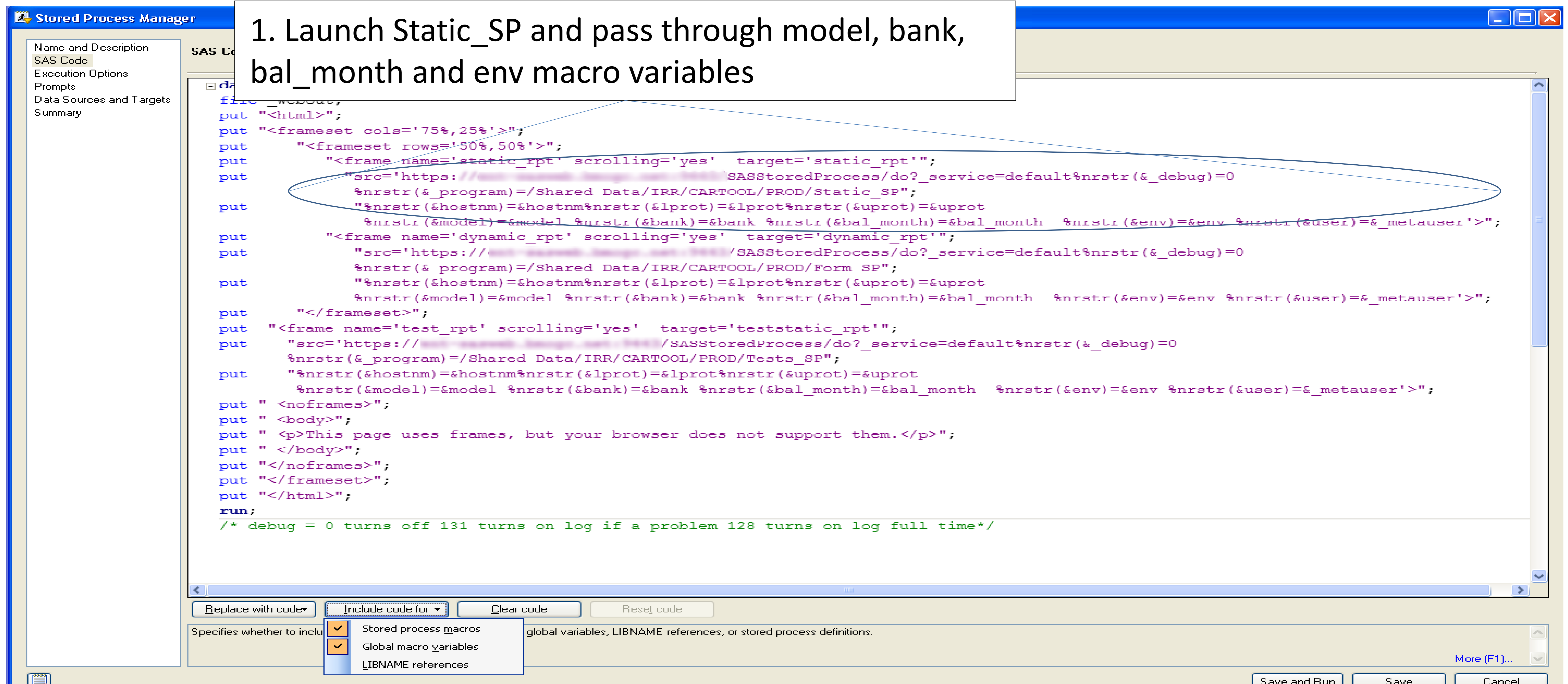
```
data _null_;
  file _webout;
  put "<html>";
  put "<frameset cols='75%,25%'>";
  put "    <frameset rows='50%,50%'>";
  put "        <frame name='static_rpt' scrolling='yes' target='static_rpt'";
  put "        \"src='https://www.sas.com/images/sas.com/1999/SASStoredProcess/do?_service=default&nrstr(&_debug)=0";
  put "        %nrstr(&_program)=/Shared Data/IRR/CARTOOL/PROD/Static_SP\"";
  put "        \"%nrstr(&hostnm)=&hostnm&nrstr(&lprot)=&lprot&nrstr(&uprot)=&uprot";
  put "        %nrstr(&model)=&model %nrstr(&bank)=&bank %nrstr(&bal_month)=&bal_month %nrstr(&env)=&env %nrstr(&user)=&_metauser'>\"";
  put "        <frame name='dynamic_rpt' scrolling='yes' target='dynamic_rpt'";
  put "        \"src='https://www.sas.com/images/sas.com/1999/SASStoredProcess/do?_service=default&nrstr(&_debug)=0";
  put "        %nrstr(&_program)=/Shared Data/IRR/CARTOOL/PROD/Form_SP\"";
  put "        \"%nrstr(&hostnm)=&hostnm&nrstr(&lprot)=&lprot&nrstr(&uprot)=&uprot";
  put "        %nrstr(&model)=&model %nrstr(&bank)=&bank %nrstr(&bal_month)=&bal_month %nrstr(&env)=&env %nrstr(&user)=&_metauser'>\"";
  put "    </frameset>\"";
  put "    <frame name='test_rpt' scrolling='yes' target='teststatic_rpt'";
  put "    \"src='https://www.sas.com/images/sas.com/1999/SASStoredProcess/do?_service=default&nrstr(&_debug)=0";
  put "    %nrstr(&_program)=/Shared Data/IRR/CARTOOL/PROD/Tests_SP\"";
  put "    \"%nrstr(&hostnm)=&hostnm&nrstr(&lprot)=&lprot&nrstr(&uprot)=&uprot";
  put "    %nrstr(&model)=&model %nrstr(&bank)=&bank %nrstr(&bal_month)=&bal_month %nrstr(&env)=&env %nrstr(&user)=&_metauser'>\"";
  put "  </body>\"";
  put "  <p>This page uses frames, but your browser does not support them.</p>\"";
  put "  </body>\"";
  put "</noframes>\"";
  put "</frameset>\"";
  put "</html>\"";
run;

/* debug = 0 turns off 131 turns on log if a problem 128 turns on log full time*/
```

At the bottom of the window, there are several buttons: "Replace with code", "Include code for" (with a dropdown arrow), "Clear code", and "Reset code". Below these buttons is a section titled "Specifies whether to include" with three checkboxes: "Stored process macros" (checked), "Global macro variables" (checked), and "LIBNAME references" (unchecked). To the right of these checkboxes is a text box containing the text "global variables, LIBNAME references, or stored process definitions." At the bottom right of the window are three buttons: "Save and Run", "Save", and "Cancel".

This is the code that is launched when the “RUN” button is selected. It launches 3 stored processes that creates the Calibration Tool.

1. Launch Static\_SP and pass through model, bank, bal\_month and env macro variables



This is the code that is launched when the “RUN” button is selected. It launches 3 stored processes that creates the Calibration Tool.

1. Launch Static\_SP and pass through model, bank, bal\_month and env macro variables

2. Launch Form\_SP and pass through model, bank, bal\_month and env macro variables

```
target='static_rpt';
SASStoredProcess/do?_service=default&nrstr(&_debug)=0
&nrstr(&_program)=/Shared Data/IRR/CARTOOL/PROD/Static_SP";
"&nrstr(&hostnm)=&hostnm&nrstr(&lprot)=&lprot&nrstr(&uprot)=&uprot
&nrstr(&model)=&model &nrstr(&bank)=&bank &nrstr(&bal_month)=&bal_month &nrstr(&env)=&env &nrstr(&user)=&_metauser'>";
"<frame name='dynamic_rpt' scrolling='yes' target='dynamic_rpt'";
"src='https://&nrstr(&_program)=/Shared Data/IRR/CARTOOL/PROD/Form_SP";
"&nrstr(&hostnm)=&hostnm&nrstr(&lprot)=&lprot&nrstr(&uprot)=&uprot
&nrstr(&model)=&model &nrstr(&bank)=&bank &nrstr(&bal_month)=&bal_month &nrstr(&env)=&env &nrstr(&user)=&_metauser'>";
"</frameset>";
"<frame name='test_rpt' scrolling='yes' target='teststatic_rpt'";
"src='https://&nrstr(&_program)=/Shared Data/IRR/CARTOOL/PROD/Tests_SP";
"&nrstr(&hostnm)=&hostnm&nrstr(&lprot)=&lprot&nrstr(&uprot)=&uprot
&nrstr(&model)=&model &nrstr(&bank)=&bank &nrstr(&bal_month)=&bal_month &nrstr(&env)=&env &nrstr(&user)=&_metauser'>";
put " <noframes>";
put " <body>";
put " <p>This page uses frames, but your browser does not support them.</p>";
put " </body>";
put " </noframes>";
put " </frameset>";
put " </html>";
run;
/* debug = 0 turns off 131 turns on log if a problem 128 turns on log full time*/
```

Replace with code

Include code for

Clear code

Reset code

Specifies whether to include



Stored process macros



Global macro variables



LIBNAME references

global variables, LIBNAME references, or stored process definitions.

