Paper 021-2011

SAS® Analytic Solutions Win in Response to the "CARD Act of 2009"

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ABSTRACT

This paper is about how SAS® software is helping PREMIER Bankcard, LLC overcome the regulatory impact of the recent "Credit CARD ACCOUNTABILITY RESPONSIBILITY AND DISCLOSURE (CARD) Act of 2009" legislation.

In brief, the "CARD Act of 2009" most significantly impacts the sub-prime credit card industry as follows:

"Prohibits Exorbitant and Unnecessary Fees"
"New rules regarding rates, fees, and limits"

In response to these specific legislated items, PREMIER's leadership has heightened its reliance on business analytics and intelligence because they are driven to win. SAS is a tool of choice in providing the rapid response necessary in the delivery of extremely important analytics that the executive team consumes and uses to steer PREMIER past this macro-economic circumstance.

In this paper I will describe in further detail the SAS solutions that PREMIER is using to win the CARD Act war. Most importantly, SAS solutions are playing a significant part in shaping our future as we win the battle imposed by the Credit CARD Act legislation.

INTRODUCTION

This paper is about how SAS® software is helping PREMIER Bankcard, LLC overcome the regulatory impact of the recent "Credit CARD ACCOUNTABILITY RESPONSIBILITY AND DISCLOSURE (CARD) Act of 2009" legislation.

In brief, the "CARD Act of 2009" most significantly impacts the sub-prime credit card industry as follows:

"Prohibits Exorbitant and Unnecessary Fees

- Prohibits issuers from charging a fee to pay a credit card debt, whether by mail, telephone, or electronic transfer, except for live services to make expedited payments;
- Prohibits issuers from charging over-limit fees unless the cardholder elects to allow the issuer to complete over-limit transactions, and also limits over-limit fees on electing cardholders;
- Requires penalty fees to be reasonable and proportional to the omission or violation;
- Enhances protections against excessive fees on low-credit, high-fee credit cards."

(Excerpt from: http://banking.senate.gov/public/_files/051909_CreditCardSummaryFinalPassage.pdf)

"New rules regarding rates, fees, and limits

- Caps on high-fee cards. If your credit card company requires you to pay fees (such as an annual fee or application fee), those fees cannot total more than 25% of the initial credit limit. For example, if your initial credit limit is $500, the fees for the first year cannot be more than $125. This limit does not apply to penalty fees, such as penalties for late payments."

(Excerpt from: http://www.federalreserve.gov/consumerinfo/wyntk_creditcardrules.htm)

In response to these specific legislated items, PREMIER's leadership has heightened its reliance on business analytics and intelligence because they are driven to win. In fact, during the drafting of the CARD Act legislation in 2008 and 2009, PREMIER turned to the MIS Analytics team for empirical analysis that would provide the framework necessary to respond quickly to this potentially significant revenue impact to PREMIER's existing income model. SAS is a tool of choice in providing the rapid response necessary in the delivery of extremely important analytics that the executive team consumes and uses to steer PREMIER past this macro-economic circumstance.

WHAT PREMIER IS DOING

While there are hundreds of initiatives that have resulted from this congressional action, there are some very specific SAS analytic solutions that are driving PREMIER's business forward to the "Winner's Circle." Specifically, PREMIER is using Enterprise Miner™ developed scoring models and Base SAS ™ analytic tools to help with new customer acquisition, activation, and performance measurement.

In this paper there will be 4 specific SAS Software systemic solutions that are presented that are helping PREMIER meet the challenges posed by the CARD Act.

1. Fee Justification Analytics
2. Customer Loyalty Analytics
3. Rapid Response to Strategic Planning Information Needs
4. Improved Daily Forecasting Models

EXORBITANT AND UNNECESSARY FEES

Actually, as early as 2007 PREMIER could see this "train" coming. In fact, our executive team became involved in leading initiatives to educate and inform the legislative bodies in Washington, DC. Unfortunately, in 2008, a new era of legislative attention was ushered in, along with a new president and congress controlled by a single political party. Adding insult to injury, regulation of the Banking Industry was heightened even further by the demise of the sub-prime mortgage industry.

