SAS® Profitability Management 1.2 Tutorial

Contents:

Introduction:

This tutorial is intended to familiarize you with the basic business profitability modeling concepts that are used in SAS Profitability Management software. To complete the profitability modeling process, move through this tutorial from beginning to end exactly as it is presented. At the end of this document, you may refer to the summary of SAS Profitability Management user interface for a detailed description for the windows and menus.

Even through you may be familiar with the concepts of SAS Profitability Management and customer detailed profitability reporting, working through this tutorial will make you familiar with the SAS Profitability Management software – the concepts, terminology, commands, dialog boxes and web reporting tools.

The vital key of computing segment profitability is the ability to accurately associate costs with business segments. The heart of the problem is the difference in how revenue and costs are managed and tracked in accounting systems. Revenue is generated by the customer and straightforward. It is usually automatically associated with business segments by sales order, invoicing, or funds transfer systems. This makes it relatively easy to perform business segment analysis using revenue alone. In contrast, costs are not as easily associated with business segments. IT, operations, support, distribution, and administration functions are generally supporting many business segments simultaneously.

These shared and indirect costs should ideally be traced based on logical cause-and-effect relationships to products, services, channels and customers. Traditional costs systems violate this by using arbitrary cost allocations with broad averages (such as the number of customers) thus providing over-costed and under-costed results which experience has

proven as being grotesquely flawed compared to using the correct method – the method in SAS Profitability Management

SAS Profitability Management is a set of highly flexible profitability analysis solutions that provides the ability to associate a cost and revenue with individual business transactions. This provides the ability to calculate profit and loss based on individual transactions. SAS Profitability Management provides the level of reporting detail that will allow business managers to actively manage profit as a performance metric. By delivering a profitability measurement system that tracks profit down to the business segment level the product will enable business managers to track the profit performance of customer groups or individual customers, product groups or individual SKU's, channels or specific branches or combinations of these dimensions or others as defined by the customer.

Tutorial conventions

Procedures

A procedure is a task that includes a set of number step-by-step instructions. Some steps are followed by a comment or an explanation. A section that has the following format convention indicates a procedure:

❈ **Begin this tutorial**
   1. Perform step one:
        a. Explanatory comments and illustrations, which explain and display results of proper completion of preceding steps, are included between steps when necessary
   2. Perform step two:

Illustrations

Depending upon your display settings and the number of times that you perform a step or a procedure, the information in the windows might differ slightly from the illustrations that appear in this tutorial, because the current model view in SAS Profitability Management will reflect the model edits already done. After you have entered a rule or imported an association, the SAS Profitability Management user interface will reflect your edits. Illustrations will usually show only the pertinent portions of the screen that are being discussed.

Online help

The online help is a comprehensive information system that has full text search capabilities. It includes:
   - Detailed step-by-step instructions to complete specific tasks
   - Information about features
   - Reference material

Technical support

If you encounter problems that you cannot solve, by reading the online help or this tutorial, refer to SAS technical support home page on the web at: http://support.sas.com/techsup/intro.html
Our support goal is to provide you with the resources you need to answer any questions or solve any problems you encounter when using SAS software. We provide a variety of tools to help you solve problems on your own, and a variety of ways to contact our technical support staff when you need help. Free technical support is available to all sites licensing software from SAS Institute. This includes unlimited telephone support for customer in North America. Customers outside of North America should contact their local SAS Institute office.

Additional training and tutorials

Additional training and tutorials can be found at the SAS web site http://www.sas.com and the companion web site http://www.bettermanagement.com. Bettermanagement.com offers in-depth domain content about selected management concepts that are aimed at improving an organization's performance. The web site is a comprehensive source for performance management information and resource including web casts, white papers, training and tutorial materials. Topics that are covered on the web include value-based management, profitability analysis, strategic enterprise management, activity-based costing / management, business intelligence, analytic analysis, scorecarding and performance measurement.

The SAS Profitability Management methodology:

Business requirements:

Profitability management is the most significant issue for any corporation. Profitability is derived from both analyzing the revenue performance for a given business dimension (customer, product, region, channel, customer segment), and analyzing the costs directly associated with serving those customers and providing those products. The critical challenge for business is to appropriately correlate revenue and costs into a meaningful profit and loss statement at the level of detail (by dimension: specific (customers, channels, products), where direct managers can make decisions to drive changes which directly affect overall company profitability.

In the growing level of corporate complexity and the level of detailed transactional information tracing corporate and customer interactions, detailed data analysis can be overwhelming. Business managers need a clear tool to deal with millions of detailed transactions, and produce an actionable profit and loss statement at a customer detailed level. Businesses with millions of customer transactions are the companies with the most to gain from implementing SAS Profitability Management. This solution is most crucial in the telephone and banking industries, where customer differentiation can be most decisive to overall corporate profitability.

With SAS Profitability Management, decision makers can define the segmentation reports that they need on the fly. SAS enables business managers to track the profit performance of customer groups or individual customers, product groups or individual SKUs, channels or specific branches--presenting a drill-down view into revenue, and cost categories so they can manage profit as a performance metric.

Reporting solutions:

SAS Profitability Management takes the cost and revenue behaviors, matches those behaviors to the detailed transactions. The association of the behaviors to the transactions is based upon a wizard driven rules engine. The resulting calculated detailed transaction tables are then used as source content for a profit and loss statement.

The delivered web deployed profit and loss statement:
1) Is based upon a custom defined report layout and can support complex calculation logic to present your company's reporting needs.
2) Is drillable for increasing level of details (revenue breakdowns or contributing costs details).
3) Is drillable based upon dimensional hierarchies
4) A summary cube report:
   a. Can be created to include only specific dimensions
   b. Can be summarized by depths noted in any dimension
5) A detailed cube report:
   a. Can be defined with filter logic for a single dimension member

b. A cube report can be run on the fly

The Baby Bank tutorial model:

Company background

The Baby Bank is a small sample model focused upon the banking industry. The company has branches and also services customers through call centers. It performs both retail and corporate banking. The business problem they are trying to solve is to produce customer profitability, so that the banking managers can view the details of a customer's behavior and profitability value to Baby Bank. By having this detailed profit and loss information at the managers finger tips they can make better management decisions on how to service the existing customers, and what specific types of customers to focus marketing efforts toward.

Baby Bank – sample model

This Baby Bank model consists of:
1) 5 dimensions
   a. Channel (3 members : ATM, branch and call center)
   b. Customer (101 members : 50 individuals and 51 businesses)
   c. Customer type (4 members : corporate banking, private banking, retail consumer banking, small business banking)
   d. Product (14 members : credit products, credit-unsecured, credit-secured, deposit products, term, savings, recurring, checking, fee based products, other products, revolving credit products, overdrafts, credit cards and third party products)
   e. Regions (204 members: by area, country, state and city)
2) 2 periods – (3 levels : year, quarter and scenario)
   a. 2006_q4_actual
   b. 2006_q4_budget
3) 6 transaction tables with a total of 4180 records
   a. ABMCost: Load_Trans_q4a and Load_Trans_q4b
   b. CallCenter: CallCenter_q4a and CallCenter_q4b
   c. Revenue: Revenue_q4a and Revenue_q4b

Profitability management goals

Baby Bank is constantly growing its customer base. They have been very effective with their new marketing campaign. But it has not been growing in profitability, so the previous goals for increasing the revenue as the primary goal for Baby Bank are being reevaluated. The new focus for Baby Bank is to focusing on controlled profitable growth. So the profitability of all customers will be evaluated on a detailed basis. Once Baby Bank can determine what are the characteristics of profitable customers, internal controls can be implemented to decrease the costs associated with high cost activities. The ultimate goal is to move existing customers to profitability through behavior changes or increased fees. The effort of recruiting more profitable new customers will be keyed on

marketing efforts to target new customers with behaviors which will be profitable to Baby Bank.

Source behaviors model structure

In the Baby Bank example model the source content for the behaviors came from an activity based costing model. This ABC model started with general ledger expenses, assigned the costs to activities based upon staff efforts required and capital employed. Then the activities were traced to cost objects by channel (ATM, branch or call center), by product supported (savings, checking, mortgage) and by transaction type (open account, check balance, make deposit). These cost objects from ABM by channel and product and transaction type are the source behaviors feeding into the SAS Profitability Management model.

In implementing SAS Profitability Management, behaviors costs can come from any source. ABC is not a required source for SAS Profitability Management. As long as the appropriate costs are traced for each behavior at an appropriate level of granularity and an appropriate cost basis unit or total has been reliably calculated, it will be a good source feed for behaviors into SAS Profitability Management.

Transaction data collection

Operational transaction data tracing customer interactions with the company are critical to the effectiveness of the SAS Profitability Management model. This transaction detail can come from a multitude of source systems within your corporation. For the Baby Bank model there are three sources for the transactional costs. The first is the transaction register for all interactions on an account basis (ATM and branch transactions). The second is a register for all call center interactions on customer and product basis. The third source system is a register for all customer revenue tracing fees for credit cards and interest payments.

Getting started:

Basic steps to building a model

Below is an overall checklist for all of the steps necessary to build a SAS Profitability Management model and produce and navigate through profitability reporting.

Major Task Number	Tutorial Step	Task
1		Define the Data Locations
		Define the Data Folder for the Source Data
		Define the Data Folder for the Target Calculated Data
2		Create your SAS Profitability Management source tables
		Table: behavior
		Table: report hierarchy
		Table: report layout
		Table: period dimension
		Tables: custom dimensions
		Tables: transaction tables revenue
		Tables: transaction tables costs
		Tables: rules definition
		Tables: association definition
3		Install the SAS Profitability Management Product
		Install SAS Business Intelligence (BI) on the server
		Install SAS Profitability Management server with BI installed
		Install SAS Management Console on your Client system
		Install SAS Profitability Management rich client on your client system
4		SAS management console SMC:
	1	Define SAS Profitability Management user – not for every model
	2	Define user read and write access to the Source and Target libraries
	3	Define: source tables Libname and destination table libname
5	4	Login to the SAS Profitability Management rich client
6		Server configuration for SAS Profitability Management - done once for server, not needed for each model – see installation guide for details
7		Create a new profitability model
	5	Give the new model a name
	6	Select the source table for the time dimension
	7	Select the Libname for the destination tables
	8	Verify the data location for the model storage
	9	Select the behavior source table
	10	Add dimension tables to the model
	11	Select the report hierarchy source table
	12	Select the report layout source table
8		Create new transaction tables
	13	Define the transaction source content
	14	Define the table group: categorize the columns
	15	Select the specific transaction tables for that table group

	16	Match the time period with the transaction table
9	17	Change analysis settings
10		Define the rules used in the model
	18	Add an assignment rule: name
	19	Assignment rule define table group
	20	Assignment rule define matching selection criteria
	21	Assignment rule define driver formula
	22	Assignment rule based upon multiple filters
	23	Assignment rule import table to define multiple rules
11		Create an association between the behaviors and the rules
	24	Select an unassigned behavior
	25	Select the table group - source for rule
	26	Select the specific rule
	27	Import associations to match rules to behaviors
12		Reports
	28	Define summary reports: name
	29	Define summary reports: select dimensions to include
	30	Define summary reports: select dimension depth to include
	31	Define summary reports: select measures to include
	32	Define detail reports: select dimensions for reporting
13		Calculate
	33	Select the periods to calculate
	34	Select the transaction groups to calculate and the summary cubes to generate
	35	Review the calculated results to verify
14		Viewing PM web reports
	36	Logon to the Pm web reporting
	37	Select summary cube for reporting
	38	SWOVJ: verify cube results with source content
	39	SWOVJ: customize report layout
	40	SAS web OLAP viewer – save as data exploration
	41	Return to web reporting home: select a detail report
	42	Detail report enter the specific parameter: review result
	43	SAS web OLAP viewer – verify cube results

Content required by the profitability model

The sample SAS tables and this tutorial are on the CD as part of the midtier install files. To find the precise location for the tutorial source files, check the on line help documentation.

For additional details describing the source tables required for SAS Profitability Management, please refer to the chapter on model data requirements at the end of the tutorial.

Tables provided:
1) Association – this table holds the relationships between the behaviors (where costs reside) and the rules (which define the assignment logic to transactions).

2) Behavior – this table holds all of the transactions and costs (total or unit)
3) CallCenter_q4a – call center transaction details for the 4th quarter actual
4) CallCenter_q4b – call center transaction details for the 4th quarter budget
5) Dim_channel – the hierarchy definition for the channel dimension
6) Dim_customer – the hierarchy definition for the customer dimension
7) Dim_custtype – the hierarchy definition for the customer type dimension
8) Dim_period – the hierarchy definition for the time period dimension
9) Dim_product – the hierarchy definition for the product dimension
10) Dim_region – the hierarchy definition for the region dimension
11) Load_trans_q4a– ABMCost transaction details 4th quarter actual
12) Load_trans_q4b – ABMCost transaction details 4th quarter budget
13) ReportHierarchy – the report hierarchy defining the drill-down detail
14) ReportLayout – the report layout defining the profit and loss calculations
15) Revenue_q4a – the revenue transaction details 4th quarter actual
16) Revenue_q4b – the revenue transaction details 4th quarter budget
17) Rules – the definition of the assignment rules logic

Defining users in SAS management console (SMC)

❂ **Step #1 Setup the SAS Profitability Management user account**
1. Login to the SAS management console as an administrator
2. Select the Foundation repository
3. Select the Environment Management
4. Select the User Manager
5. Right click select new user
    a. General tab: enter your name, job title, description, e-mail information
    b. Groups tab: add PM Users to the set of groups that this user is a member of
    c. Login tab: select new
        i. Enter your user id on the network
        ii. Leave the password blank – comes from the network ??????
        iii. Leave confirm password blank – comes from the network ??????
        iv. Select the "DefaultAuth" for the authentication domain
    d. Authorization tab – leave blank
6. Log off of the SMC with the administrator rights

Give your user id access to the source tables

❂ **Step #2 Setup the users access to the Baby Bank sample tables**
1. Give your user read, modify and write access to the source folder
2. Baby bank sample SAS tables and this tutorial are on the installation CD. To get the tutorial source files from the CD, do the following:
    a. Navigate to the following location: *<< Customer Install Depot Location>>* \abmprof1cd\abmprof1cd_doc.

b. Open **en.zip** and extract the file **tutorial.zip** to your local machine at the following location:

C:\ *<<Your Location>>* \abmprofclnt.

c. Open **tutorial.zip**, and then extract its contents. You use the extracted SAS tables as the source content for this tutorial.

3. Install the sample files from the CD into the following directory, on your PM server:

a. C:\SAS\<<Your User Name>>\1.2\Tutorial\Bank_Beg

b. Multiple people may wish to walk through this tutorial so you should specify the path for the file for your user.

4. Create a target destination folder for the calculated results tables.

a. C:\SAS\<<Your User Name>>\1.2\Tutorial\Bank_End – Define the Folder But put Nothing in it. Each user should have his own destination folder,

5. Give your user read, modify and write access to the source and destination folders you have created.

## *Defining libraries in SAS management console (SMC)*

❈ **Step #3 – Add the SAS tables to a library in SMC**

1. Find the Baby Bank source files on your PM Server

a. C:\SAS\<<Your User Name>>\1.2\Tutorial\Bank_Beg

b. C:\SAS\<<Your User Name>>\1.2\Tutorial\Bank_End

2. Define the source and destination table storage locations and Libname

a. Login to SAS management console with your new SAS Profitability Management user login

b. Select the foundation repository

c. Select the data library manager

d. Right click and select new library
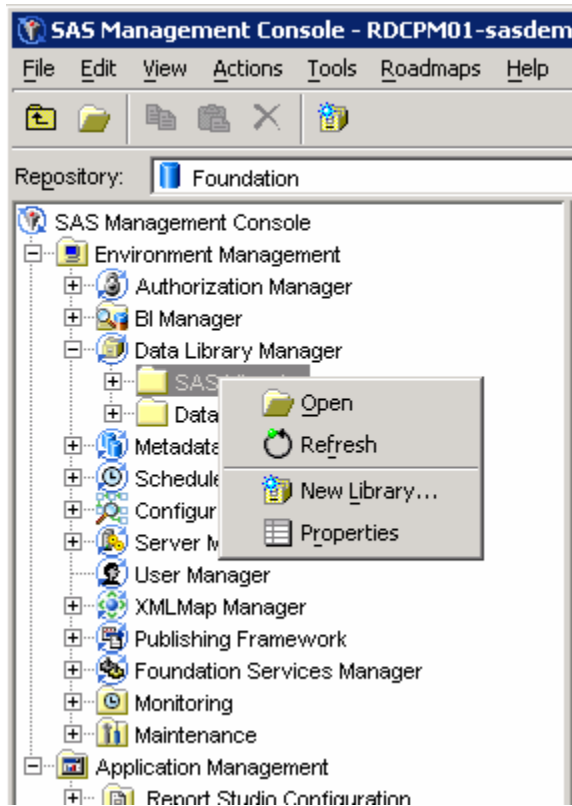
2) New library wizard: location for source files
   a. Select the type of library: example: SAS base engine
   b. Specify the name for the new library: example: Bank_Beg
   c. Enter the following library properties
       i.   Libref – must be less than 8 characters (Bank_Beg)
       ii. Engine: base
       iii. Path specification – where your source files are
       iv. Select the SAS server where library is assigned (SASMAIN)
   d. Import the tables into SMC
   e. After the tables have been imported the SAS library should look like the following:
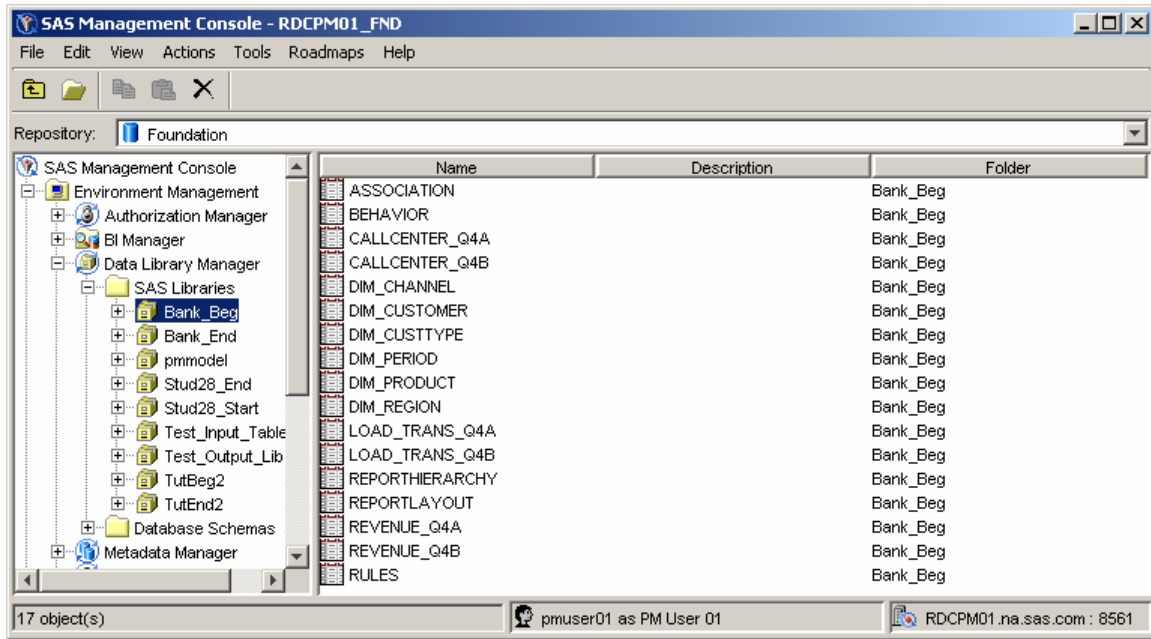
3) New library wizard: location for destination files, this is where the calculated transaction tables will be stored, and this is where the SAS OLAP cube generation will get their source content.
   a. Select the type of library: example: SAS base engine
   b. Specify the name for the new library: example: Bank_End
   c. Enter the following library properties
      i. Libref – must be less than 8 characters (Bank_End)
      ii. Engine: base
      iii. Path specification – where the destination files will be created.
      iv. Select the SAS server where library is assigned (SASMAIN)

Logging in

✵ **Step #4 Login to the SAS Profitability Management rich client**

1. Login :
    a. User: as defined in the SAS management console
    b. Password : as defined in SAS management console
    c. Server : your SAS Profitability Management server id
    d. Port : 8561 is the default for the SAS Metadata Server

Creating a new profitability model:
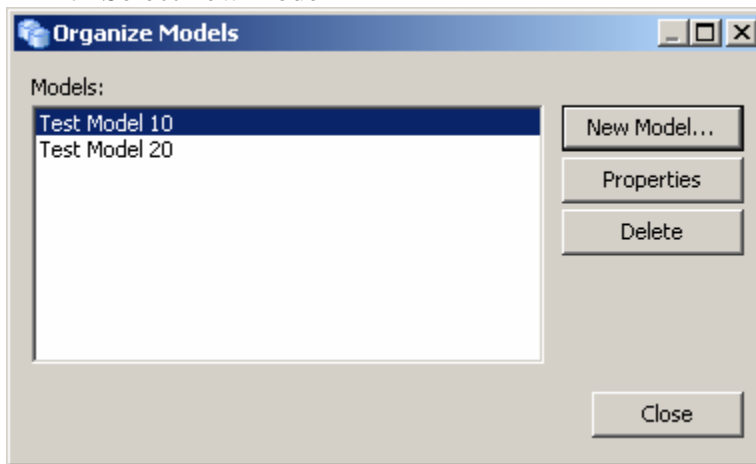
Give the new model a name

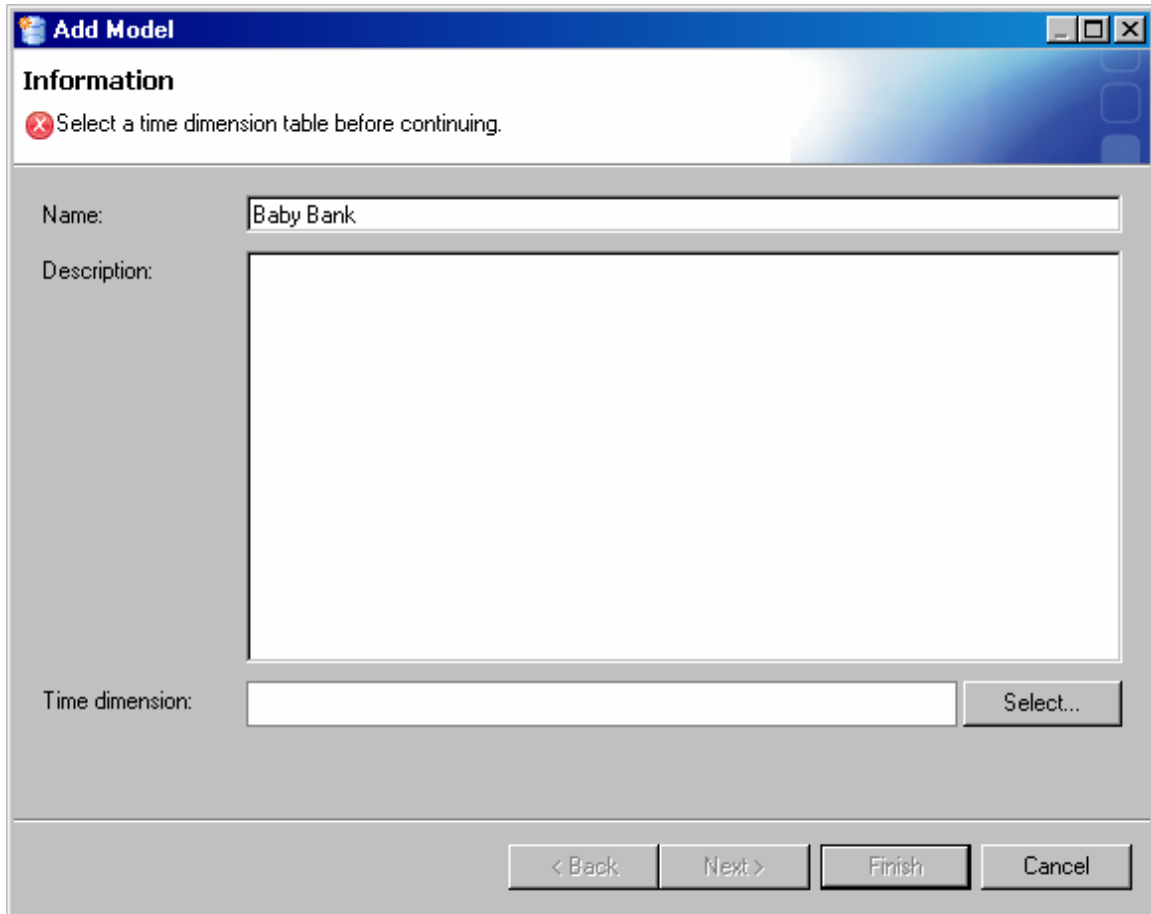� **Step #5 Create a new model**

  1. Select file : organize models

  2. Select new model

  3. Add model wizard - process
      a. Name for the model

       b. Description

Select the source table for the time dimension
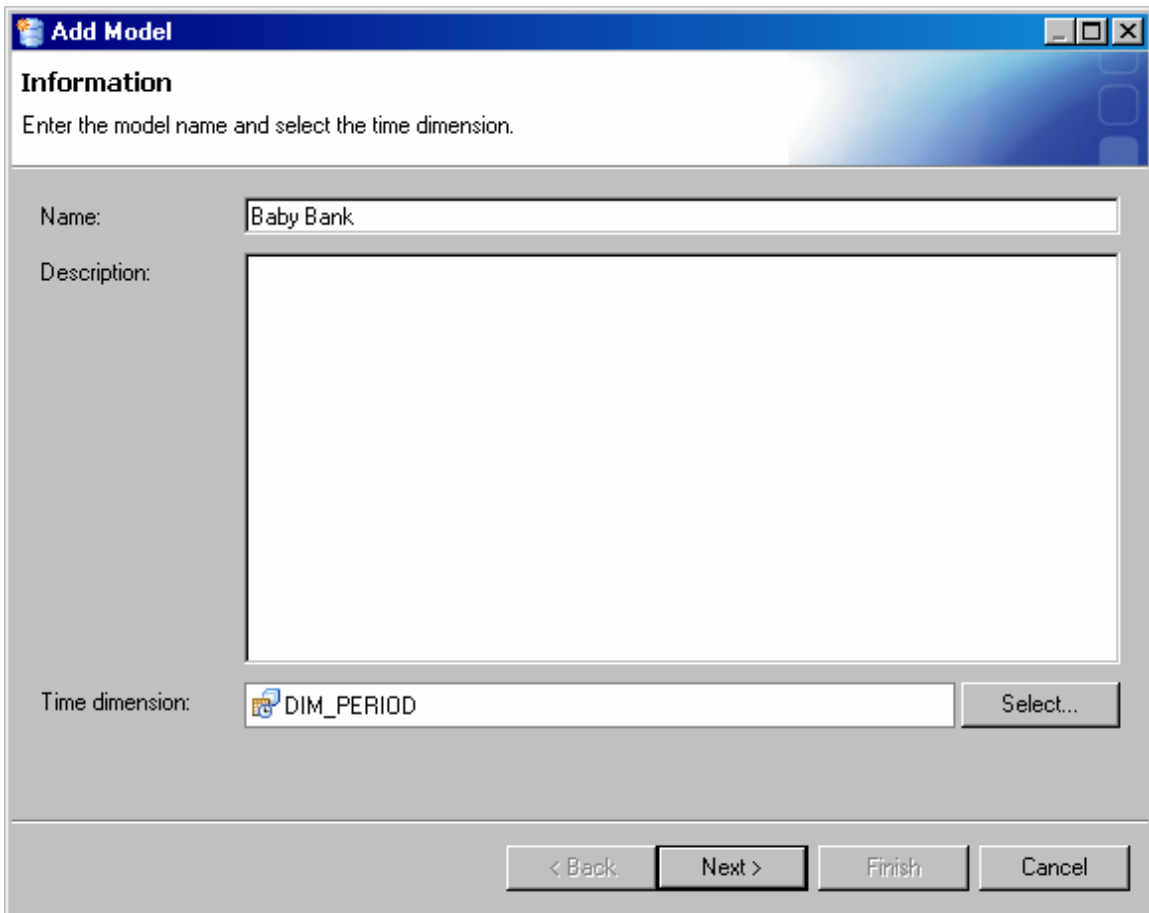
�   **Step #6 Define the time dimension**
1. The time period dimension definition table looks like this:

2. Push the select button on the time dimension
    a. Your specific source library: Bank_Beg
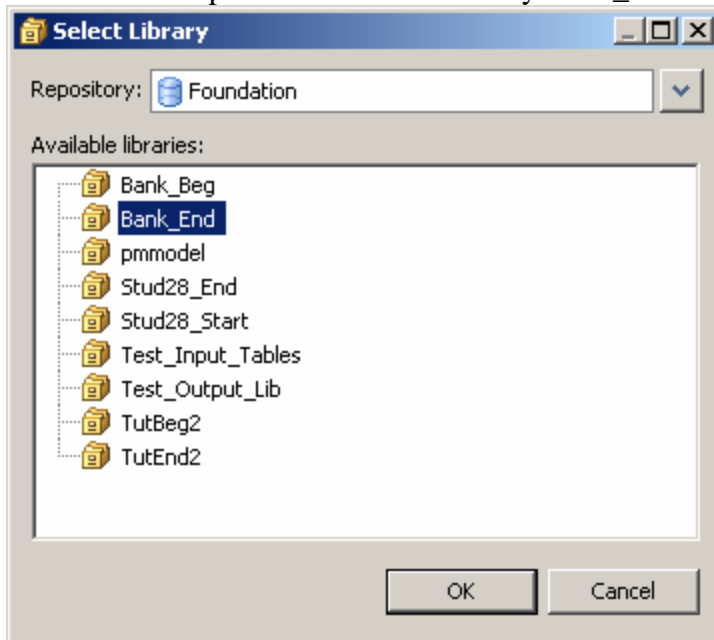3. Select your source table for the time period definition
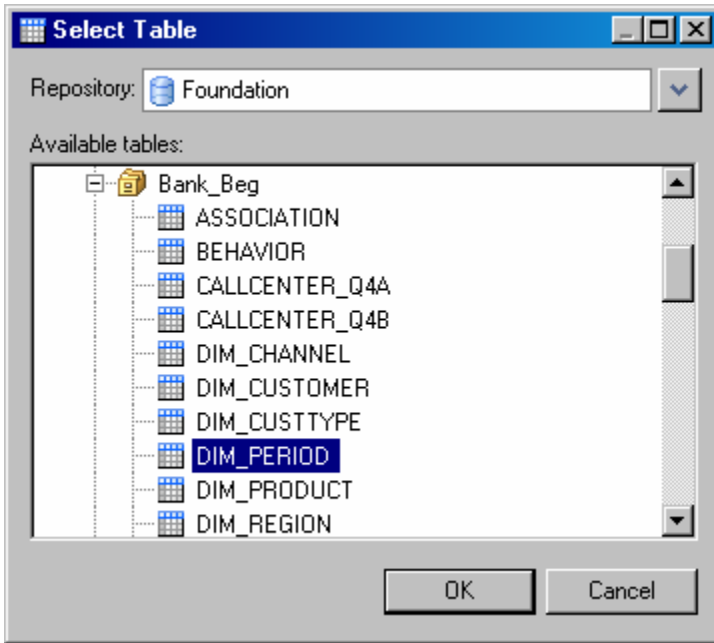
4. Result:

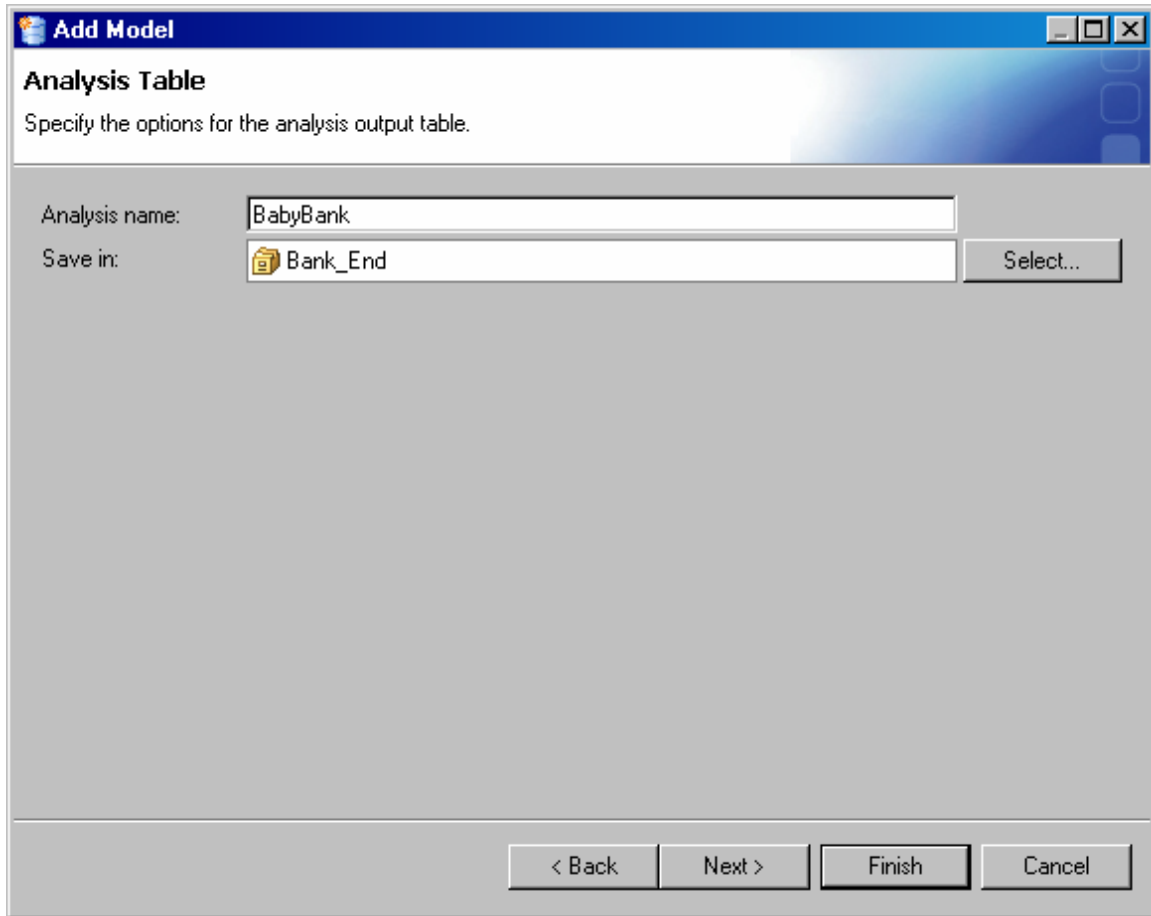## *Select the Libname for the destination tables*

⚙ **Step #7 Define the destination folder for calculated transaction tables**
1. Hit next to see the next screen
2. Use the select button to specify the library to save analysis data to:
3. This is specific destination library Bank_End

3. Result

Verify the data location for the model storage

✿ **Step #8 Verify the location for the results model**
   1. Verify the data location for the model storage: no edits needed

Select the behavior source table

� **Step #9 Select the behavior source table**
1. The behavior source table has the following content:

VIEWTABLE: Pm_tut.Behavior

	Time	ID	Name	AssignmentRule	TotalValue	UnitValue
1	2006_Q4_Actual	20003	ATM_CHK_Check balance	ATM_CHK_Check balance	0	0.0017787911
2	2006_Q4_Actual	20004	ATM_CHK_Deposits	ATM_CHK_Deposits	0	0.0002185084
3	2006_Q4_Actual	20005	ATM_CHK_Fund Transfer	ATM_CHK_Fund Transfer	0	0.0009832989
4	2006_Q4_Actual	20006	ATM_CHK_Withdrawals	ATM_CHK_Withdrawals	0	0.0046823842
5	2006_Q4_Actual	20007	ATM_CRC_Withdrawals	ATM_CRC_Withdrawals	0	0.0018701935
6	2006_Q4_Actual	20009	ATM_REC_Deposits	ATM_REC_Deposits	0	0.0001305991
7	2006_Q4_Actual	20010	ATM_SAV_Check balance	ATM_SAV_Check balance	0	0.0026134923
8	2006_Q4_Actual	20011	ATM_SAV_Deposits	ATM_SAV_Deposits	0	0.0003577399
9	2006_Q4_Actual	20012	ATM_SAV_Fund Transfer	ATM_SAV_Fund Transfer	0	0.0014447168
10	2006_Q4_Actual	20013	ATM_SAV_Withdrawals	ATM_SAV_Withdrawals	0	0.0070761577
11	2006_Q4_Actual	20014	ATM_TRM_Deposits	ATM_TRM_Deposits	0	0.0000743612
12	2006_Q4_Actual	20015	ATM_TRM_Withdrawals	ATM_TRM_Withdrawals	0	0.0015935121
13	2006_Q4_Actual	20016	BRH_CHK_Check balance	BRH_CHK_Check balance	0	0.0203469813
14	2006_Q4_Actual	20017	BRH_CHK_Deposits	BRH_CHK_Deposits	0	0.0059585007
15	2006_Q4_Actual	20018	BRH_CHK_Fund Transfer	BRH_CHK_Fund Transfer	0	0.0246702682
16	2006_Q4_Actual	20020	BRH_CHK_Withdrawals	BRH_CHK_Withdrawals	0	0.0330455994
17	2006_Q4_Actual	20026	BRH_REC_Deposits	BRH_REC_Deposits	0	0.0036462253
18	2006_Q4_Actual	20027	BRH_REC_Withdrawals	BRH_REC_Withdrawals	0	0.0014959033