More (F1)...

Save and Run

Save

Cancel

This is the code that is launched when the “RUN” button is selected. It launches 3 stored processes that creates the Calibration Tool.

1. Launch Static\_SP and pass through model, bank, bal\_month and env macro variables

2. Launch Form\_SP and pass through model, bank, bal\_month and env macro variables

3. Launch Tests\_SP and pass through model, bank, bal\_month and env macro variables

```
target='static_rpt';
s/do?_service=default&nrstr(&_debug)=0
SP";
prot)=&uprot
_month)=&bal_month %nrstr(&env)=&env %nrstr(&user)=&_metauser'>";
ic_rpt'";
ss/do?_service=default&nrstr(&_debug)=0
P";

put %nrstr(&hostnm)=&hostnm&nrstr(&lprot)=&lprot&nrstr(&uprot)=&uprot
%nrstr(&model)=&model %nrstr(&bank)=&bank %nrstr(&bal_month)=&bal_month %nrstr(&env)=&env %nrstr(&user)=&_metauser'>";
put "</frameset>";
put "<frame name='test_rpt' scrolling='yes' target='teststatic_rpt'";
put "src='https://www.sas.com/STAT/SASStoredProcess/do?_service=default&nrstr(&_debug)=0
%nrstr(&program)=/Shared Data/IRR/CARTOOL/PROD/Tests_SP";
put %nrstr(&hostnm)=&hostnm&nrstr(&lprot)=&lprot&nrstr(&uprot)=&uprot
%nrstr(&model)=&model %nrstr(&bank)=&bank %nrstr(&bal_month)=&bal_month %nrstr(&env)=&env %nrstr(&user)=&_metauser'>";
put " <noframes>";
put " <body>";
put " <p>This page uses frames, but your browser does not support them.</p>";
put " </body>";
put "</noframes>";
put "</frameset>";
put "</html>";
run;
/* debug = 0 turns off 131 turns on log if a problem 128 turns on log full time*/
```

Replace with code Include code for Clear code Reset code

Specifies whether to include ☒ Stored process macros ☒ Global macro variables ☐ LIBNAME references

global variables, LIBNAME references, or stored process definitions.

Save and Run Save Cancel

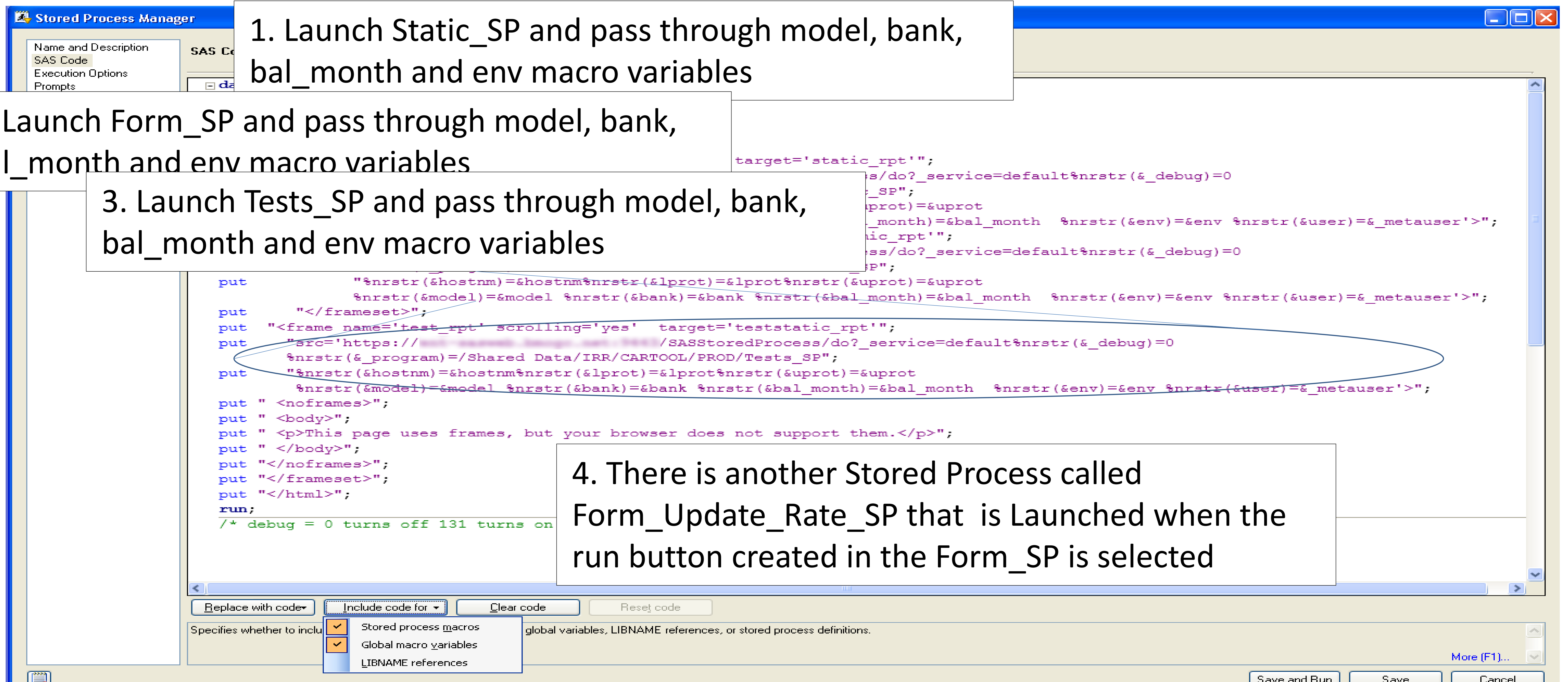
This is the code that is launched when the “RUN” button is selected. It launches 3 stored processes that creates the Calibration Tool.

1. Launch Static\_SP and pass through model, bank, bal\_month and env macro variables

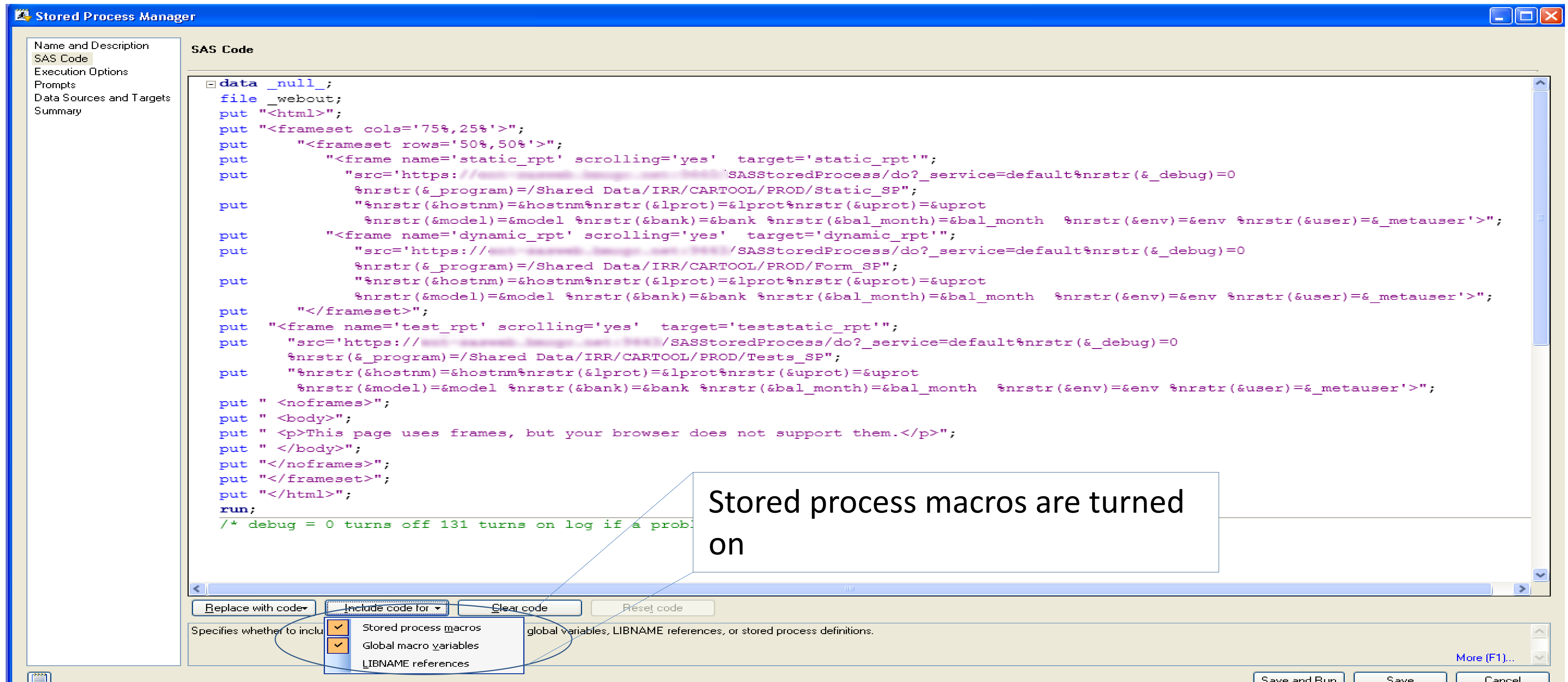
2. Launch Form\_SP and pass through model, bank, bal\_month and env macro variables