As a result, PREMIER (and any other credit lending institution) was faced with justifying the fee structures that were being charged to consumers when "***the consumer agreed***" to accept a credit card offer. Due to the CARD Act, fee justification became more significant as this legislation extended the governance and compliance of Federal Review guidelines currently monitored under the Unfair And Deceptive Practices (UDAP) regulation, as well as, other regulatory controls.

The CARD Act level of government control requires a multiplicity of analytic exercises to reconcile operational expense and consumer benefit with the revenue generated by "up-front" and "recurring" fees. The fee structures PREMIER used were designed to cover known and expected loss rates in addition to "Buyer's Remorse," each of these reaching as high as 35% in the first year. In other words, by the end of the first year relationship with customers, around 70% would no longer be in the portfolio.

1. FEE JUSTIFICATION ANALYTICS

During 2009 and 2010 PREMIER decided to increase the Annualized Percentage Rate (APR) on existing customer accounts as well as newly acquired customers. This was done to help alleviate the impact of lost revenue experienced by CARD Act fee caps. Recently, PREMIER's compliance division was asked by the Federal Reserve to provide empirical evidence supporting this strategic decision. The analytic solution noted in Display 1 was created using SAS analytic tools designed to provide a clear picture of the impact to PREMIER's former revenue strategy. This is clear evidence of the impact caused by the CARD Act, which was a direct cause of the need for an APR adjustment.

Base SAS was used to analyze the comparative profitability of 2009 versus 2010. This particular solution is a fully automated analytic process scheduled on a monthly run cycle. It is designed to track profitability by vintage month for the current year compared to the prior year. The primary Base SAS tools incorporated are: SAS Macro, Data Step Programming, FORMAT Procedure, TABULATE Procedure, and the Output Delivery System (ODS) with the ExcelXP Tagset. When the solution has completed execution, an email with the attached output (see Display 1 below) is delivered to a predefined list of information consumers.

Display 1 shows an example of the output created demonstrating the lost profit comparing 2009 to 2010.

DataYear 2009

Vintage by Credit Line		Count	Col % Count	Principal Balance		NCFR		CO Principle		Acquisition Exp		Servicing Cost		Net Income		ROA
				Avg	Sum	Avg	Sum	Avg	Sum	Avg	Sum	Avg	Sum	Avg	Sum	
	200 or Less															
	201-350															
	351 or More															
Total	Total															
	200 or Less															
	201-350															
	351 or More															
2009/02	Total															
	200 or Less															
	201-350															
	351 or More															
2009/03	Total															

DataYear 2010

Vintage by Credit Line		Count	Col % Count	Principal Balance		NCFR		CO Principle		Acquisition Exp		Servicing Cost		Net Income		ROA
				Avg	Sum	Avg	Sum	Avg	Sum	Avg	Sum	Avg	Sum	Avg	Sum	
	200 or Less															
	201-350															
	351 or More															
Total	Total															
	200 or Less															
	201-350															
	351 or More															
2010/02	Total															
	200 or Less															
	201-350															
	351 or More															
2010/03	Total															

Display 1. Output from the comparative profitability of 2009 versus 2010

While I am not able to display the actual numbers, it is important to note that PREMIER's Return on Assets (ROA) was reduced significantly when comparing 2009 to 2010. The reason for comparing the March vintage was to show the financial impact of using the first full vintage month of the CARD Act compliant accounts versus the pre-CARD Act accounts. PREMIER's operational and marketing strategies had to be fully compliant effective on February 22, 2010. Therefore, the advent of PREMIER's new revenue model needed to be implemented on the 23rd.

This SAS solution and its output were key instruments in response to the APR justification review by the Federal Reserve. Having this in place helped PREMIER respond quickly and will contribute significantly to avoiding further APR justification inquiries.

2. CUSTOMER LOYALTY ANALYTICS

PREMIER is implementing a retention recommendation using a SAS developed Good Customer Score (GCS) in order to do a better job of keeping existing customers while the customer acquisition solutions are being tested and implemented (see also SAS Global Forum Paper #278-2009).