2. Select behavior source table: specific to your beginning library.
3. The behavior table holds the source values for both revenue and costs
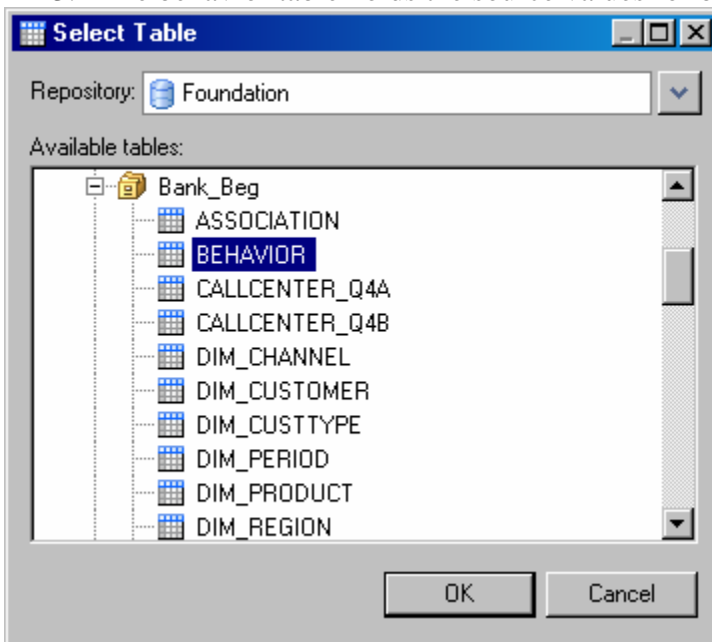
4. Map your source table headings to the required fields for a behavior table.
   a. Select the drop down arrow to map your source table columns to the required columns, the system should attempt to automatically map the columns.
   b. You will notice that assignment rule, while it is a column in the source table it is not used as a required column. All of your source tables can have extra columns, without causing any problems.
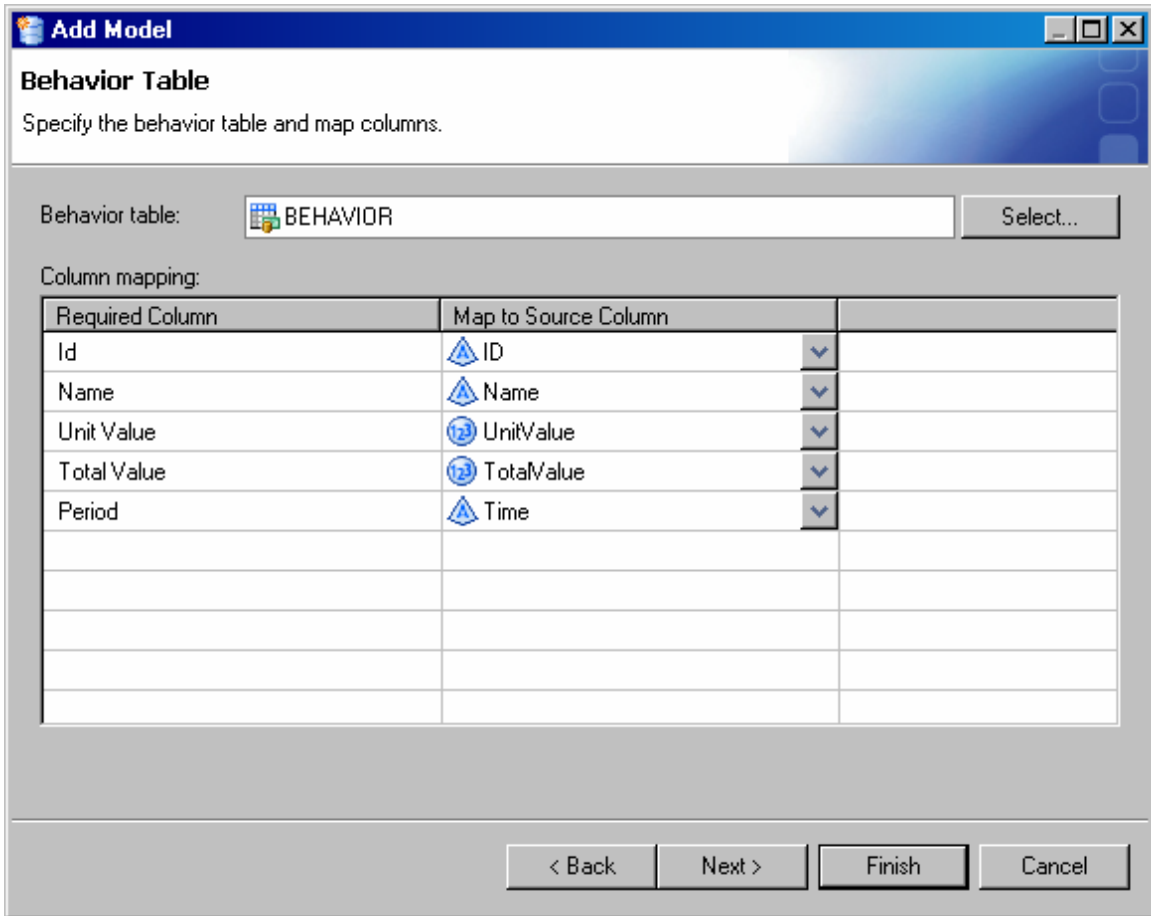
Add dimension tables to the model

✾ Step #10 Select the dimensions to define the model

1. Your dimensional source tables for the Baby Bank model look like this:
   a. Channel Dimension

   b. Customer Dimension

VIEWTABLE: Pm_tut.Dim_customer

	ID	L1_Type	L2_LastName	L3_FirstName
1	00001	Personal	Browning	lee
2	00002	Personal	Scarella	Cynthia
3	00003	Personal	Bosch	Duane
4	00004	Personal	DiGarmallo	Mark
5	00005	Personal	Pennise	Alana
6	00006	Personal	Gilbert	Vicki
7	00007	Personal	Ellison	David
8	00008	Personal	Butler	Edward
9	00009	Personal	Shipley	Terri
10	00010	Personal	Carpp	Jim
11	00011	Personal	Chan	De Young
12	00012	Personal	Ramawickrama	Prasad
13	00013	Personal	Rhodes	Anita

c. Customer Type Dimension

VIEWTABLE: Pm_tut.Dim_custtype

	ID	L1_CType	L2_CType
1	RCB	Personal	Retail Consumer Banking
2	SBB	Business	Small Business Banking
3	PRB	Personal	Private Banking
4	CRB	Business	Corporate Banking

d. Product Dimension

VIEWTABLE: Pm_tut.Dim_product

	ID	L1_Product	L2_Product
1	CRP	Credit Products	
2	DEP	Deposit Products	
3	FBP	Fee Based Products	
4	OTP	Other Products	
5	RCP	Revolving Credit Products	
6	TPP	Third Party Products	
7	SCR	Credit Products	Secured/Mortgages
8	UCR	Credit Products	Un secured
9	CHK	Deposit Products	Checking
10	REC	Deposit Products	Recurring
11	SAV	Deposit Products	Savings
12	TRM	Deposit Products	Term
13	CRC	Revolving Credit Products	Credit Cards
14	OVD	Revolving Credit Products	Overdrafts

e. Region Dimension

VIEWTABLE: Pm_tut.Dim_region

	L1_Area	L2_Country	L3_State	L4_City
1	USA_SW	USA	California	Newport Beach
2	USA_SW	USA	California	Oceanside
3	USA_SW	USA	California	Petaluma
4	USA_SW	USA	California	Ramona
5	USA_SW	USA	California	Rancho Cordova
6	USA_SW	USA	California	Torrance
7	USA_SW	USA	California	Vista
8	USA_SW	USA	California	Woodland
9	USA_SW	USA	Colorado	Broomfield
10	USA_SW	USA	Colorado	Ft. Carson
11	USA_SW	USA	Colorado	Greeley
12	USA_SW	USA	Colorado	Woodland Park
13	USA_SW	USA	Hawaii	Camp Smith
14	USA_SW	USA	Hawaii	Kailua
15	EMEA	Netherlands	Netherlands	Ba Utrecht
16	USA_SW	USA	Kansas	Olathe
17	USA_SW	USA	Kansas	Shawnee Mission

2. Add dimension tables: select the add button,
3. Select channel, customer, custtype, product and region
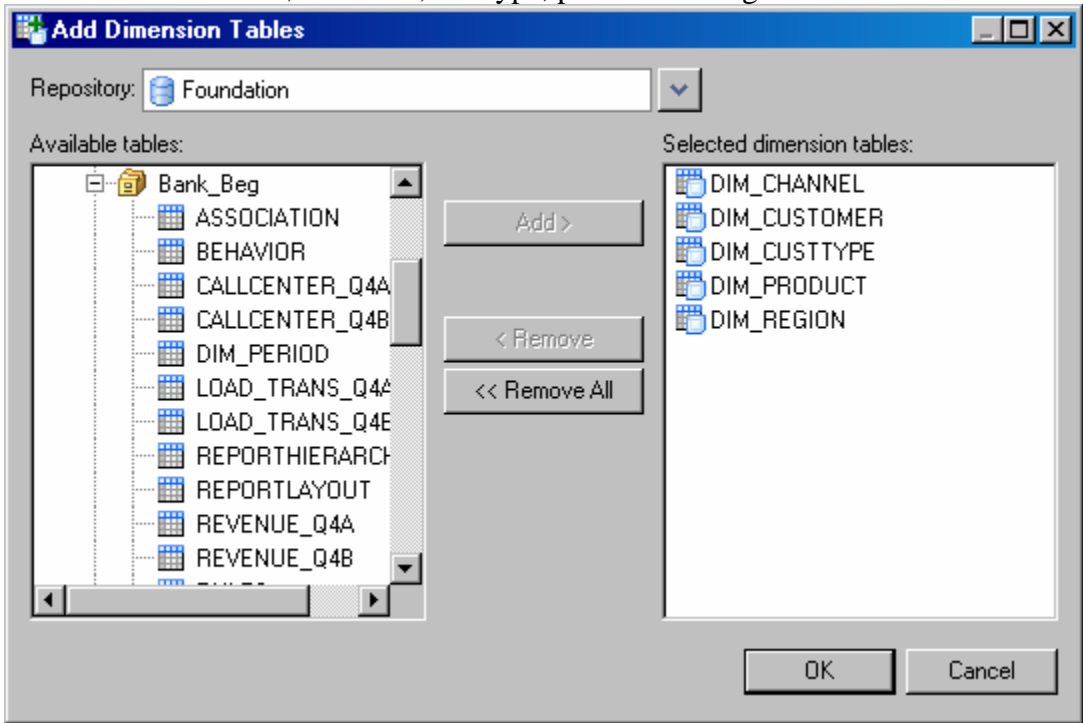
4. Review that the levels are appropriately represented
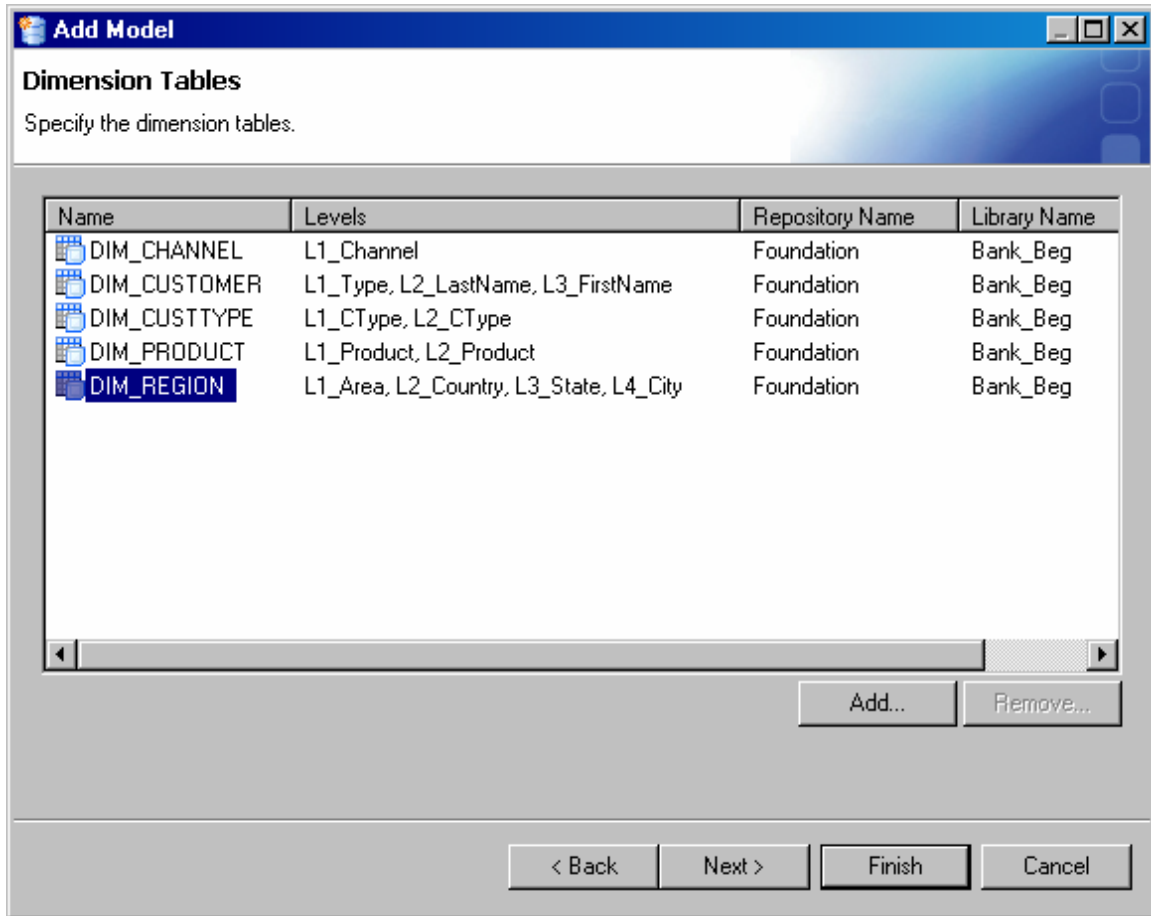
Select the report hierarchy source table

✸ **Step #11 Select report hierarchy table**
1. The report hierarchy source table has the following content:

VIEWTABLE: Pm_tut.Reporthierarchy

	ID	L1_Profit	L2_Profit	L3_Profit	L4_Profit	L5_Profit
1	10001	Interest Income	Credit Card interest Income			
2	10002	Interest Income	Loan Interest Income			
3	10003	Interest Income	Mortgages Income			
4	11001	Interest Expense	Savings Interest Payments			
5	11002	Interest Expense	Certificates of Deposit Payments			
6	11003	Interest Expense	Investment Securities Payments			
7	12001	Fees	Credit Card Fees			
8	12002	Fees	ATM Fees			
9	12003	Fees	Investment Account Fees			
10	12004	Fees	Checking Account Fees			
11	13001	Funds	Credit for Funds			
12	13002	Funds	Charge For Funds			
13	14001	Provision For Losses				
14	20000	Direct Product				
15	20003	Direct Product	Cost to Provide	ATM	CHK	ATM_CHK_Check balance
16	20004	Direct Product	Cost to Provide	ATM	CHK	ATM_CHK_Deposits
17	20005	Direct Product	Cost to Provide	ATM	CHK	ATM_CHK_Fund Transfer
18	20006	Direct Product	Cost to Provide	ATM	CHK	ATM_CHK_Withdrawals
19	20007	Direct Product	Cost to Provide	ATM	CRC	ATM_CRC_Withdrawals
20	20009	Direct Product	Cost to Provide	ATM	REC	ATM_REC_Deposits
21	20010	Direct Product	Cost to Provide	ATM	SAV	ATM_SAV_Check balance

2. Select the report hierarchy source table from your library
3. This table defines the hierarchy for drilling down in the profit and loss report. For the Baby Bank model the report hierarchy defines 5 levels of drill-down to display additional details about the costs.
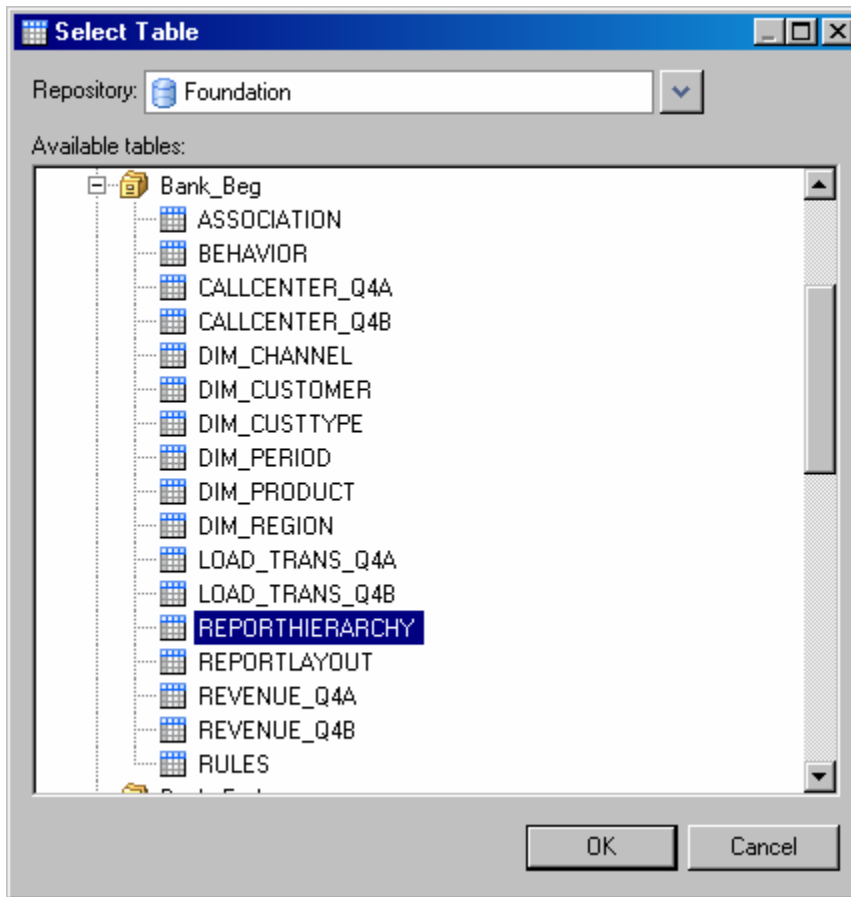
Select the report layout source table

✵ **Step #12 Select report layout table**

1. The report layout source has the following content:

VIEWTABLE: Pm_tut.Reportlayout

	ID	Name	Formula	RowOrder
1	10001	Credit Card interest Income		1
2	10002	Loan Interest Income		2
3	10003	Mortgages Income		3
4	TOT-INT-INC	Total Interest Income	[10001]+[10002]+[10003]	4
5	11001	Savings Interest Payments		5
6	11002	Certificates of Deposit Payments		6
7	11003	Investment Securities Payments		7
8	TOT-INT-EXP	Total Interest Expense	[11001]+[11002]+[11003]	8
9	NET-INT-INC	Net Interest Income	[TOT-INT-INC]-[TOT-INT-EXP]	9
10	13001	Credit for Funds		10
11	13002	Charge For Funds		11
12	NET-FUNDS	Net Funds	[13001]-[13002]	12
13	12001	Credit Card Fees		13
14	12002	ATM Fees		14
15	12003	Investment Account Fees		15
16	12004	Checking Account Fees		16
17	TOT-NON-INT-INC	Total Non Interest Income	[12001]+[12002]+[12003]+[12004]	17
18	14001	Provision For Losses		18
19	20000	Direct Product		19
20	21000	Relationship Management		20
21	22000	Sales and Marketing Effort		21

2. Select the report layout source table, from your library
3. This table is used to define the calculation logic for the profit and loss statement.
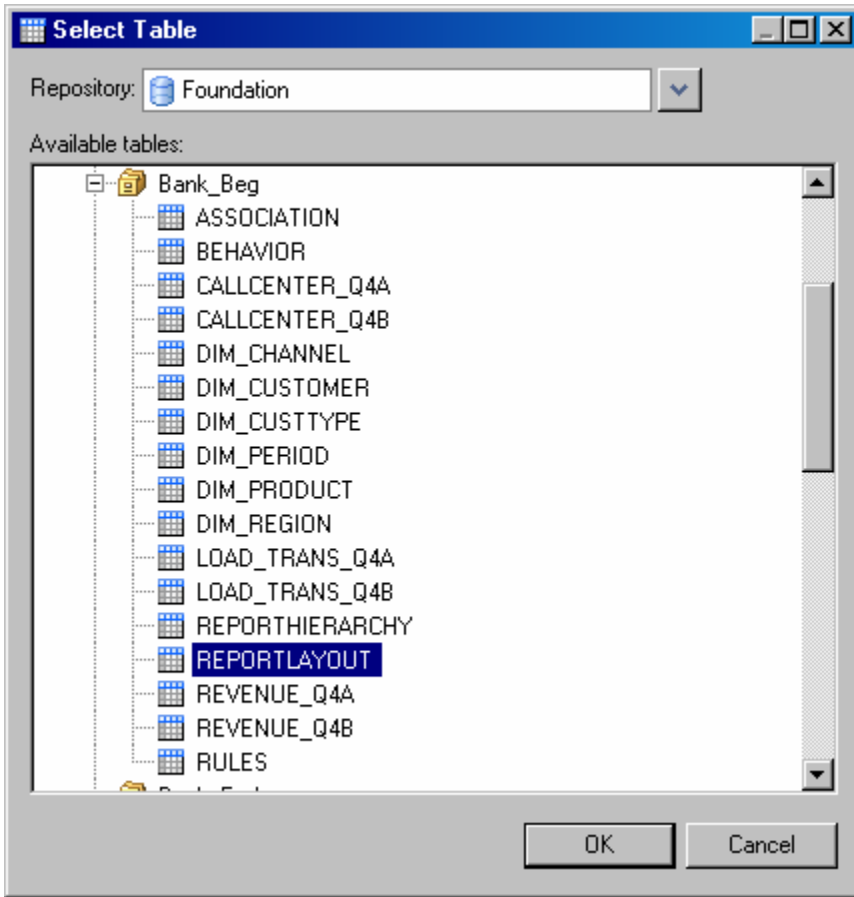
4. Review the final report configuration
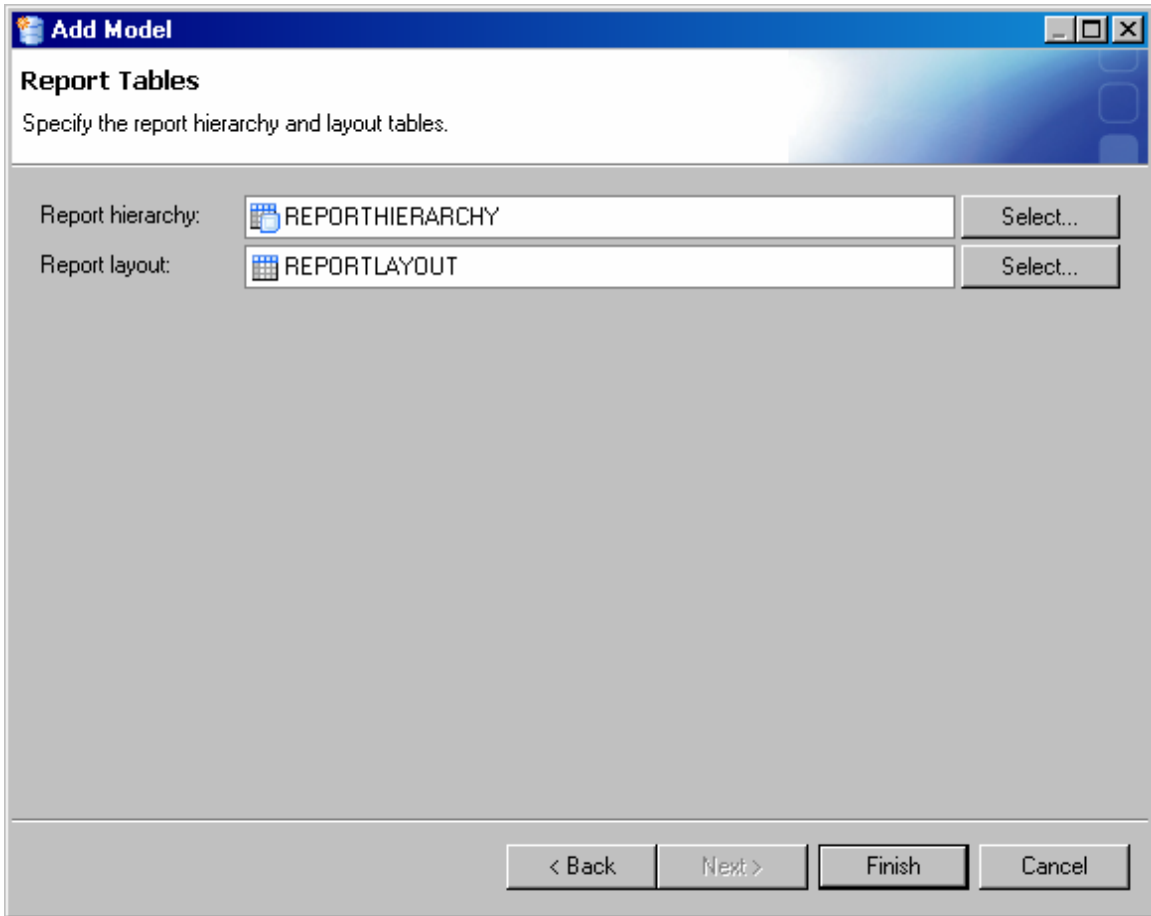
5. Verify the model was created on the list of models
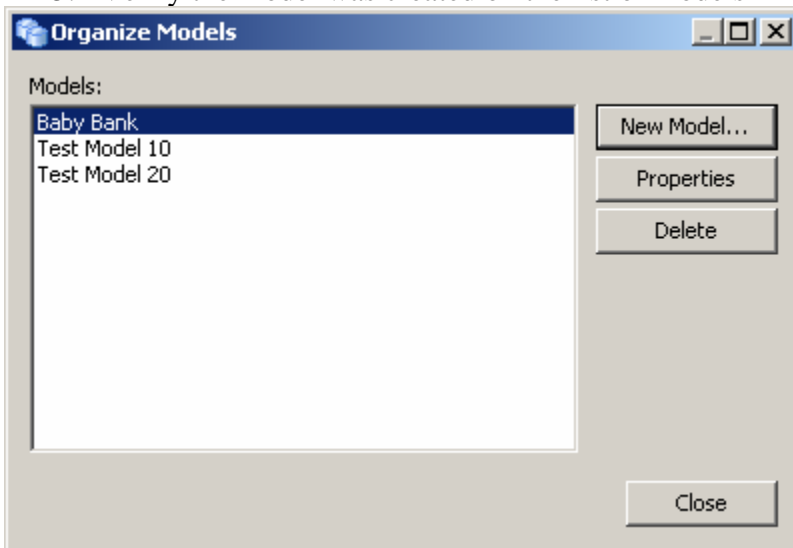
6. The model you just created should open – as a blank model
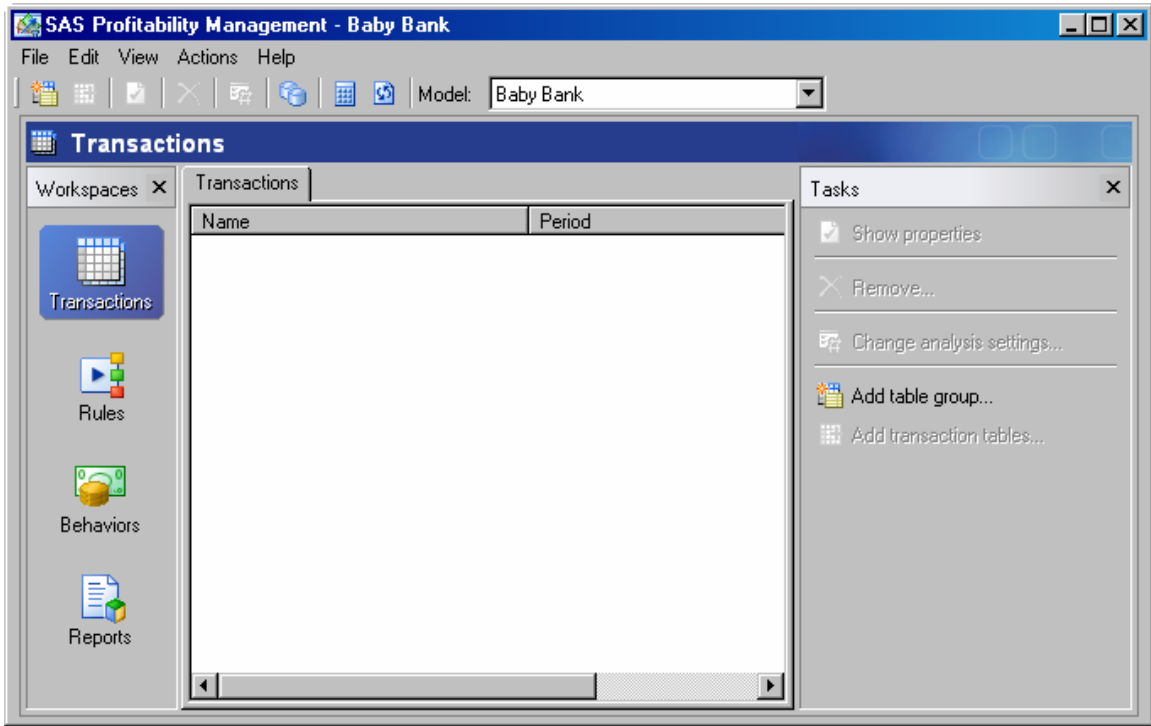
Define the transaction source content:

For the Baby Bank model there are three different table groups to define.
The first is called ABMCost , it holds the transaction costs that relate to the ATM
activities and the detailed branch activities. The second is called CallCenter, this
transaction file holds the details of the activities performed at the call center. The third
transaction table group is called Revenue; this table holds the detailed revenue for all of
the customers noted. These table group names need to be entered precisely because they
will be matched to an imported rules definition table later.

Define the table group

※ **Step #13 Define the table group**
1. Select the transaction workspace
2. Select add table group: **first group to add…**
    a. Give it the precise name "ABMCost" – it will be matched later to rules

3. Select a representative table for this group – to define the group's required fields,
   from your library
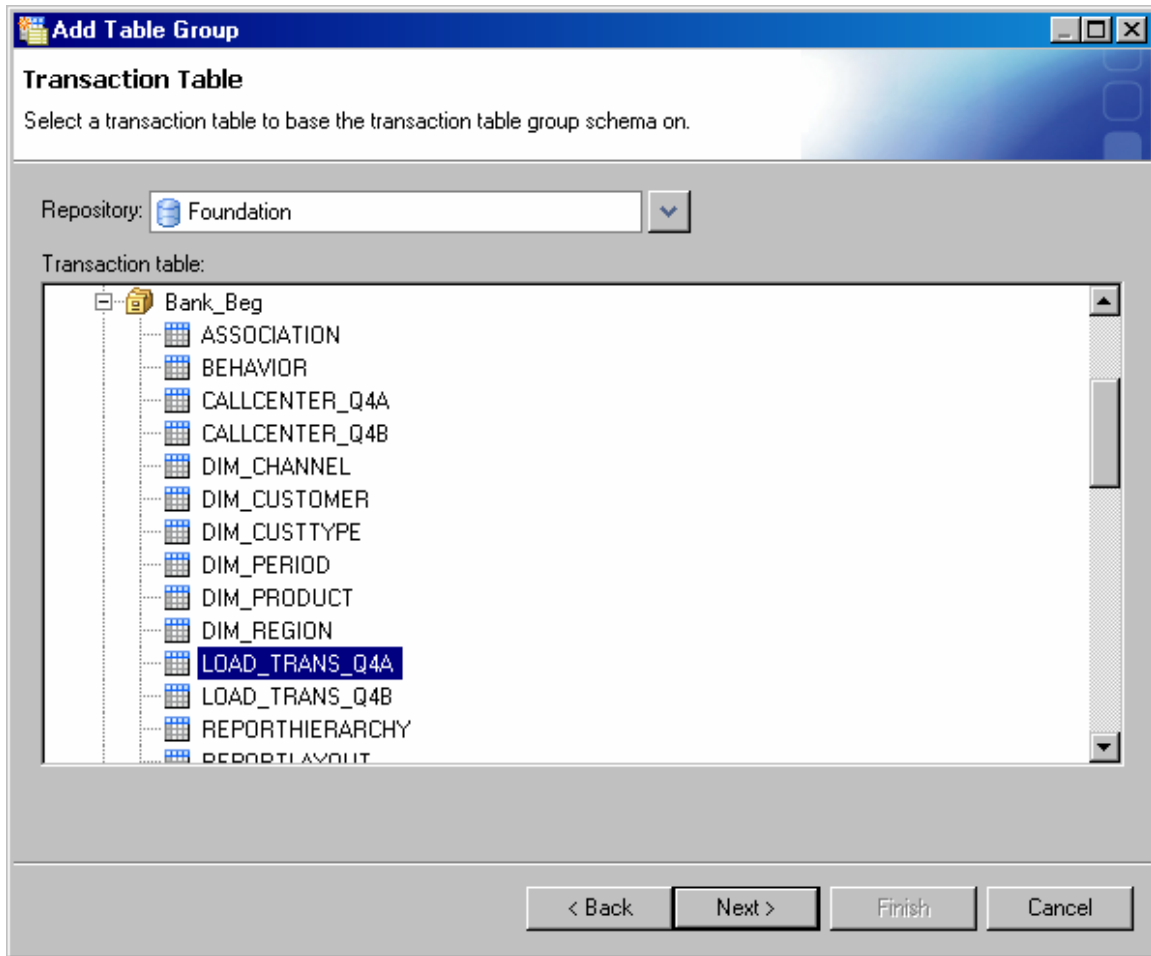
Categorize the columns

✡ **Step #14 Map the source columns to a specific model dimension**

    1. Select the drop down to map each text field to the dimensional category.

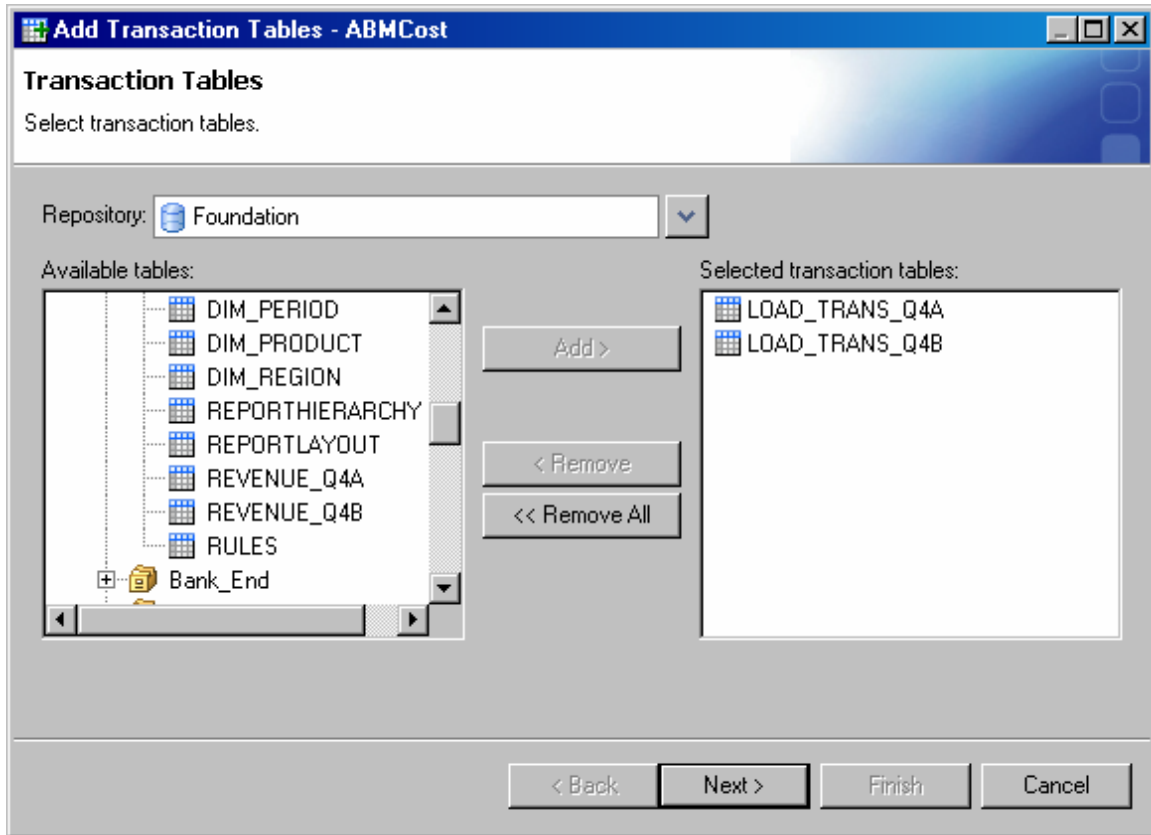   a. Channel, customer, custtype, product and region
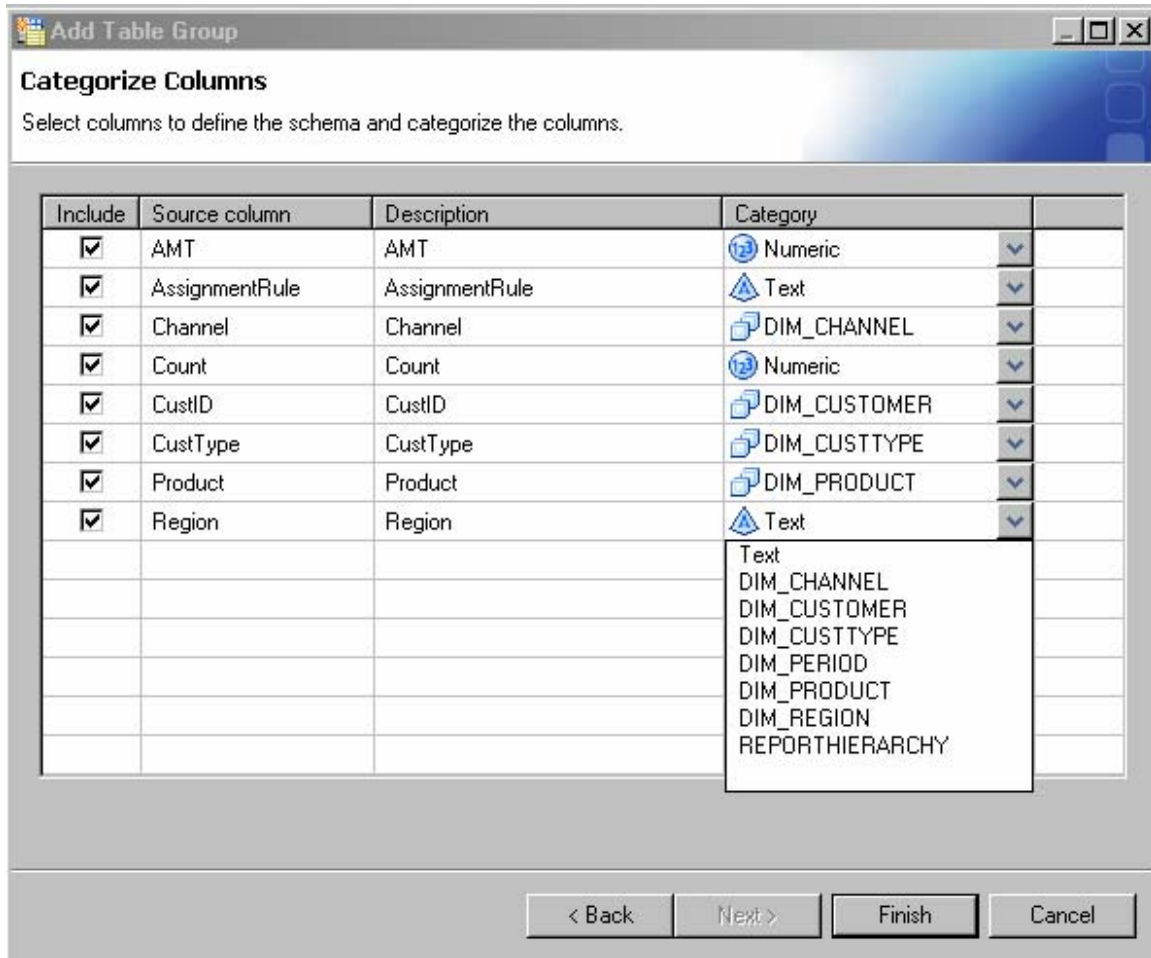
Select the specific transaction tables for that table group

� **Step #15 Select the specific transactional tables**
1. Add transaction tables
2. The Baby Bank model only has two time periods, and thus has only 2 transactional tables. ABMCost table group matches to the Load_Trans tables
3. Select the source tables