3. Launch Tests\_SP and pass through model, bank, bal\_month and env macro variables

4. There is another Stored Process called Form\_Update\_Rate\_SP that is Launched when the run button created in the Form\_SP is selected



This is the code that is launched when the “RUN” button is selected. It launches 3 stored processes that creates the Calibration Tool.



Stored Process Manager

Name and Description

SAS Code

Execution Options

Prompts

Data Sources and Targets

Summary

Execution Options

Save SAS Stored Process Code:

Execution server:

SASApp - Logical Stored Process Server

Location on Server:

Source filepath:

.....

Source filename:

.....

☒ Overwrite existing file

SAS Result Types this Stored Process can Support:

☒ Streaming (only available on Stored Process Servers)

☐ Package

More (F1)...

This must run on the Stored Process Server  
stream the results back to us

Stored Process Manager

Name and Description  
SAS Code  
**Execution Options**  
Prompts  
Data Sources and Targets  
Summary

**Execution Options**

Save SAS Stored Process Code:

Execution server:  
SASApp - Logical Stored Process Server

Location on Server:

Source filepath:  
.....

Source filename:  
.....

☒ Overwrite existing file

SAS Result Types this Stored Process can Support:

☒ Streaming (only available on Stored Process Servers)

☐ Package

More (F1)...

This must run on the Stored Process Server  
stream the results back to us

The results must be streamed back to us

# Result of First Stored Process

PD History														
PD ID	2012 to 2003		2012				2011				2010			
	Average Rate	Standard Deviation	Rate	Total Default	Balance at Default	Total Accounts	Rate	Total Default	Balance at Default	Total Accounts	Rate	Total Default	Balance at Default	Total Accounts
PLOC01	0.000000	0.000000	0.000000	0	0.000000	0.000000	0.000000	0	0.000000	0.000000	0.000000	0	0.000000	0.000000
PLOC02	0.000000	0.000000	0.000000	0	0.000000	0.000000	0.000000	0	0.000000	0.000000	0.000000	0	0.000000	0.000000
PLOC03	0.000000	0.000000	0.000000	0	0.000000	0.000000	0.000000	0	0.000000	0.000000	0.000000	0	0.000000	0.000000
PLOC04	0.000000	0.000000	0.000000	0	0.000000	0.000000	0.000000	0	0.000000	0.000000	0.000000	0	0.000000	0.000000
PLOC05	0.000000	0.000000	0.000000	0	0.000000	0.000000	0.000000	0	0.000000	0.000000	0.000000	0	0.000000	0.000000

PLOC02	0.000000	0.000000	New Model	"
PLOC03	0.000000	0.000000	New Model	"
PLOC04	0.000000	0.000000	New Model	"

2012 to 2003							
EAD ID	Average Rate	Standard Deviation	Validation	Economic Trend	Data/Model	Other	Segment Description
PLOC01	0.000000	0.000000	.	.	1.25	.	New Model
PLOC02	0.000000	0.000000	.	.	1.25	.	New Model
PLOC03	0.000000	0.000000	.	.	1.25	.	New Model

Update Rates

PD Summary report for PLOC				
PD ID	Predicted Rates			
	New Proposed Rate	Rate at 201210	Rate at 201210	Rate at 201210
PLOC01	0.000000%	0.000000%	0.000000%	0.000000%
PLOC02	0.000000%	0.000000%	0.000000%	0.000000%
PLOC03	0.000000%	0.000000%	0.000000%	0.000000%
PLOC04	0.000000%	0.000000%	0.000000%	0.000000%
PLOC05	0.000000%	0.000000%	0.000000%	0.000000%
PLOC06	0.000000%	0.000000%	0.000000%	0.000000%
PLOC07	0.000000%	0.000000%	0.000000%	0.000000%
PLOC08	0.000000%	0.000000%	0.000000%	0.000000%
PLOC09	0.000000%	0.000000%	0.000000%	0.000000%
Total	0.000000%	-	-	-

LGD NIX Summary report for PLOC

# Result of First Stored Process

1. Static\_SP Stored Process creates the static report panel

The screenshot displays a software interface with two main panels. The left panel, titled 'PD History', contains a table with columns for PD ID, Average Rate, Standard Deviation, Rate, Total Default, Balance at Default, and Total Accounts, organized by year (2012 to 2003, 2012, 2011, 2010). Below this table is a section for '2012 to 2003' with columns for EAD ID, Average Rate, Standard Deviation, Validation, Economic Trend, Data/Model, Other, Comments, and Segment Description. The right panel, titled 'PD Summary report for PLOC', shows a table with columns for PD ID, New Proposed Rate, Rate at 201210, Rate at 201210, and Rate at 201210. Below this table is a section for 'LGD NIX Summary report for PLOC'.

PD ID	Average Rate	Standard Deviation	Rate	Total Default	Balance at Default	Total Accounts
PLOC01	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
PLOC02	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
PLOC03	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
PLOC04	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
PLOC05	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

PD ID	Average Rate	Standard Deviation	Validation	Economic Trend	Data/Model	Other	Comments	Segment Description
PLOC01	0.000000	0.000000	.	.	1.25	.	New Model	"
PLOC02	0.000000	0.000000	.	.	1.25	.	New Model	"
PLOC03	0.000000	0.000000	.	.	1.25	.	New Model	"

PD ID	New Proposed Rate	Rate at 201210	Rate at 201210	Rate at 201210
PLOC01	0.000000	0.000000	0.000000	0.000000
PLOC02	0.000000	0.000000	0.000000	0.000000
PLOC03	0.000000	0.000000	0.000000	0.000000
PLOC04	0.000000	0.000000	0.000000	0.000000
PLOC05	0.000000	0.000000	0.000000	0.000000
PLOC06	0.000000	0.000000	0.000000	0.000000
PLOC07	0.000000	0.000000	0.000000	0.000000
PLOC08	0.000000	0.000000	0.000000	0.000000
PLOC09	0.000000	0.000000	0.000000	0.000000
Total	0.000000	0.000000	0.000000	0.000000

Update Rates

LGD NIX Summary report for PLOC

# Result of First Stored Process

[illegible]

# Result of First Stored Process

[illegible]

# Result of First Stored Process

PD History

PD ID	2012 to 2003		2012				2011				2010			
	Average Rate	Standard Deviation	Rate	Total Default	Balance at Default	Total Accounts	Rate	Total Default	Balance at Default	Total Accounts	Rate	Total Default	Balance at Default	Total Accounts
PLOC01														
PLOC02														
PLOC03														
PLOC04														
PLOC05														