While several customer focus solutions are being considered, I will point out two output examples from this solution that have been instrumental most recently in shifting PREMIER's "strategic" focus to a longer term relationship with its customers. It had to become clear to the senior management team that PREMIER's lost revenue in year one of the customer life cycle could be supplemented by the "legacy" customers (I.e., 2+ year relationship).

Using the GCS, the portfolio was ranked from best to worst and segmented into demi-decile and quartile groupings. Subsequently, analytics were applied using Base SAS solutions on the customer portfolio. This produced the results necessarily instrumental to an evaluation that identified the net income monetary value of each customer showing what they contribute to the "bottom line" per month within each segment (see Display 2).

The GCS development was validated using Enterprise Miner™ software. Additionally, the primary Base SAS tools incorporated were: SAS Macro, Data Step Programming, FORMAT Procedure, TABULATE Procedure and the Output Delivery System (ODS) with the ExcelXP Tagset. When the solution has completed execution, an email with the attached output (see Display 2 below) is delivered to a predefined list of information consumers.

Display 2 is the entire portfolio of accounts evaluated to demonstrate the Annualized Net Income impact of a moderate 10% save rate of PREMIER's customers from year 2 to year 3.

MOB Count by Good Customer Quartile	Total			1-Top Quartile			2-Upper Middle Quartile			3-Lower Middle Quartile			4-Bottom Quartile		
	Count	Col % Count	Col % Chg	Count	Col % Count	Col % Chg	Count	Col % Count	Col % Chg	Count	Col % Count	Col % Chg	Count	Col % Count	Col % Chg
Missing	113,670	4.50%		0	0		0	0		0	0		113,670	18.01%	
00-06 MOB	284,592	11.27%		13,473	2.13%		7,619	1.21%		10,984	1.74%		252,516	40.00%	
07-12 MOB	252,520	10.00%		44,837	7.10%		46,097	7.30%		84,400	13.37%		77,186	12.23%	
13-24 MOB	760,170	30.11%		202,714	32.11%		225,632	35.74%		241,488	38.25%		90,336	14.31%	
25-36 MOB	358,325	14.19%	52.86%	112,417	17.81%	44.54%	112,817	17.87%	50.00%	98,943	15.67%	59.03%	34,148	5.41%	62.20%
37-48 MOB	245,733	9.73%	31.42%	79,688	12.62%	29.11%	77,881	12.34%	30.97%	65,971	10.45%	33.32%	22,193	3.52%	35.00%
49-60 MOB	160,301	6.35%	34.77%	53,982	8.55%	32.26%	51,167	8.11%	34.30%	41,345	6.55%	37.33%	13,807	2.19%	37.80%
61+ MOB	349,756	13.85%		124,155	19.67%		110,054	17.43%		88,136	13.96%		27,411	4.34%	
Total	2,525,067	100.00%		631,266	100.00%		631,267	100.00%		631,267	100.00%		631,267	100.00%	

Retention Impact of only 10% from Year 2 to 3 for the Top 75% of Performers

	202,714	32.11%			225,632	35.74%			241,488	38.25%	
	112,417	17.81%	44.54%		112,817	17.87%	50.00%		98,943	15.67%	59.03%
Diff =	90,297			Diff =	112,815			Diff =	142,545		

Account to Retain (Sum of Diff) =	345,657
10% Factor =	34,566
Net Income per Account Per Month =	$11.58
Monthly Bottom Line Impact =	$ 400,270.81
Annualized Bottom Line Net Income Impact =	**$ 4,803,249.67**

Display 2. Output from a SAS solution showing Retention Improvement Impact on Annualized Net Income.

It is critical to demonstrate the "bottom line" impact to the business in order to influence changing the strategic direction of any organization. In this case study, it is evident that even a moderate success would drive a significant monetary impact. Thus is why PREMIER is now in the process of shifting its focus to the customer's lifetime value instead of primarily driving first year profitability with no regard for a long term relationship with the customer.

However, I must emphasize that PREMIER has always been interested in the customer receiving the benefits they expected when agreeing to the terms of a sub-prime priced product. The credit methodology utilized by PREMIER is focused on the consumer engaging in a "high fee" credit card, generally because the consumer cannot get access to an open (unsecured) line of credit due to their past credit history. According to general industry guidelines, a sub-prime credit score is at or below 660. PREMIER traditionally offered their credit cards below 600.