Match the time period with the transaction table

✵   <u>**Step #16 Map the time periods to the transactional tables**</u>
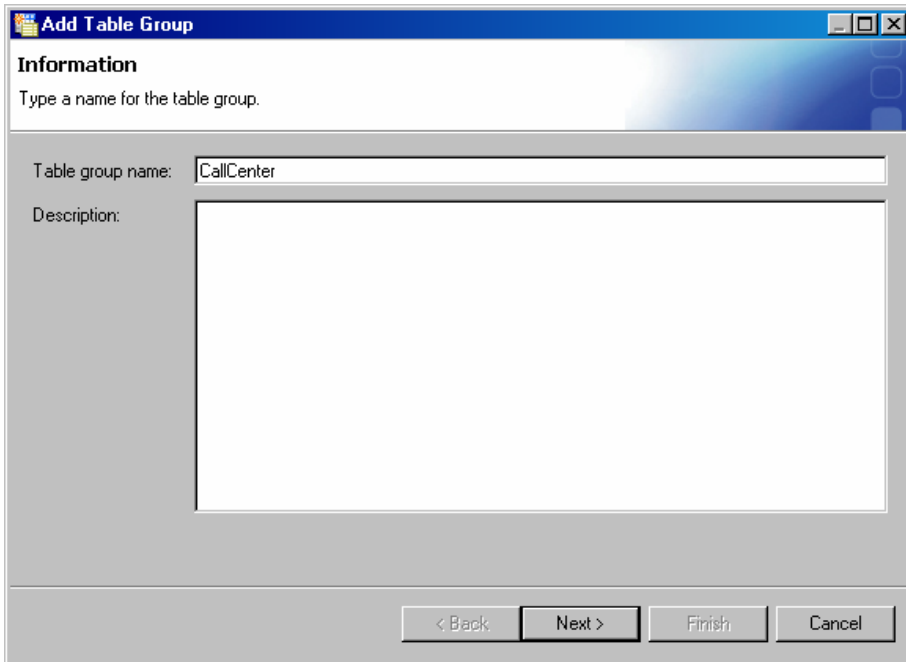   1. Select the drop down to map a specific time period to a source table
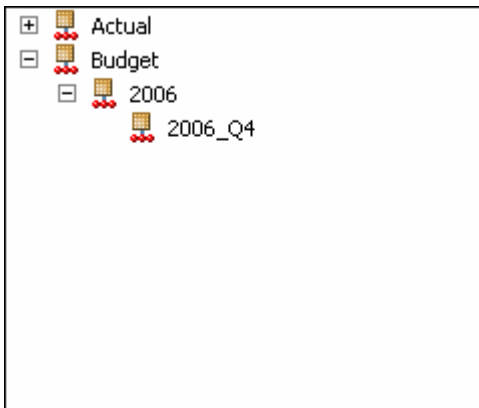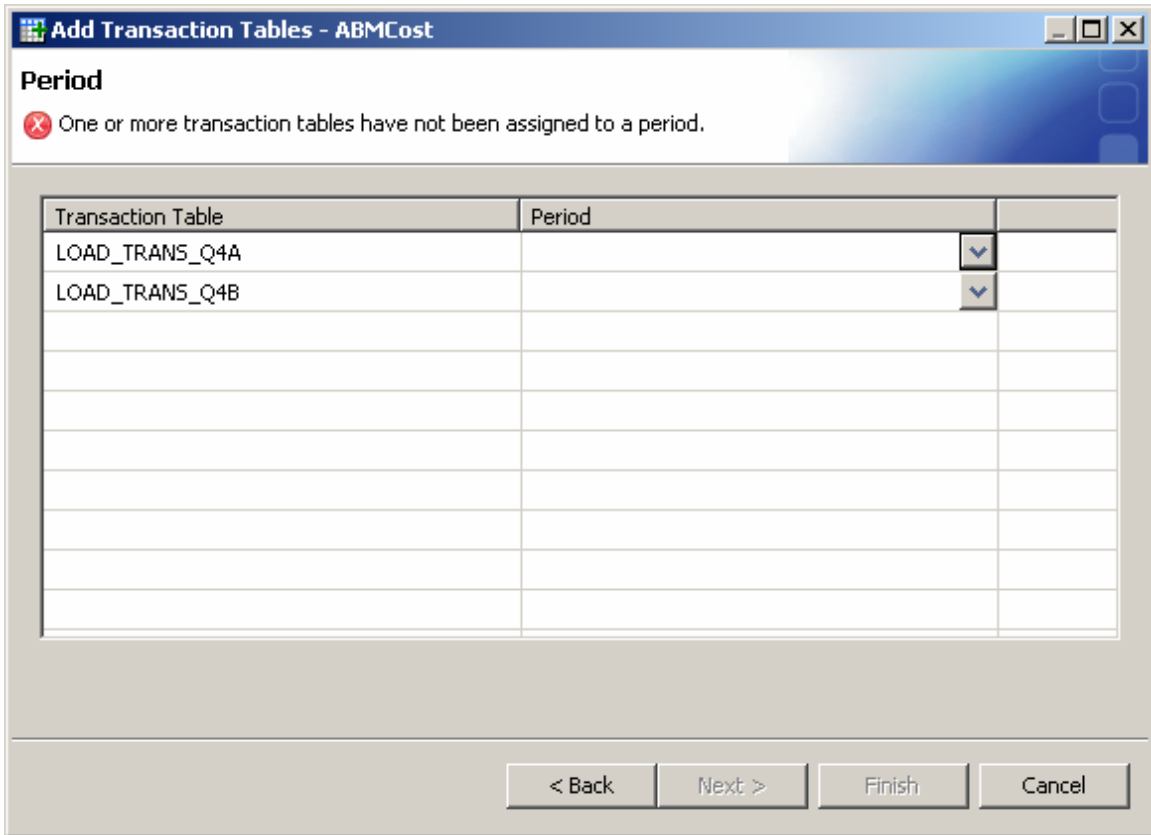
2. Each source table must be mapped to one and only one time period
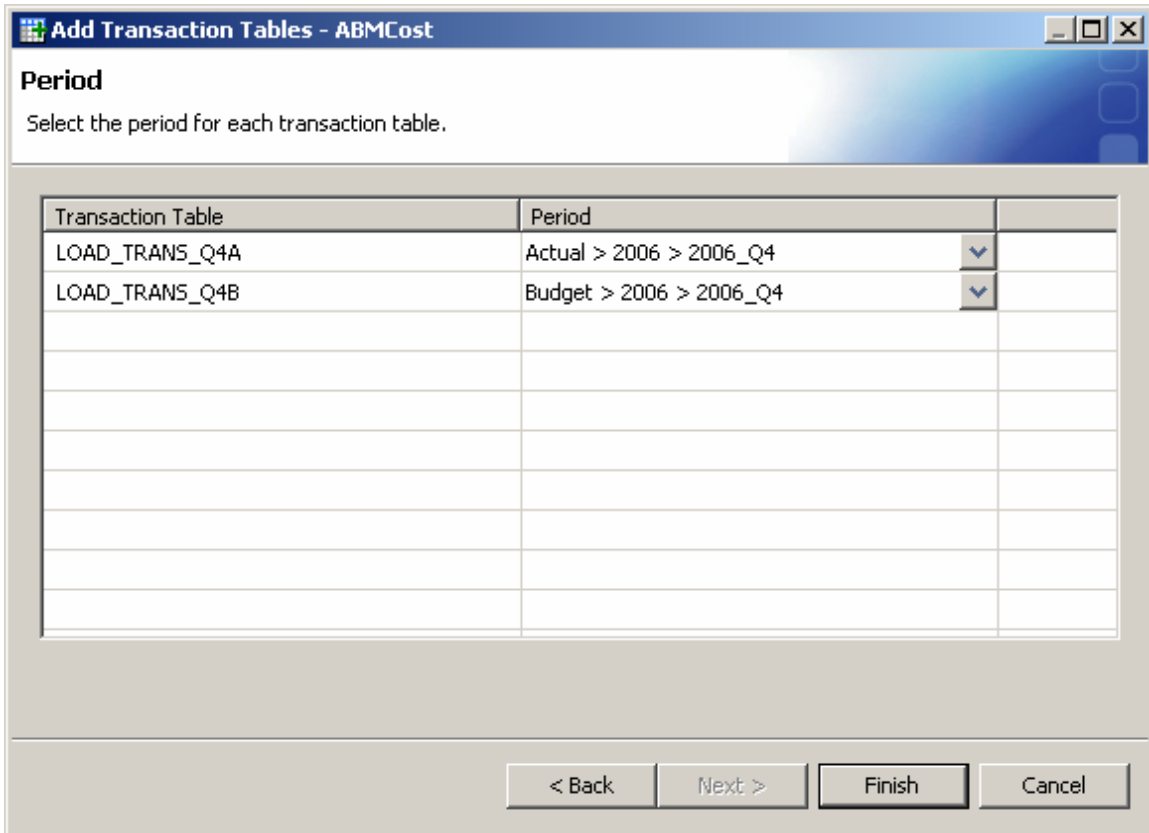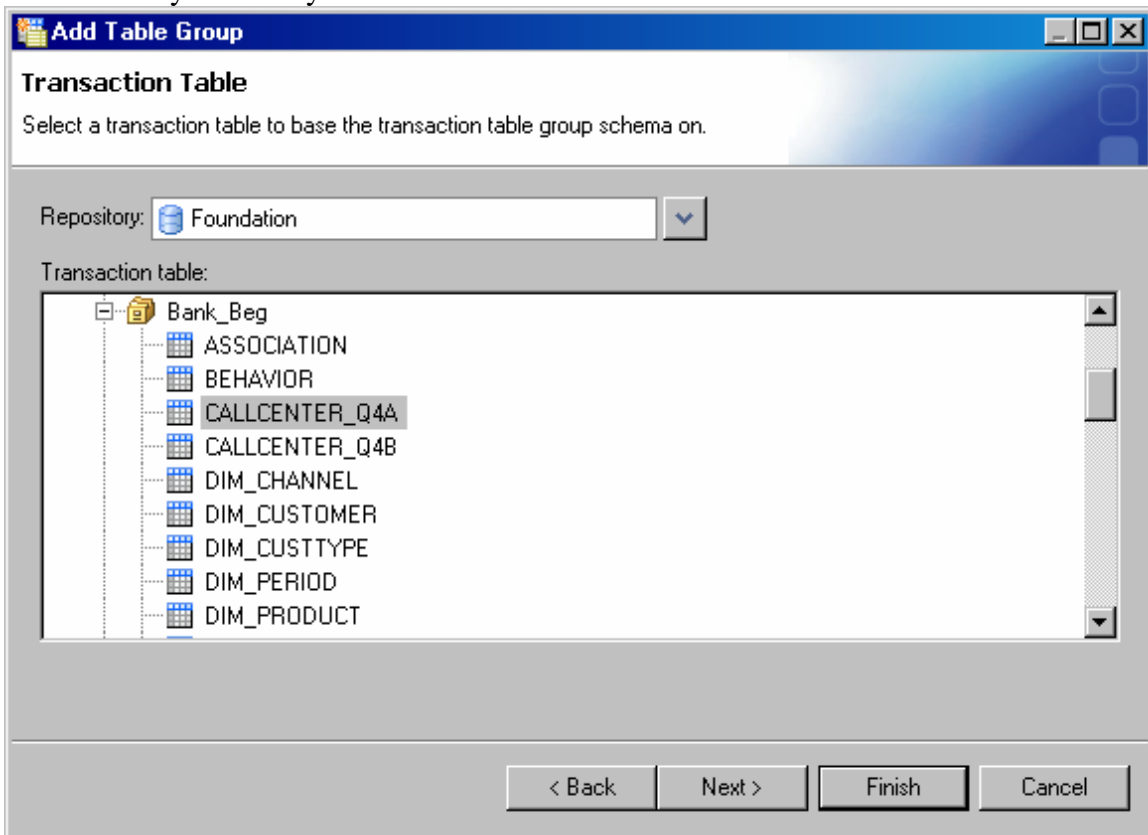
3. Results
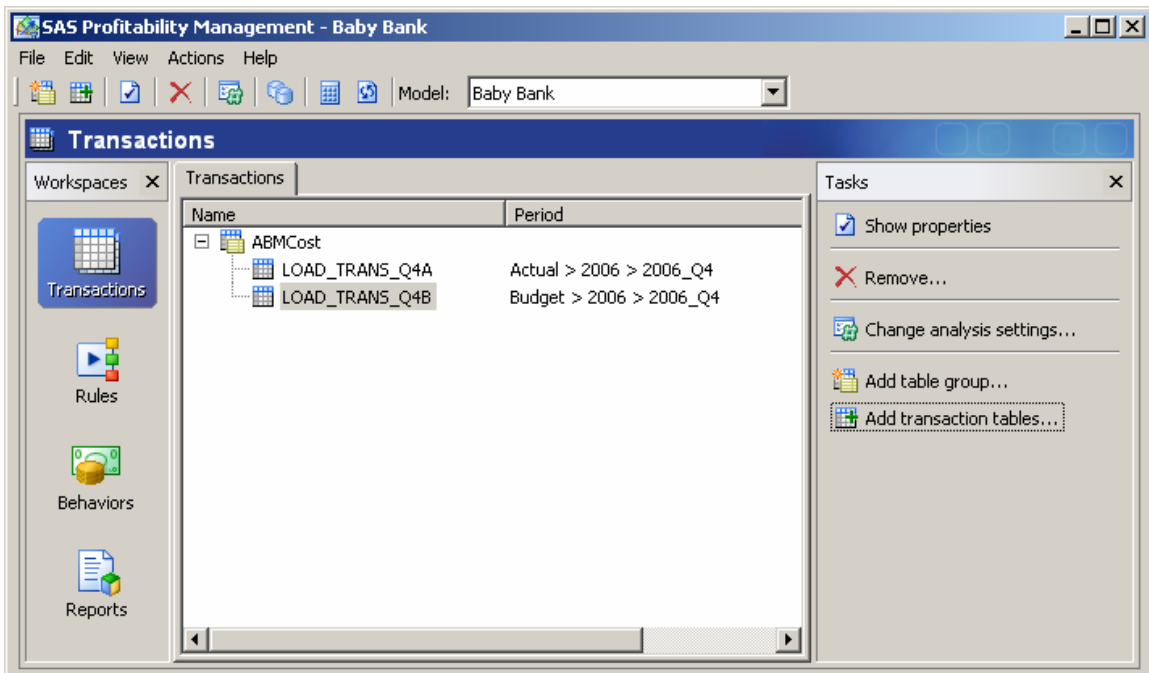
4. Select add table group: **second group to add…**
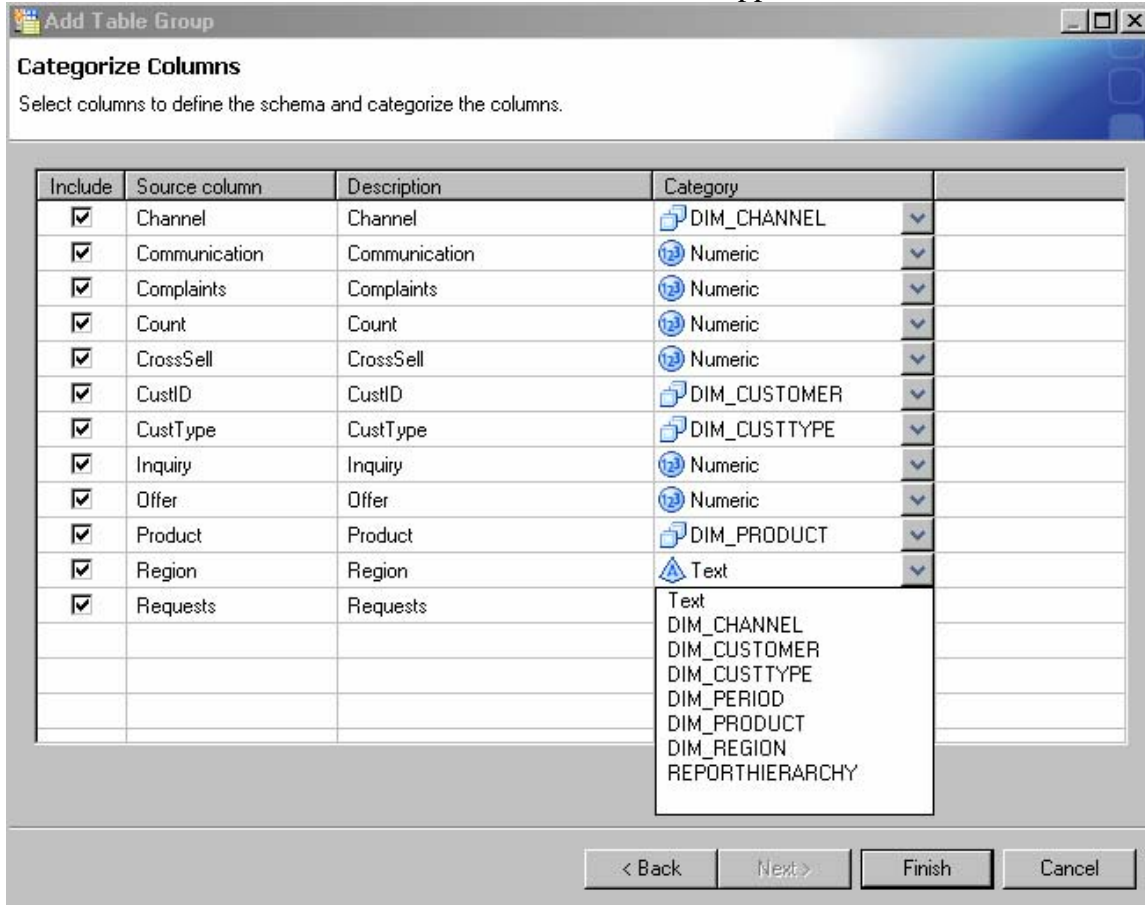   a. Give it the precise name "CallCenter" – it will be matched later to rules

5. Select a representative table for this group – to define the group's required fields, from your library

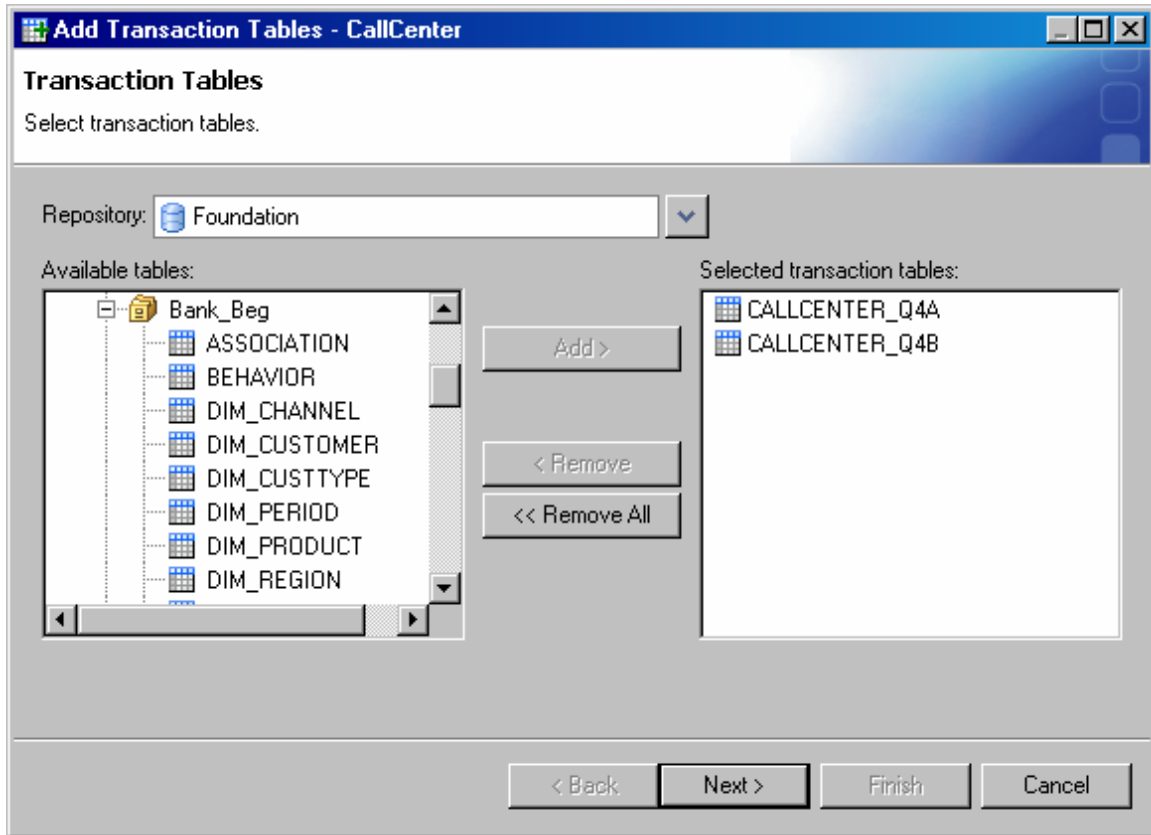6. Select the drop down to map each field to the dimensional category.

a. Channel, customer, custtype, product and region – you will have to scroll down to see the entire dimension to be mapped.

7. Add transaction tables
   a. Select the source tables

8. Select the drop down to map a specific time period to a source table
   a. Each source table must be mapped to one and only one time period

9. Select add table group: **third group to add…**
   a. Give it the precise name "Revenue" – it will be matched later to rules

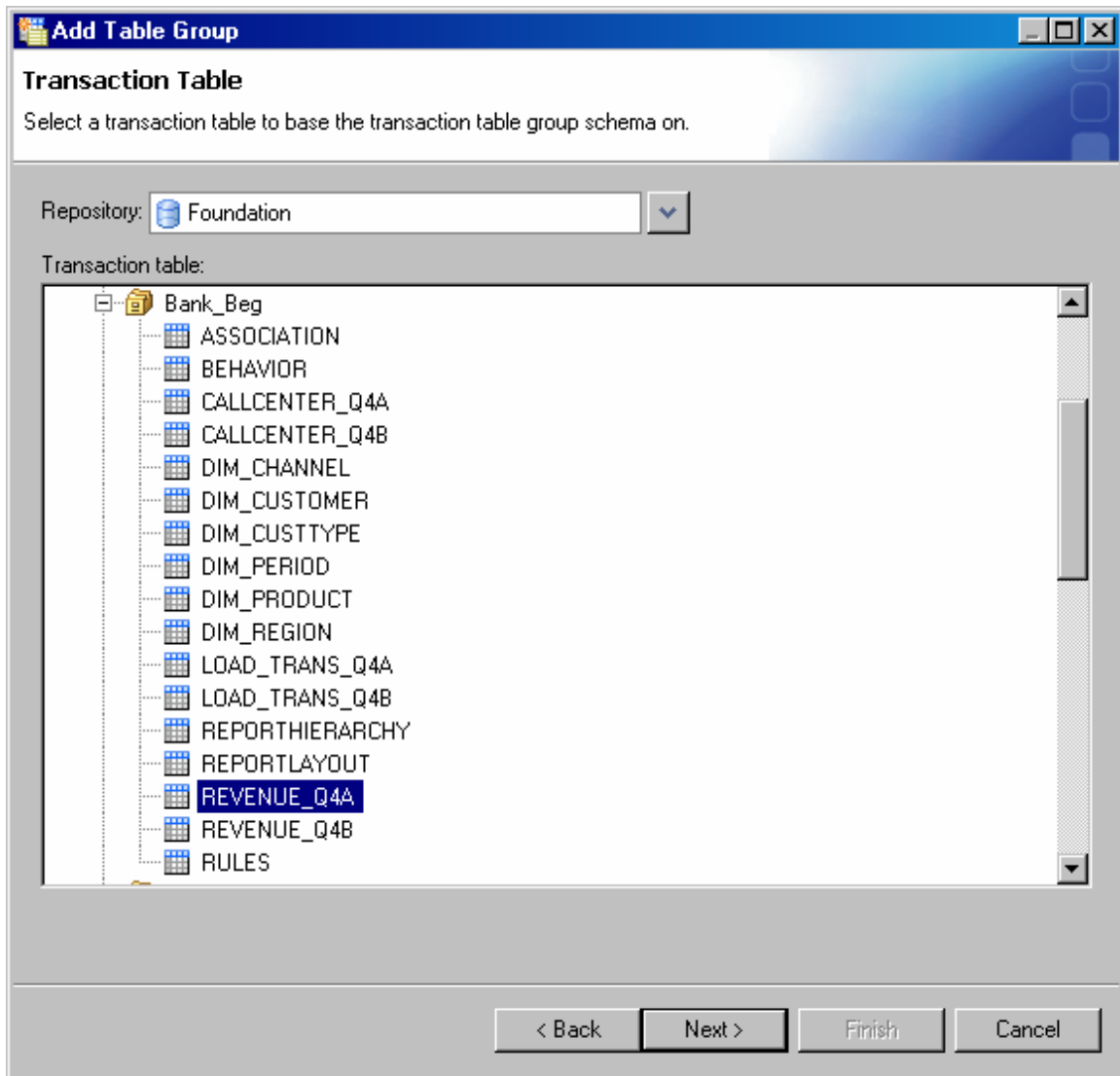10. Select a representative table for this group – to define the group's required fields, from your library

11. Select the drop down to map each field to the dimensional category.
     a.   Channel, customer, custtype, product and region.
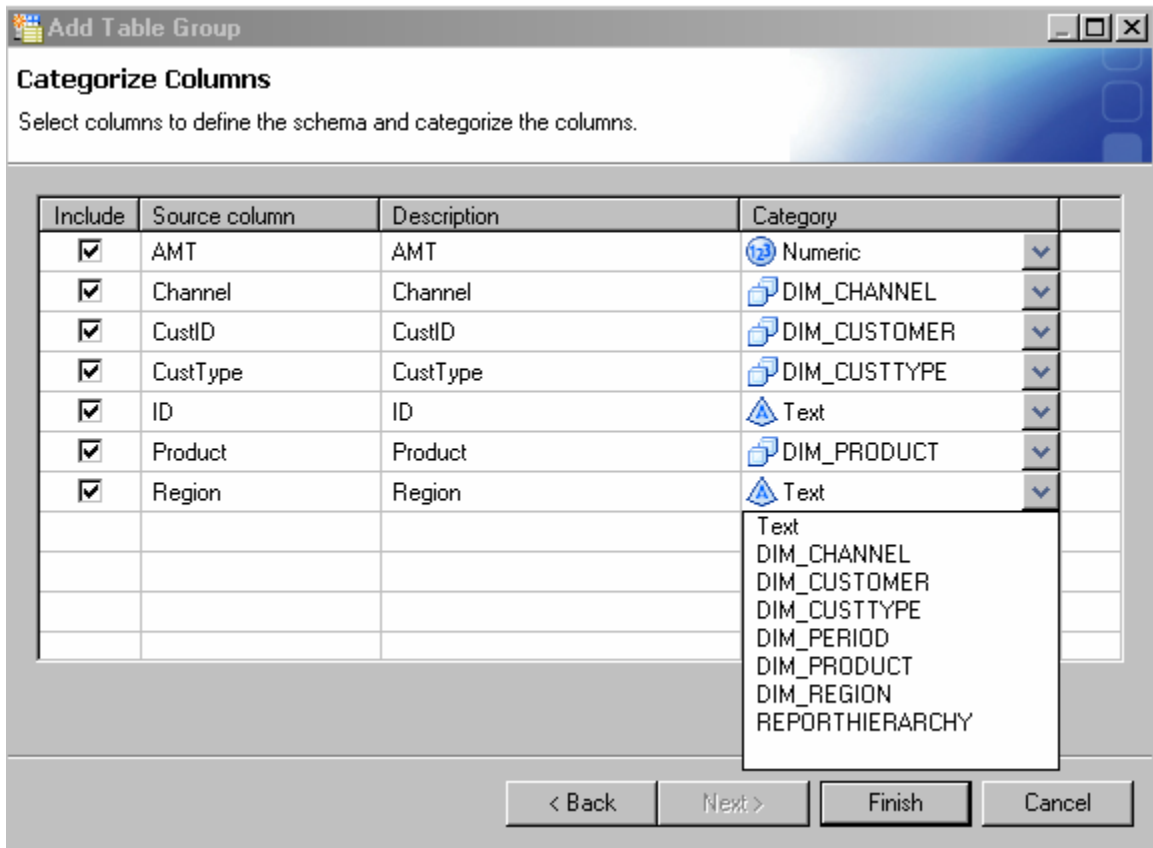
12. Add transaction tables
    a. Select the source tables
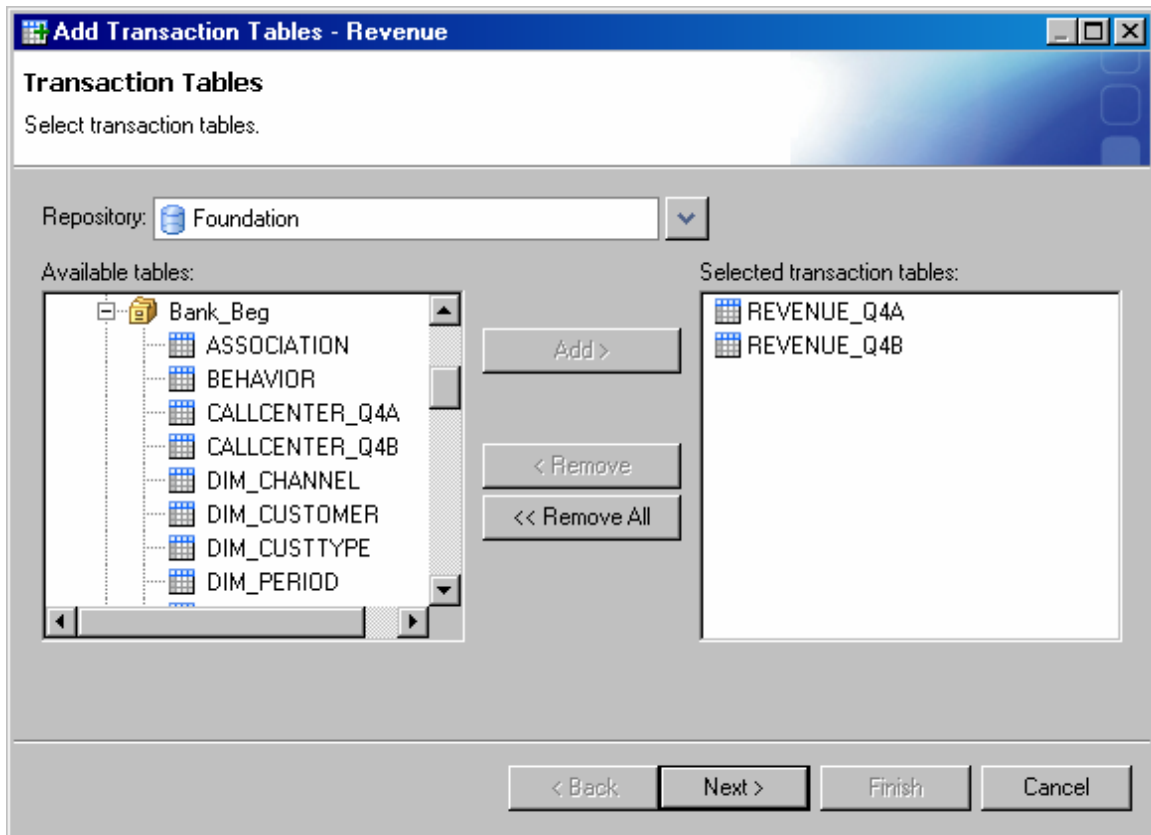
13. Select the drop down to map a specific time period to a source table

14. Each source table must be mapped to one and only one time period

15. Results:

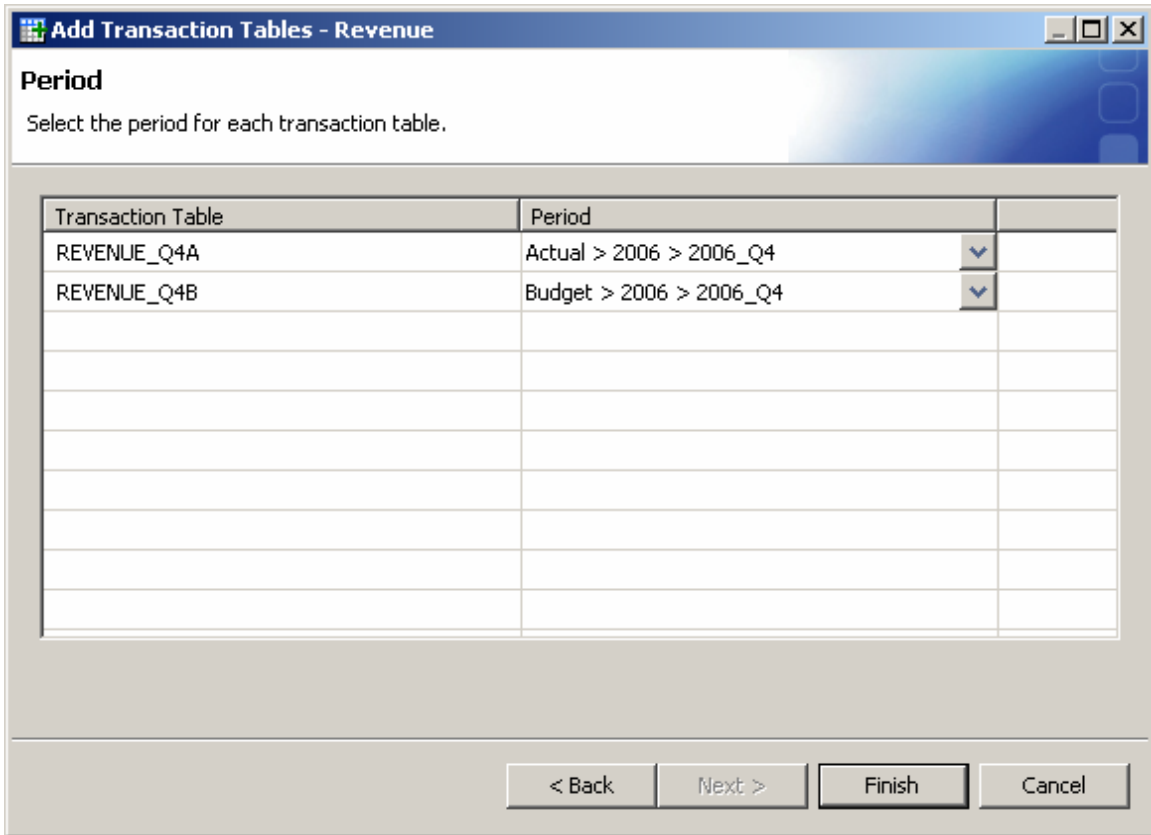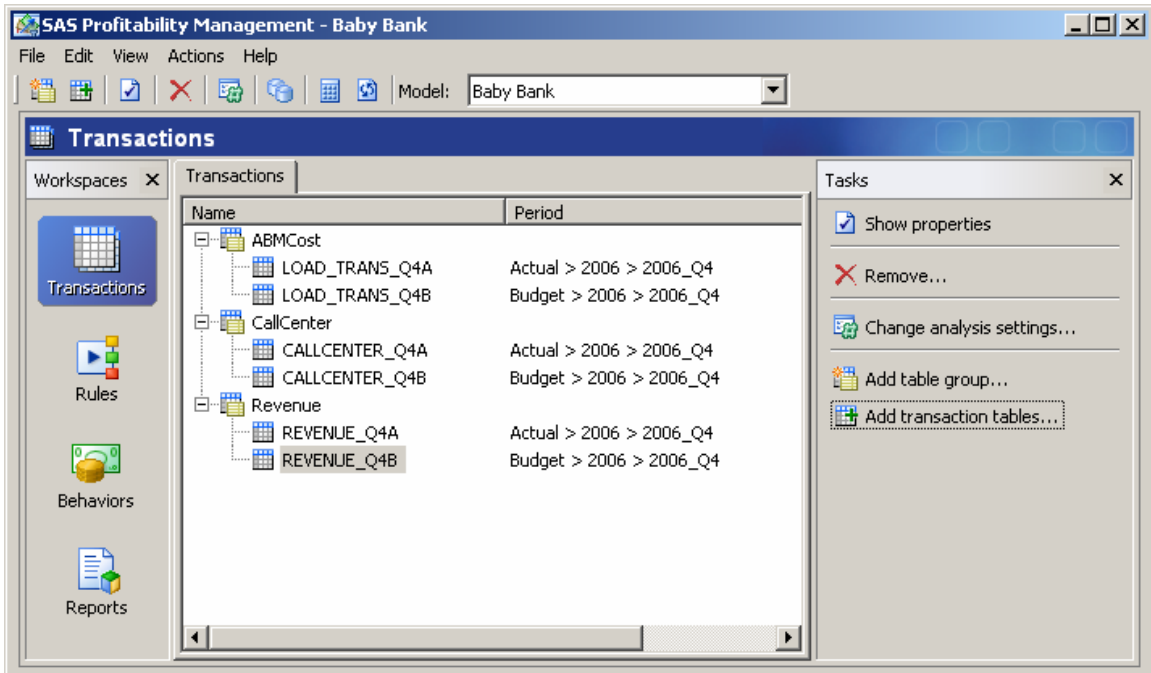## *Change analysis settings*

✵   **Step #17 Verify the periods and define the correct number format**

The analysis settings will control the number format in the final reporting. The value field is critical to be correctly formatted. The value field is used to display the revenue and the cost, in the profit and loss reporting on the web.