1. Static\_SP Stored Process creates the static report panel

2012 to 2003

EAD ID														
PLOC01														
PLOC02														
PLOC03														
PLOC04														

Update Rates

2. Form\_SP Stored Process creates the form

PD Summary report for PLOC

PD ID	Predicted Rates			
	New Proposed Rate	Rate at 201210	Rate at 201210	Rate at 201210
PLOC01				
PLOC02				
PLOC03				
PLOC04				
PLOC05				

3. Tests\_SP Stored Process creates the reports

LGD NIX Summary report for PLOC

Done

Local intranet

100%

4. Form\_Update\_Rate\_SP Stored Process will run when this button is selected

# Data Storage

History Data at Segment Level

### PD History

PD ID	2012 to 2003			2012			2011			2010				
	Average Rate	Standard Deviation	Rate	Total Default	Balance at Default	Total Accounts	Rate	Total Default	Balance at Default	Total Accounts	Rate	Total Default	Balance at Default	Total Accounts
PLOC01	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%
PLOC02	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%
PLOC03	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%
PLOC04	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%
PLOC05	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%

### PD Summary report for PLOC

PD ID	Predicted Rates			
	New Proposed Rate	Rate at 201210	Rate at 201210	Rate at 201210
PLOC01	0.00000%	0.00000%	0.00000%	0.00000%
PLOC02	0.00000%	0.00000%	0.00000%	0.00000%
PLOC03	0.00000%	0.00000%	0.00000%	0.00000%
PLOC04	0.00000%	0.00000%	0.00000%	0.00000%
PLOC05	0.00000%	0.00000%	0.00000%	0.00000%
PLOC06	0.00000%	0.00000%	0.00000%	0.00000%
PLOC07	0.00000%	0.00000%	0.00000%	0.00000%
PLOC08	0.00000%	0.00000%	0.00000%	0.00000%
PLOC09	0.00000%	0.00000%	0.00000%	0.00000%
Total	0.00000%	0.00000%	0.00000%	0.00000%

### 2012 to 2003

EAD ID	Average Rate	Standard Deviation	Validation	Economic Trend	Data/Model	Other	Comments	Segment Description
PLOC01	0.00000%	0.00000%					New Model	
PLOC02	0.00000%	0.00000%					New Model	
PLOC03	0.00000%	0.00000%					New Model	

Update Rates

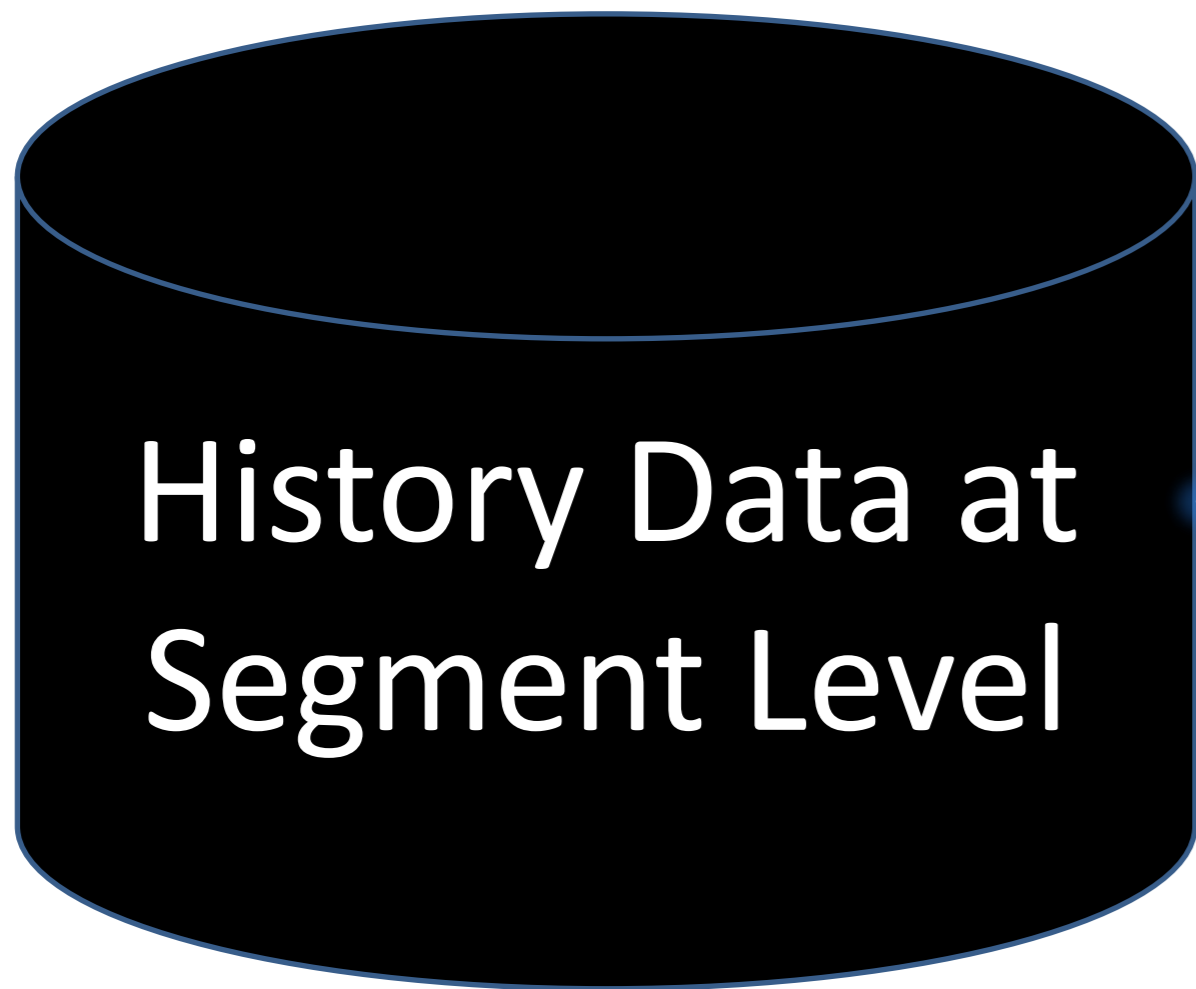
### LGD NIX Summary report for PLOC

PD Parameters

EAD Parameters

LGD Parameters

History Data at Segment Intersect Level



# Data Storage

PD History

PD ID	2012 to 2003		2012			2011			2010		
	Average Rate	Standard Deviation	Rate	Total Default	Total Accounts	Rate	Total Default	Total Accounts	Rate	Total Default	Total Accounts
PLOC01	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
PLOC02	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
PLOC03	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
PLOC04	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
PLOC05	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Segment Level data used to populate 98% of reporting

PD Summary report for PLOC

PD	New ed	Predicted Rates		
		Rate at 201210	Rate at 201210	Rate at 201210
PLOC07	0.000000	0.000000	0.000000	0.000000
PLOC08	0.000000	0.000000	0.000000	0.000000
PLOC09	0.000000	0.000000	0.000000	0.000000
Total	0.000000	0.000000	0.000000	0.000000

LGD NIX Summary report for PLOC

2012 to 2003							
EAD ID	Average Rate	Standard Deviation	Validation	Economic Trend	Data/Model	Other	Comments
PLOC01	0.000000	0.000000	.	.	0.00	.	New Model
PLOC02	0.000000	0.000000	.	.	0.00	.	New Model
PLOC03	0.000000	0.000000	.	.	0.00	.	New Model

Update Rates

# Data Storage

PD History

	2012 to 2003		2012			2011			2010					
PD ID	Average Rate	Standard Deviation	Rate	Total Default	Balance at Default	Total Accounts	Rate	Total Default	Balance at Default	Total Accounts	Rate	Total Default	Balance at Default	Total Accounts
PLOC01	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
PLOC02	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
PLOC03	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
PLOC04	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
PLOC05	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

PLOC02

PLOC03

PLOC04

2012 to 2003

EAD ID	Average Rate	Standard Deviation	Validation	Economic Trend
PLOC01	0.000000	0.000000	.	New Model
PLOC02	0.000000	0.000000	.	New Model
PLOC03	0.000000	0.000000	.	New Model

Update Rates

PD Summary report for PLOC

Predicted Rates				
PD	New	Rate at 201210	Rate at 201210	Rate at 201210
PLOC01	0.000000	0.000000	0.000000	0.000000
PLOC02	0.000000	0.000000	0.000000	0.000000
PLOC03	0.000000	0.000000	0.000000	0.000000
PLOC04	0.000000	0.000000	0.000000	0.000000
PLOC05	0.000000	0.000000	0.000000	0.000000