The SAS solution noted in Display 3 emphasizes the analytic result of PREMIER's customers utilizing their sub-prime credit card to improve credit worthiness.

RptGroup & CPR_Measure		Total	Top 25%					Middle 50-75%				
			100-95%	95-90%	90-85%	85-80%	80-75%	75-70%	70-65%	65-60%	60-55%	55-50%
MOB	VintMos_Mean	32.5	42.5	39.5	38.6	38.8	38.4	38.2	37.8	37.5	37.3	36.8
Orig FICO	OFICO-All	580.9	583.9	580.6	580.8	579.2	577.9	577.4	576.3	575.5	575.3	575.1
Curr FICO	QFICO-All	588.8	634.1	607	612.7	607.3	603.3	600.3	597.6	596.2	594.4	592.6

Display 3. Analytic Evidence supporting the fact that customers who perform well improve their Credit Score by as much as 50 points (Top 5%).

NEW RULES REGARDING RATES, FEES, AND LIMITS

Probably the most significant impact to our business is the cap that was placed on the first year fees that can be assessed to a customer. Specifically, the law reads: "**Caps on high-fee cards.** If your credit card company requires you to pay fees (such as an annual fee or application fee), those fees cannot total more than 25% of the initial credit limit. For example, if your initial credit limit is $500, the fees for the first year cannot be more than $125. This limit does not apply to penalty fees, such as penalties for late payments."

Prior to the CARD Act, PREMIER was charging approximately $178 in fees on the first billing statement for a $250 credit line. This is around 71% of the credit line and these fees were used to offset the high risk nature of those consumers who qualified for a sub-prime unsecured credit card. By capping the first year fee revenue, the CARD Act reduced PREMIER's risk management strategy by 65%. Therefore, PREMIER could no longer sustain its revenue based risk management strategy.

In order to shift the business from primary reliance on short term revenue collections and cash flows, PREMIER had to evaluate and monitor pricing strategy tests more rapidly. Thus, the senior management team required weekly reviews of test results. In order to accommodate this inordinate volume of analytic performance results, the MIS Analytics team had to create hundreds of pro-forma and cash model analytics supplemented with SAS solutions.