1. Select the change analysis settings from the task list, and the analysis settings dialog box pops up.
2. On the period tab, review periods settings for OLAP view definition in the model
   a. This selection in the analysis settings defines the periods to be included in the defined view which will be used as the source for the OLAP cubes and thus the reporting.
   b. Each transaction table represents a single period. These calculated transaction tables are stored in the ending libname location. The cubes represent results across multiple periods, but the cubes do not need to include every calculated period.
   c. If you want the cubes and thus the reporting produced to only include a selected set of periods, you use this dialog box to select the periods to be included, and thus define the table joins in the view.
      a) Select the radio button to include all periods, and the defined view will be created with a join across all available calculated transaction tables.
      b) Select the radio button to include transaction tables from selected periods, if you would like your cubes and reports to only include certain periods calculated transaction tables
      c) The default behavior is to create cubes with all periods, based upon a joined view across all calculated transaction tables.
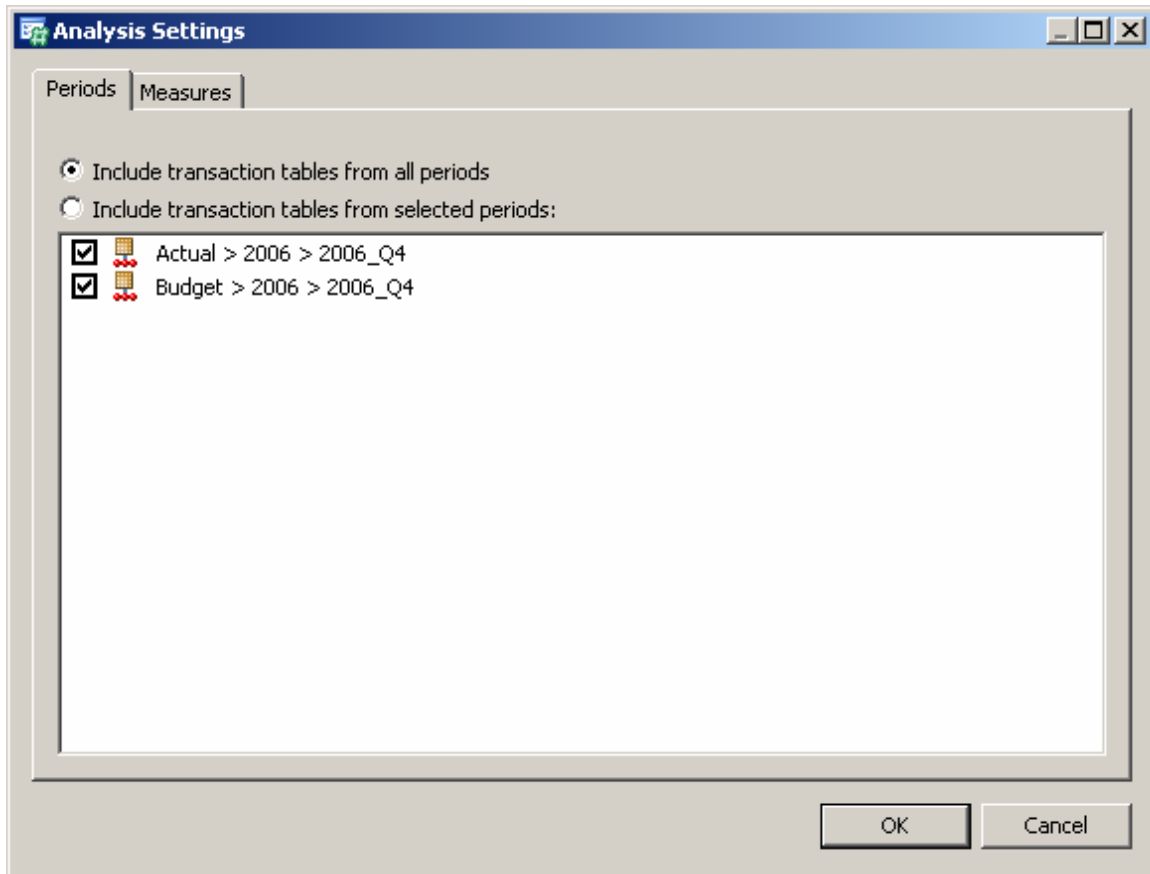
3. Select the measures tab in the dialog box.
    a. The measures tab lists all numeric properties available to the model, all numerical properties are ultimately available to be included in the display of the profit and loss reporting.
    b. This includes all entered numeric properties from the transaction tables
    c. And all the calculated properties:
        a) Quantity - driver quantity based upon the rules driver formula
        b) Value – the calculated behavior amounts (revenue or cost)
4. Default number formats are all 8.2
5. Revise number formats
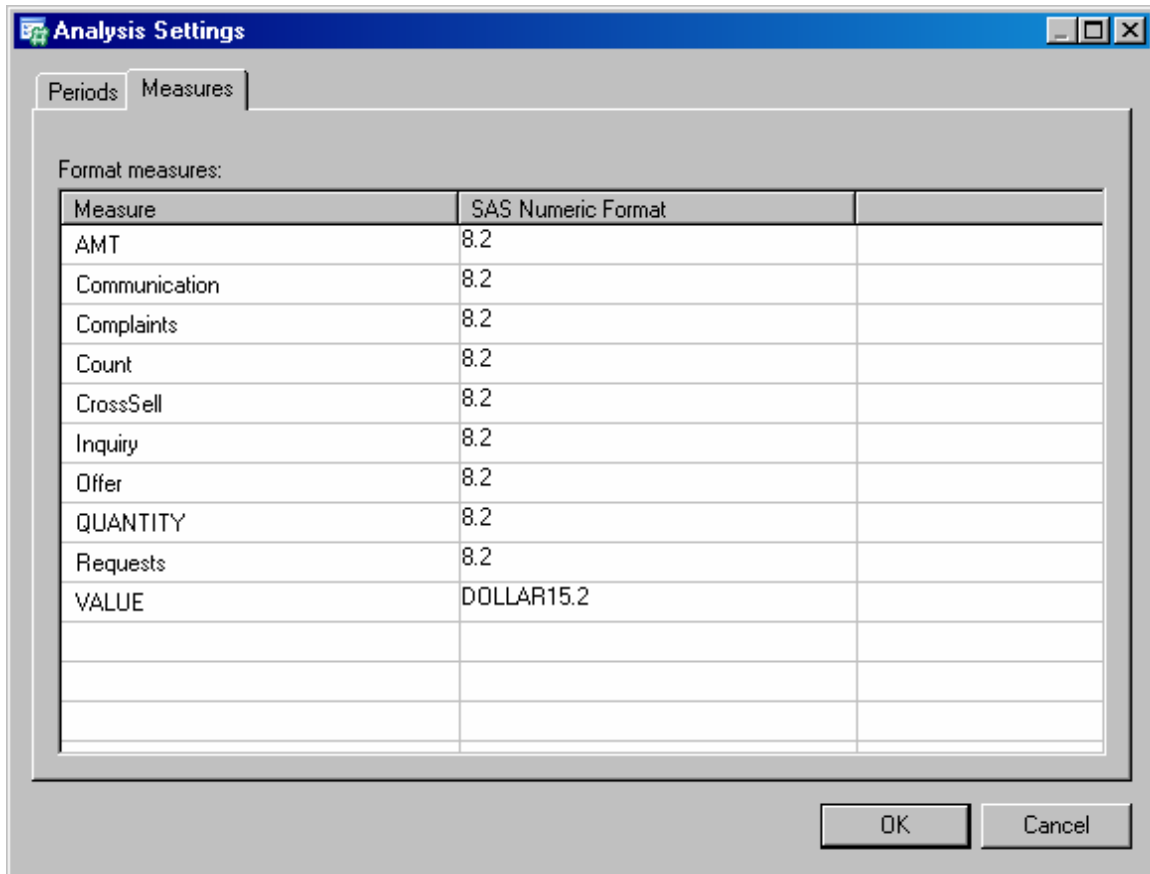
6. Available SAS number formats
   a. Bestw.   Best available format with width = w
   b. Commaw.d   comma and decimal points with width=w and decimal=d
   c. Commaxw.d   comma and decimal points with width=w and decimal=d
      (switches the role of comma and decimal points)
   d. Dollarw.d   dollar signs, comma and decimal points with width=w and
      decimal=d
   e. Dollarxw.d   dollar signs, comma and decimal points with width=w and
      decimal=d (switches the role of comma and decimal points)
   f. Eurow.d   euro signs, decimal and commas points with width=w and
      decimal=d
   g. Euroxw.d   euro signs, decimal and commas points with width=w and
      decimal=d (switches the role of comma and decimal points)
   h. Percentw.d   percentage with width = w and decimal = d and a percent
      sign
   i. Zw.d   prefixed with zero to get width = w and decimal = d
   j. W.d   width = w and decimal = d

Define the rules used in the model:

Add an assignment rule: name

� **Step #18 Define a new rule**

   1. Change to the rules workspace
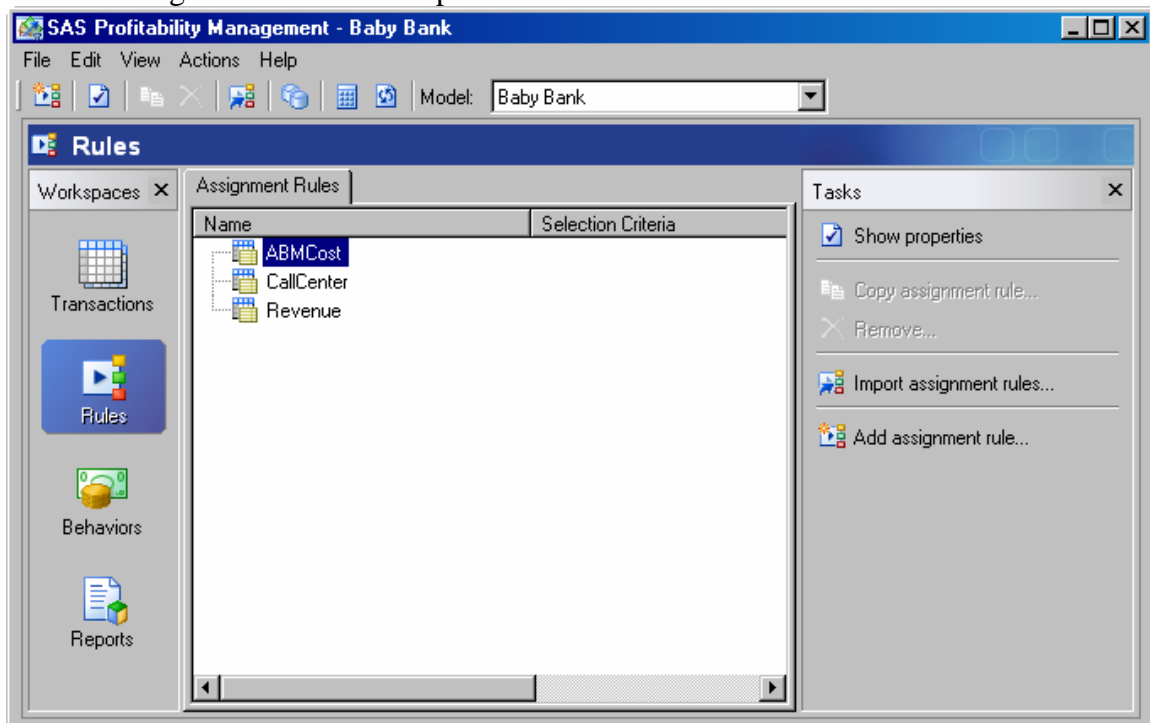
   2. Add an assignment rule
      a. Define the name for the rule

Assignment rule define table group

� **Step #19 Define the table group which will use this rule**

   1. Select the ABMCost table group
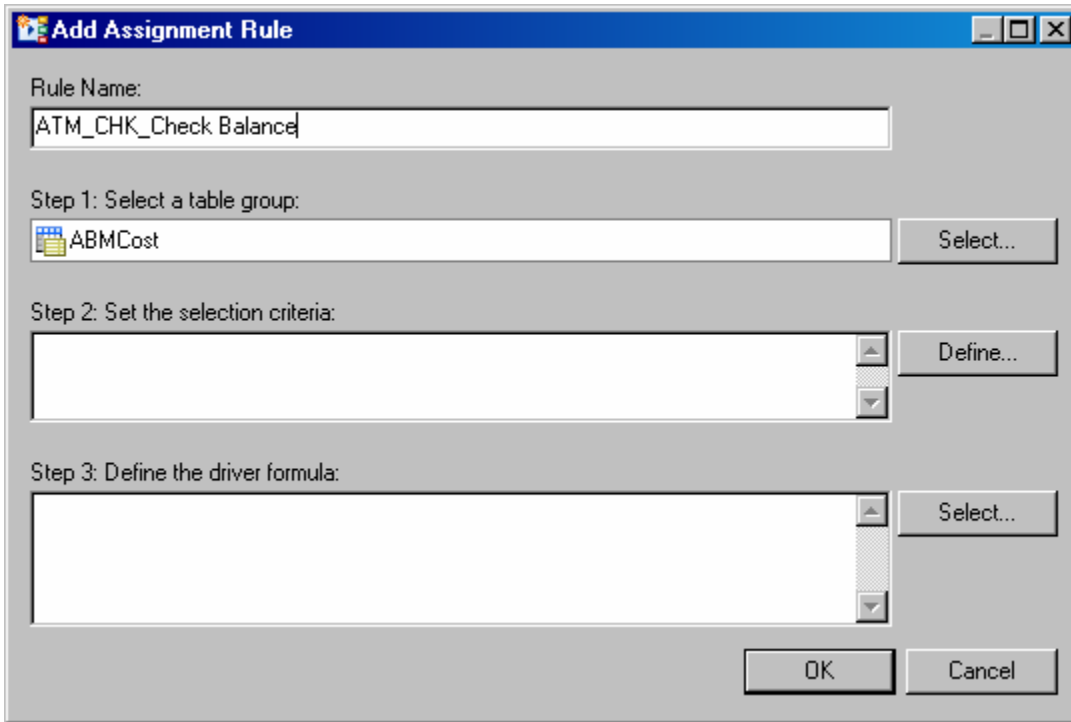
Assignment rule define matching selection criteria

⚙ **Step #20 Define selection criteria to be used by the rule**
1. Select define button for the selection criteria
2. This brings up the new assignment rule dialog box.
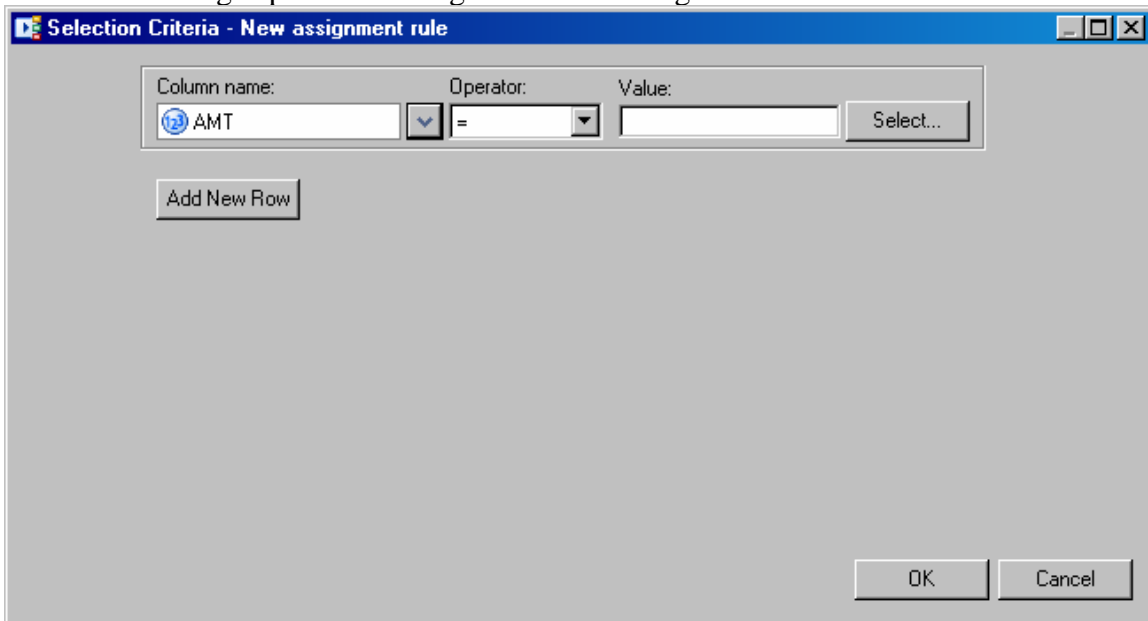
3. Select the column name to be used in the filter
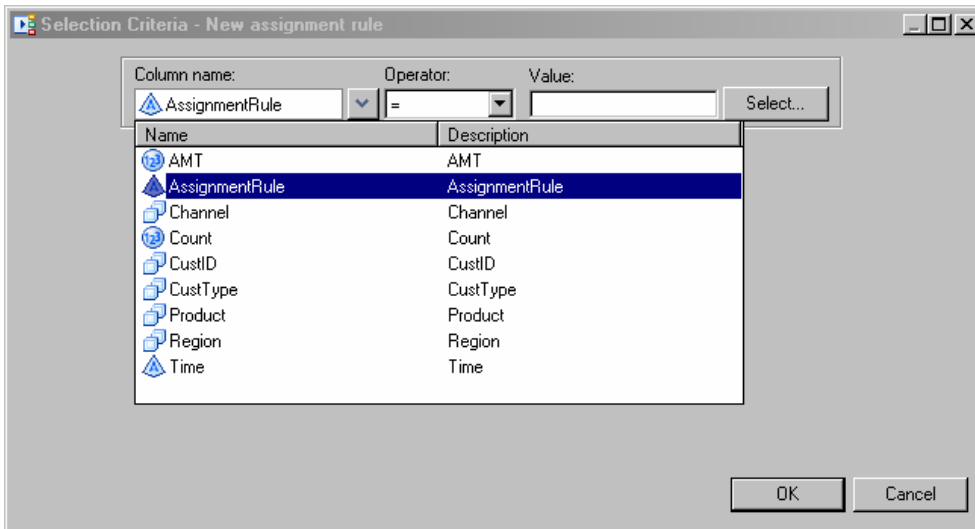
4. Select operator used in the filter: for a text value the available operators are '=' and "not ="
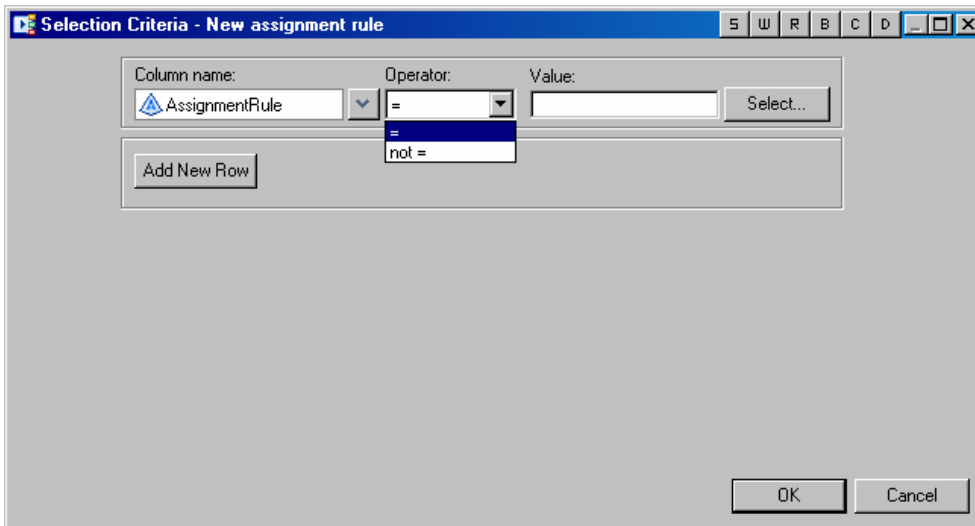
5. Push, select button the value field to filter by:
   a. This process reviews all of the contents in the source transaction table for the selected field and returns a list in a dialog box noting all of the available items to select from for that field in the source table.
6. A dialog pops up and pick ATM_CHK_Check balance
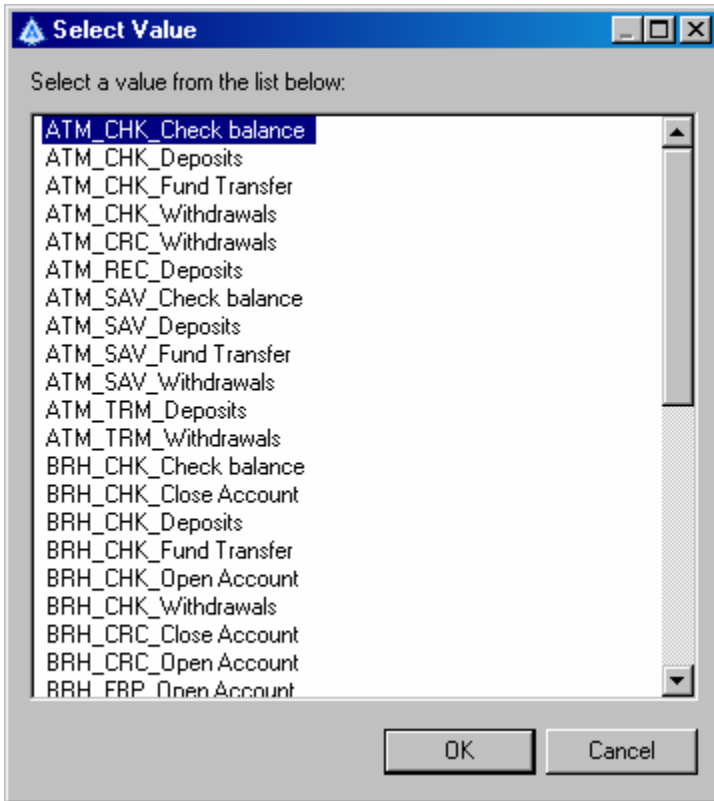
7. Result
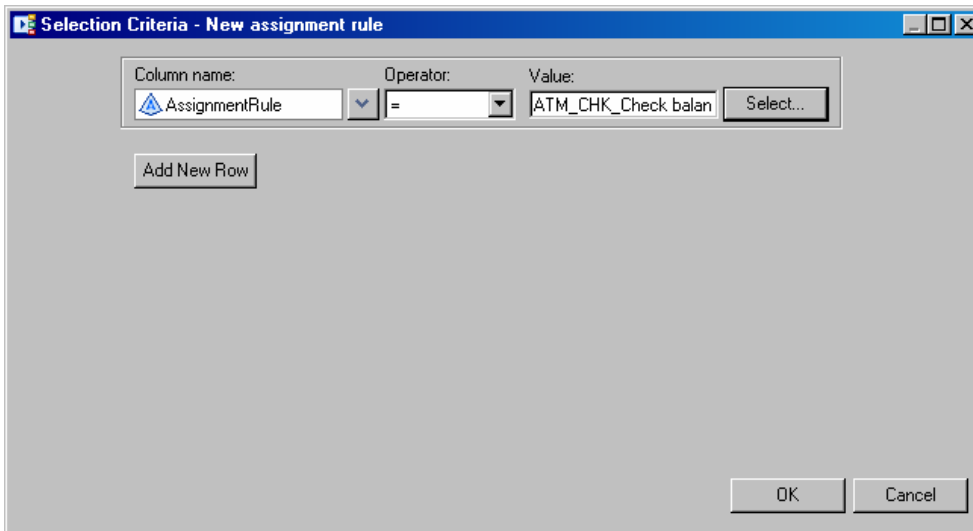
8. See the resulting selection criteria
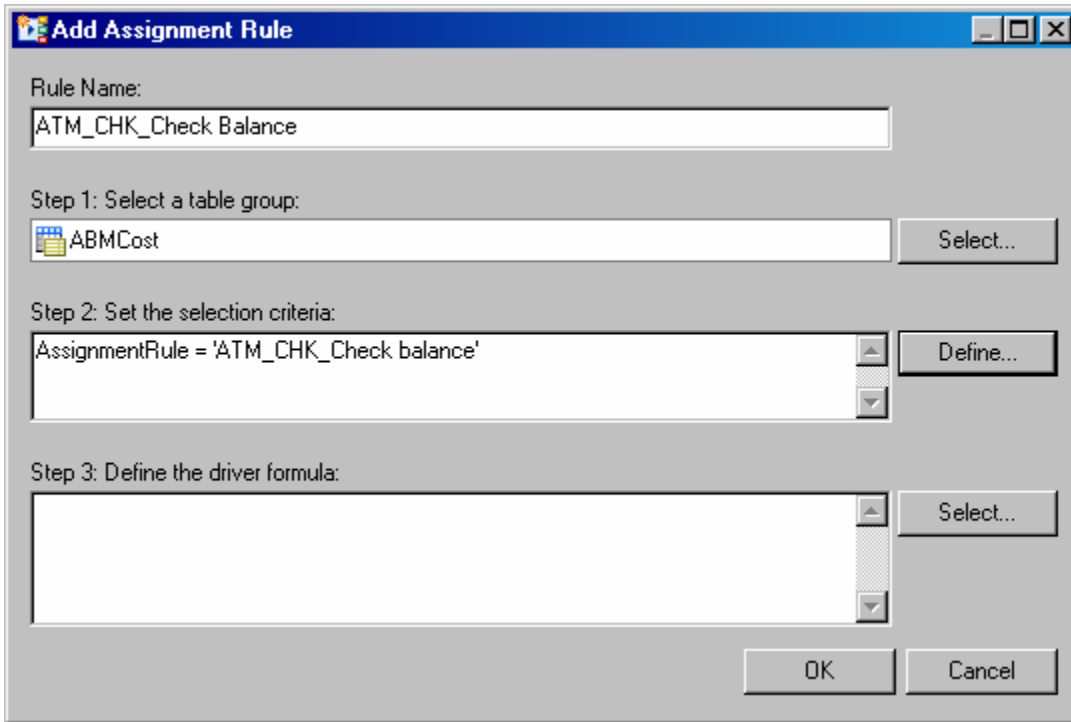
Assignment rule define driver formula

⊛ **Step #21 Define calculation formula used by the rule**

1. Select the AMT property to be used in the driver formula
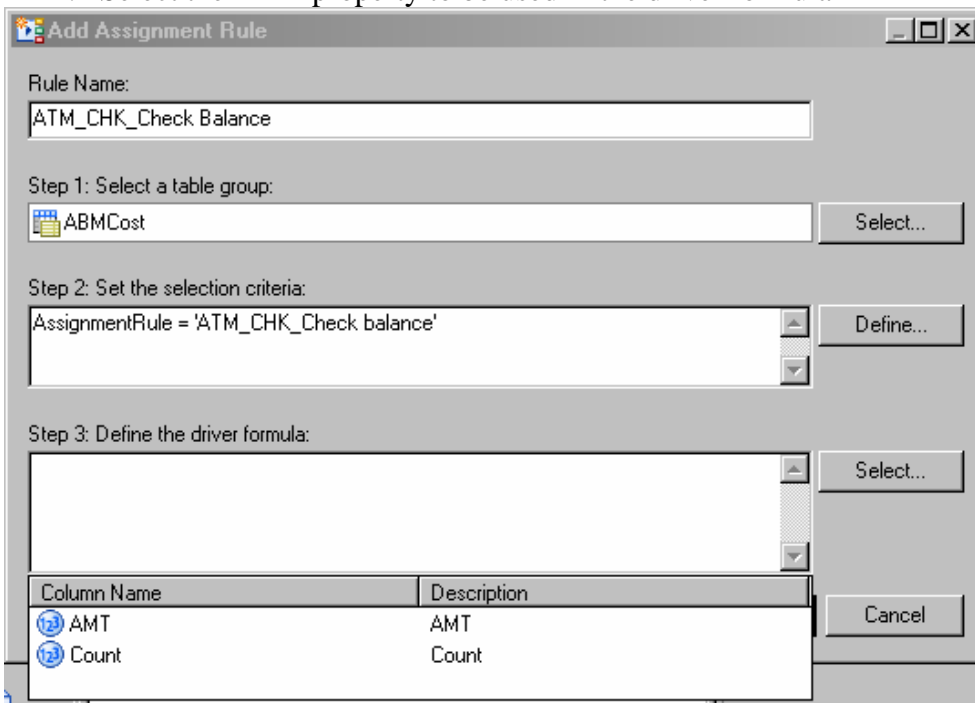
2. Select show properties on a rule

⛭ Step #22 Define a second rule based upon multiple filters

1. Create a new rule : ATM_OTP_Manage transactions
2. Select the correct transaction group for the source content : ABMCost
3. Select the define button for the selection criteria
4. Select the dimension as the filtering criteria
5. Select the "child of" operator
   a. This is the only operator available, for selection criteria, using a dimensional value. The 'child of' operator is hierarchically driven. By selecting a member of a dimension at a point in the hierarchy, you are actually selecting to include that specific member and all of its children beneath it in the dimensional hierarchy.
6. Select a specific member to filter the content
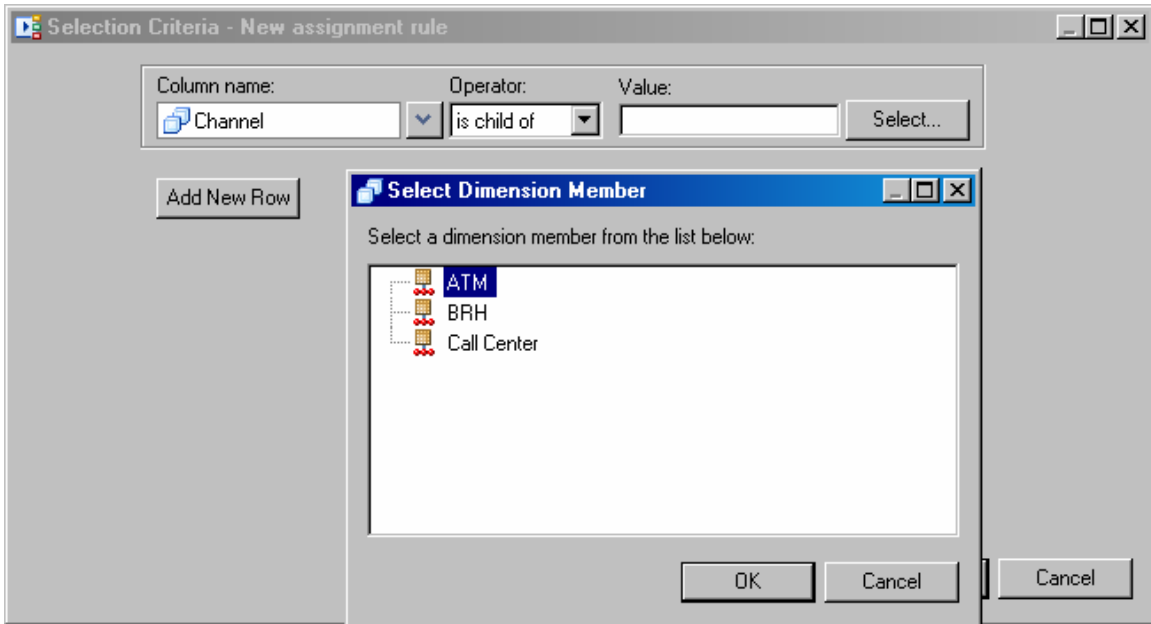
7. See the result of the single filter
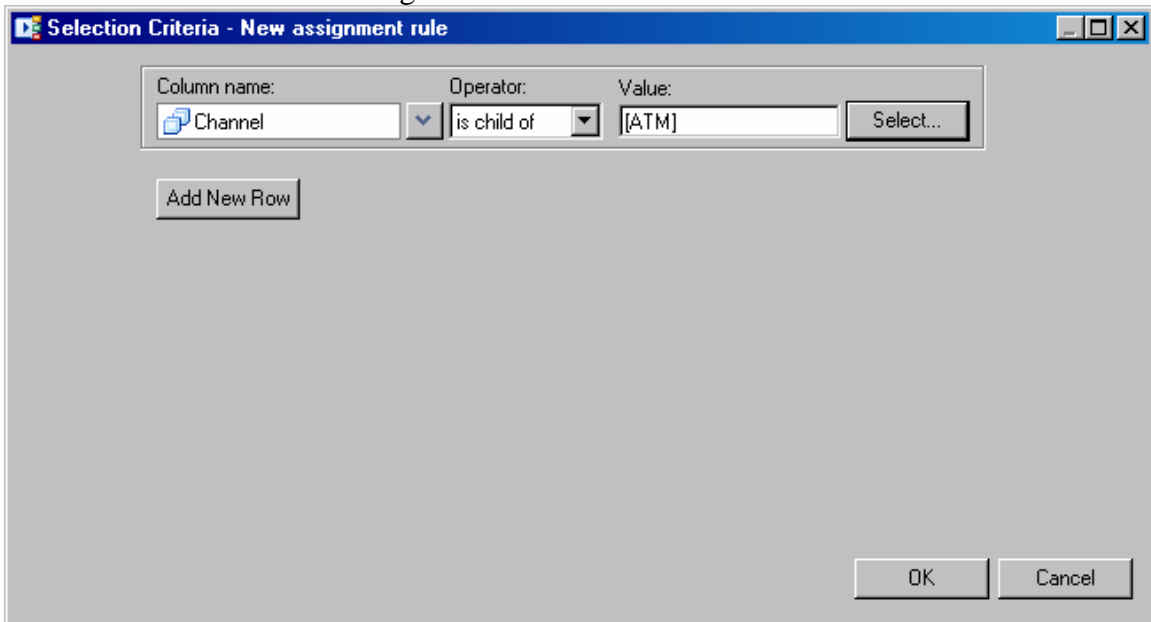
8. Add a new row to create a compound selection criteria
9. Notice the member of property, allows you to select from any point in a dimensional hierarchy tree, and all children of that hierarchy will be filtered as a 'yes' value.
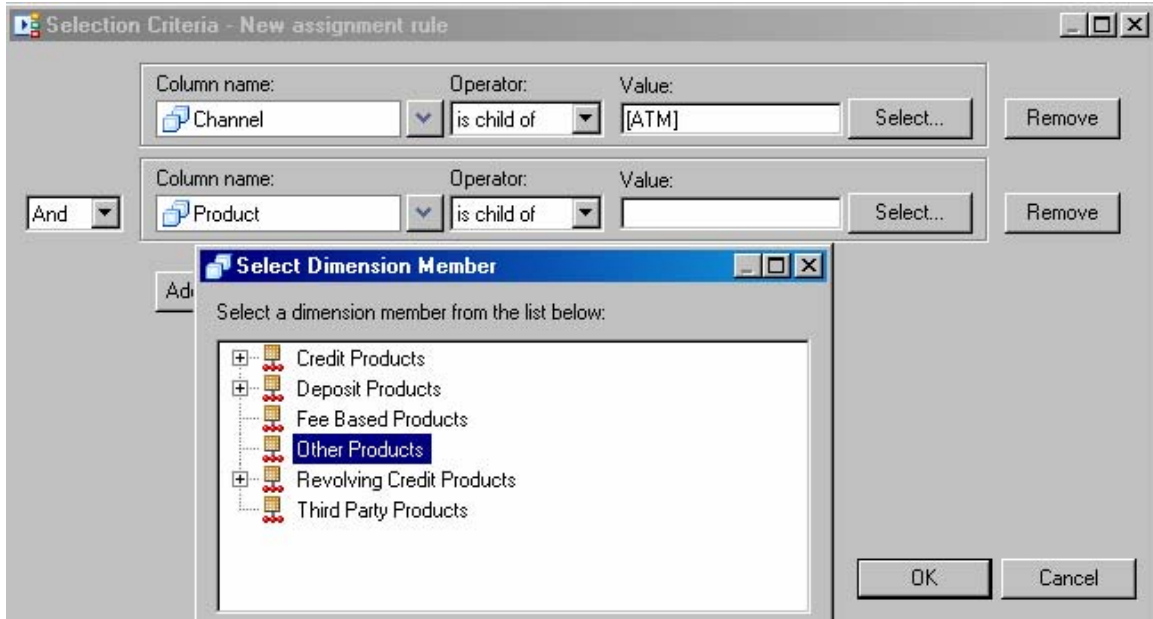
10. See the resulting compound filters
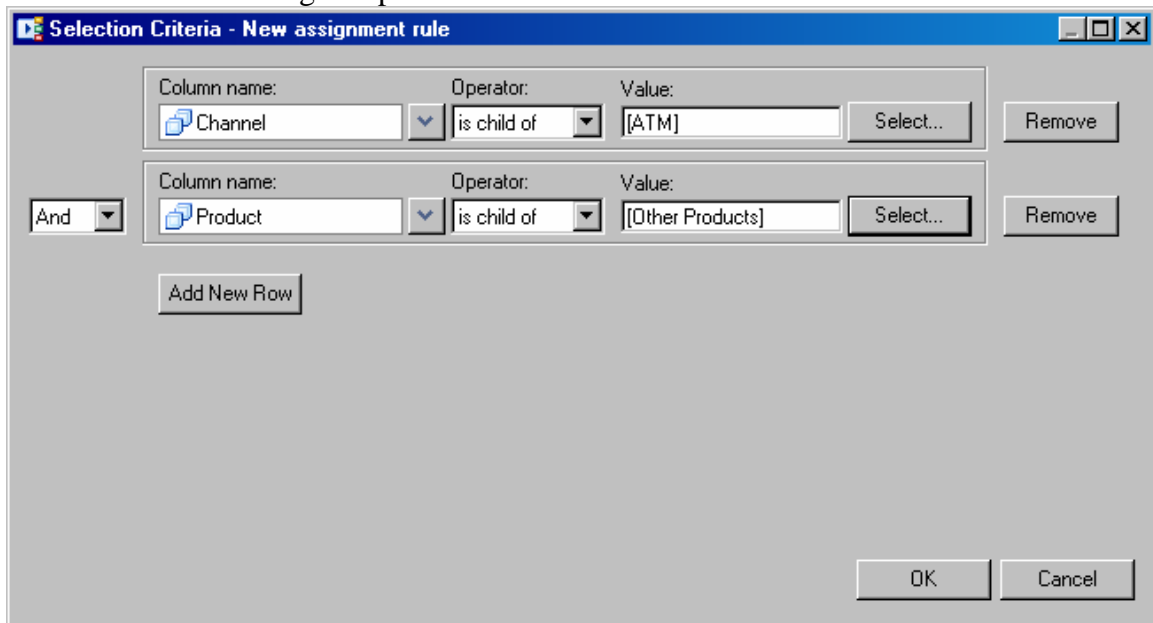
11. Select the specific driver formula value
12. Review the resulting selection criteria

Assignment rule import process

✵ **Step #23 Import the remaining rules for the Baby Bank model**

1. The rule import source table layout

	TableGroup	AssignmentRule	SelectionCriteria	DriverFormula
1	ABMCost	ATM_CHK_Check balance	AssignmentRule = 'ATM_CHK_Check balance'	AMT
2	ABMCost	ATM_CHK_Deposits	AssignmentRule = 'ATM_CHK_Deposits'	AMT
3	ABMCost	ATM_CHK_Fund Transfer	AssignmentRule = 'ATM_CHK_Fund Transfer'	AMT
4	ABMCost	ATM_CHK_Requests	IsChildOf(Channel, '[DIM_CHANNEL].[ATM]') AND IsChildOf(Product, '[DIM_PRODUCT].[Deposit Products].[Checking]')	Count * .05 +AMT*.01
5	ABMCost	ATM_CHK_Withdrawals	AssignmentRule = 'ATM_CHK_Withdrawals'	AMT
6	ABMCost	ATM_CRC_Withdrawals	AssignmentRule = 'ATM_CRC_Withdrawals'	AMT
7	ABMCost	ATM_REC_Deposits	AssignmentRule = 'ATM_REC_Deposits'	AMT
8	ABMCost	ATM_REC_Requests	IsChildOf(Channel, '[DIM_CHANNEL].[ATM]') AND IsChildOf(Product, '[DIM_PRODUCT].[Deposit Products].[Recurring]')	Count
9	ABMCost	ATM_SAV_Check balance	AssignmentRule = 'ATM_SAV_Check balance'	AMT
10	ABMCost	ATM_SAV_Deposits	AssignmentRule = 'ATM_SAV_Deposits'	AMT

2. Import all of the rest of the rules : select import assignment rules
   a. The import rules dialog box comes up.
   b. Select source data table
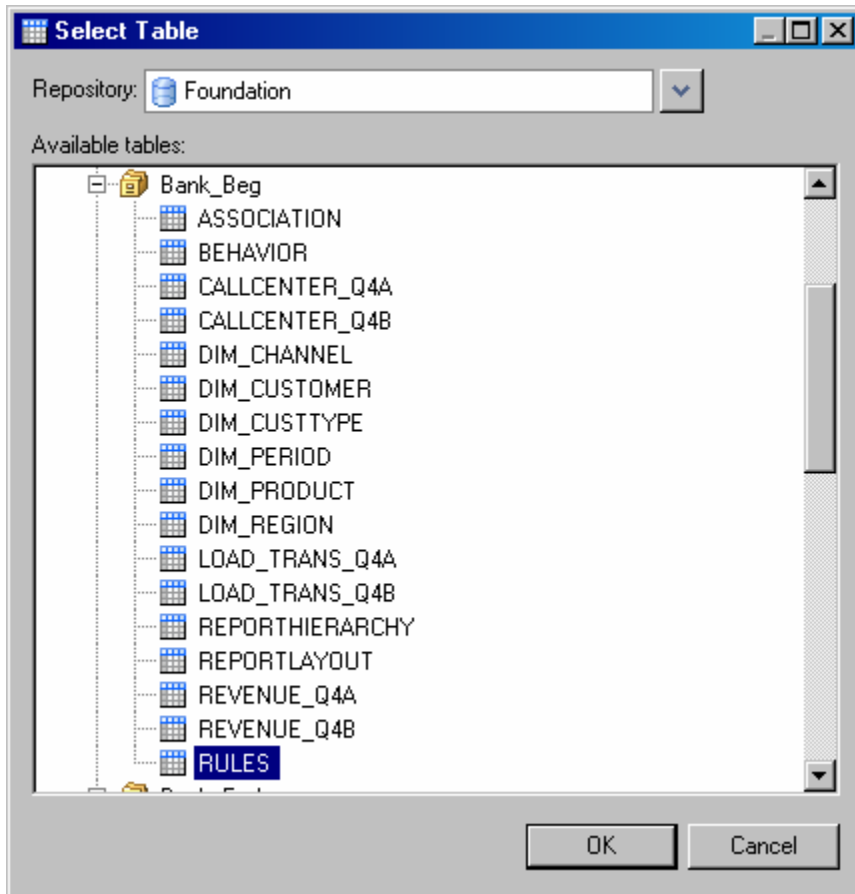
3. Verify map source table fields to required fields