LGD NIX Summary report for PLOC

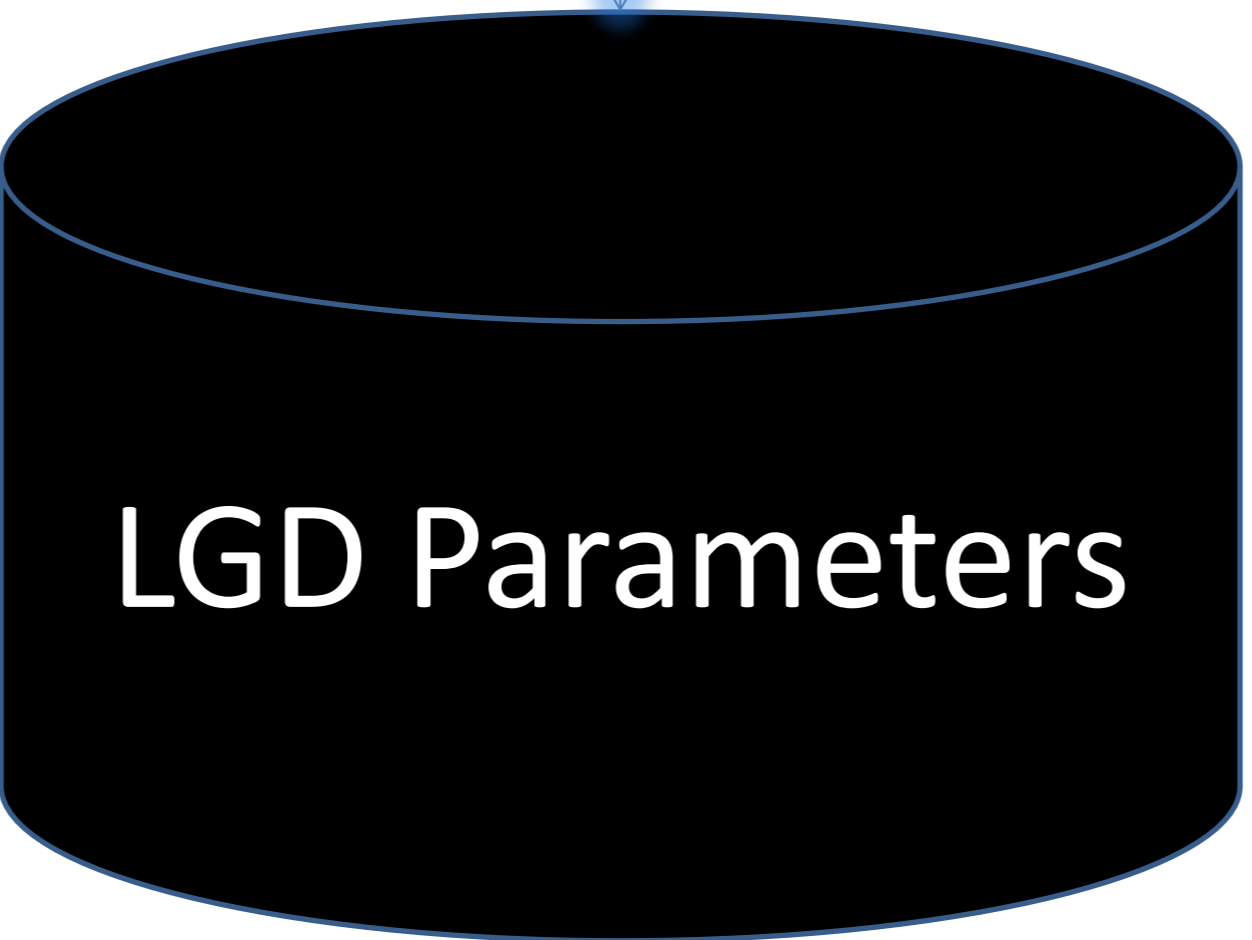
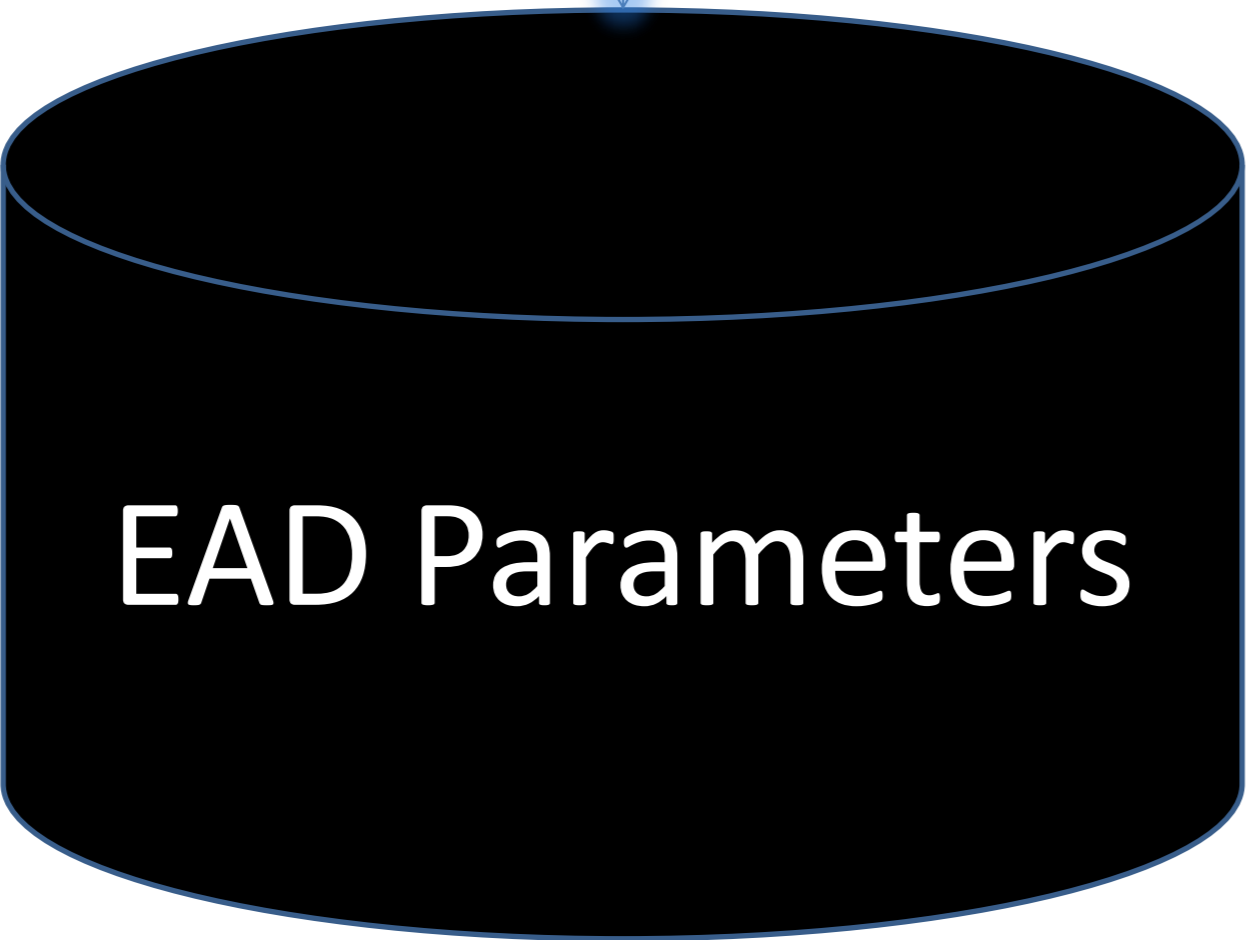
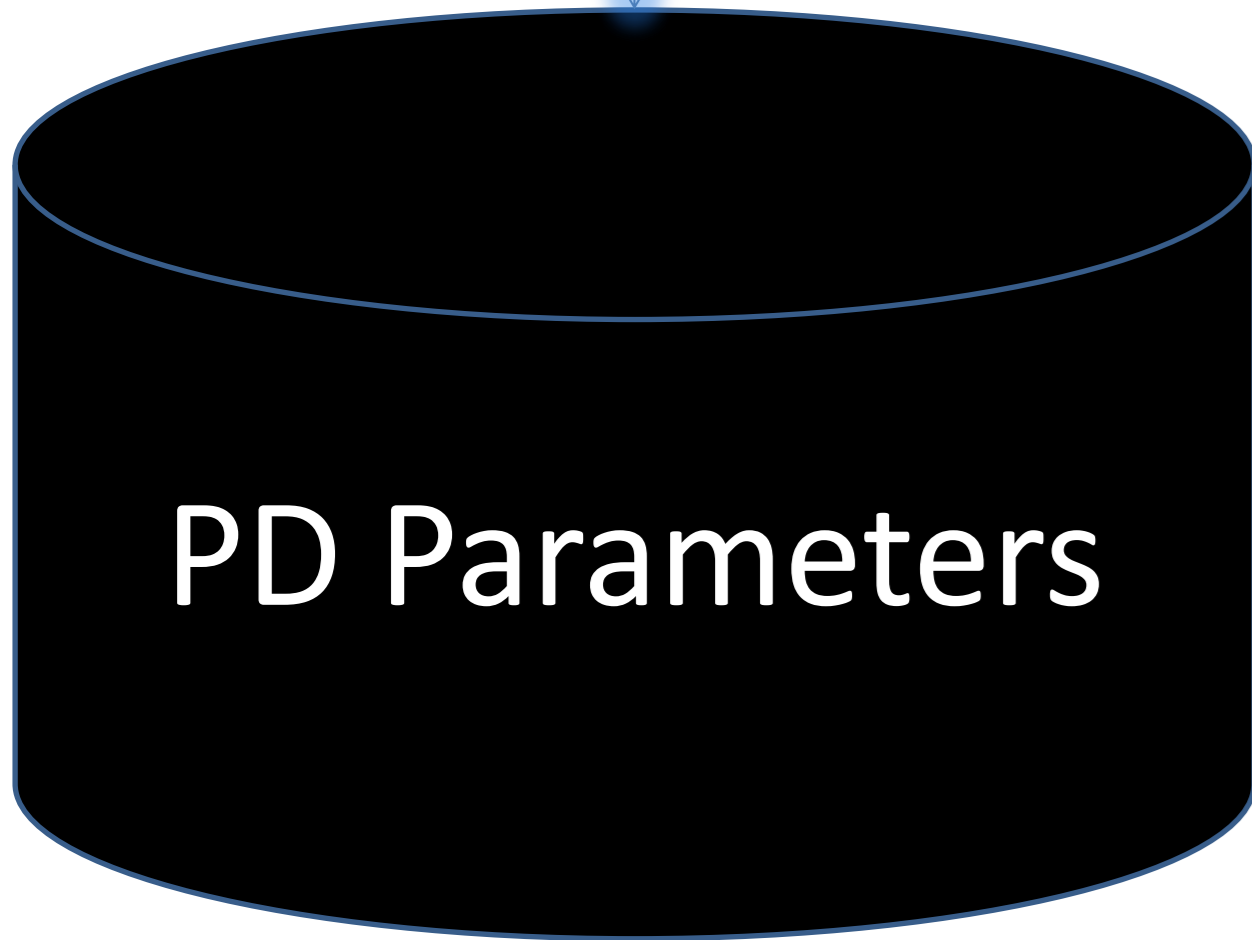
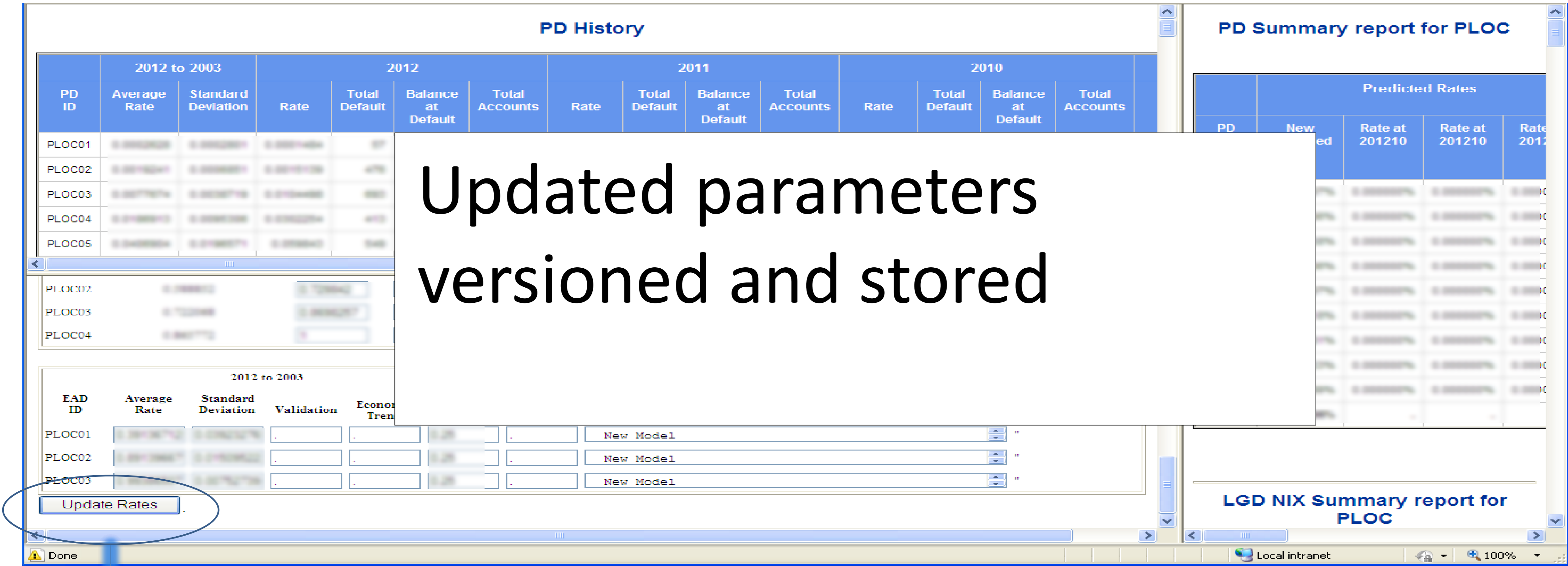
Segment Intersect Level data used to populate 2% of reporting