3. RAPID RESPONSE TO STRATEGIC PLANNING

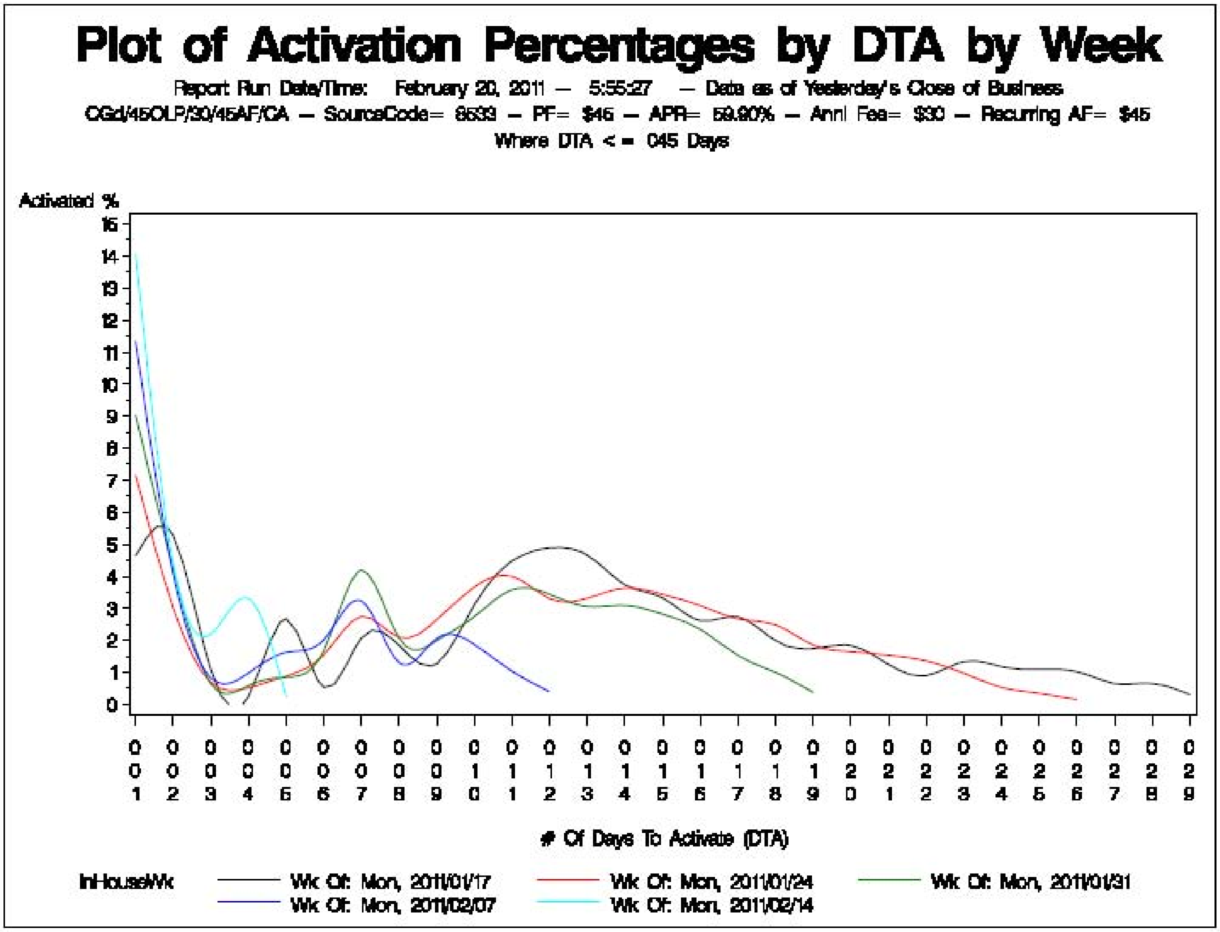
While it had seemed sufficient to monitor test results weekly, there was an emerging need to see results on a daily basis. PREMIER's new "CARD Act" compliant product offerings were centered on profitability that could only be realized if the "activation" rate goal was achieved within a 45-85 day window. These rates needed to be at a specific level in order to cover the acquisition costs. Since the first year profit margins had been capped, "rapid" response was critical to success.

One SAS solution was the "Daily Lag Report" used to monitor a test during the first 6-8 weeks from its inception. This solution incorporated the following SAS tools: SAS/Connect, SAS Macro, Data Step Programming, FORMAT Procedure, TABULATE Procedure, GPLOT Procedure, and the Output Delivery System (ODS) with the ExcelXP Tagset. When the solution has completed execution, an email with the attached output (see Display 4 below) is delivered to a predefined list of information consumers.

Displays 4 and 5 are daily generated reports showing weekly application approvals and activations. These reports were fully automated using SAS solutions for daily monitoring of test results driving strategic decisions for various testing scenarios.

App In-House Week On Book		*Application Count*	*Approval Count*	*Approval %*	*Activated Count*	*Activated % Of Approvals*	*Activated % Of Apps*
	No	2,174	0	0.0%	0	#DIV/0!	0.0%
	Yes	5,456	3,215	58.9%	2,031	63.2%	37.2%
Wk Of: Mon, 2011/01/17	*Total*	7,630	3,215	42.1%	2,031	63.2%	26.6%
	No	7,285	0	0.0%	0	#DIV/0!	0.0%
	Yes	16,562	9,173	55.4%	5,442	59.3%	32.9%
Wk Of: Mon, 2011/01/24	*Total*	23,847	9,173	38.5%	5,442	59.3%	22.8%
	No	4,635	0	0.0%	0	#DIV/0!	0.0%
	Yes	13,069	6,920	52.9%	3,410	49.3%	26.1%
Wk Of: Mon, 2011/01/31	*Total*	17,704	6,920	39.1%	3,410	49.3%	19.3%
	No	2,802	0	0.0%	0	#DIV/0!	0.0%
	Yes	9,953	5,288	53.1%	1,629	30.8%	16.4%
Wk Of: Mon, 2011/02/07	*Total*	12,755	5,288	41.5%	1,629	30.8%	12.8%
	No	404	0	0.0%	0	#DIV/0!	0.0%
	Yes	1,640	817	49.8%	198	24.2%	12.1%
Wk Of: Mon, 2011/02/14	*Total*	2,044	817	40.0%	198	24.2%	9.7%
	No	17,300	0	0.0%	0	#DIV/0!	0.0%
	Yes	46,680	25,413	54.4%	12,710	50.0%	27.2%
Total	*Total*	63,980	25,413	39.7%	12,710	50.0%	19.9%