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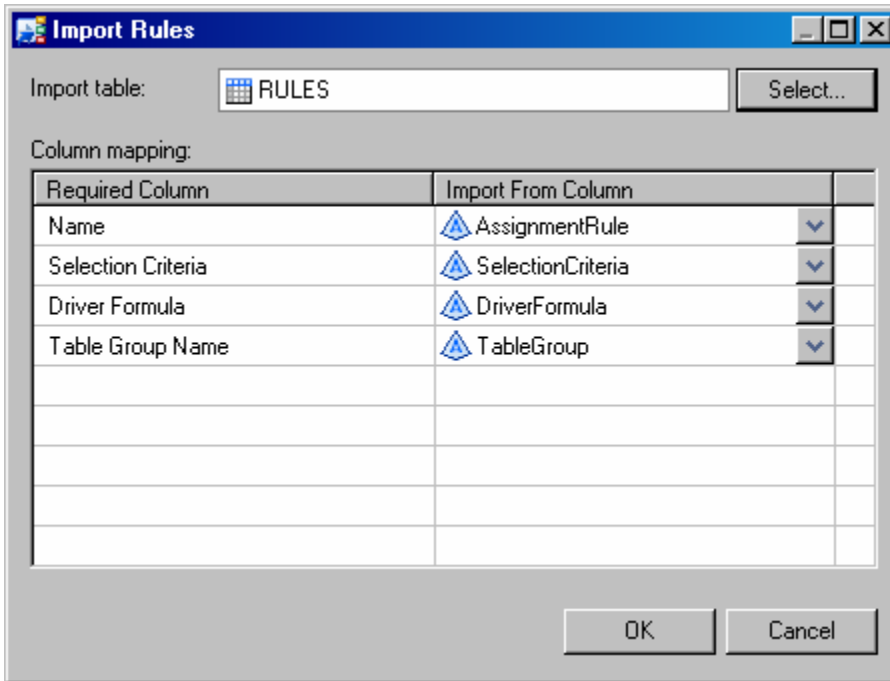
4. Review the import log to verify the load was successful
   a. Errors detail – for importing a rule, which already exists, which you had built manually.
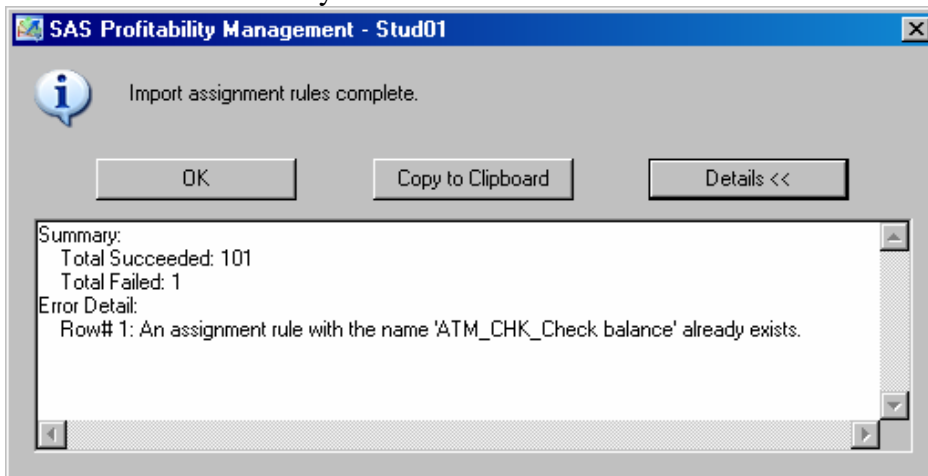
5. Verify all rules have been loaded.
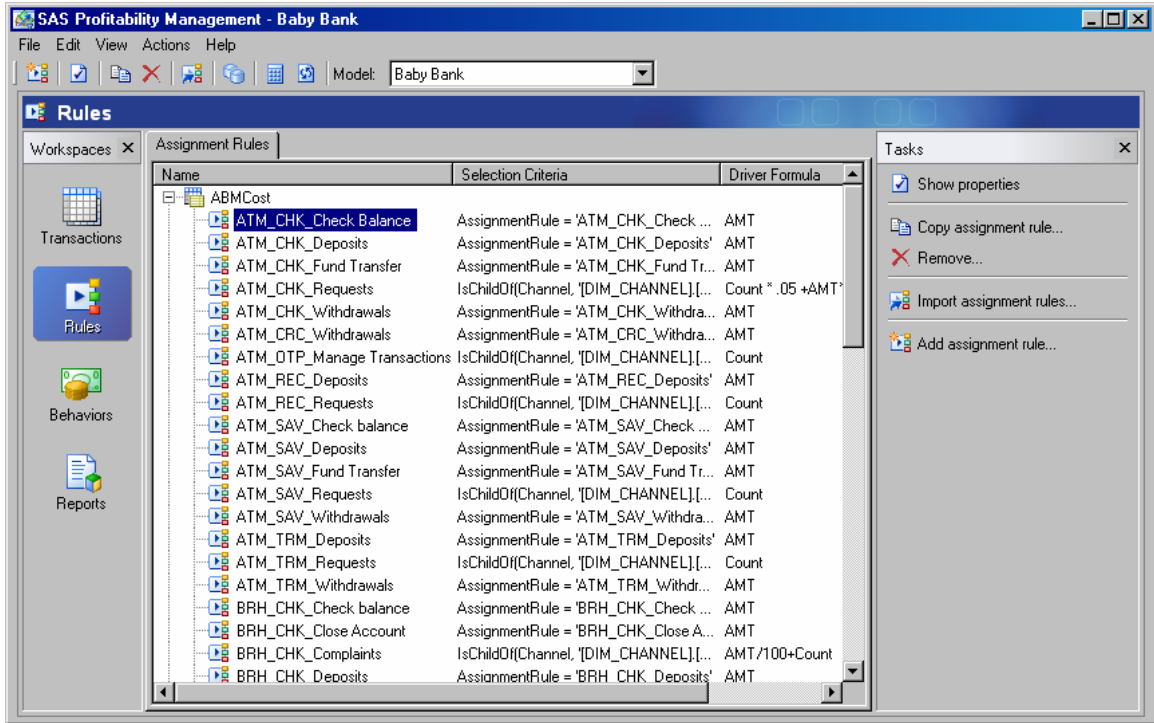
Create an association between behaviors and rules:

�khanda **Step #24 Create the mapping between the behaviors and rules**
1. Change to the behaviors workspace
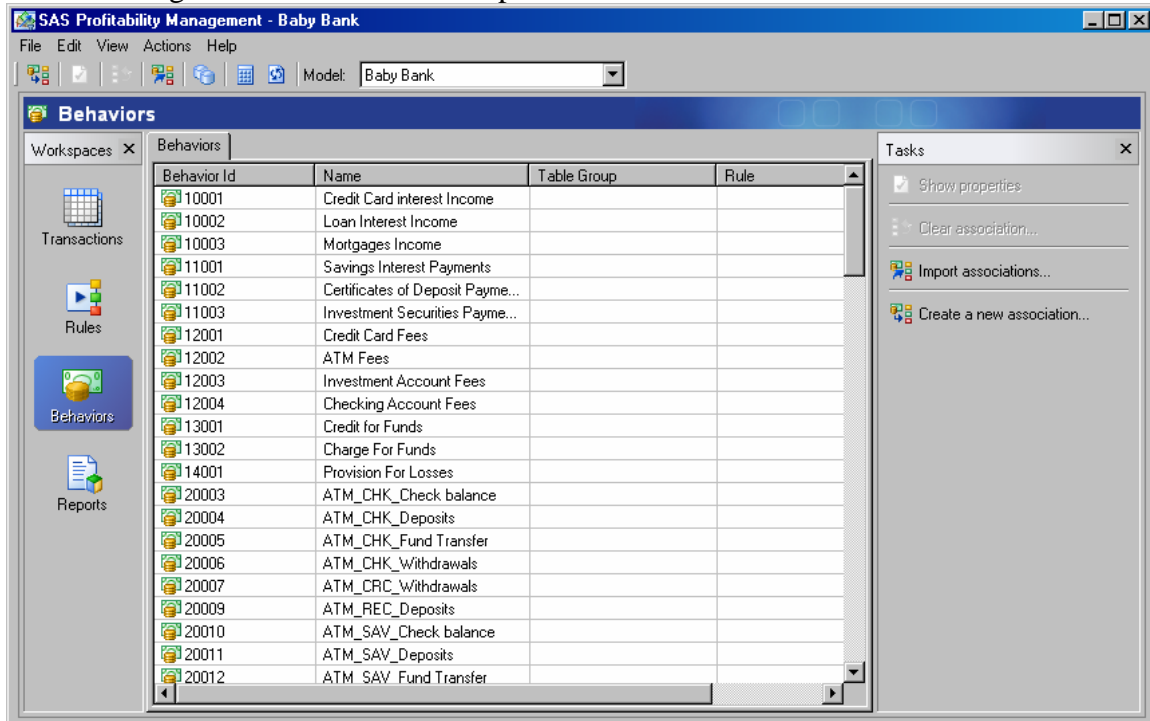
2. Select the create a new association –

Select the table group – source for rule

�khanda **Step #25 Select the table group where the rule is**
1. Select the ABMCost drop down list for the table group to use for the rule

Select the specific rule

�khanda **Step #26 Select the specific rule to match to the behavior**
1. Select the check box for behavior 20003 ATM_CHK_Check balance
2. Select the ATM_CHK_Check balance to associate the rule to the behavior
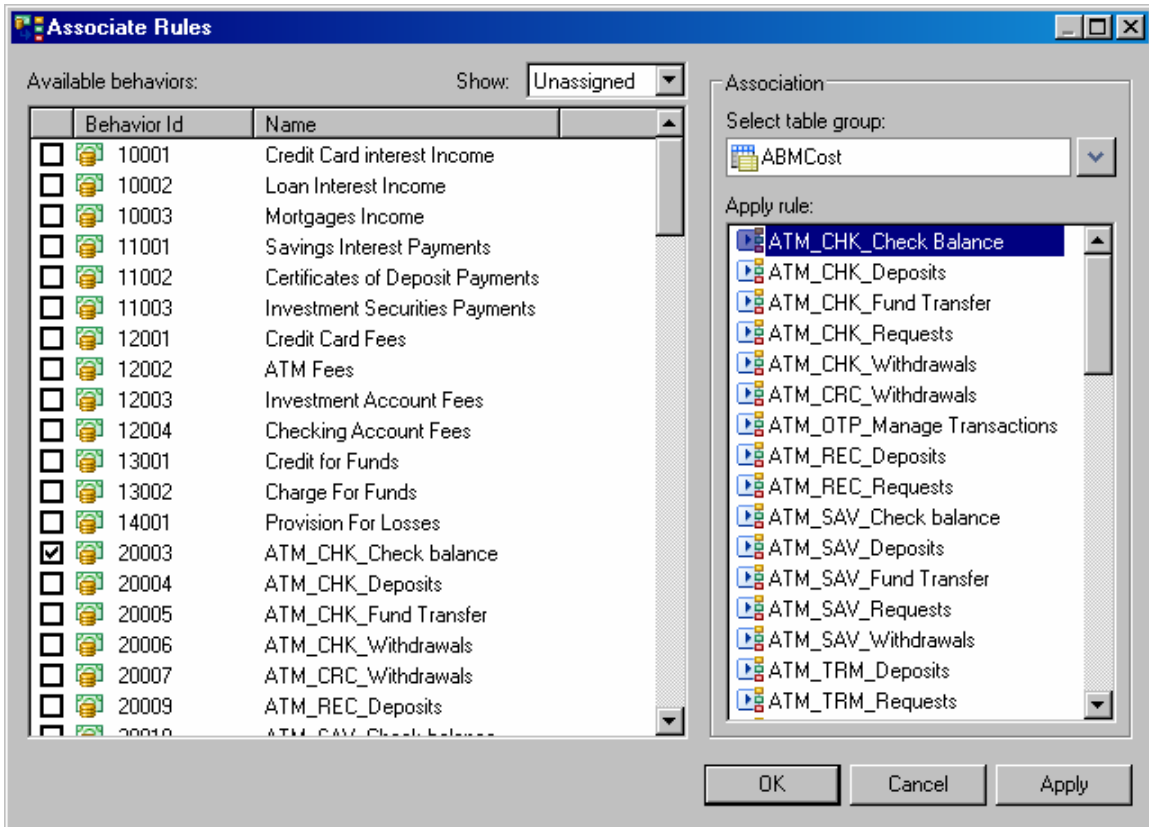
3. Select the select the specific rule to apply
   a. The rule is displayed
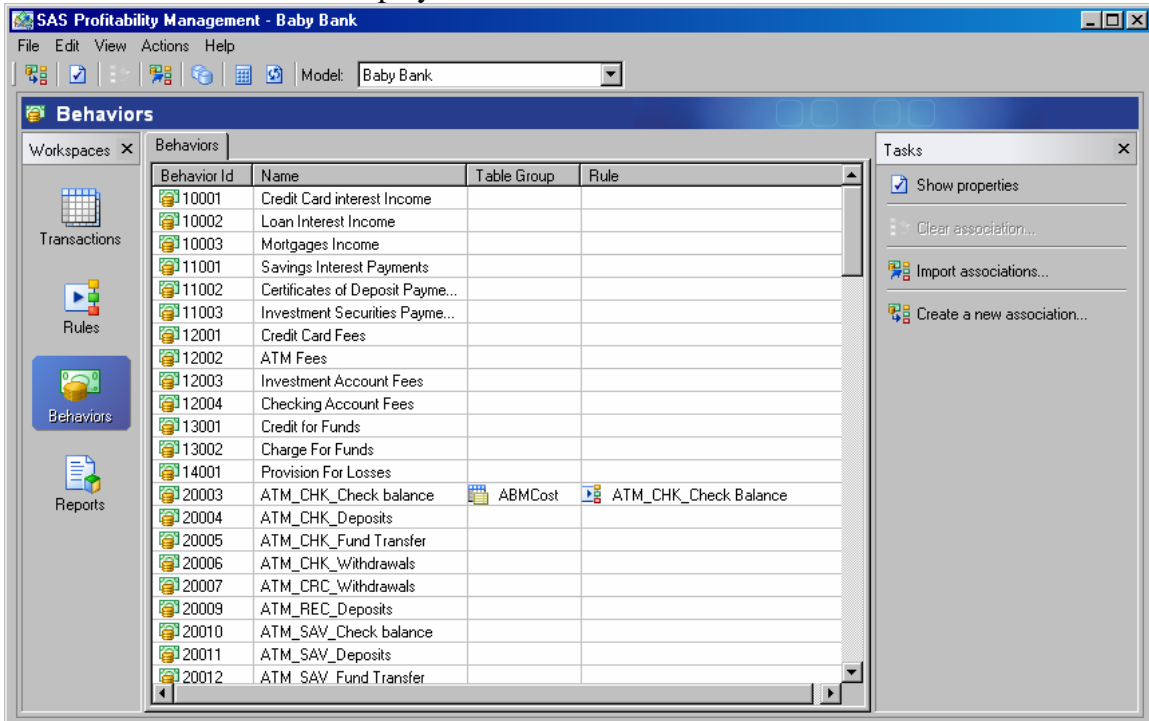
Import association matching rules to behaviors

❀ **Step #27 Import all of the remaining associations**

1. The association import source table layout

	BehaviorId	BehaviorName	TableGroup	AssignmentRule
1	10001	Credit Card interest Income	Revenue	Credit Card interest Income
2	10002	Loan Interest Income	Revenue	Loan Interest Income
3	10003	Mortgages Income	Revenue	Mortgages Income
4	11001	Savings Interest Payments	Revenue	Savings Interest Payments
5	11002	Certificates of Deposit Payments	Revenue	Certificates of Deposit Payments
6	11003	Investment Securities Payments	Revenue	Investment Securities Payments
7	12001	Credit Card Fees	Revenue	Credit Card Fees
8	12002	ATM Fees	Revenue	ATM Fees
9	12003	Investment Account Fees	Revenue	Investment Account Fees
10	12004	Checking Account Fees	Revenue	Checking Account Fees
11	13001	Credit for Funds	Revenue	Credit for Funds
12	13002	Charge For Funds	Revenue	Charge For Funds
13	14001	Provision For Losses	Revenue	Provision For Losses
14	20003	ATM_CHK_Check balance	ABMCost	ATM_CHK_Check balance
15	20004	ATM_CHK_Deposits	ABMCost	ATM_CHK_Deposits
16	20005	ATM_CHK_Fund Transfer	ABMCost	ATM_CHK_Fund Transfer
17	20006	ATM_CHK_Withdrawals	ABMCost	ATM_CHK_Withdrawals
18	20007	ATM_CRC_Withdrawals	ABMCost	ATM_CRC_Withdrawals
19	20009	ATM_REC_Deposits	ABMCost	ATM_REC_Deposits
20	20010	ATM_SAV_Check balance	ABMCost	ATM_SAV_Check balance
21	20011	ATM_SAV_Deposits	ABMCost	ATM_SAV_Deposits
22	20012	ATM_SAV_Fund Transfer	ABMCost	ATM_SAV_Fund Transfer
23	20013	ATM_SAV_Withdrawals	ABMCost	ATM_SAV_Withdrawals
24	20014	ATM_TRM_Deposits	ABMCost	ATM_TRM_Deposits

2. Select the check box for behavior 20003 ATM_CHK_Check balance
3. Import associations
   a. Select source table
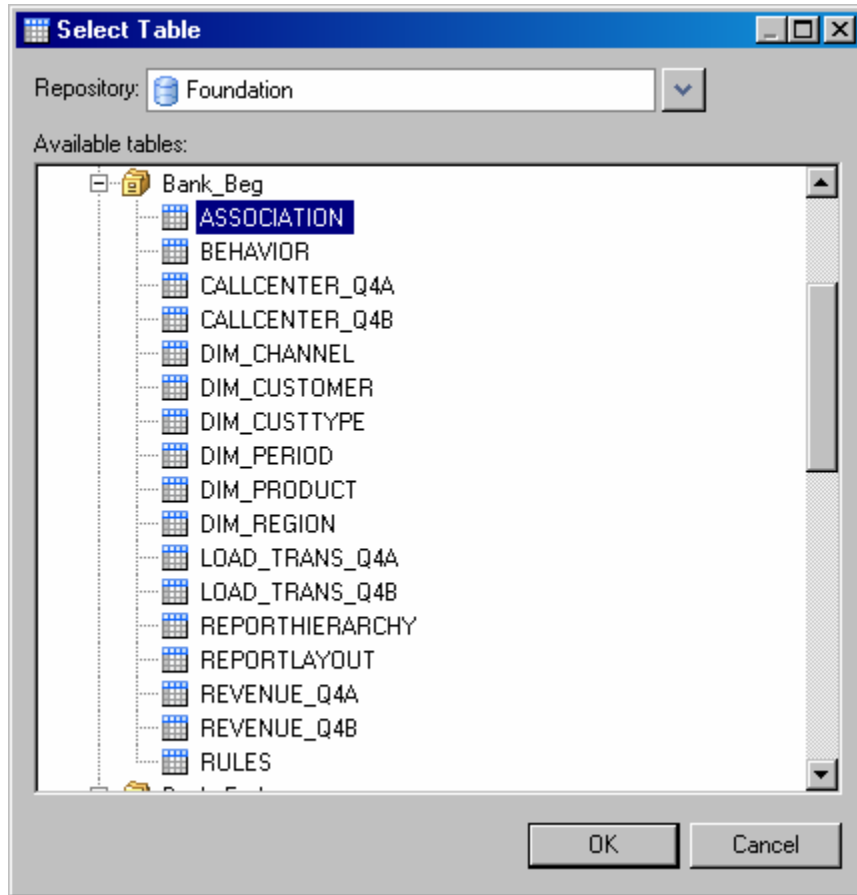
4. Review mapping source table fields to required fields
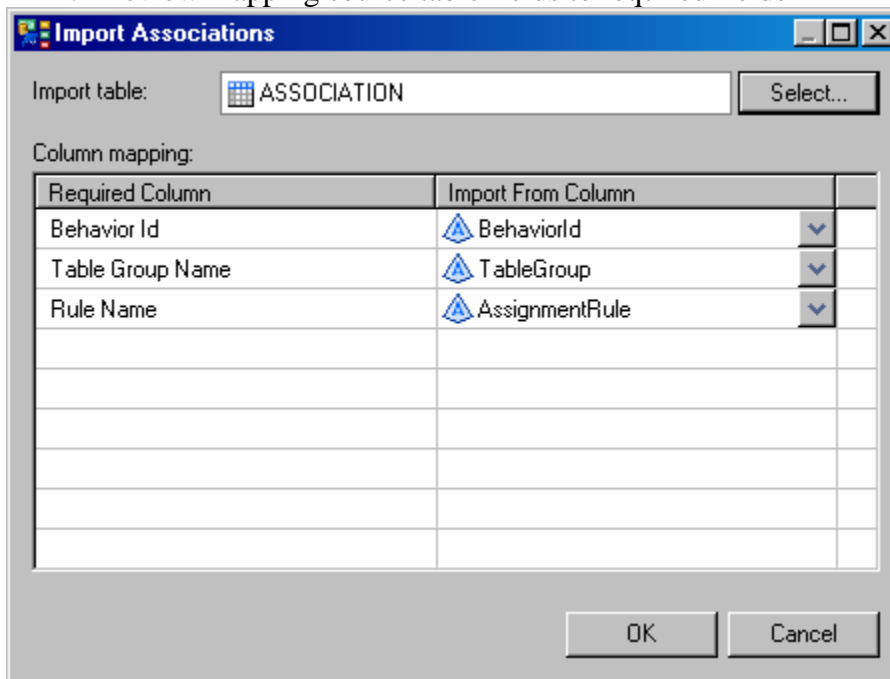
5. Review import log

a. Importing an association that already exists is not considered and error condition.

6. Verify all associations have been imported
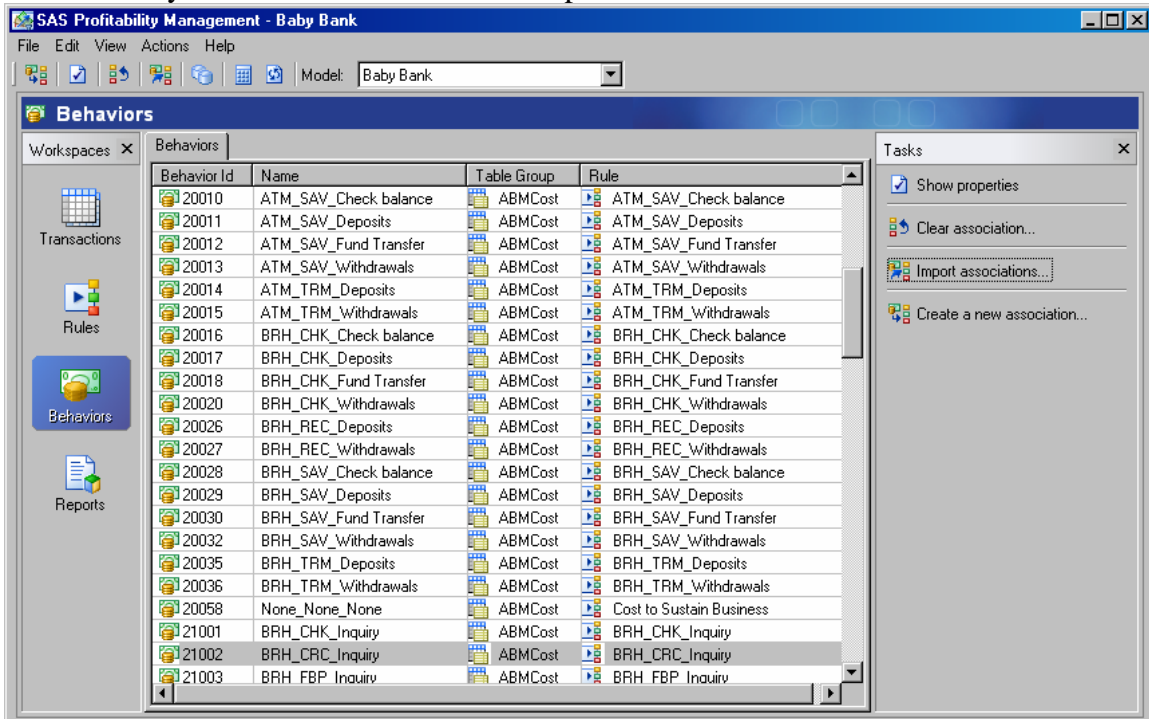
Reports:

Define summary reports:

⚙ **Step #28 Define the summary reports you need**
1. Select the reports workspace
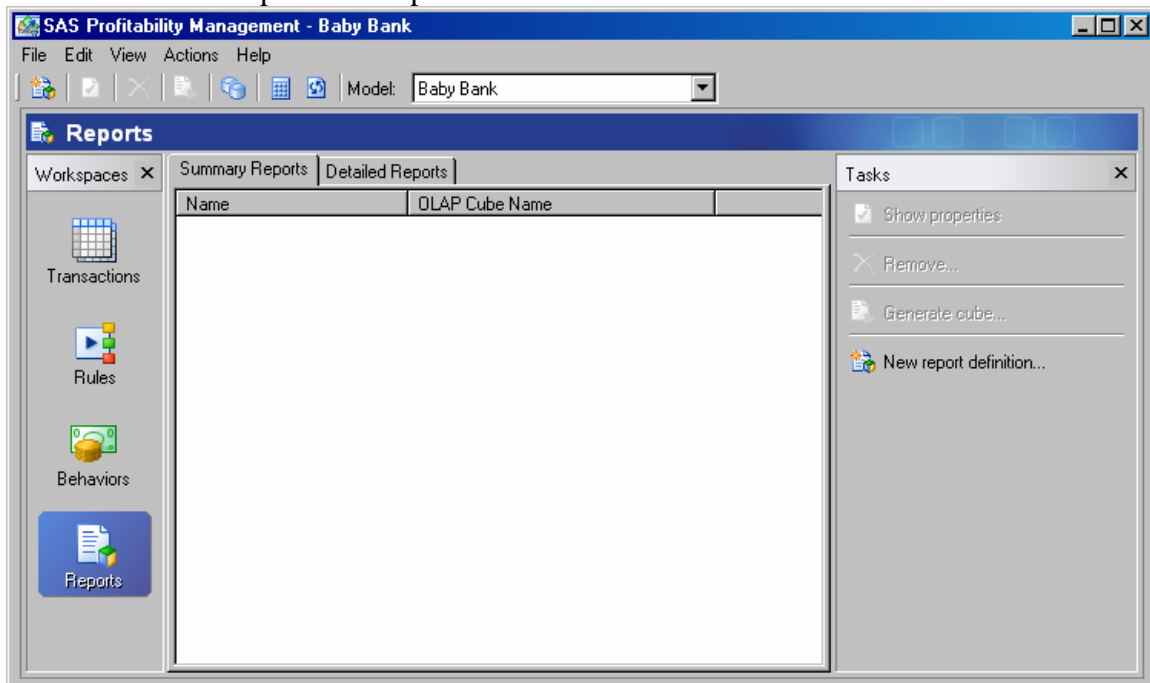
2. Select the summary reports tab
3. Select the new report definition
4. Enter a report definition name that is unique to the model and press next

Select dimensions to include

❋ <u>**Step #29 Define the summary reports you need**</u>

1. Select the dimensions to include in your cube
   a. In the column to include the specific dimension in the reporting
   b. The fewer dimensions you select to report on, the smaller your summary cube will be and the better response time you will get.
   c. The time dimension and the report hierarchy dimensions are the default values, they both must be included in any summary report you define.
   d. Additional dimensions: can be included or not in the summary reporting. The available dimensions for the Baby Bank model are channel, customer, custtype, product and region.

New Summary Report Definition

Dimensions and levels

Select the dimensions and the level you want to be able to

Include	Dimensions
☐	DIM_CHANNEL
☐	DIM_CUSTOMER
☐	DIM_CUSTTYPE
☑	DIM_PERIOD
☐	DIM_PRODUCT
☐	DIM_REGION
☑	REPORTHIERARCHY

Select dimension depth to include

❈ **Step #30 Define summary report available drill-down**
1. Each dimension selected to be included in the summary cube, must have a selection noting the level to allow drill-through to.
2. The default dill-through depth is always the top of the dimension. In this case the top of the time dimension would be 2006. If no additional drill-down was selected the ultimate summary report would hold totaled values for 2006, with no additional detail available to drill-down to.
3. You can select to include any level of depth defined in your dimensional hierarchy to include in your report. For the Baby Bank model the dimensions have the following levels of detail:
    a. Dim_Period – L1_scenario, L2_year, L3_quarter
    b. ReportHierarchy – L1_profit, L2_profit, L3_profit, L4_profit and L5_profit
    c. Dim_Channel – L1_Channel
    d. Dim_Customer – L1_Type, L2_LastName, L3_FirstName
    e. Dim_CustType – L1_CType, L2_CType
    f. Dim_Product – L1_Product, L2_Product
    g. Dim_Region – L1_Area, L2_Country, L3_State, L4_City
4. Select the period drop down and select level 3 L3_Quarter
5. Select the report hierarchy and select l5_profit
    a. This allows additional drill-down into the contributing costs for the sections of the profit & loss report.
6. All decisions on the number of dimensions and the depth of drill-down in any selected dimension will have a dramatic impact on the reporting performance. It is wise to limit summary reports to specific areas where business decisions will be made.
7. It is also wise to produce lots of individual summary reports meeting specific manager's needs focused upon specific dimensions rather than creating an all

encompassing summary report which has all dimensions and all levels of drill-down.
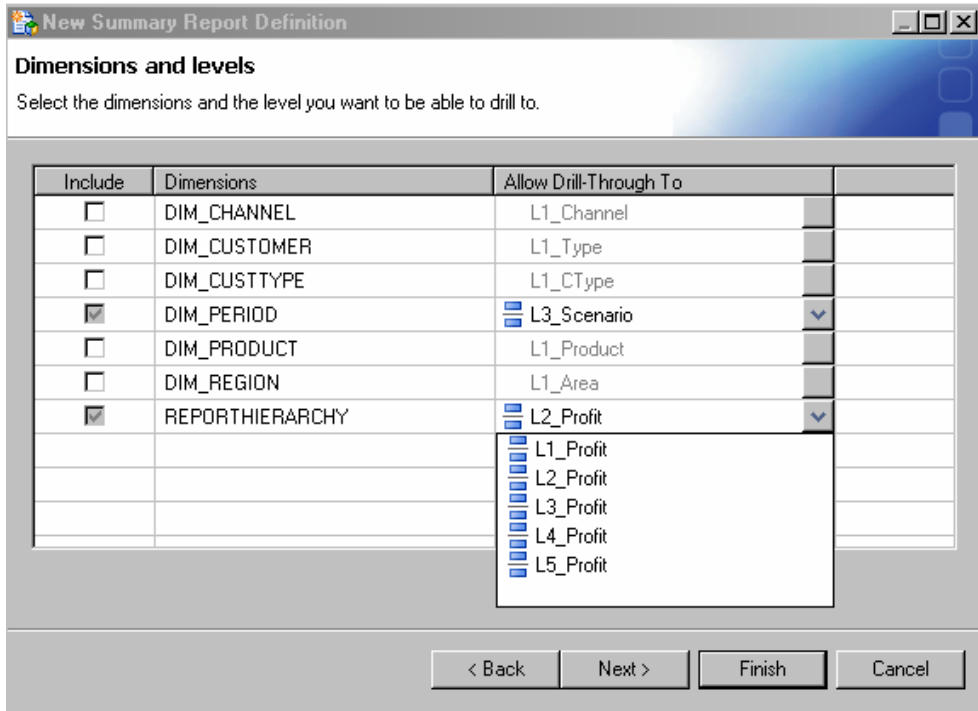
8. Select the level of the hierarchy to use in your cube, to allow drill down in the ultimate report.
    a. Dim_Period – Select L3_Quarter
    b. Report Hierarchy – Select L5_Profit
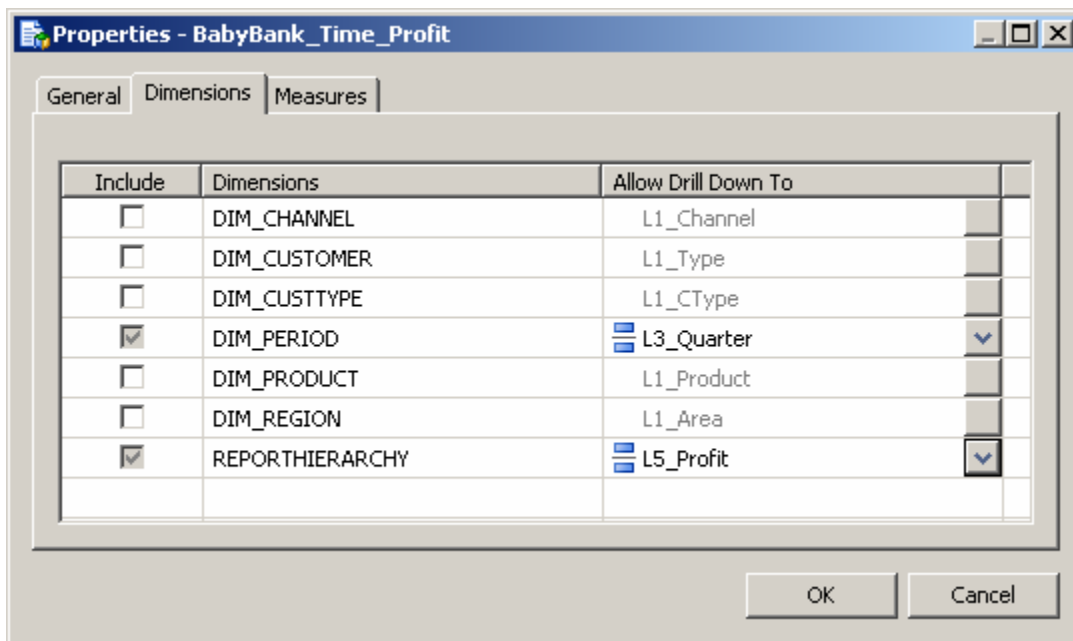
Select measures to include

✡ **Step #31 Select specific numeric items to be displayed**
1. Select measures to include in the summary report. The value property is the default, simply leave that selected.
2. The value will display the revenue and cost amounts to produce a profit and loss report
3. All of the numeric properties are available to be included in a summary report.
4. Source table transactions numeric properties : by source table group
   a. ABMCost (AMT, Count)
   b. Call center # of incidences: (communication, complaints, count, crossSell, inquiry, offer, requests)
   c. Revenue (AMT)
5. Calculated results
   a. Quantity – the result of the rules driver formula noted on each row of the transaction tables based upon the behaviors
   b. Value – the calculated result for the behavior source (revenue and costs) applied to the transaction details based upon the rules defined.

New Summary Report Definition

Measures

Select the measures.