DoneLocal intranet100%

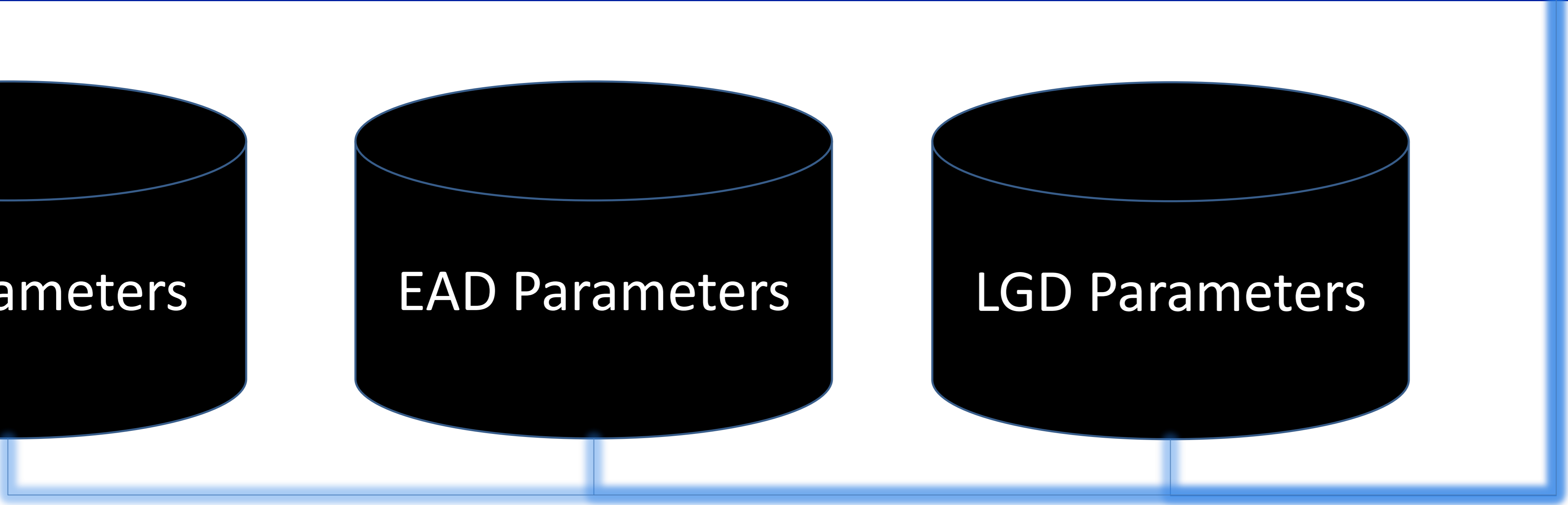
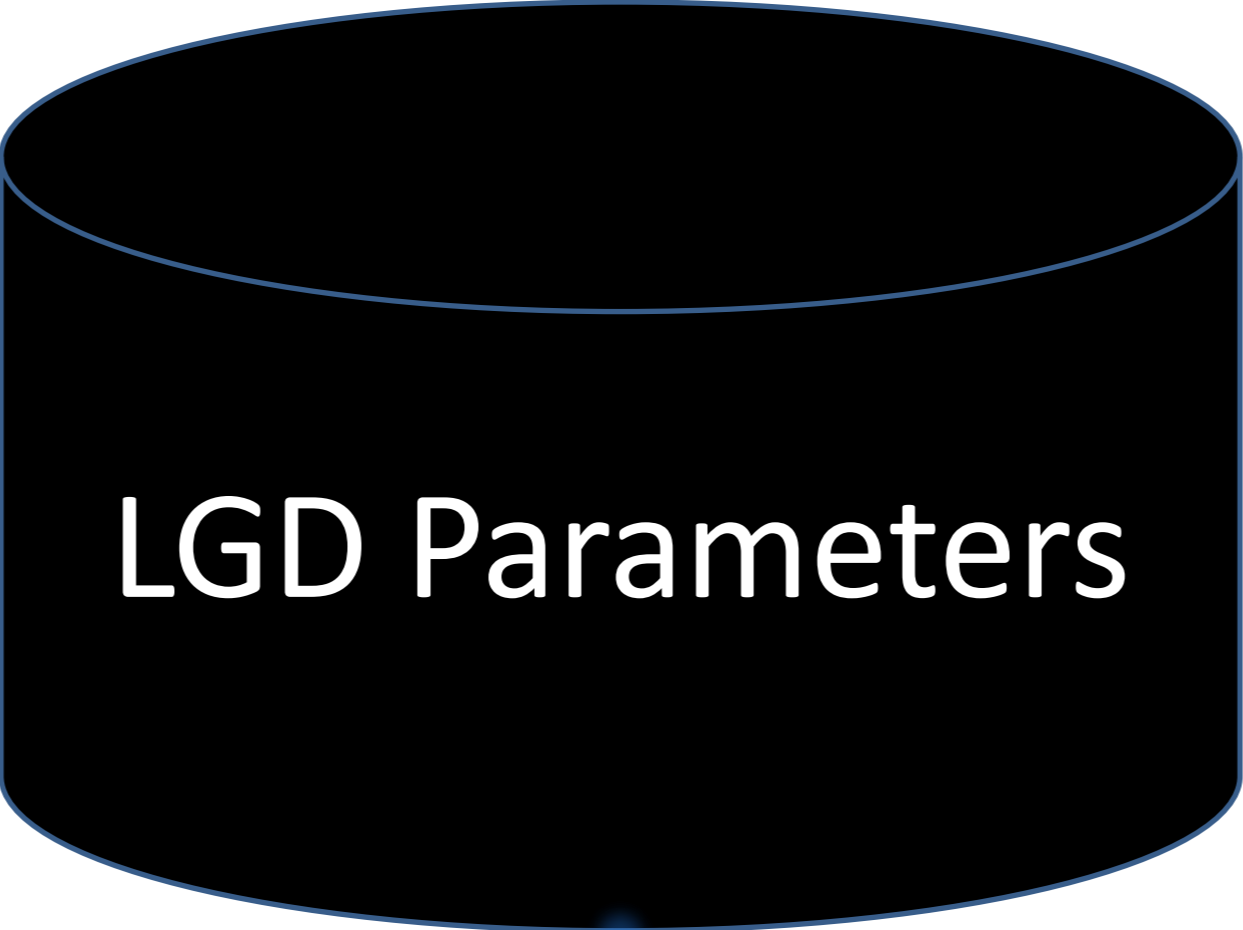
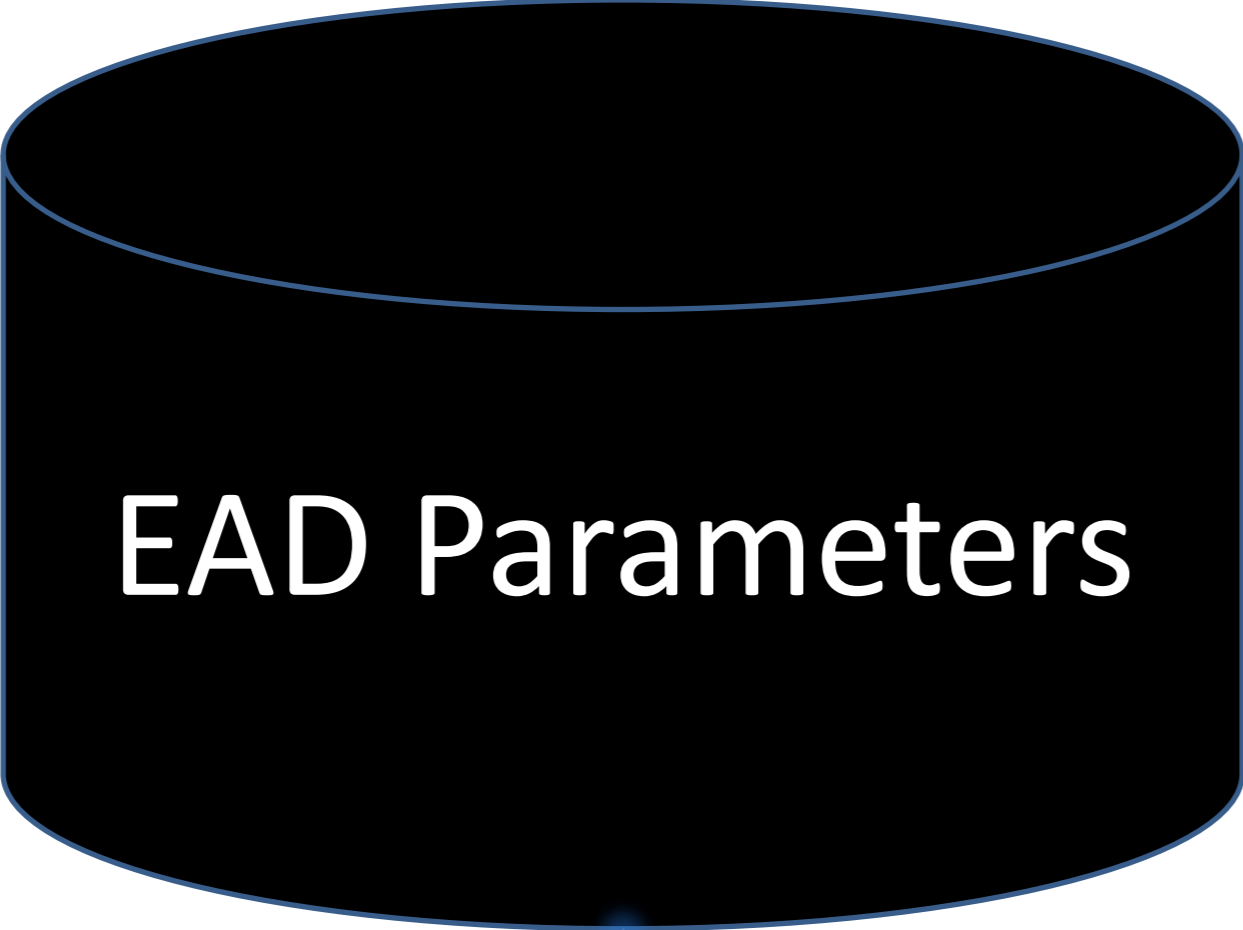