Display 4. Daily Automated Report of Credit Card account activations showing the weekly approval and activation rates.



Display 5. SAS GPLOT Procedure output of Weekly activation Lags showing the average number of days it takes for accounts to activate.

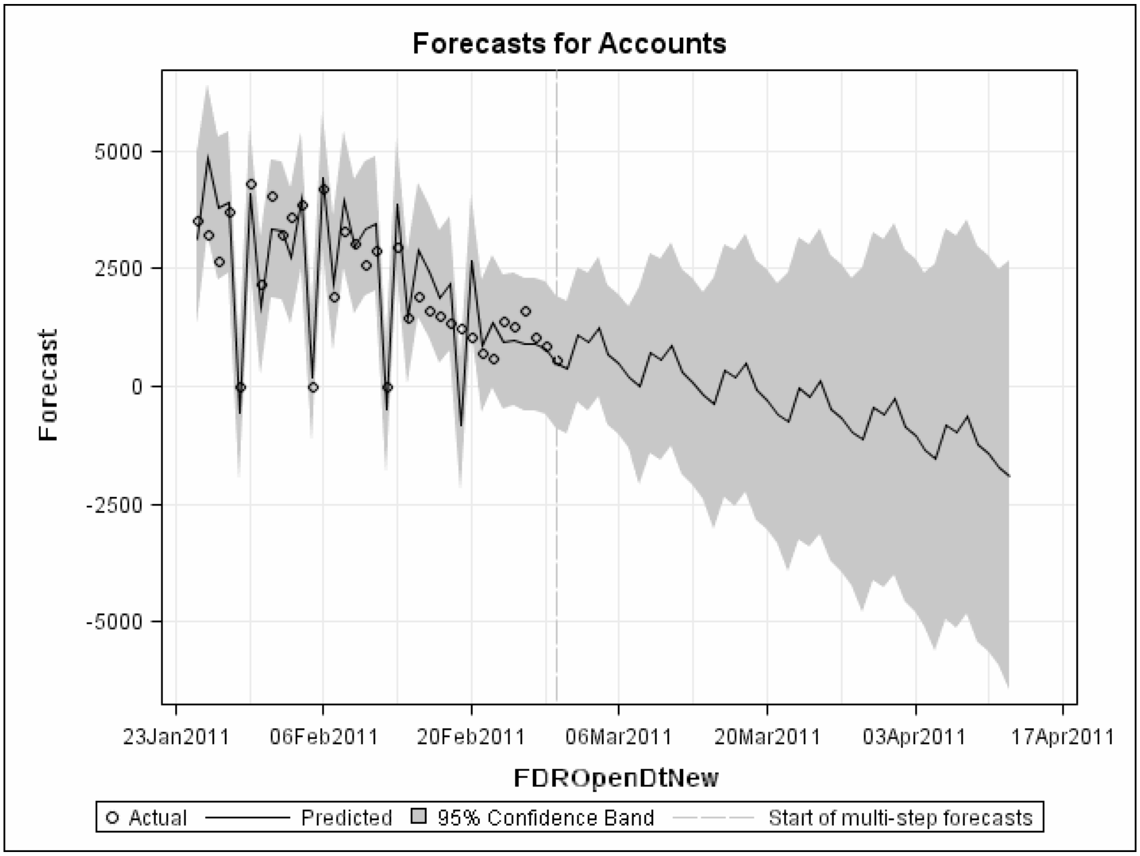
4. IMPROVED DAILY FORECASTING MODEL

The information noted in the above section regarding the rates at which accounts activate and their respective lag times are critical components used in producing a monthly forecast of how many accounts will be added to PREMIER's portfolio. Since the first year revenue has been regulated to 25%, it is necessary to manage the account activations more concisely. The existing process for producing a forecast is largely manual and experienced degradation due to the new strategic focus on revenue returns in year 2 and beyond.