Include	Measures	
☐	AMT	
☐	Communication	
☐	Complaints	
☐	Count	
☐	CrossSell	
☐	Inquiry	
☐	Offer	
☐	QUANTITY	
☐	Requests	
☑	VALUE	

< Back   Next >   Finish   Cancel

6. Review the summary report definition
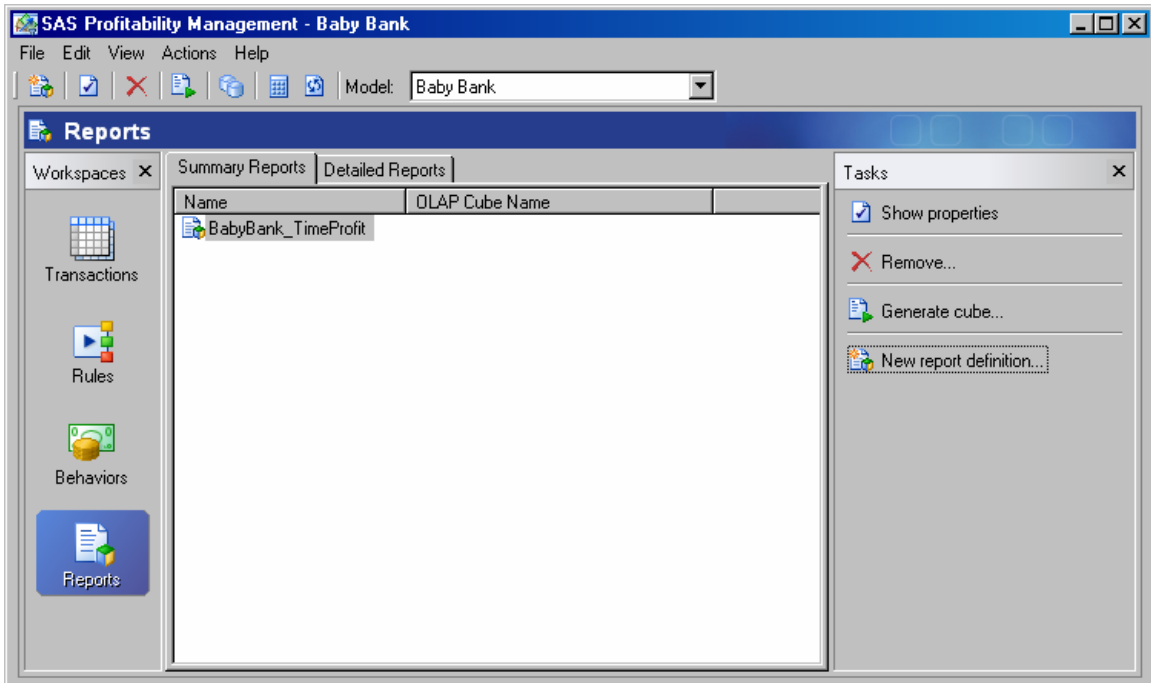
Define detailed reports:

Select dimensions for detailed reports

� **Step #32 Define which dimensions will be used in detailed reports**

  1. Select the detailed reports tab
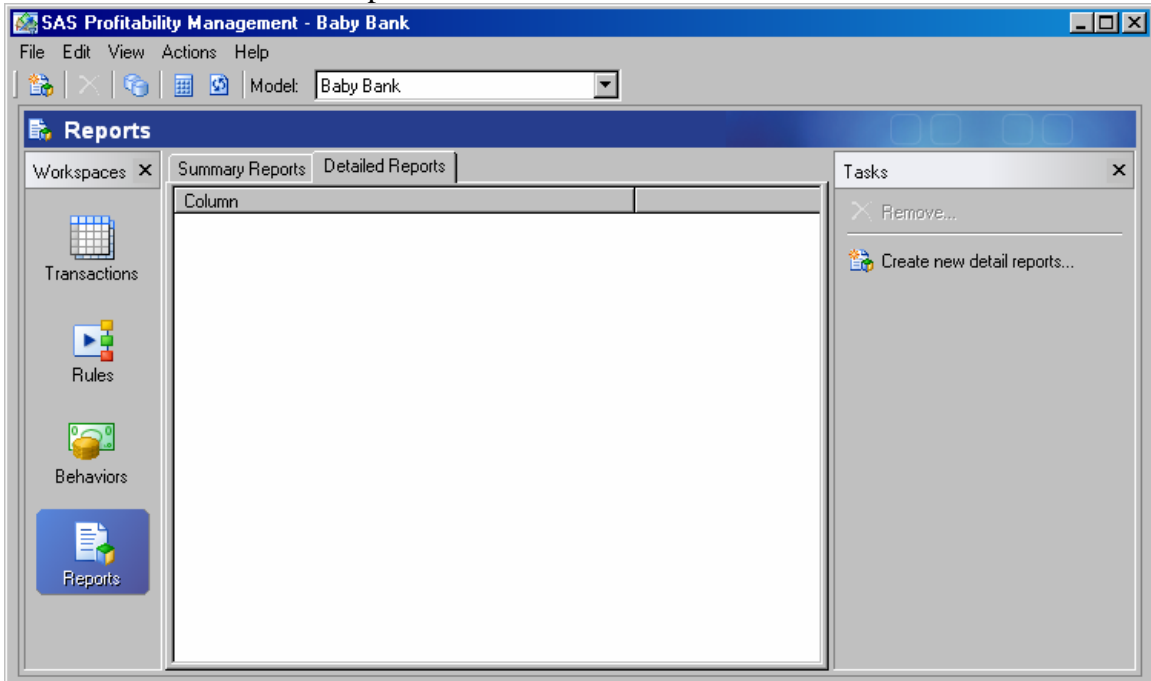
2. When configuring the detail reports you should choose to do a detail report on the dimension which will most uniquely filter the result.
3. The detailed reports are built based upon a cube on the fly; selection logic is processed to filter the starting transactional content to the single customer selected.
4. The goal for quick reporting response time is to try to filter your result where the selected answer has less than 1000 records.
5. So while there are other dimensions in the model, it would be unwise to select any dimension other than customer, because the resulting filtered result would be more than 1000 records. (because all customers would be included)
6. Available dimensions in the Baby Bank model: customer, product, channel, custtype, region
7. Simply select the custid
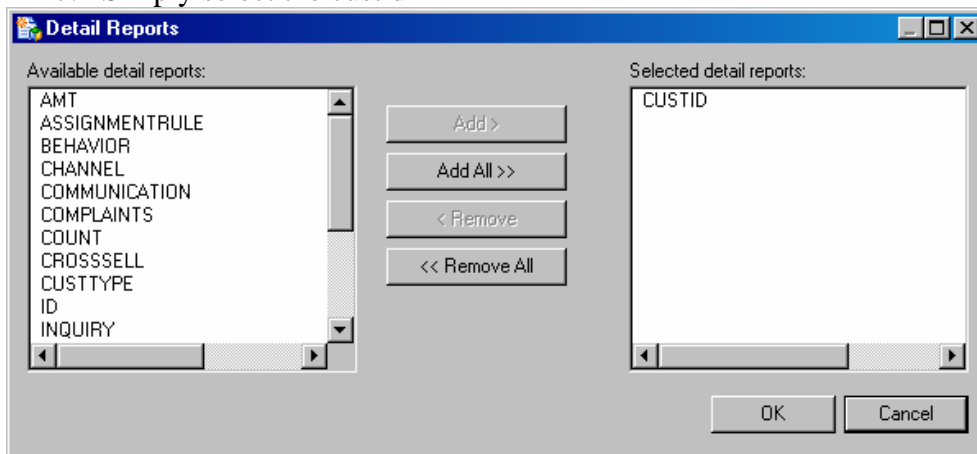
8. After you select ok, the system processes all of the calculated transaction tables and adds an index for the dimension you have selected for detailed reporting.
9. The system will return a SAS log noting that a simple index has been created.
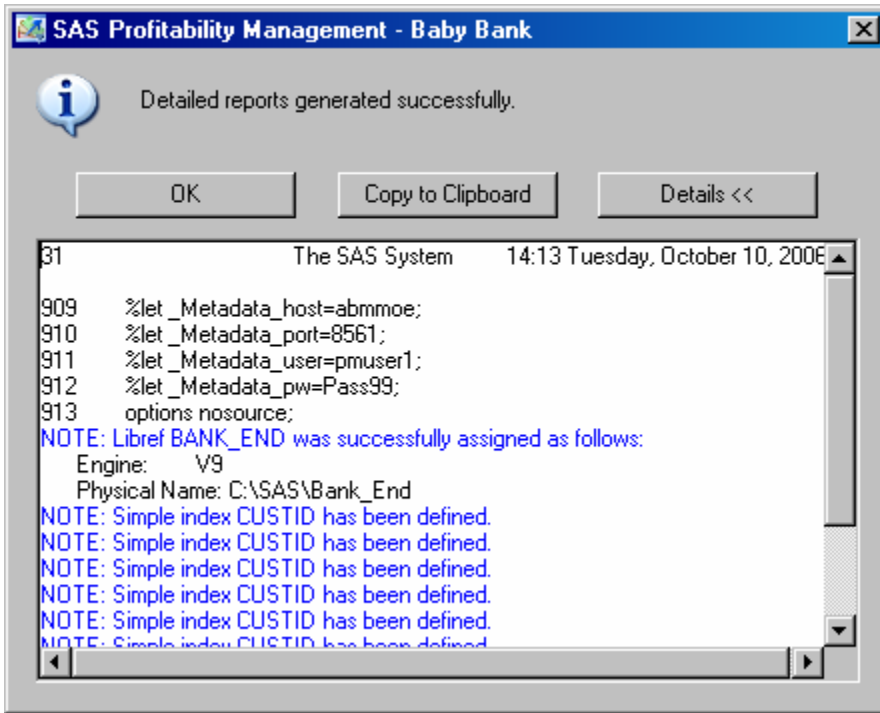
10. Once the particular dimensions to be used for detailed reporting are configured. The available list of details reports will be displayed in the SAS Profitability Management report detailed page. This is the same list of reports that will be available in the web client.
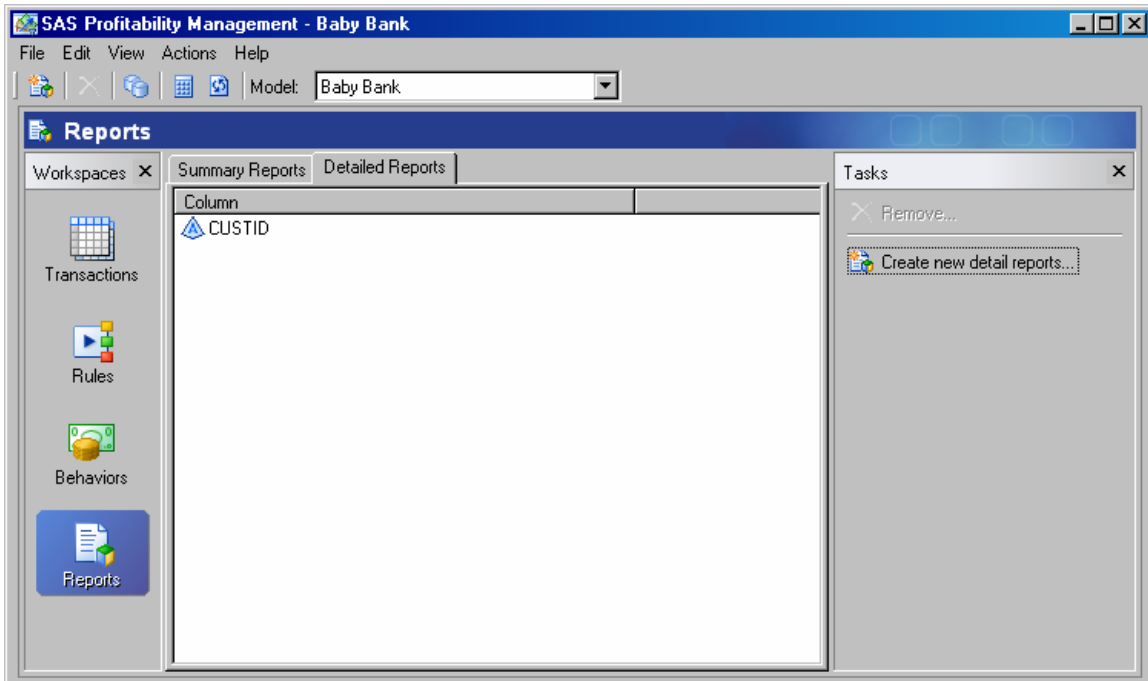
Calculate the model:

Select the periods to calculate

�ᵕ **Step #33 Select calculate specific periods**

1. Push the calculate button on the tool bar
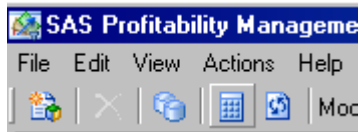
2. Select the periods to be calculated for the model
3. Since each transaction table represents a single period, when you are calculating a model you do not need to recalculate all of the transaction tables. This is ideal for calculations representing incremental periods. You can calculate January and then calculate February as a separate calculation. You never need to process a single period's transactions more than once as the months proceed through the year.
4. The summary reports and detail reports (cubes) calculations will always reflect all time period's transaction tables, which have been calculated.
5. So the cubes when generated always contain the complete detail for all available calculated transaction tables across periods.
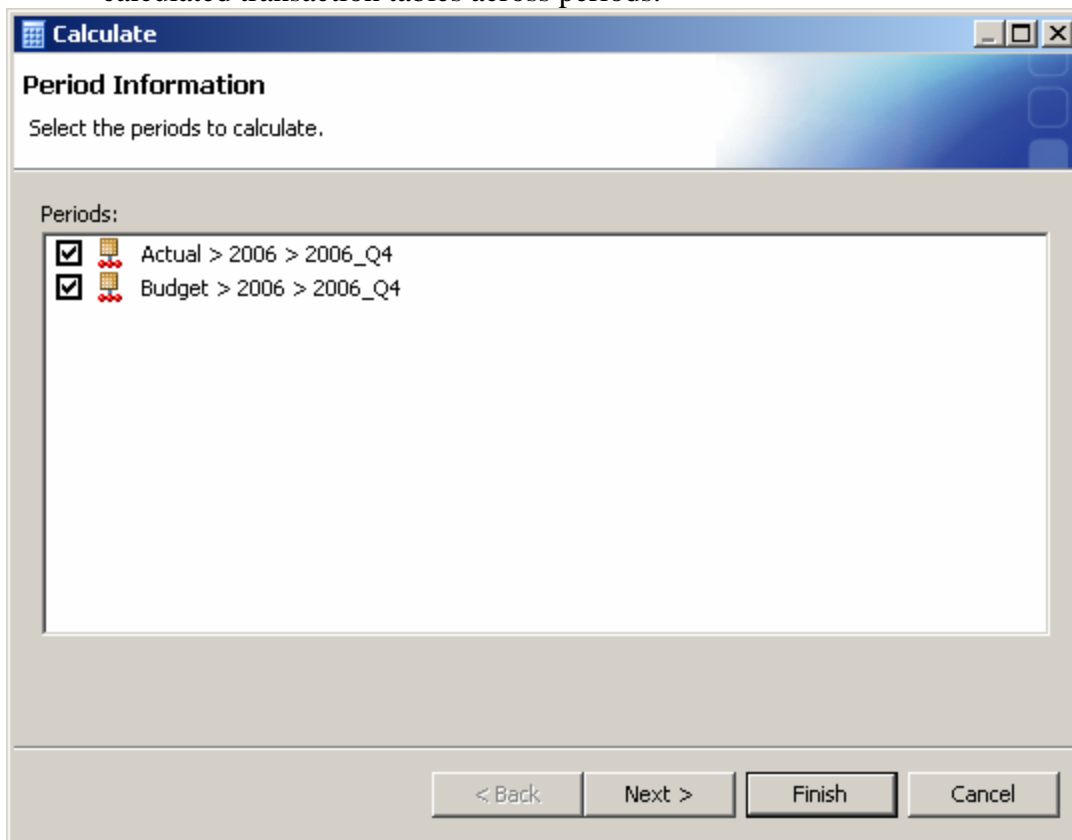
Select the transaction table groups to calculate

✿ **Step #34 Select specific table groups to calculate**
  1. Select the table groups to be calculated for the model
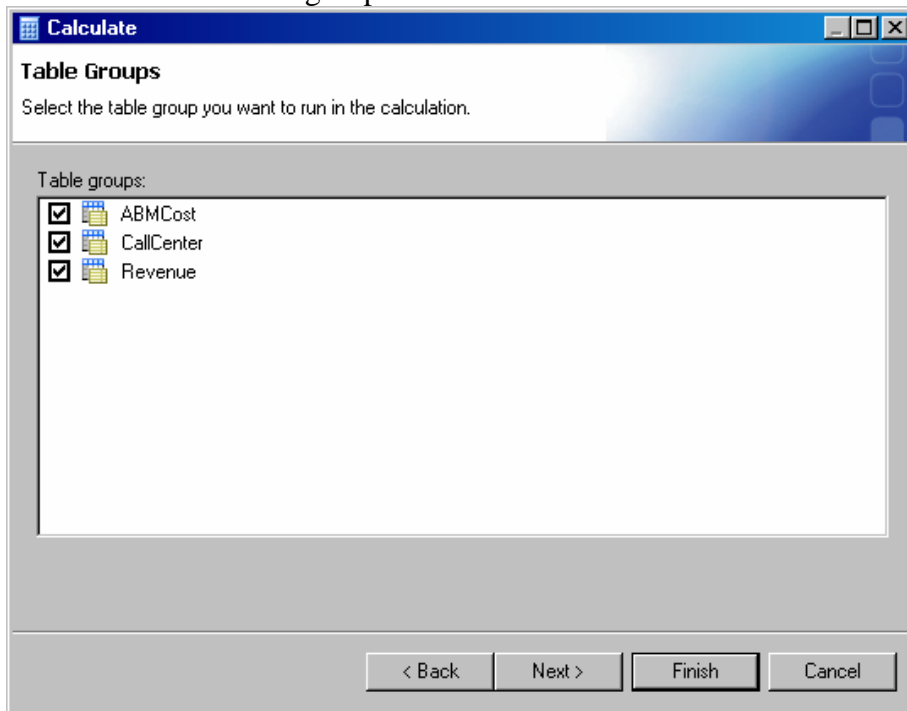
  2. Select the summary cubes to be calculated for the model
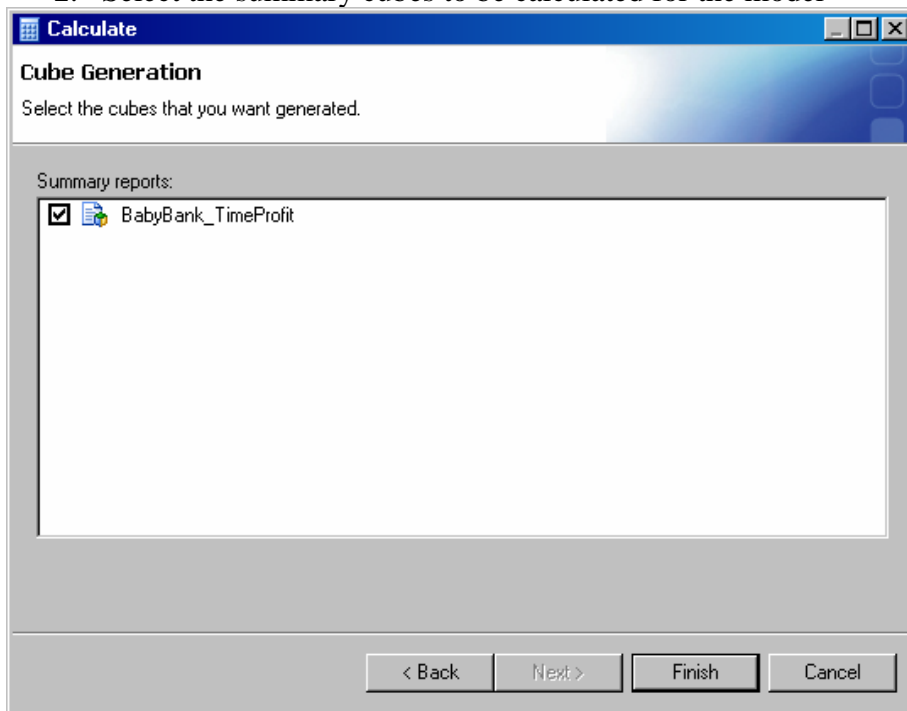
  3. Generate cube

a. Dialog while cube generation occurs
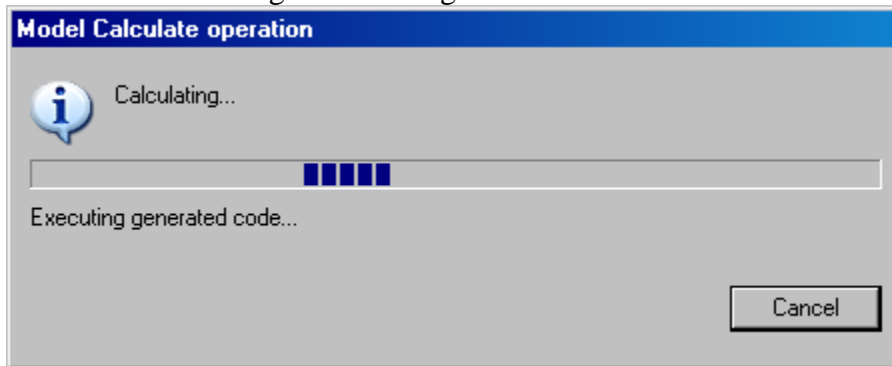
4. When the cube generation completes, you see the SAS log
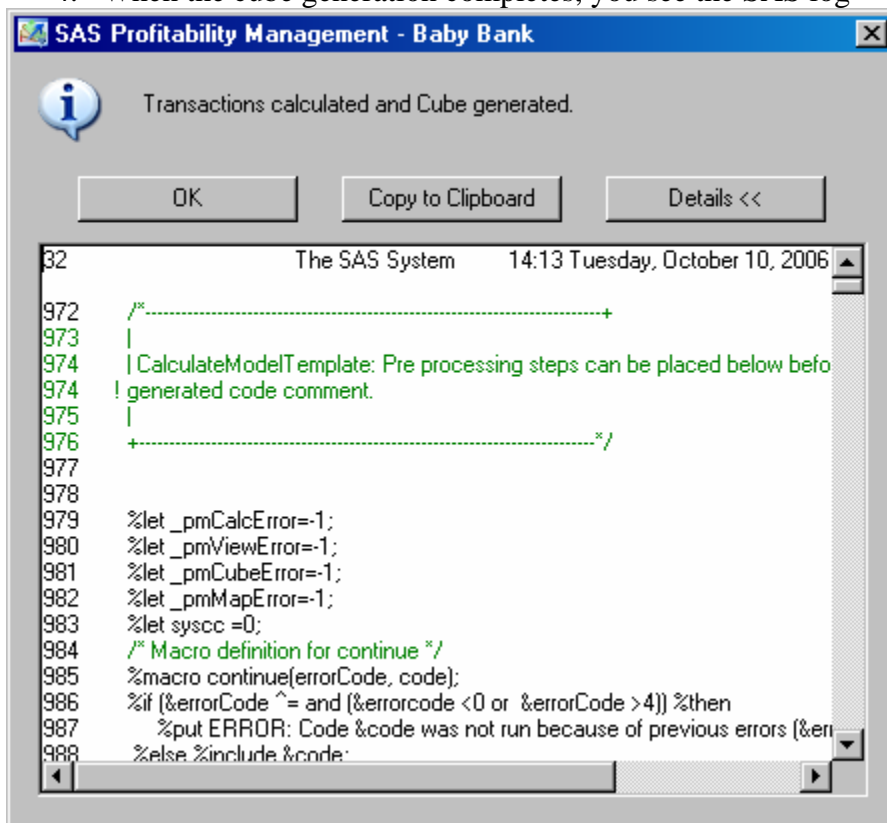
5. You have now finished working with the profitability rich client.
6. Select the file menu and select exit to close the SAS Profitability Management Rich Client application
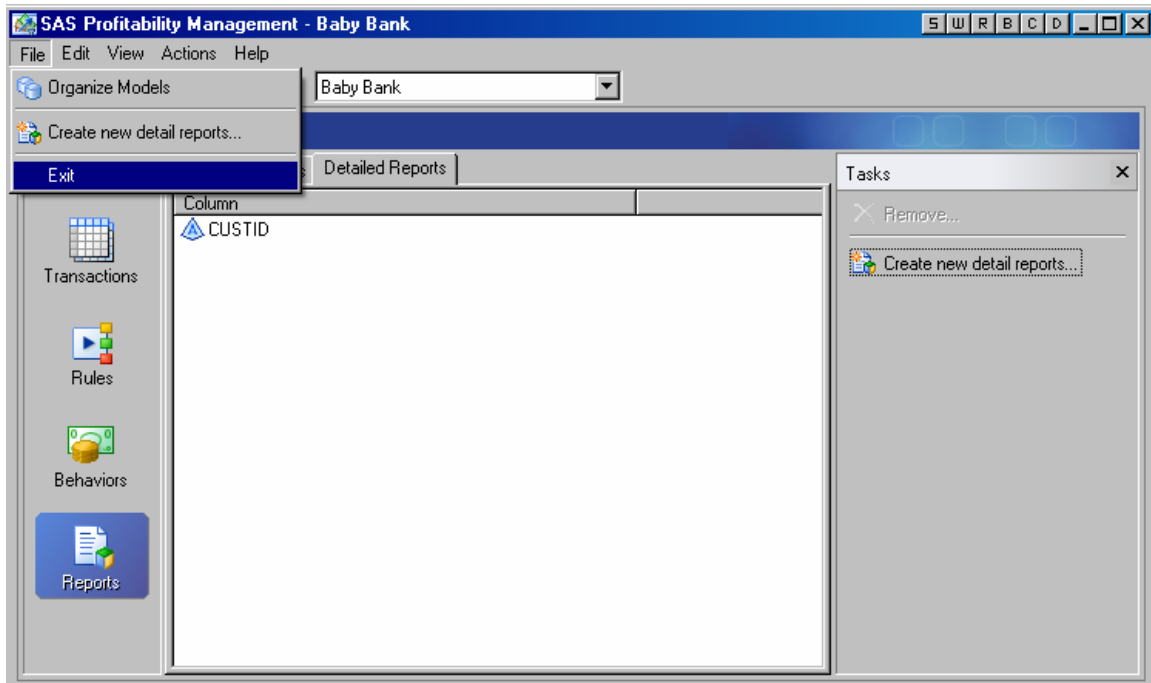
Review the calculated results to verify

✵ **Step #35 Review the resulting tables in the end library**

1. The calculation result tables are stored in directory where you have defined the target destination Libname
2. To verify the calculation process you can review the content on the server.
3. Below is a list of the resulting tables
   a. The transaction tables : call center, load trans and revenue
   b. The index tables for transactions
   c. The target destination library contains, two defined data set views – which are used to join all of the calculated tables together to define the source content for the summary report and detail report cube build creation process.
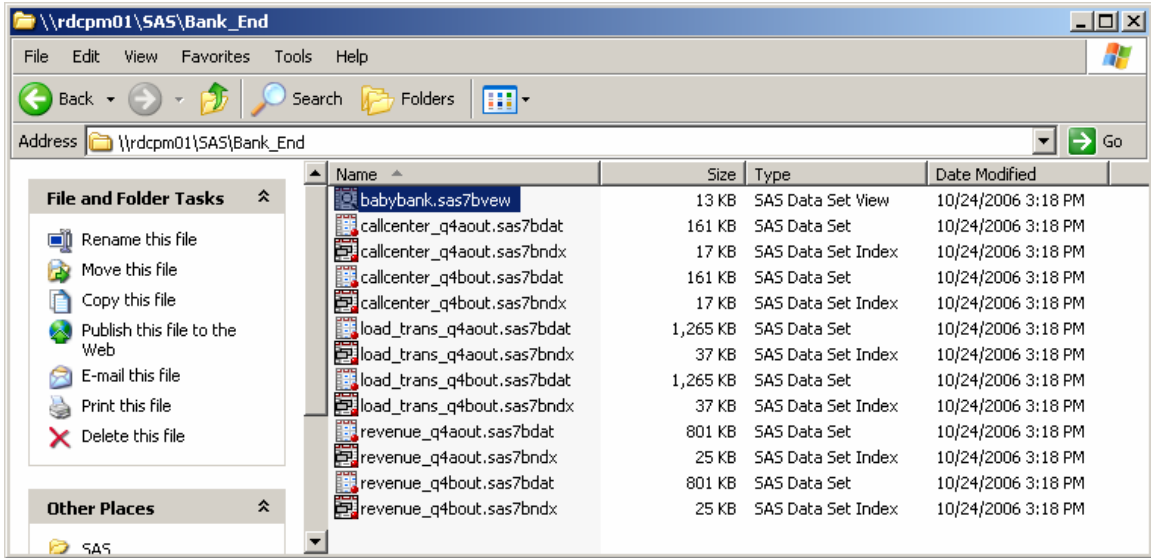
Profitability management web reporting:

Web client login

� **Step #36 View the profitability reporting via the web**
1. Web reporting client login
   http://<<your web server>>:8080/SASProfitability/
    User: as defined earlier in SMC for the SAS Profitability Management user
2. Password: as defined
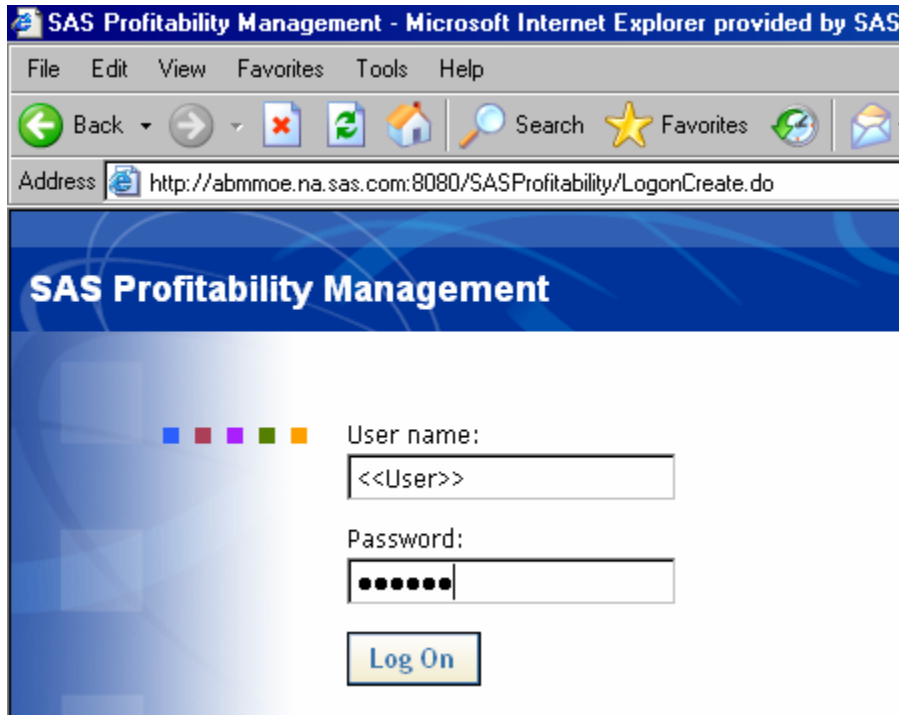
Select summary for reporting

✱ **Step #37 Web client will display all models, select the Baby Bank model**
1. Web reporting summary report tab
   a. Select the model to report against
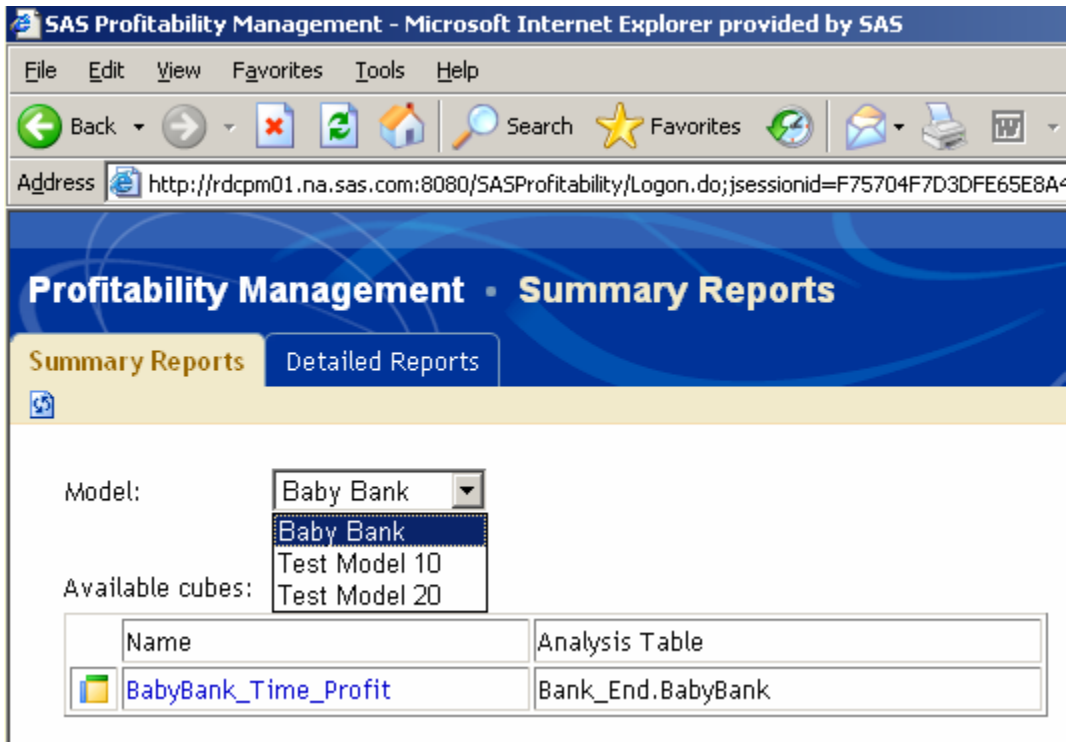
2. Select the summary report to view: from the available cubes

SAS web OLAP viewer – verify cube results

✵ **Step #38 Summary report opens in SAS web OLAP viewer**
1. Selected report opens in SAS web OLAP viewer for java (SWOVJ)
    a. Displays the profit and loss statement in the table view

2. Default configuration for the report: selected items
   a. Rows: report hierarchy dimension displayed from SAS Profitability Management
   b. Columns: the time period dimension from SAS Profitability Management
   c. Slicer: value – the cost & revenue property from SAS Profitability Management
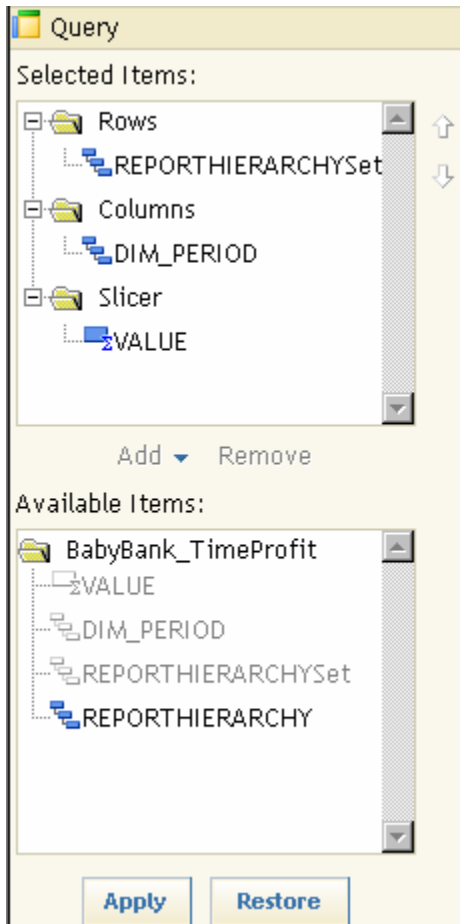
3. Drill-down into the report
   a. Drill by columns: see more detailed in the time dimension
      i. Click in the column header that says Actual, to drill down to the Years detail in the time dimension
      ii. Then click in the column header that says 2006_q4, to drill down to the Quarters detail in the time dimension
      iii. You should see displayed a column for actual and a column for budget

Drill Path:	⌄ ✕	Applied Filters:	⌄ ✕

	L1_Scenario	⊟⬇ Actual	⊟⬇ Budget
	L2_Year	⊟⬇ 2006	⊟⬇ 2006
	L3_Quarter	2006_Q4	2006_Q4
L1_Profit	**L2_Profit**		
	Credit Card interest Income	$135,012.18	$127,213.62
⬇ Interest Income	Loan Interest Income	$225,773.45	$212,732.20
	Mortgages Income	$123,016.53	$115,910.89
Total Interest Income		$483,802.16	$455,856.71
	Savings Interest Payments	$16,404.36	$15,456.83
⬇ Interest Expense	Certificates of Deposit Payments	$72,408.80	$68,226.35
	Investment Securities Payments	$23,345.33	$21,996.84
Total Interest Expense		$112,158.49	$105,680.02
Net Interest Income		$371,643.67	$350,176.69
⬇ Funds	Credit for Funds	$63,567.38	$59,895.62
	Charge For Funds	$79,459.19	$74,869.43
Net Funds		$-15,891.81	$-14,973.81

4. Drill-by rows: see more detail in the contributing costs dimensions.
    a. Select the down arrow at the bottom of the report to see the next screen… to see more rows in the report.
    b. The net contribution should say 23,551 for actual.

Drill Path:	≫ ✕	Applied Filters:	≫ ✕

View▾   Data▾   Properties   ⌃ ✕

	L1_Scenario	⊟⬇ Actual	⊟⬇ Budget
	L2_Year	⊟⬇ 2006	⊟⬇ 2006
	L3_Quarter	2006_Q4	2006_Q4

L1_Profit	L2_Profit		
⊞⬇ Sales and Marketing Effort		$27,994.72	$27,940.85
⊞⬇ Servicing Effort		$105,778.34	$93,113.06
Total Non Interest Expense		$507,072.21	$474,621.11
Net Contribution		$23,551.47	$25,352.70

⤊⬆   Rows 21 - 24 of 24   ⬇⤋

5. The levels available to drill to additional detail in the cube is dependent upon the number of dimensions levels selected in the definition of the summary cube
6. Also the available depth to drill to is limited by the defined dimensional hierarchy in the report dimension. In the example noted below, there are 5 levels of contribution cost depth.
7. Click the plus sign at the front of the selected item to drill down and display more details on the contributing costs.
   a. L1_profit = sales and marketing
   b. L2_profit = cost to retain
   c. L3_profit = CCT for the call center
   d. L4_profit = CRC for the credit card product
   e. L5_profit = CCT_CRC_cross sell and up sell represents the detailed transaction, activity done by the organization, that causes cost to flow.

			⊟⬇ CRC	CCT_CRC_Cross_Up Sell	$677.00	$592.35
⊟⬇ Sales and Marketing Effort	⊟⬇ Cost to Retain	⊟⬇ CCT	⊞⬇ SCR		$1,015.49	$888.52
			⊞⬇ TPP		$169.22	$148.06
			⊞⬇ UCR		$1,523.33	$1,332.85
	⊞⬇ Cost to Sustain Business				$24,609.69	$24,979.07
⊞⬇ Servicing Effort					$105,778.34	$93,113.06
Total Non Interest Expense					$507,072.21	$474,621.11
Net Contribution					$23,551.47	$25,352.70

SAS web OLAP viewer – customize report layout

❈ **Step #39 Customizing the report layout**
1. Filtering the report
   a. Removing the blank content:
   b. Select the Preferences

2. Up Comes the Preferences Dialog Box
   a. Select the Layout – Two Columns
   b. Select the Check box to Suppress Empty Data
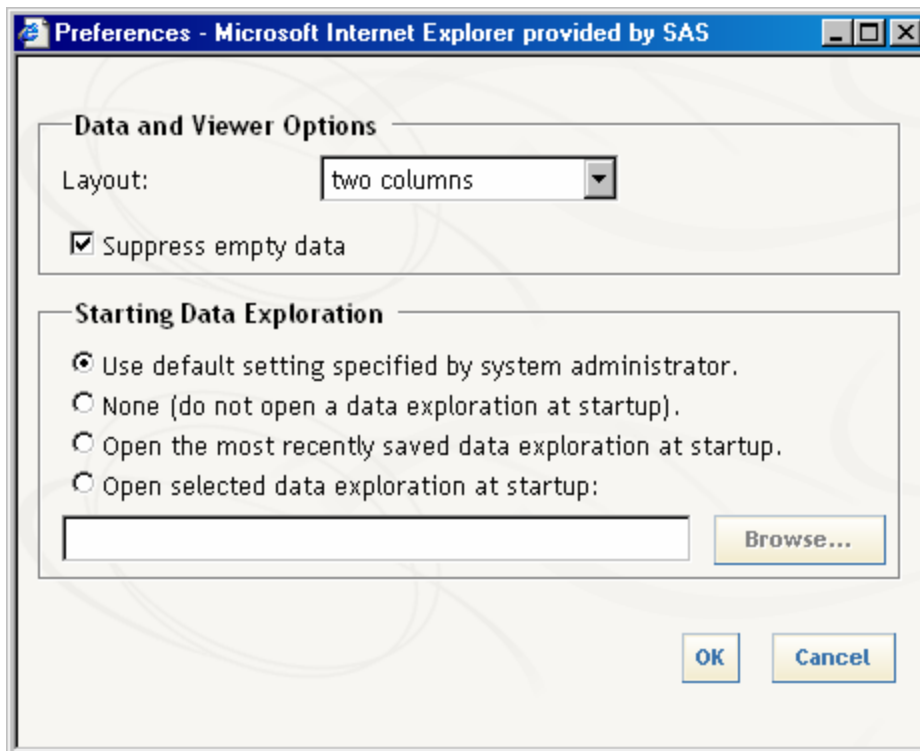
3. Selecting specific values to display: tool bar filter

   a. Select on the Tool Bar the Filter by Icon
   b. Select the dimension to filter by (row or column)
   c. Select the Report Hierarchy Set Dimension – To Filter the Rows
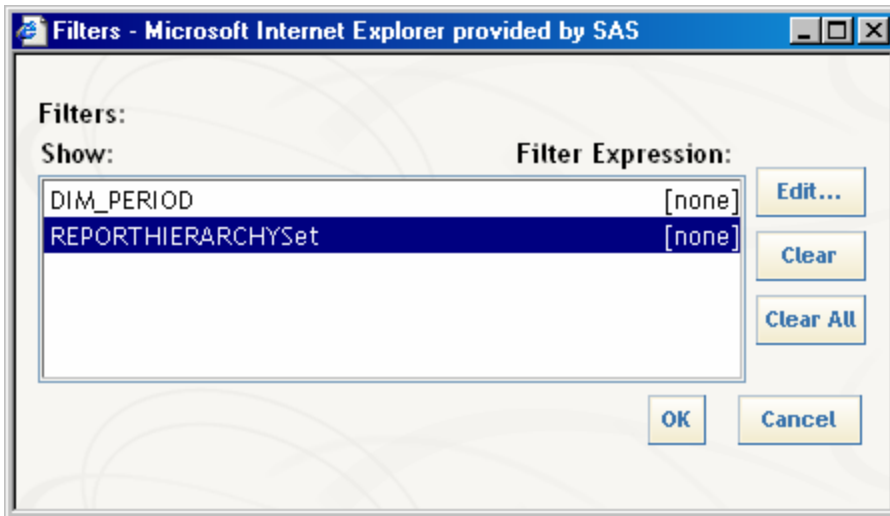
d. Select Edit to Pick Particular Items to Display in the Rows.
e. Select the values to include in the report
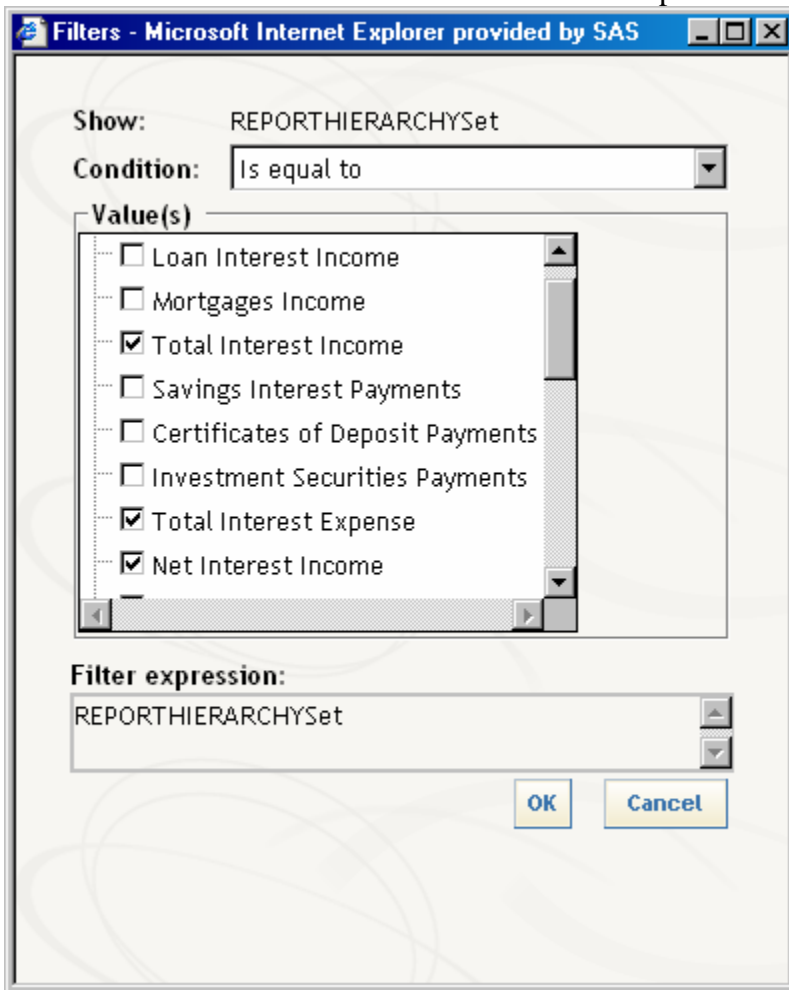
f. Once the filter has been defined the expression notes the filter.
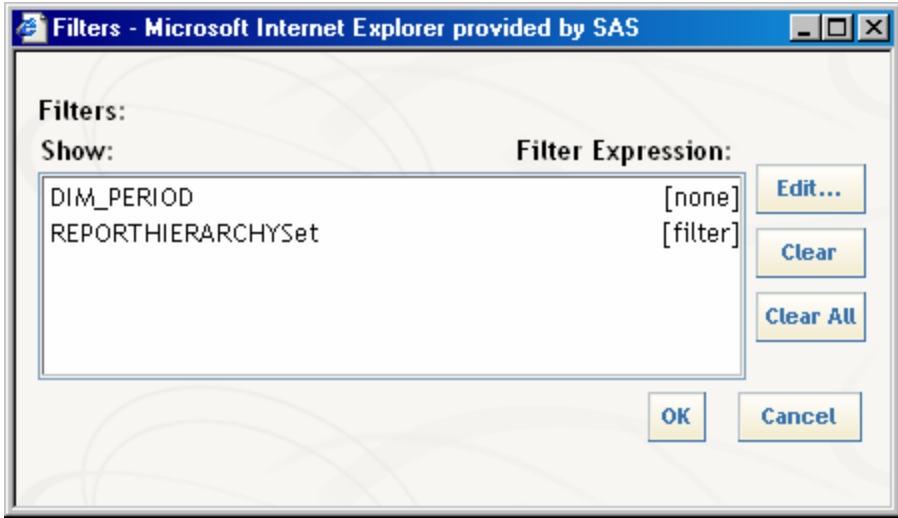
4. The resulting report will note the applied filters in the header of the report. And the report will be filtered accordingly.