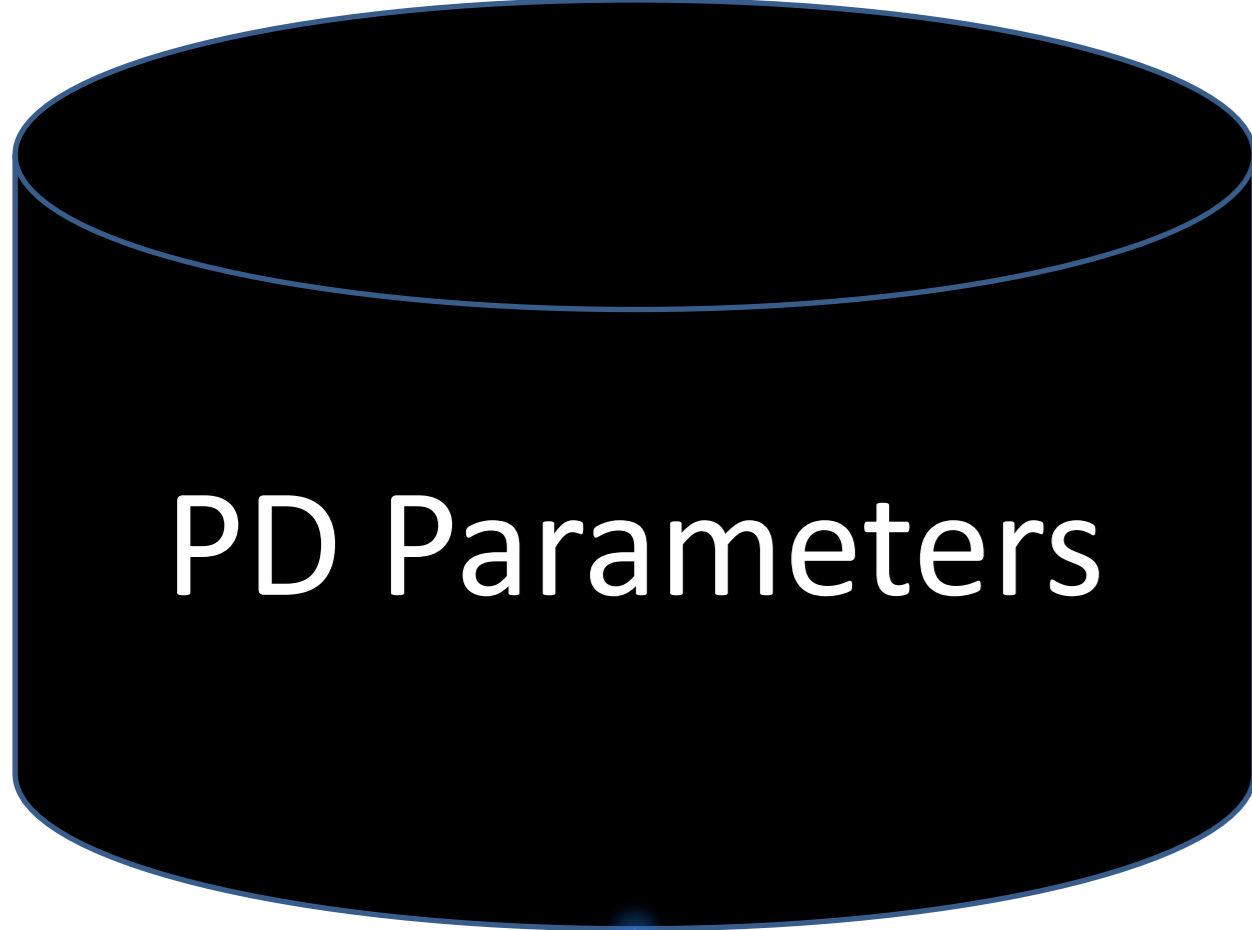
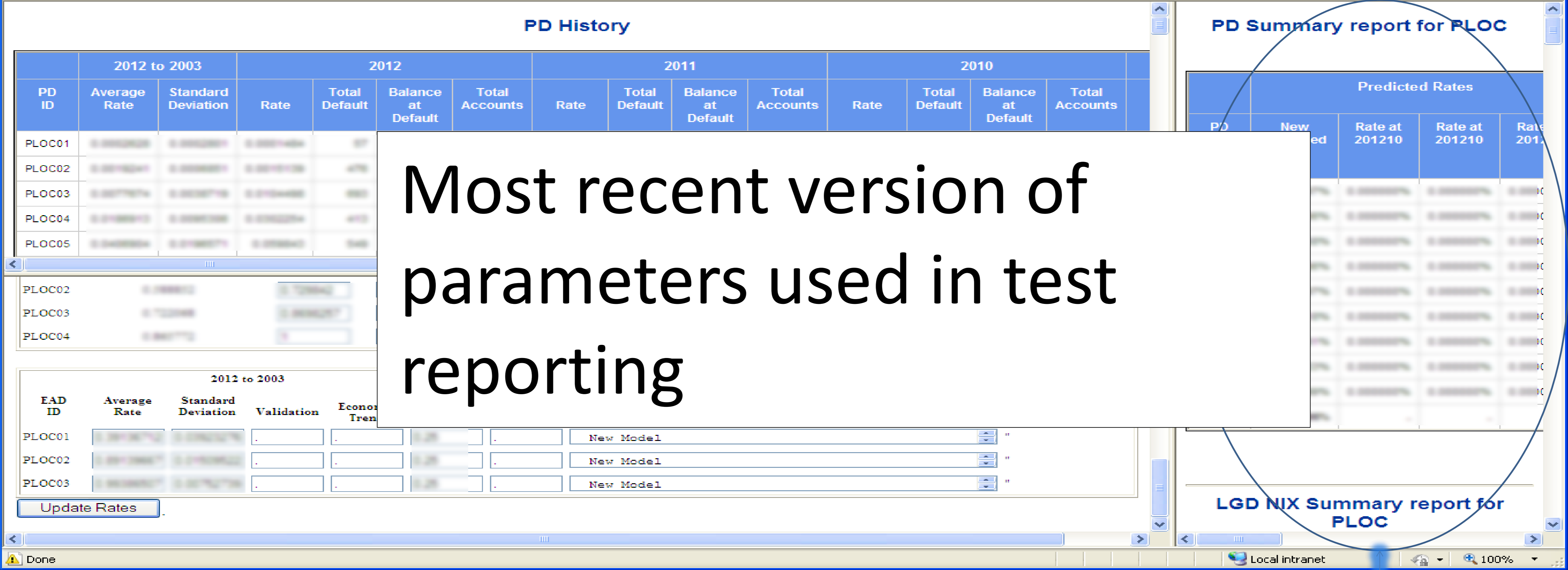
# Segment Intersect Level data used to populate 2% of reporting