A significant need emerged for a more refined and nimble forecasting methodology. Therefore, the MIS Analytics Profitability & Risk department developed a "challenger" daily account forecasting model. This model would acquire the data from the previous 31 days of account bookings and apply the Unobserved Components Model (UCM) Procedure within an Enterprise Miner code node to forecast the upcoming month end account booking amount that could be expected. This procedure is rerun each day as the month progresses and the results are then used to make strategic business decisions focused on controlling the month end outcome.

This new SAS solution currently serves as a "challenger" model for the existing manual process and offers significant improvements in the accuracy of the actual forecasted outcome. For example, direction was given to update the manual monthly forecast with all known factors and compare the results to the new SAS Solutions using the UCM Procedure for a given day. The actual variance between the two methods was only 161 accounts. Updating the manual process for a given day took 2-4 full-time staff working a full day to acquire the inputs, produce the analysis, and validate the results of the forecast update for comparison. Conversely, the SAS Solution is fully automated except for the program execution within the Enterprise Miner application, which only takes about 2 minutes.

Display 6 & 7 are examples of the output generated from the SAS Solution for the daily account bookings forecast.



Display 6. Is the Forecast Graph output from the UCM Procedure executed within SAS Enterprise Miner.

FDR Open Date	# Of Accounts	Seasonally Adjusted Series Forecast	Account Forecast	Cumulative Forecast	Account Forecast Adjusted Up 5%	Cumulative Forecast Adjusted Up 5%
2011-02-01	4,066	3,343	4,066	4,066		
2011-02-02	3,222	3,302	3,222	7,288		
2011-02-03	3,613	2,747	3,613	10,901		
2011-02-04	3,876	3,975	3,876	14,777		
2011-02-05	5	184	5	14,782		
2011-02-06	4,189	4,421	4,189	18,971		
2011-02-07	1,927	2,181	1,927	20,898		
2011-02-08	3,298	3,959	3,298	24,196		
2011-02-09	3,038	2,953	3,038	27,234		
2011-02-10	2,587	3,354	2,587	29,821		
2011-02-11	2,895	3,472	2,895	32,716		
2011-02-12	4	-487	4	32,720		
2011-02-13	2,980	3,857	2,980	35,700		
2011-02-14	1,468	1,447	1,468	37,168		
2011-02-15	1,923	2,881	1,923	39,091		
2011-02-16	1,600	2,453	1,600	40,691		
2011-02-17		1,887	1,887	42,578	1,982	44,707
2011-02-18		2,175	2,175	44,754	2,284	46,991
2011-02-19		-843	-843	43,911	-885	46,106
2011-02-20		2,663	2,663	46,573	2,796	48,902
2011-02-21		850	850	47,423	892	49,794
2011-02-22		1,360	1,360	48,783	1,428	51,222
2011-02-23		938	938	49,722	985	52,208
2011-02-24		980	980	50,702	1,029	53,237
2011-02-25		890	890	51,592	934	54,172
2011-02-26		888	888	52,480	932	55,104
2011-02-27		796	796	53,275	836	55,939
2011-02-28		491	491	53,766	515	56,454

Display 7. The Seasonally Adjusted Forecast report generated from the SAS Solution using the UCM Procedure within SAS Enterprise Miner.

CONCLUSION

In response to these specific legislated items, PREMIER's leadership has heightened its reliance on business analytics and intelligence because they are driven to win. SAS is a tool of choice in providing the rapid response necessary in the delivery of extremely important analytics that the executive team consumes and uses to steer PREMIER past this macro-economic circumstance.

The experiences and examples related in this paper demonstrate how SAS solutions at PREMIER are being used to win the CARD Act war. Most importantly, how SAS solutions are playing a significant part in shaping our future as we win the battle imposed by the Credit CARD Act legislation. May your organization be on the "Winning" team as well.

Contact Information

Your comments and questions are valued and encouraged. Contact the author at:

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