L1_Scenario	⊞⬇ Actual	⊞⬇ Budget
L1_Profit		
Total Interest Income	$483,802.16	$455,856.71
Total Interest Expense	$112,158.49	$105,680.02
Net Interest Income	$371,643.67	$350,176.69
Net Funds	$-15,891.81	$-14,973.81
Total Non Interest Income	$174,871.82	$164,770.93
Provision For Losses	$15,891.68	$14,973.81
⊞⬇ Direct Product	$237,710.31	$245,533.75
⊞⬇ Relationship Management	$119,697.16	$93,059.64
⊞⬇ Sales and Marketing Effort	$27,994.72	$27,940.85
⊞⬇ Servicing Effort	$105,778.34	$93,113.06
Total Non Interest Expense	$507,072.21	$474,621.11
Net Contribution	$23,551.47	$25,352.70

5. Further formatting the report
    a. Remove the filter so you can see all of the content in the report
    b. Select the Properties Menu Right above the View for formatting the table

◄Profitability Management

SAS Web OLAP Viewer · Untitled Data Exploration

File▼   Data▼   View▼ | 🗔 Query 🗝 Navigator ◊ Bookmarks | 🔍 🔻 ▦
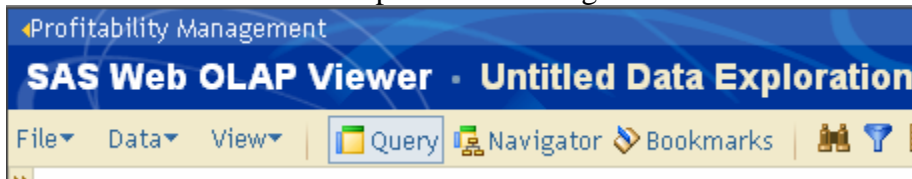
    c. Number of rows to display in a single page
    d. Number of columns to display in a single page
    e. Row heading color -

Properties - Microsoft Internet Explorer provided by SAS   _ □ ×

┌ Table size ───┐
│   │
│   Maximum rows to display: [20   ▼]   │
│   │
│   Maximum columns to display: [5   ▼]   │
│   │
└──┘

┌ Table headings ───┐
│   │
│   Row Heading Color: [Automatic 🅰▼]   │
│   │
│   Column Heading Color: [Automatic 🅰▼]   │
│   │
│   Measure Heading Color: [Automatic 🅰▼]   │
│   │
│   Gradient Colors: │
│   Darker shades of selected colors will be used to indicate deeper levels. │
│   ☐ Show color gradients in row and column headings.   │
│   │
└──┘

                                        [OK]   [Cancel]

      f.   The resulting report displayed has a different column header format

      g.   The depth in the drill-down is displayed with the color for the row labels.

L1_Scenario					Actual	Budget
L1_Profit	L2_Profit	L3_Profit	L4_Profit	L5_Profit		
	Credit Card interest Income				$135,012.18	$127,213.62
Interest Income	Loan Interest Income				$225,773.45	$212,732.20
	Mortgages Income				$123,016.53	$115,910.89
Total Interest Income					$483,802.16	$455,856.71
	Savings Interest Payments				$16,404.36	$15,456.83
Interest Expense	Certificates of Deposit Payments				$72,408.80	$68,226.35
	Investment Securities Payments				$23,345.33	$21,996.84
Total Interest Expense					$112,158.49	$105,680.02
Net Interest Income					$371,643.67	$350,176.69
Funds	Credit for Funds				$63,567.38	$59,895.62
	Charge For Funds				$79,459.19	$74,869.43
Net Funds					$-15,891.81	$-14,973.81
	Credit Card Fees				$54,043.22	$50,921.58
Fees	ATM Fees				$10,677.53	$10,060.87
	Investment Account Fees				$93,381.32	$87,987.40
	Checking Account Fees				$16,769.75	$15,801.08

6. Formatting the displayed numbers
   a. The default format for the numbers can be directly defined in SAS Profitability Management. We have already edited to display dollar 15.2 in the analysis settings in the rich client.
   b. If you want to create an additional custom format for your numbers in SWOVJ (maybe to display values in thousands), you need to create a new calculated measure and apply a custom format to that measure.
   c. Select the calculated measure icon from the tool bar.
   d. The calculate new measure dialog box comes up
        i. Give the new measure a name = thou
        ii. Give the new measure a calculation expression value/1000
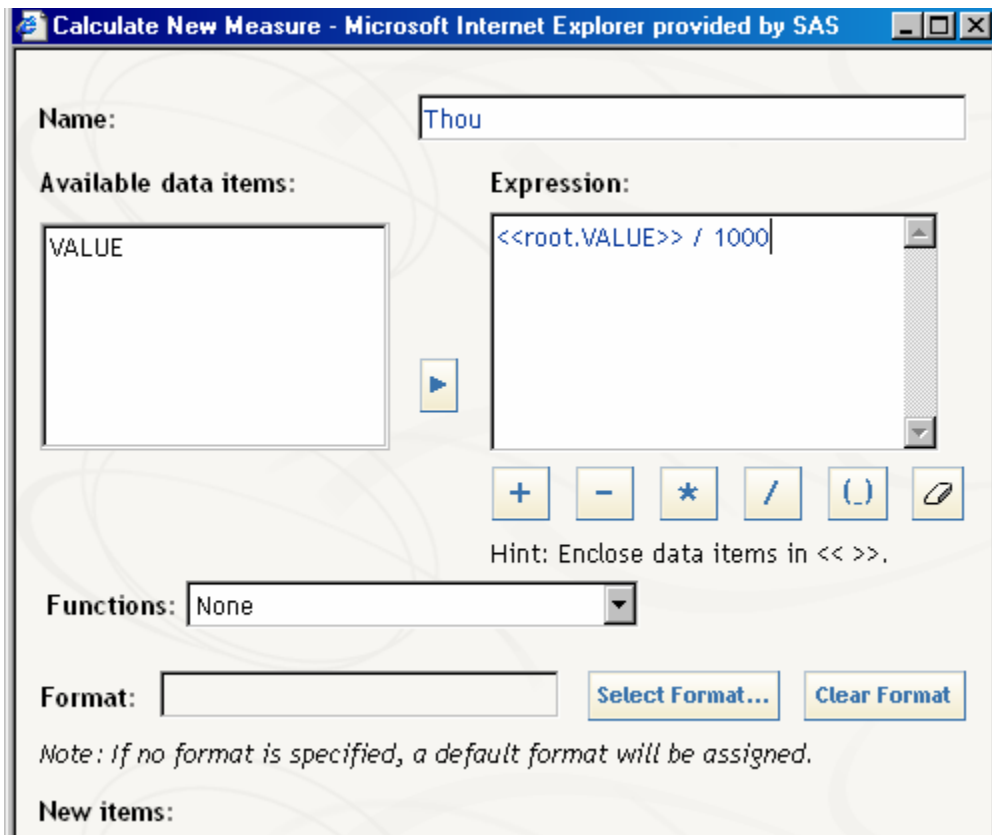
  e. Select the select format button – to define how the number is displayed.
   comma without decimals
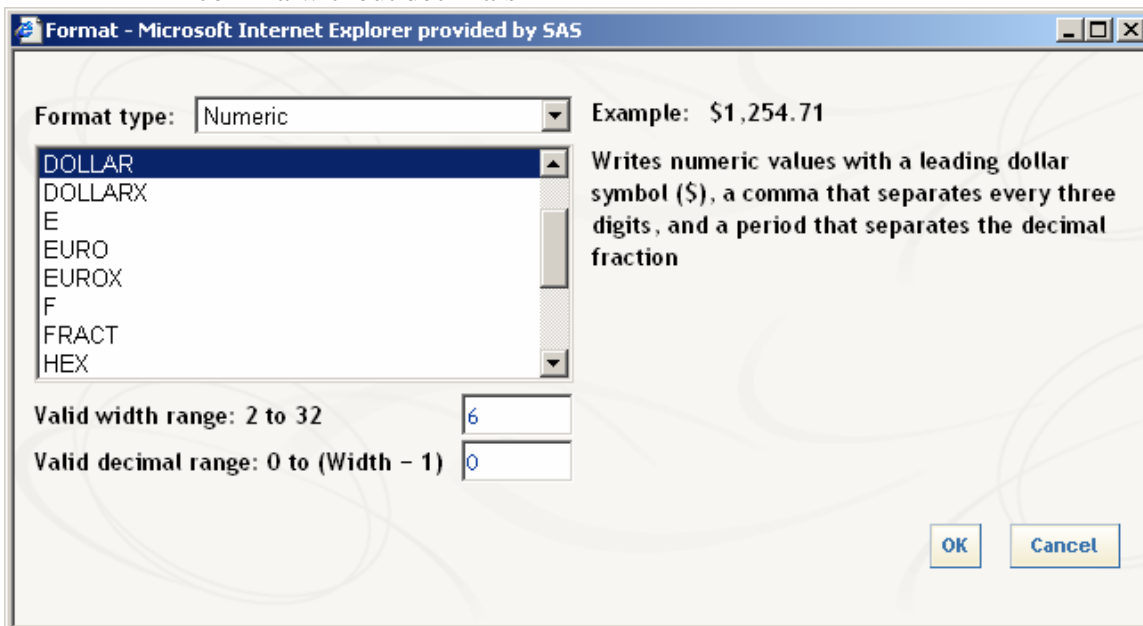
  f. Select Add – To Add the new Measure, to the list of new Items

Calculate New Measure - Microsoft Internet Explorer provided by SAS

Name:

Available data items:

VALUE

Expression:

Hint: Enclose data items in << >>.

Functions: None

Format:

Select Format...   Clear Format

Note: If no format is specified, a default format will be assigned.

New items:

Thou

Add
Update
Delete

OK   Cancel
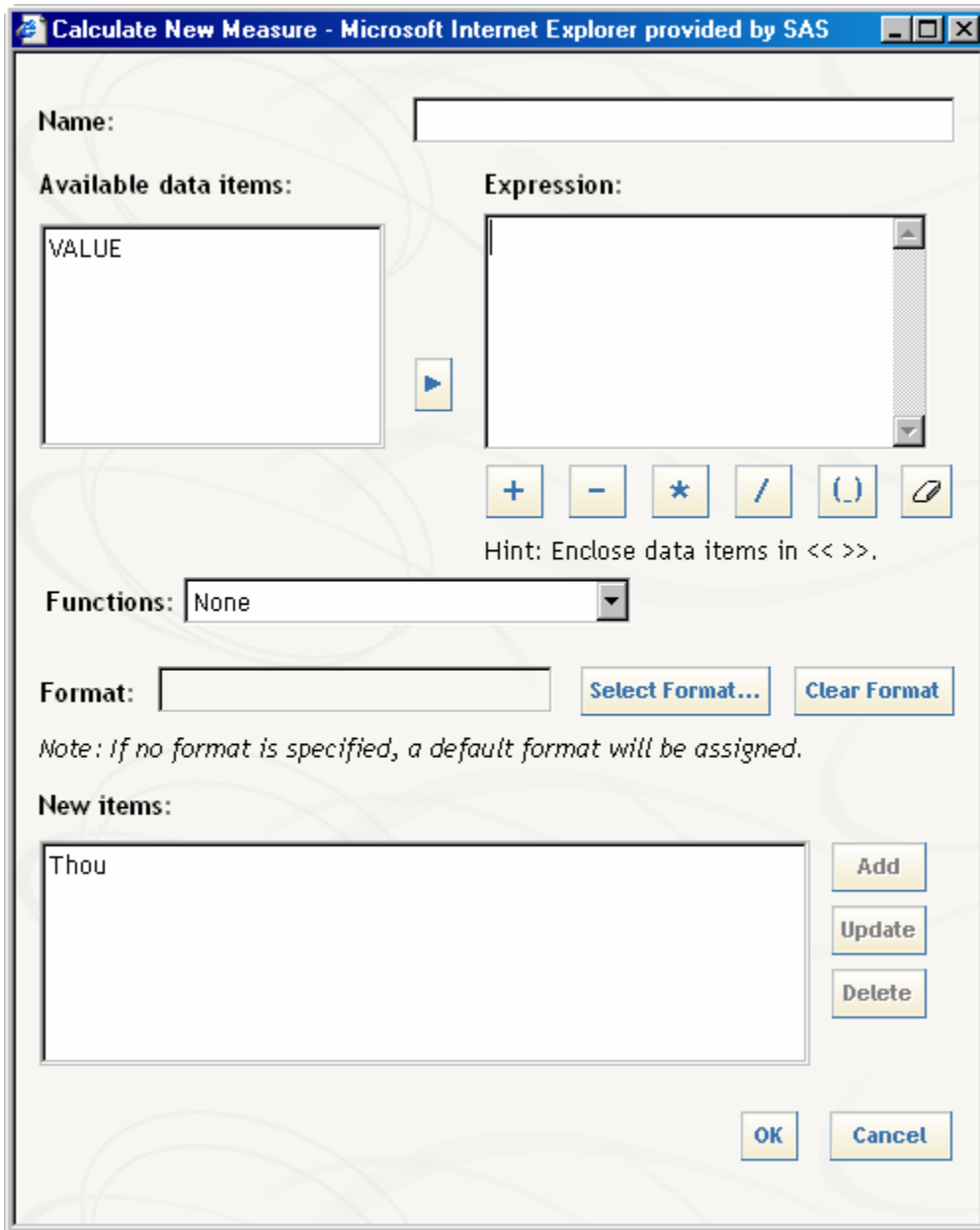
g. The Thou Measure will automatically be added to the Column of Numbers Displayed. So the Columns will display both Value and Thou. If you only want Thou to Display, you need to remove the Value from the Display and Apply the Changes to the Query.
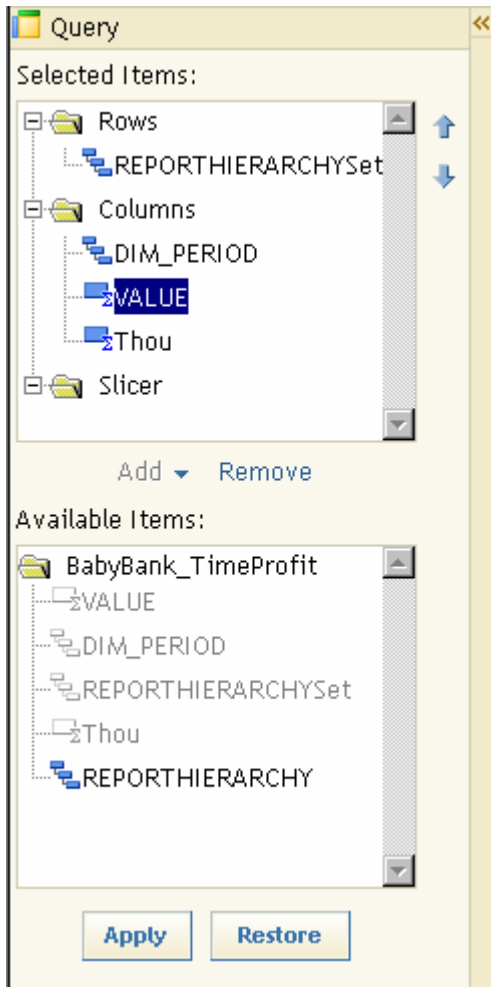
h. The resulting report displays the values in thousands.

L1_Scenario	⊞⬇ Actual	⊞⬇ Budget
	Thou	Thou

L1_Profit	L2_Profit	L3_Profit	L4_Profit	L5_Profit	Actual	Budget
	⬇ Interest Income	Credit Card interest Income			$135	$127
		Loan Interest Income			$226	$213
		Mortgages Income			$123	$116
Total Interest Income					$484	$456
	⬇ Interest Expense	Savings Interest Payments			$16	$15
		Certificates of Deposit Payments			$72	$68
		Investment Securities Payments			$23	$22
Total Interest Expense					$112	$106
Net Interest Income					$372	$350
	⬇ Funds	Credit for Funds			$64	$60
		Charge For Funds			$79	$75
Net Funds					$-16	$-15

7. Start over from a fresh view from the SAS Profitability Management Web Workspace
8. Adding a chart

    a. Select the insert a chart icon on the tool bar
    b. Insert a chart – Will Automatically Match the Profit and Loss Layout with the Rows in the Report Becoming Columns in the Chart.
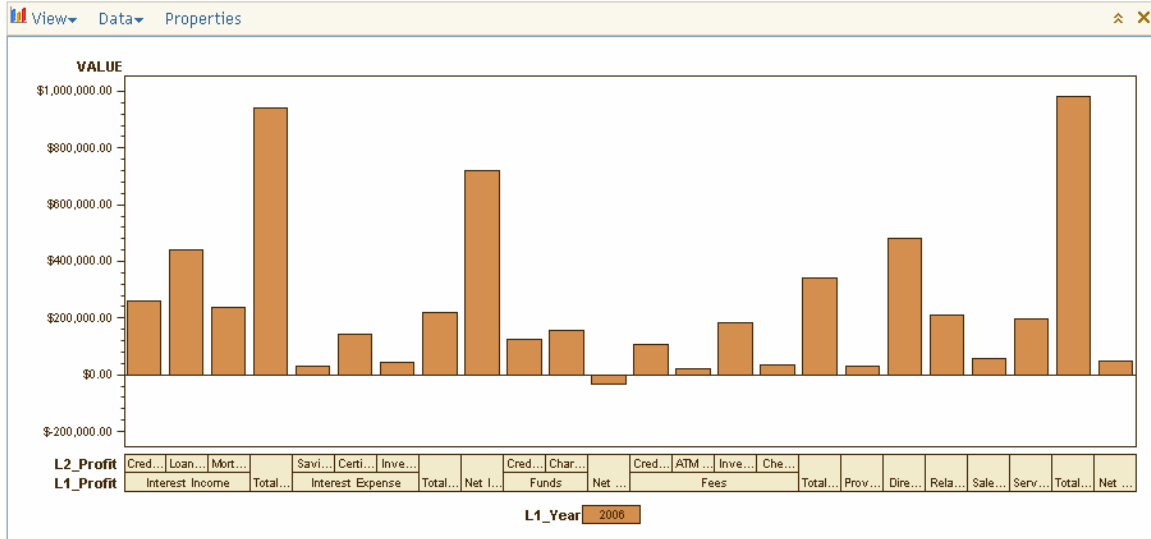
c. Select the view properties on the Report and customize
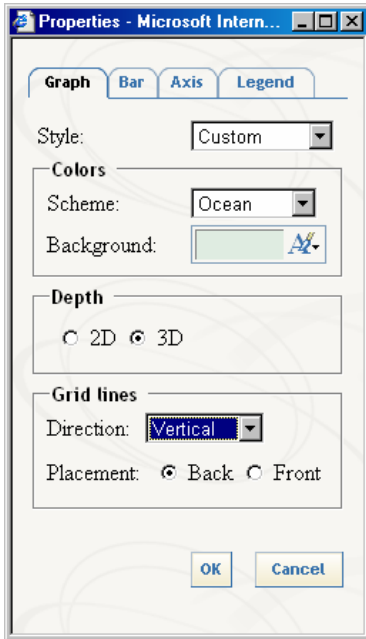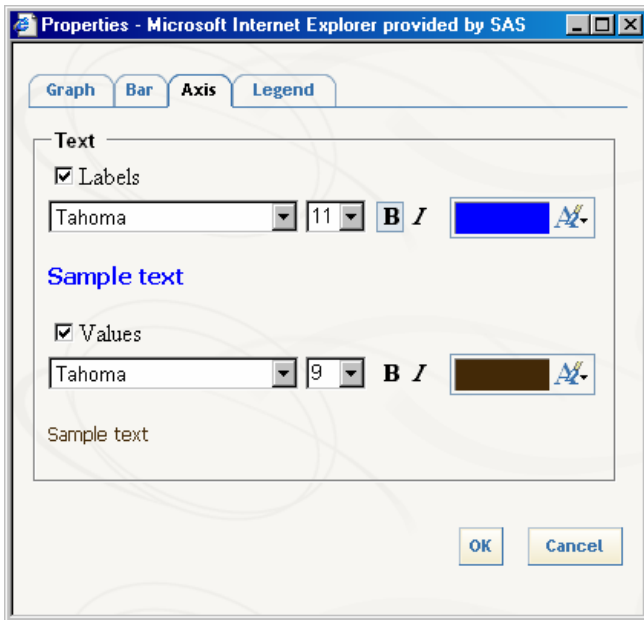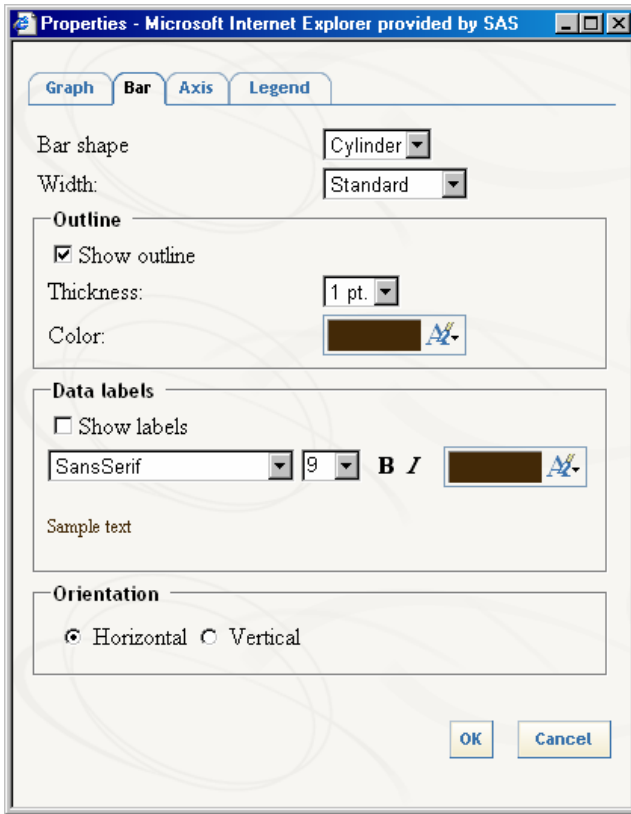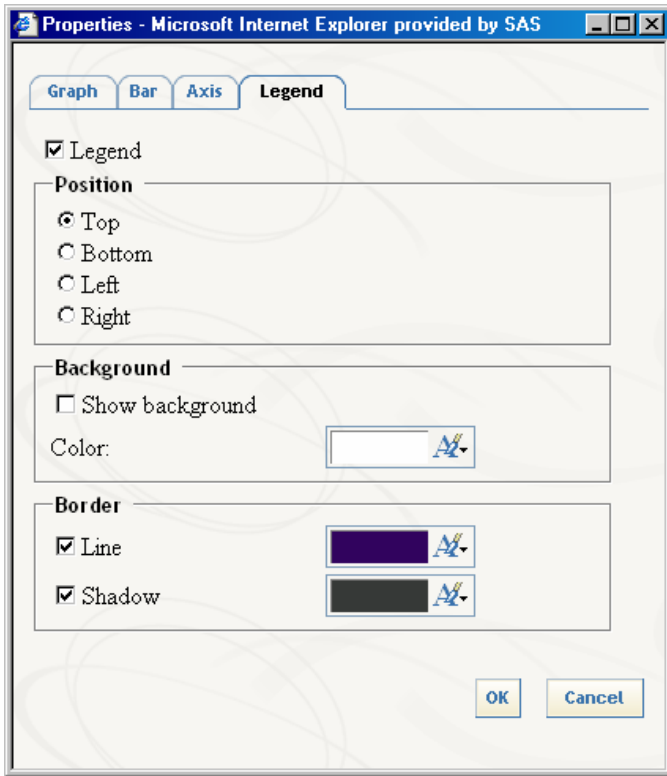
9. Review the results
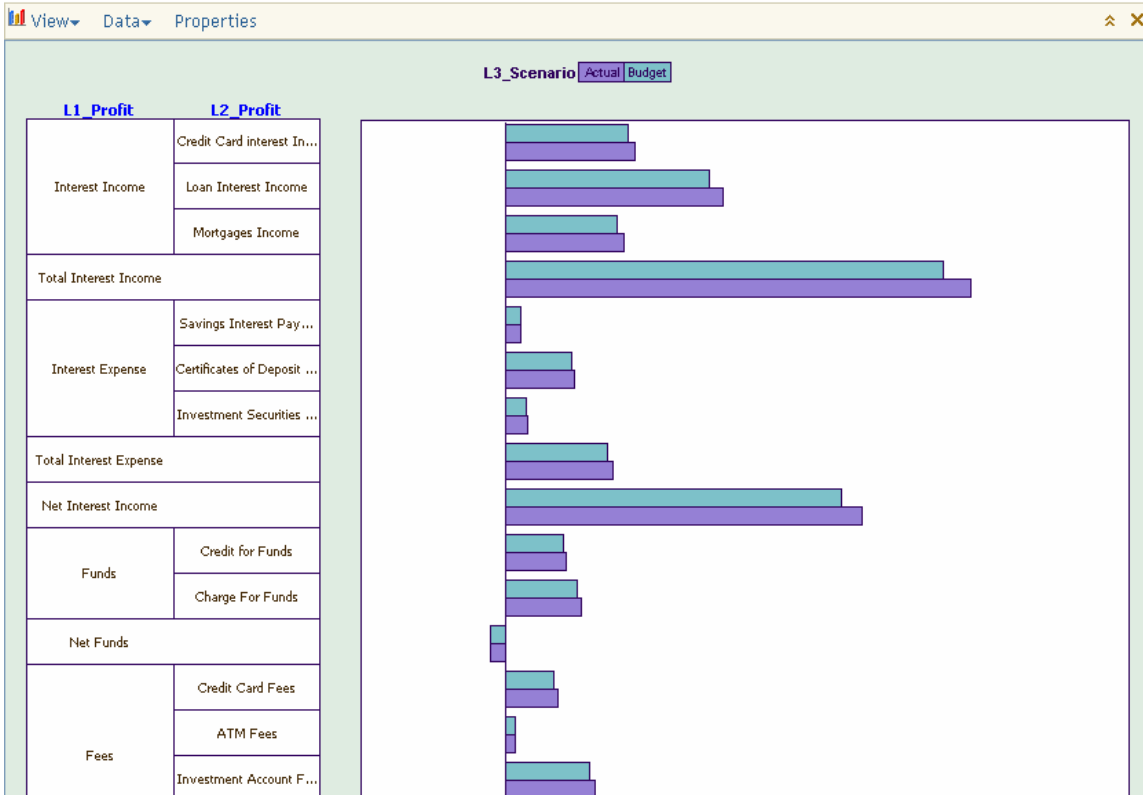
SAS web OLAP viewer – save as data exploration

� **Step #40 Saving the report layout**
1. When you have a report layout you believe is useful, save it.
2. Select File Save As… and Give it a Name
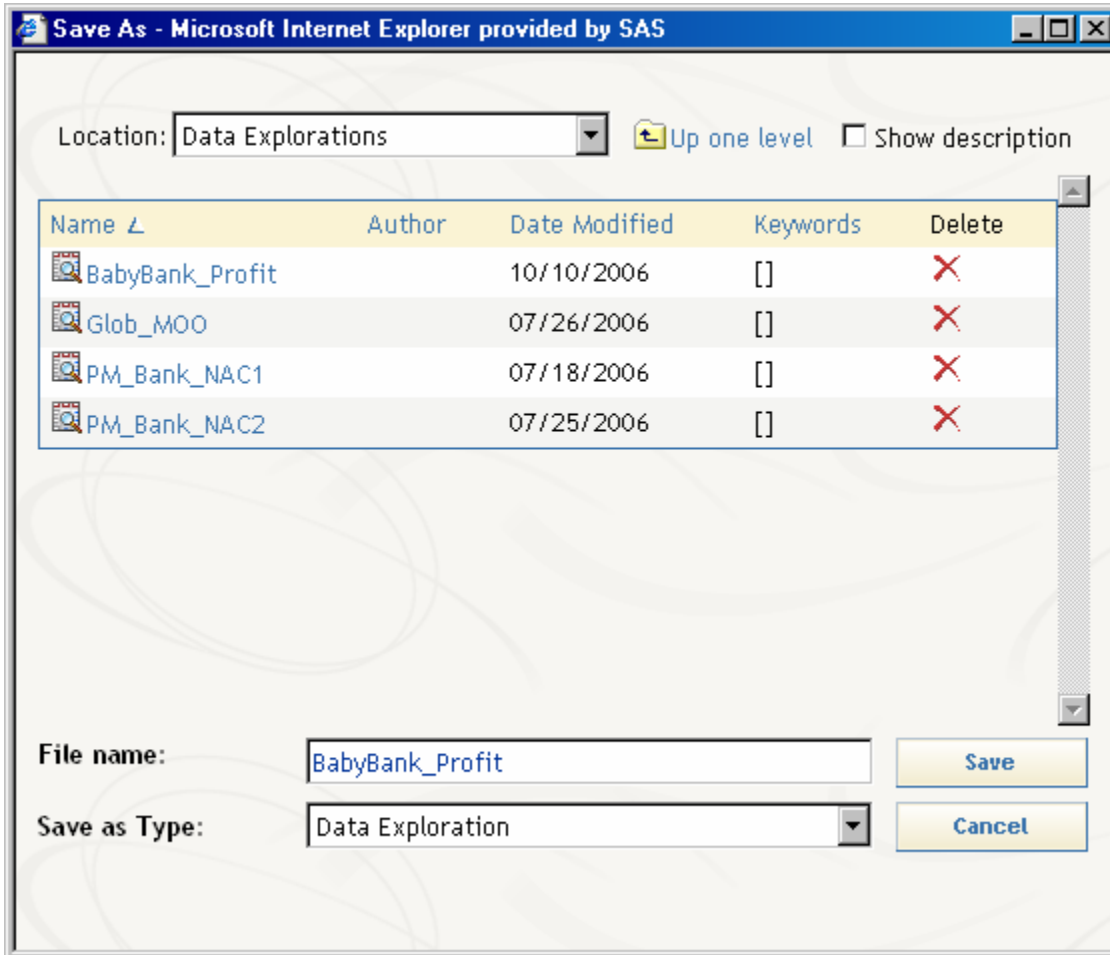
3. This data exploration can be opened again and shared with others for review.
   a. The specific view is stored under your user profile in the BIP tree.
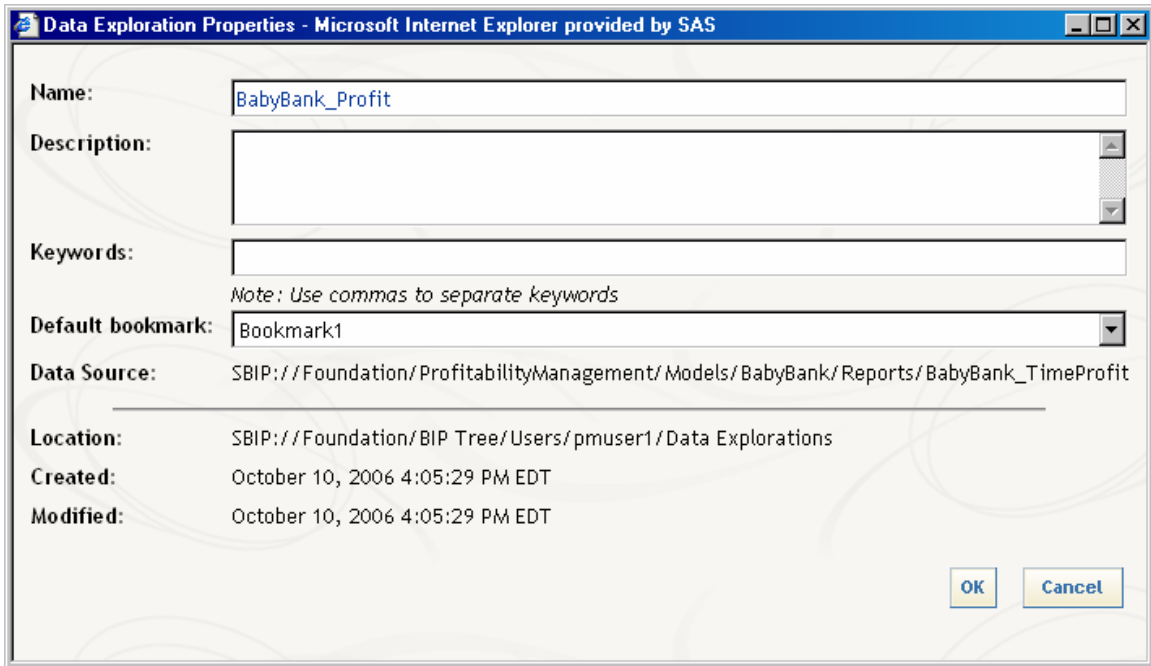
4. When the summary reports are recreated the data exploration views will need to be refreshed to display the new content.

Return to web reporting home

� **Step #41 Return to the web reporting workspace**
1. Select the SAS Profitability Management back arrow in the header of SWOV, to return to the performance management web workspace.
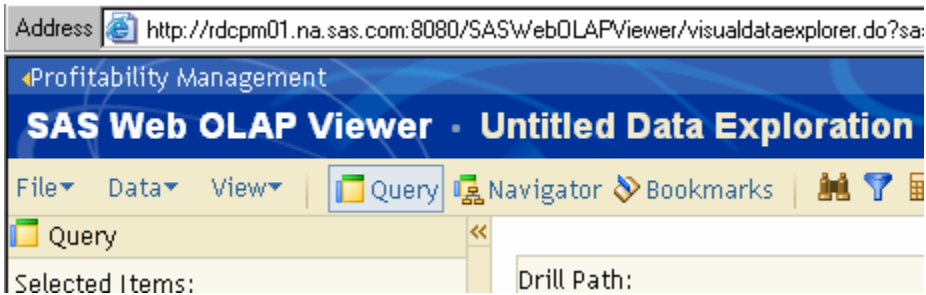
Select detailed report

Select specific member in the dimension to report

� **Step #42 Run a specific detailed report for a customer**
1. Select the detailed reports tab
   a. Select the model Baby Bank
   b. Select the view by parameter – custid – we defined in SAS Profitability Management
   c. Select to view the specific customer 00018 – select view

SAS web OLAP viewer – verify cube results

✱ **Step #43 Review the specific customer report**
1. You can review the P&L report for a single customer – 00018 = Lynn York,

2. Upon review of Lynn York's profit and loss statement you can see the details of her relationship with Baby Bank.
   a. You will notice that she has a Credit Card and a loan and has been paying a significant amount of credit card interest.
   b. You will notice she has also been paying a lot of unsecured loans interest income, but she does not have a mortgage.
   c. She might be a Prime target for a marketing communication for a second mortgage to consolidate her existing debts.
   d. You will also notice she does no have any interest expense, which says she does not have her savings, CDs or Investments with Baby Bank. So she may be a prime target for marketing those products.
   e. And when you roll to the next page, and see the Bottom line you notice that Lynn York is a Very profitable Customer for Baby Bank.

Net Interest Income		2098.32	1977.11
Funds	Credit for Funds	394.78	371.97
	Charge For Funds	493.48	464.96
Net Funds		-98.70	-92.99
Fees	Credit Card Fees	218.63	206.00
	ATM Fees	138.24	130.26
	Investment Account Fees	.	.
	Checking Account Fees	.	.
Total Non Interest Income		356.87	336.26
Provision For Losses		98.69	92.99
Direct Product		.	.
Relationship Management		97.30	102.06
Sales and Marketing Effort		10.46	9.15
Servicing Effort		.	.
Total Non Interest Expense		206.45	204.20
Net Contribution		2150.04	2016.18

Finishing up:

Baby bank conclusions

You have successfully created a SAS Profitability Management model, calculated transaction tables and generated cubes. You have reviewed profit and loss reports at both a summary and a detail level. You have reviewed those results to draw conclusions about your customer's behavior and actions Baby Bank can take to focus specific attention on the needs of the customer and how they impact the corporate profitability of Baby Bank. Baby Bank can now analyze their customers, channels, products, customer types and regions to plan for the successful and profitable future.

SAS Profitability Management enables organizations to use more accurate profitability measures to make better decisions on customers, products and channels. With SAS Profitability Management, decision makers can define and re-define the segmentation reports that they need on the fly. SAS Profitability Management enables business managers to track the profit performance of customer groups or individual customers, product groups or individual SKUs, channels or specific branches--presenting drill-down and at-a-glance views into Revenue, cost, and other metrics so they can identify and investigate problems that can effect improvements to the bottom line

Additional features:

Enhance your SAS Profitability Management Solution with:
1. SAS Customer Profitability for telecommunications is a component of SAS Telecommunications Intelligence Solutions, a Suite of integrated Solutions that are built on an enterprise data architecture optimized for telecommunications providers.
2. SAS Customer Intelligence for Banking: SAS can help you understand an individual customer's behavior at every touch point throughout the life cycle of the relationship. By integrating data across channels, product silos and external data and market sources, you create a holistic picture of the current, potential and future value that each customer delivers, as opposed to fragmented facts on customer risk, behavior, account activities and operational costs. Using predictive analytics to forecast customer behaviors like attrition and credit and load risk so you can devise more effective cross-sell and up-sell strategies.