## History Data at Segment Intersect Level

# Data Storage



# Data Storage



# Data Storage

History Data at Segment Level

### PD History

PD ID	2012 to 2003			2012			2011			2010				
	Average Rate	Standard Deviation	Rate	Total Default	Balance at Default	Total Accounts	Rate	Total Default	Balance at Default	Total Accounts	Rate	Total Default	Balance at Default	Total Accounts
PLOC01	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%
PLOC02	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%
PLOC03	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%
PLOC04	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%
PLOC05	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%	0.00000%	0%	0.00000%	0.00000%

### PD Summary report for PLOC

PD ID	Predicted Rates			
	New Proposed Rate	Rate at 201210	Rate at 201210	Rate at 201210
PLOC01	0.00000%	0.00000%	0.00000%	0.00000%
PLOC02	0.00000%	0.00000%	0.00000%	0.00000%
PLOC03	0.00000%	0.00000%	0.00000%	0.00000%
PLOC04	0.00000%	0.00000%	0.00000%	0.00000%
PLOC05	0.00000%	0.00000%	0.00000%	0.00000%
PLOC06	0.00000%	0.00000%	0.00000%	0.00000%
PLOC07	0.00000%	0.00000%	0.00000%	0.00000%
PLOC08	0.00000%	0.00000%	0.00000%	0.00000%
PLOC09	0.00000%	0.00000%	0.00000%	0.00000%
Total	0.00000%	0.00000%	0.00000%	0.00000%

### 2012 to 2003

EAD ID	Average Rate	Standard Deviation	Validation	Economic Trend	Data/Model	Other	Comments	Segment Description
PLOC01	0.00000%	0.00000%					New Model	
PLOC02	0.00000%	0.00000%					New Model	
PLOC03	0.00000%	0.00000%					New Model	

Update Rates

### LGD NIX Summary report for PLOC

PD Parameters

EAD Parameters

LGD Parameters

History Data at Segment Intersect Level