What to do next: Useful Links
1. SAS Worldwide web for links to everything SAS
    a. http://www.sas.com/
2. SAS Worldwide Training
    a. http://support.sas.com/training/index.html
3. BetterManagement – for useful business domain white papers and web casts
    a. http://www.bettermanagement.com/index.html
4. SAS Solutions – Links to Other Powerful Business solutions from SAS

a. Focused Solutions for your Business Challenges: To lead with confidence and outpace competitors, you need to make accurate decisions faster than ever. SAS equips your organization for success by helping you answer more questions, for more people, across more departments, than any other analytic applications suite provider.
b. http://www.sas.com/solutions/index.html

5. SAS Business Intelligence:
a. SAS Business Intelligence gives you the information, when you need it, in the format you need. By integrating data from across your enterprise and delivering self-service reporting and analysis, IT spends less time responding to requests and business users spend less time looking for information so more time is spent on making better, more informed decisions
b. http://www.sas.com/technologies/bi/index.html

6. SAS Analytics:
a. SAS Analytics give you THE POWER TO KNOW® how to integrate data from across your enterprise, and then quickly transform that data into shared insights. We offer a comprehensive suite of analytics software to help you reduce uncertainty, predict with precision and optimize performance
b. http://www.sas.com/technologies/analytics/index.html

7. SAS Merchandise Intelligence
a. Only SAS Merchandise Intelligence provides real intelligence at every step of the merchandising life cycle. With this collection of software and services, you can maximize the profitability of the merchandising process while improving customer loyalty and satisfaction levels. Retailers get reporting, planning, forecasting and optimization at critical points through the planning process, which lead to faster and better decisions
b. http://www.sas.com/industry/retail/merchandise/index.html

8. SAS Customer Intelligence
a. Only SAS Customer Intelligence provides the vital knowledge needed to help organizations build an integrated platform for enterprise marketing management. With SAS Customer Intelligence, campaigns and programs implemented across channels will be effective, consistent and timely. They will target the right customers with the right offers. And with the power of SAS' predictive analytics, you can be confident that actual results will match predicted ones, even before you spend anything on a new campaign.
b. http://www.sas.com/solutions/crm/index.html

The model data requirements

SAS Profitability Management : Data Flow
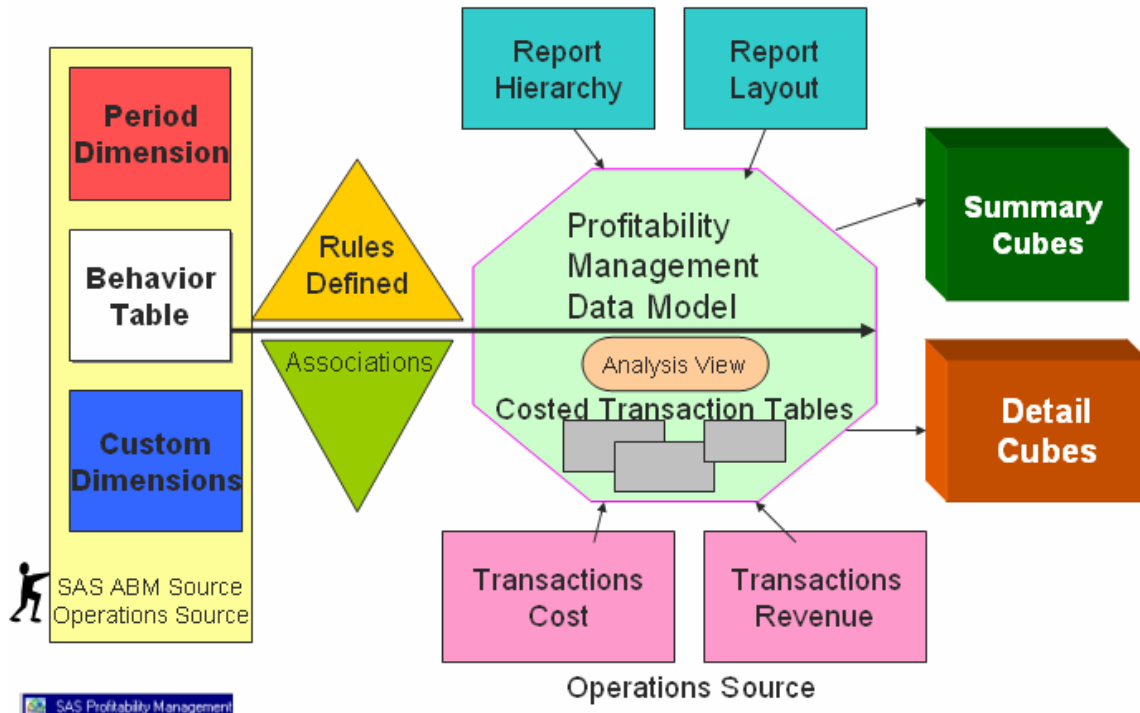
For all data tables, data validation needs to occur before the content is loaded into SAS Profitability Management. Review source tables to eliminate special characters. The following list contains the reserved characters to remove. These characters are not valid in cubes, where P&L reporting will be done: . , ; ' ` : ? * & % $! - + = ( ) [ ] { } / \

The cost and revenue behaviors

The behavior source table holds all of the content to provide the costs and the revenue values which will be assigned to the transactional volumes based upon the defined rules.

1) Behavior table: – source items for transaction costs with noted values
   a. Time – defines the period for the costs
   b. Id – the identifying reference for the behavior
   c. Name – the name of the behavior
   d. Total value – the total source amount that will be spread
   e. Unit value – the unit cost for each transaction with this source

The dimension tables

The dimension tables are used to define the hierarchies in the model. There are two basic types of dimensions, the single time dimension for the model and the custom dimensions used in defining the reporting. The transaction tables will have a column for each custom dimension defining the crossing where transactional values are collected.

2) Period dimension table: defines the time periods that will be used. Depending upon the business's reporting needs; you may have more or less levels in the defined period hierarchy.
   a. Id: identifying value for the period
   b. L1_Scenario: 1st level dimension member value (Actual or Budget
   c. L2_Year: 2nd level dimension member value (2006)
   d. L3_Quarter: 3rd level dimension member value, example (2006_Q4)

3) Custom defined dimensions: a definition table must be loaded for each dimension which will be used in the SAS Profitability Management model and in your transactional tables. All dimension names must be a single word.
   a. Baby bank model dimensions: channel, customer, custtype, product, region
   b. Baby bank details for dimension table for a region dimension
   c. Id: identifying value for the region, must be unique and matches to the dimensional value fields in all transaction tables
   d. L1_area: 1st level dimension top of tree (EMEA)
   e. L2_country: 2nd level dimension member value (Great Britain)
   f. L3_state: 3rd level dimension member value (Sussex)
   g. L4_city: 4th level dimension member value (East Sussex)

The transaction tables

A single SAS Profitability Management model can have multiple transaction tables, depending upon how the data is collected for your corporation. When defining a table group, you are defining that every detailed table in that group will have the same fields. The mapping of the detailed fields to the dimensional values is defined by table group and applies consistently to all transaction tables in that table group. There are three critical aspects to every transaction table (dimensional signature, filter criteria selection logic and quantities for calculation)

4) Transaction tables
   a. Must be a separate transaction table for each period in the model. It is likely for a single SAS Profitability Management model multiple table groups will be defined. It is likely that multiple rules will use the same source table group. Transactional tables layout is affected by the rules definition process (filter logic and driver logic)
   b. Rules definition: filter logic options –
      i. Filter by text value,
      ii. Filter by one or multiple dimensional member values
      iii. Filter by a numerical property

     c. Rules definition: driver quantity calculation:
        i. Based upon a single numeric property
        ii. Formula based upon multiple numeric properties
        iii. Formula based upon a single value

5) Example 1: layout for table group: transaction: row filter
    a. Rule filter – based upon a text value
    b. Rule driver quantity – single numeric property
    c. Field1 – product – member for product dimension
    d. Field2 – custtype – member for custtype dimension
    e. Field3 – region – member for region dimension
    f. Field4 – channel – member for channel dimension
    g. Field5 – amt – numeric # of occurrences, used in driver
    h. Field6 – count – numeric value of 1 used in driver
    i. Field7 – AssignmentRule – text value filter definition, specific rows filtered by assignment rule text value will determine which rows are selected to assign behavior source cost to.

6) Example 2: layout for table group: transaction : call center
    a. Rule filter – based upon multiple dimension members (product and channel)
    b. Rule driver quantity – numeric property selected from multiple columns, and also some compound formulas, using values from multiple numeric columns
    c. Field1 – custid – member for customer dimension
    d. Field2 – product – member for product dimension
    e. Field3 – custtype – member for custtype dimension
    f. Field4 – region – member for region dimension
    g. Field5 – channel – member for channel dimension
    h. Field6 – communication – numeric, number of calls
    i. Field7 – complaints – numeric, number of complaints
    j. Field8 – inquiry – numeric, number of inquiries
    k. Field9 – requests – numeric, number of requests
    l. Field10 – crossSell – numeric, number of sales calls
    m. Field11 – offer – numeric, number of offers
    n. Field12 – count – numeric with a value of 1 for evenly assigned items.

7) Example 3: layout for table group: transaction: Revenue
    a. Rule filter – based upon numeric property filter tie behavior id number for revenue items
    b. Rule driver quantity – numeric property based upon a revenue transaction system
    c. Field1 – custid – member for customer dimension
    d. Field2 – product – member for product dimension
    e. Field3 – custtype – member for custtype dimension
    f. Field4 – region – member for region dimension
    g. Field5 – channel – member for channel dimension
    h. Field6 – amt – numeric, calculated specific revenue
    i. Field7 – id numeric – behavior id for the revenue items

The rules engine

The rules definition is the logic that determines which selected rows in all of the transaction details receive assigned values (revenue or cost). This is the selection criteria. The rule definition is also used to define the numerical properties and the calculations necessary to appropriately assign amounts for this source values (cost or revenue) from the behavior table to selected records in the transaction tables. This is the driver formula. The rules can be defined through an interactive method in the SAS Profitability Management client user interface, or rules can be imported from a specific source table, using the appropriate rules definitional syntax to provide the selection logic and the driver quantities.

8) Rules definition: selection criteria schema:
    a. Filter by text value:
        i. Operators: "=" or "not ="
        ii. Syntax: text property = 'filter value'
        iii. Example: AssignmentRule = 'ATM_CHK_Check balance'
    b. Filter by one dimensional member value
        i. Operator: "is child of"
        ii. Syntax: ischildof(dimension, [source column].[filter value]
        iii. Example: ischildof(channel, '[dim_channel].[ATM]')
    c. Filter by multiple dimensional member values
        i. Combination operators: "and", "or"
        ii. Syntax: ischildof(dimension1, [source column1].[filter value] and ischildof(dimension2, [source column2].[filter value]
        iii. Example: ischildof(channel, '[dim_channel].[ATM]') and ischildof(product, '[dim_product].[deposit products].[checking]')
    d. Filter by a numerical property
        i. Operators: =, not =, <, <=, >, >=
        ii. Syntax: column operator value
        iii. Example: amt > 1000
    e. Rules definition: driver quantity calculation:
        i. Based upon a single numeric property
            1. Example : amt
        ii. Formula based upon multiple numeric properties
            1. Example: count * .05 +amt*.01
        iii. Formula based upon a single entered value
            1. Example: 15
    f. Fields in the table
        i. Name – the name for the assignment rule. This must be unique within the model
        ii. Selection criteria – the formula defining the filter logic
        iii. Driver formula – the formula defining the calculated quantity
        iv. Table group name – the name of the table group in the model where the rule will be applied

The association definition

The association table is used to correlate the rules defined to the behaviors. Each rule can be used by multiple behaviors, but each behavior can only have one rule. The association process can be done interactively in the client user interface or the associations can be defined based upon an import table to load.

9) Table : association definition:
   a. Fields in the table
      i. Behavior id – the id value for the behavior
      ii. Behavior name – optional field not required
      iii. Table group name– defined table group for the rule applied
      iv. Rule name– the name for the assignment rule. This must be unique within the model

The profitability report definition

The profit and loss reporting in SAS Profitability Management is based upon two: key files the report hierarchy (which defines the drill-down in the details of the report) and the report layout (which defines the calculation logic to define the profitability). The calculated members that are defined in the report layout table can not be included in the report hierarchy table.

10) Report hierarchy – defines the dimension hierarchy for the drill-down in the profit and loss reporting. The number of levels in the hierarchy is a critical model design decision, and it is subject to the ultimate reporting needs for the business managers to make decisions.
   a. Id – the identifying reference for the behavior
   b. L1_profit – top level dimension members for the hierarchy
   c. L2_profit – second level dimension members for the hierarchy
   d. L3_profit – third level dimension members for the hierarchy
   e. L4_profit – fourth level dimension members for the hierarchy
   f. L5_profit – fifth level dimension members for the hierarchy
11) Report layout : defines the calculation logic for the profit and loss statement
   a. Id – the unique identifying reference for the item
      i. Ids for source costs are based upon the behavior ids
      ii. Ids for calculated values are defined here
   b. Name – the name for the behavior, displays on the report
   c. Formula – for calculated rows, the formula for the calculation based upon the ids
   d. Order – the sequence for the line to be placed in the P&L
   e. Here is an example report layout: based upon a Baby Bank model.

	ID	Name	Formula	RowOrder
1	10001	Credit Card interest Income		1
2	10002	Loan Interest Income		2
3	10003	Mortgages Income		3
4	TOT-INT-INC	Total Interest Income	[10001]+[10002]+[10003]	4
5	11001	Savings Interest Payments		5
6	11002	Certificates of Deposit Payments		6
7	11003	Investment Securities Payments		7
8	TOT-INT-EXP	Total Interest Expense	[11001]+[11002]+[11003]	8
9	NET-INT-INC	Net Interest Income	[TOT-INT-INC]-[TOT-INT-EXP]	9
10	13001	Credit for Funds		10
11	13002	Charge For Funds		11
12	NET-FUNDS	Net Funds	[13001]-[13002]	12
13	12001	Credit Card Fees		13
14	12002	ATM Fees		14
15	12003	Investment Account Fees		15
16	12004	Checking Account Fees		16
17	TOT-NON-INT-INC	Total Non Interest Income	[12001]+[12002]+[12003]+[12004]	17
18	14001	Provision For Losses		18
19	20000	Direct Product		19
20	21000	Relationship Management		20
21	22000	Sales and Marketing Effort		21
22	23000	Servicing Effort		22
23	TOT-NON-INT-EXP	Total Non Interest Expense	[14001]+[20000]+[21000]+[22000]+[23000]	23
24	NET_CONTRIB	Net Contribution	[NET-INT-INC]+[NET-FUNDS]+[TOT-NON-INT-INC]-[TOT-NON-INT-EXP]	24

Summary of SAS Profitability Management user interface:

Review SAS Profitability Management user interface

Login

1) Login screen:

    f. User name – as defined in the SAS management console (SMC) for SAS Profitability Management (member of SAS Profitability Management modeler group)

    g. Password – as defined in the SMC for the specific user

    h. Server – the BI (Business Intelligence) server name where SAS Profitability Management has been installed

    i. Port – default port for a SAS Profitability Management install is 8561

Transactions

2) Pm tool bar – for the transactions workspace
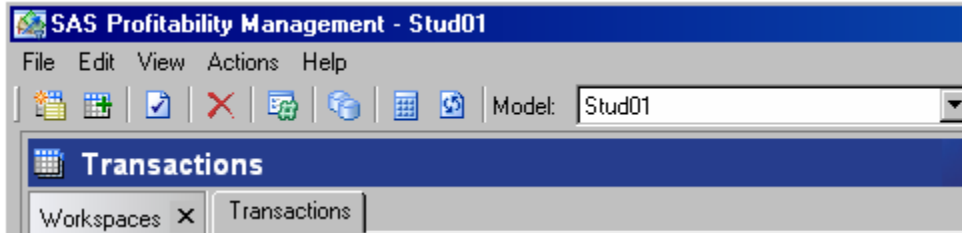
        j.   Add a table group
        k. Add a transaction table
        l.   Show properties
        m. Remove
        n. Analysis settings
        o. Organize models
        p. Calculate
        q. Refresh
        r.   Model selection

Rules

3) Pm tool bar – for the rules workspace
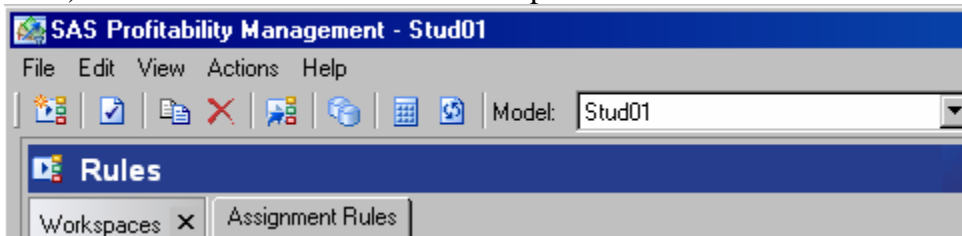
        s.   Add an assignment rule
        t.   Show properties
        u. Copy an assignment rule
        v. Remove
        w. Import assignment rules
        x. Organize models
        y. Calculate
        z. Refresh
        aa. Model selection

Behaviors

4) Pm tool bar – for the behaviors workspace
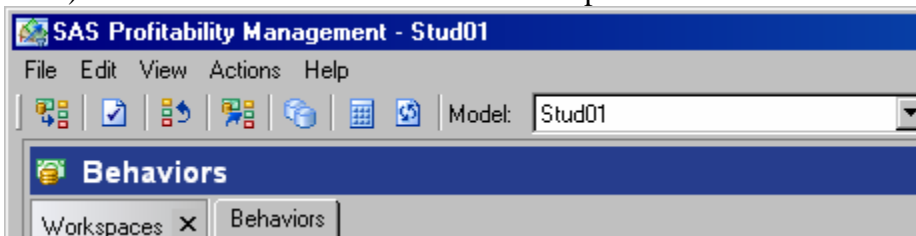
        bb. Create a new association
        cc. Show properties
        dd. Clear an association

ee. Import associations
ff. Organize models
gg. Calculate
hh. Refresh
ii. Model selection

Reports

5) Pm tool bar – for the reports workspace: summary tab
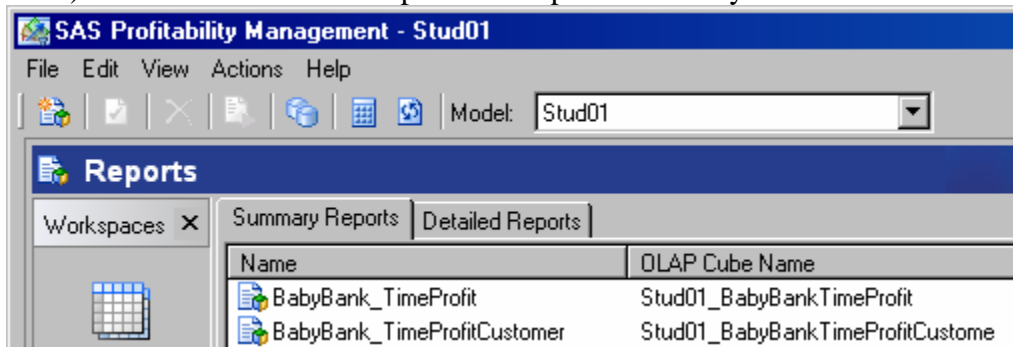
jj. Create a new report definition
kk. Show properties
ll. Remove
mm.   Generate cube
nn. Organize models
oo. Calculate
pp. Refresh
qq. Model selection

6) Pm tool bar – for the reports workspace : detail tab
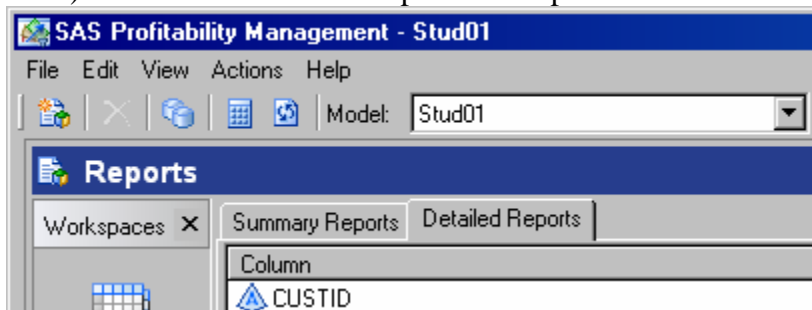
rr. Create a new report definition
ss. Remove
tt. Organize models
uu. Calculate
vv. Refresh
ww.   Model selection

Review of workspace toolbars: detailed actions

This section goes through each workspace and describes the functionality of each toolbar
item throughout the SAS Profitability Management client application.

Common toolbar items

1) Common workspace: organize models
   a. Pulls up the organize model dialog box
      i. Models: select the model from the list
      ii. New model : start create a new model wizard
      iii. Properties: display the properties for the selected model
         1. General tab: name, description, time dimension defined
         2. Analysis tab:
            a. Analysis name – name for the model
            b. Save in: Libname destination for the calculated transaction tables
         3. Data location tab: SAS Profitability Management internal data model
            a. Server folder location
            b. Metadata folder location
         4. Behavior table tab
            a. Behavior source table mapping
            b. Column mapping (required to source column)
               i. Id : key will be used to map cost to reporting
               ii. Name : description for the field
               iii. Unit value: source unit cost amount used in calculations
               iv. Total value: source total cost amount used in calculations.
               v. Period: time period for calculated values
         5. Dimensions tab
            a. Name for each dimension in the SAS Profitability Management model
            b. Levels defined for each layer in the dimension
            c. Repository name where dimensions are stored
            d. Library name where dimensions are stored
         6. Reports tab
            a. Report hierarchy – source table used to define the drill-down hierarchy in the contributing cost dimensions for reporting
            b. Report layout – source table used to define the calculation for the profit and loss statement.
      iv. Delete – removes the selected SAS Profitability Management model
      v. Close – closes the dialog box

2) Common workspace: calculate
   a. Opens the calculation wizard
      i. Period information – select the periods to calculate

ii. Table groups – select the table groups you want to run in the calculation

iii. Cube generation – select the cubes that you want generated.

3) Common workspace: refresh ⟳

    a. Refreshes the SAS Profitability Management model to reflect the condition of the data in the source systems.

4) Common workspace: model to view. | Model: | Sample_Model |▼

    a. Select the model you would like to view from the drop down list

Transactions toolbar items

1) Transactions workspace: add a table group -

    a. Table groups: define the fields in a specific source table type.

        i. Information: table group name and description

        ii. Transaction table : select data source example file

            1. Select repository, Libname and specific source file

        iii. Categorize columns – the dimensions are mapped and individual numerical properties are defined for a table group. An example of a source transaction table is noted below:

Add Table Group

Categorize Columns

Select columns to define the schema and categorize the columns.

Include	Source column	Description	Category	
☑	AMT	AMT	Numeric	▼
☑	AssignmentRule	AssignmentRule	Text	▼
☑	Channel	Channel	DIM_CHANNEL	▼
☑	Count	Count	Numeric	▼
☑	CustID	CustID	DIM_CUSTOMER	▼
☑	CustType	CustType	DIM_CUSTTYPE	▼
☑	Product	Product	DIM_PRODUCT	▼
☑	Region	Region	DIM_REGION	▼

[< Back] [Next >] [Finish] [Cancel]

1. Source table dimensions: Custid, Product, Custtype, Region, Channel
2. Numerical values – number of transactions, will be used in the driver quantity calculation in the rules definition: number of: amt and count
   iv. When a table group is configured: each source field is matched to a specific meaning in the SAS Profitability Management model. By selecting the matching SAS Profitability Management model dimension, you define the table read logic.

2) Transactions workspace: add transaction tables
   a. Select transaction tables – repository, select library and tables
   b. Period: mapping each transaction table can represent a single period/scenario
      i. This is defined as the leaf member of the time period dimension
      ii. An example would be (2006 > 2006_q1 > actual)

3) Transactions workspace: show properties for the selected item
   a. This shows the properties of the selected item
      i. Table group:
         1. General: table group name, description
         2. Columns: definition for each source column
            a. Include / do not include – check box
            b. Source column name
            c. Description
            d. Category:
               i. Mapping SAS Profitability Management dimensions to the source column
               ii. Defining as a text value to be used in filters
               iii. Defining as a numeric value to be used in drivers.
      ii. Transaction table:
         1. General
            a. Name: source table name
            b. Repository: source table repository
            c. SAS Libref: source table SAS Libname defined
            d. Table name: source table name
            e. Period: drop down selection the correct period for this source table, each source table mates to a single period.

4) Transactions workspace: remove the selected item

5) Transactions workspace: analysis settings
   a. Brings up an analysis settings dialog box

      b. Period tab:
            i. Radio button: include transaction tables from all periods
           ii. Radio button: include transaction tables from selected periods
          iii. Period hierarchy tree with a check box to include or not include the specific period in the SAS Profitability Management data model
      c. Measures tab
            i. Format measures
                1. Each measure available for the model is listed
                2. SAS numeric format: the display format for the reporting is noted. Pm default SAS numeric format is 8.2 which represent a numeric value without any commas or formatting displaying 2 decimals. This format will affect the display in the P&L reports.
                3. The standard SAS numeric formats available to use are
                    a. Bestw.   Best available format with width = w
                    b. Commaw.d   comma and decimal points with width=w and decimal=d
                    c. Commaxw.d   comma and decimal points with width=w and decimal=d (switches the role of comma and decimal points)
                    d. Dollarw.d   dollar signs, comma and decimal points with width=w and decimal=d
                    e. Dollarxw.d   dollar signs, comma and decimal points with width=w and decimal=d (switches the role of comma and decimal points)
                    f. Eurow.d   euro signs, decimal and commas points with width=w and decimal=d
                    g. Euroxw.d   euro signs, decimal and commas points with width=w and decimal=d (switches the role of comma and decimal points)
                    h. Percentw.d   percentage with width = w and decimal = d and a percent sign
                    i. Zw.d   prefixed with zero to get width = w and decimal = d
                    j. W.d   width = w and decimal = d
           ii. Click ok to accept any changes and close the dialog box
          iii. Click cancel ; to simply close the dialog box without changes

Rules toolbar items

1) Rules workspace : add assignment rule
      a. Name: the name for the rule created
      b. Step 1: assign to transactions from table group:
            i. Select: source table group file from list
           ii. Specific rule will be assigned to all transactions in this group
      c. Step 2: with rows matching selection criteria

i. The selection criteria is to define which records in the source transaction tables will receive assigned costs from a specific source account. The selection criterion defines the rows that "yes" will receive a cost assignment.

ii. Define: the selection criteria
1. Column name: from source table select column to filter
2. Operator : to use in filter
   a. Text fields operators: = , not =
   b. Numeric fields operators: =, not =, <, <=, > , >=
   c. Dimension fields operator: member of
3. Value : select
   a. Text field: select from list of all text values in source table
   b. Numeric field: select from list of all numeric values in source table
   c. Dimensional fields: select dimension member from dimensional hierarchy. "Member of" operator includes in the filter a member in the hierarchy and all children of that selected member.
4. Add a new row
   a. Compound filter options: and / or
   b. Each row has same parameters: column name, operator and value
5. Example of the selection criteria:
   a. Filter text: AssignmentRule = 'ATM_CHK_Check balance'
   b. Filter numeric: amt > 1000.0
   c. Filter dimension member: ischildof(channel, '[dim_channel].[ATM]') and ischildof(product, '[dim_product].[deposit products].[checking]')

iii. Step 3: define the driver formula
1. The driver formula is used to define, based upon the source transactional table quantities and values, how much of a particular source account will be assigned to a particular destination account that has been selected by the filter logic.
2. Select: button will return a drop down list of all numerical properties in the selected source table group.
   a. Enter a specific numeric value
   b. Select a single numeric property from source
   c. Or select a numeric property and customize it directly in the driver formula dialog box.
   d. Example formula:
      i. Simple single value: 10
      ii. Simple property in source table: count
      iii. Complex: count *.05 + amt*.01

2) Rules workspace: show properties for the selected item
    a. Table group:
        i. General tab : table group name, description
        ii. Column tab : include, source column, description, category
    b. Assignment rule: general tab
        i. Name : for the rule
        ii. Step 1: select a table group assign to transaction from table group
        iii. Step 2: with rows matching selection criteria
        iv. Step 3: using driver formula

3) Rules workspace: copy assignment rule
    a. Copy assignment rule dialog box
    b. Name – to be give to the copied assignment rule
    c. Location – which table group to place the assignment rule in

4) Rules workspace: import rules …
    a. Opens the import rules dialog box
        i. Import table – browse to source table where rules are defined
    b. Column mapping: required column to import from column
        i. Name – for the rule being defined, these must be unique
        ii. Selection criteria – filter criteria for the rule definition
        iii. Driver formula – numeric properties defined for formula
        iv. Table group name – table group where rule will be applied
    c. Select ok – to accept the changes and close the dialog box
    d. Select cancel – to close the dialog box without accepting the changes.

Behaviors toolbar items

1) Behaviors workspace: create a new association
    a. Associate dialog box
        i. Show: drop-down: all or unassigned
        ii. Available behaviors : check box to associate specific behavior to a specific rule
        iii. Table group: select rule source table group drop-down
        iv. Rule: select the rule to associate with the behavior(s) that have been checked
        v. Ok – applies and closes the dialog box
        vi. Cancel – cancels the selection made
        vii. Apply – applies the specific selection, but leaves the dialog box open so more associations can be made.

2) Behaviors workspace: show properties for the selected item
    a. General tab
        i. Name – for the behavior

ii. Reference – id for the behavior
iii. Association : table group
iv. Association: specific rule: drop down list to change the associated rule to the behavior.

3) Behaviors workspace: clear association
   a. Removes the association of the rule from the behavior

4) Behaviors workspace: import association
   a. Opens a import association wizard
   b. Import table – select source table where you have created your associations
   c. Column mapping: required columns to your source columns
      i. Behavior id – text property defining the behavior
      ii. Table group name – the table group for the rule source
      iii. Rule name – the name of the rule to match to the behavior
   d. Click ok – to accept changes and close the dialog box
   e. Click cancel – to close the dialog box and not accept any changes

Reports toolbar items

1) Reports workspace: summary report tab: create new report definition
   a. Opens the new summary report wizard : information: page
      i. Provide a name for the report that will be generated
      ii. Location:
         1. Default /profitabilitymanagement/models/<your model>/reports
      iii. Report definition name : name for the summary report
   b. Dimensions and levels page:
      i. Select the dimensions and the level you want to be able to drill to
         1. Include – check box for each dimension in the model
            a. Required dimensions: period and report hierarchy
         2. Dimensions – the dimensions in the SAS Profitability Management model
         3. Allow drill-through to – select from the drop-down list, the level in each dimensional hierarchy to will be viewable in the summary report.
            a. Default: period – level 1, report hierarchy level 2
            b. I recommend making your level names when you are defining your source dimension data be meaningful. It is easier to select l2_quarter rather than l2_time. And just know that the l2 values are quarters.
   c. Measures page: select the measures

        i. Include – check box to note which numeric values will be displayed in the summary report
           1. Default measure : value must be included
        ii. Measures – list of all numeric properties that are available
           1. All numerical driver quantities
               a. Entered transactional values used in driver calculations.
           2. Calculated numbers: quantity – is the calculated driver quantity for each behavior in the target transactional tables. Value – is the calculated property will display the revenue or the cost property.

2) Reports workspace: show properties for the selected item
    a. General tab
        i. Location: where is the cube stored
        ii. Report definition name: the name for the report you defined
    b. Dimensions tab
        i. Include check box – noted for each dimension
        ii. Dimensions – list of all model dimension
        iii. Allow drill-through to – depth allowed for each dimension

3) Reports workspace: summary reports: remove the selected item

4) Reports workspace: summary tab: generate cube
    a. Select a specific cube from the list of summary reports
    b. Select the generate cube creates the calculated cube
    c. When the cube completes a dialog is displayed with the proc OLAP SAS log, this can be copied to a clipboard and pasted into a document for storage of the details of the cube created.
    d. If the cube creation process fails: this log is the appropriate place to look for diagnosis of the problem.

5) Reports workspace: detailed reports tab: create new detail reports…
    a. Each detail report can have one and only one filter. So if you select customer and product, you have actually defined 2 distinct detailed reports, one for customer and one for product.
    b. Available detail reports – the filter property on a detailed report
        i. For optimal performance of a detailed report (cube on the fly), select a dimension (like customer), which filters all of the transactional data from millions of calculated records down to less than 1000 records.
    c. Opens the detail reports wizard
        i. All dimensions (channel, customer, custtype, product, region),
        ii. All text properties from source tables

        iii. All numeric properties from source tables

        iv. All numeric properties from calculation

            1. Quantity – calculated driver quantity

            2. Value – calculated cost property

d. Select from available detail reports and add to selected detail reports

        i. Add button for a single selection

        ii. Add all button to add all available properties

        iii. Remove button for a single selection

        iv. Remove all to remove all selected detailed reports

e. Click ok – to close the dialog box and accept the changes, this will take some time as the system is adding indexes to the calculated transaction tables for all of the dimensions you have chosen to have available for detailed reports.

f. Click cancel – to close the dialog box and discard the changes

6) Reports workspace: detailed reports: remove the selected item ❌

a. This opens the detail reports dialog box,

b. To remove a specific detailed report,

        i. Select the item from the right dialog

        ii. Push the button to remove – this moves the property back to the available properties list

        iii. Click ok to save the change. This removal of the report removes an index value on the calculated transaction tables and would improve overall reporting performance.

Review of menu items

1) Menus: transactions workspace

a. File:

        i. Organize models – displays all available models on this server

        ii. Add table group – to add a table group to the current model

        iii. Add transaction tables – to add a transaction table to the selected table group

        iv. Properties – displays the properties for the selected items

        v. Exit – to close the product

b. Edit:

        i. Remove – removes the selected item from the SAS Profitability Management model

        ii. Analysis settings – defines the settings for time periods and measures formatting

        iii. Server configuration – displays the server storage location and repository information for SAS Profitability Management, for all models on the server

c. View:

        i. Transactions – open the transactions workspace

        ii. Rules – open the rules workspace

      iii. Behaviors – open the behaviors workspace
      iv. Reports – open the reports workspace
       v. Workspace list- display or suppress the workspace list in the current workspace
      vi. Task list – display or suppress the task list in the current workspace

d. Actions
        i. Calculate - opens the calculation wizard
       ii. Refresh - refreshes the SAS Profitability Management model to reflect the condition of the data in the source systems.

e. Help:
        i. Help contents – open the help file
       ii. Pm on the web – link to SAS Profitability Management http://www.sas.com/solutions/index.html
      iii. SAS on the web – link to http://www.sas.com/
      iv. About – version information software, user information

2) Menus: rules workspace

a. File:
        i. Organize models - – displays all available models on this server
       ii. Add assignment rule - add a new assignment rule
      iii. Properties - displays the properties for the selected items
      iv. Exit - to close the product

b. Edit:
        i. Copy assignment rule – copy an existing rule to create a second rule, with a new name
       ii. Remove – removes the selected item from the SAS Profitability Management model
      iii. Server configuration – displays the server storage location and repository information for SAS Profitability Management, for all models on the server

c. View:
        i. Transactions – open the transactions workspace
       ii. Rules – open the rules workspace
      iii. Behaviors – open the behaviors workspace
      iv. Reports – open the reports workspace
       v. Workspace list- display or suppress the workspace list in the current workspace
      vi. Task list – display or suppress the task list in the current workspace

d. Actions:
        i. Calculate - opens the calculation wizard
       ii. Import assignment rules – import rules definitions
      iii. Refresh - refreshes the SAS Profitability Management model to reflect the condition of the data in the source systems

e. Help:
        i. Help contents – open the help file

          ii.   Pm on the web – link to SAS Profitability Management
                http://www.sas.com/solutions/index.html
         iii. SAS on the web – link to http://www.sas.com/
         iv. About – version information software, user information

3) Menus: behaviors workspace
    a. File:
          i.   Organize models – displays all available models on this server
         ii.   Create a new association – associate rule to a behavior
         iii. Properties – displays the properties for the selected items
         iv. Exit – to close the product
    b. Edit:
          i.   Clear association – removes the selected item from the SAS
                Profitability Management model
         ii.   Server configuration – displays the server storage location and
                repository information for SAS Profitability Management, for all
                models on the server
    c. View:
          i.   Transactions – open the transactions workspace
         ii.   Rules – open the rules workspace
         iii. Behaviors – open the behaviors workspace
         iv. Reports – open the reports workspace
          v. Workspace list- display or suppress the workspace list in the
                current workspace
         vi. Task list – display or suppress the task list in the current workspace
    d. Actions:
          i.   Calculate - opens the calculation wizard
         ii.   Import associations – import rules to behavior associations
         iii. Refresh - refreshes the SAS Profitability Management model to
                reflect the condition of the data in the source systems
    e. Help:
          i.   Help contents – open the help file
         ii.   Pm on the web – link to SAS Profitability Management
                http://www.sas.com/solutions/index.html
         iii. SAS on the web – link to http://www.sas.com/
         iv. About – version information software, user information

4) Menus: reports workspace (summary tab)
    a. File:
          i.   Organize models – displays all available models on this server
         ii.   New report definition – define a summary report
         iii. Properties – displays the properties for the selected items
         iv. Exit – to close the product
    b. Edit:
          i.   Remove – removes the selected item from the SAS Profitability
                Management model

ii. Server configuration – displays the server storage location and repository information for SAS Profitability Management, for all models on the server

c. View:
  i. Transactions – open the transactions workspace
  ii. Rules – open the rules workspace
  iii. Behaviors – open the behaviors workspace
  iv. Reports – open the reports workspace
  v. Workspace list- display or suppress the workspace list in the current workspace
  vi. Task list – display or suppress the task list in the current workspace

d. Actions:
  i. Calculate the model – calculate all transaction tables
  ii. Generate cube – create summary cubes
  iii. Refresh - refreshes the SAS Profitability Management model to reflect the condition of the data in the source systems

e. Help:
  i. Help contents – open the help file
  ii. Pm on the web – link to SAS Profitability Management http://www.sas.com/solutions/index.html
  iii. SAS on the web – link to http://www.sas.com/
  iv. About – version information software, user information

5) Menus: reports workspace (detail tab)
  a. File:
    i. Organize models – displays all available models on this server
    ii. Create new detail reports – select dimensions to use for reports
    iii. Exit – to close the product

  b. Edit:
    i. Remove – opens the new detailed report wizard
    ii. Server configuration – displays the server storage location and repository information for SAS Profitability Management, for all models on the server

  c. View:
    i. Transactions – open the transactions workspace
    ii. Rules – open the rules workspace
    iii. Behaviors – open the behaviors workspace
    iv. Reports – open the reports workspace
    v. Workspace list- display or suppress the workspace list in the current workspace
    vi. Task list – display or suppress the task list in the current workspace

  d. Actions:
    i. Calculate the model – calculate all transaction tables
    ii. Refresh - refreshes the SAS Profitability Management model to reflect the condition of the data in the source systems

  e. Help:

i. Help contents – open the help file
ii. Pm on the web – link to SAS Profitability Management
http://www.sas.com/solutions/index.html
iii. SAS on the web – link to http://www.sas.com/
iv. About – version information software, user information