

OCA-T-1
Docket No. MC2002-2

DIRECT TESTIMONY
OF
J. EDWARD SMITH
ON BEHALF OF
THE OFFICE OF CONSUMER ADVOCATE

December 20, 2002

TABLE OF CONTENTS

	<i>Page</i>
I. STATEMENT OF QUALIFICATIONS	1
II. PURPOSE AND SCOPE OF TESTIMONY	1
III. THE BASIS FOR THE PROPOSED NEGOTIATED SERVICE AGREEMENT IS INADEQUATE: ADDITIONAL INFORMATION IS NEEDED	2
A. The Postal Service and Capital One have not Provided Credible Substantiation for their Estimates of Projected Mail Volumes.....	2
B. An Objective Estimate of Projected Mail Volumes is Needed in Order to Avoid a Free-Rider Problem	3
C. Accurate Determination of a Forecasted Mail Level is Important: the Level can have Substantial Financial Impacts	4
IV. CAPITAL ONE MAILING TRENDS SUGGEST THAT A FORECAST OF 1.4 BILLION PIECES IS AT A LOWER BOUND	6
V. A COMPANY-SPECIFIC DEMAND STUDY IS NEEDED FOR A FULL UNDERSTANDING OF FUTURE MAILING LEVELS.....	10
A. Such a Study is Unavailable for Capital One and may not be Available for Other Companies	10
B. Time Trend Regression for the Measurement of Projected Mail Levels has not Worked Adequately for Capital One	12
C. Accordingly, a Regression Analysis has not Worked in Forecasting Capital One’s Potential Future Mailings	17
D. An Alternative to Regression Analysis is the Extrapolation of the Previous Year’s Level of Mailing Effort, Increased Somewhat to Allow for Additional Company Efforts.....	17
VI. CONCLUSIONS	18

**DIRECT TESTIMONY
OF
J. EDWARD SMITH**

1 I. STATEMENT OF QUALIFICATIONS

2 My name is J. Edward Smith, and I am an econometrician in the Office of the
3 Consumer Advocate of the Postal Rate Commission. I have worked as an economist in
4 a variety of business, academic, consulting, and governmental positions. My
5 experience has been focused on the modeling of costs and revenues; analyses related
6 to forecasting, pricing, and marketing; and utility regulation. My economics degrees are
7 from Hamilton College, A.B., and Purdue University, M.S., and Ph.D. I have previously
8 testified before this Commission, in Docket No. R97-1 and Docket No. R2000-1. I have
9 also testified before state regulatory commissions in Virginia, Maryland, and the District
10 of Columbia.

11 II. PURPOSE AND SCOPE OF TESTIMONY

12 I first examine Capital One's volume forecast of 1.4 billion pieces of mail for
13 2002. I conclude that the forecasting method is inadequate. Furthermore, the level of
14 the forecasted volume appears to be at the lower bound of plausibility. I also find that
15 a projected level of 1.6 billion pieces for 2003 appears to be plausible. Assuming that
16 the Commission accepts the 1.4 billion piece estimate, I conclude that the volume
17 threshold for the per piece discounts should, accordingly, begin at 1.4 billion pieces, not
18 the lower 1.225 billion pieces advocated by the Postal Service, in order to avoid a free-
19 rider problem.

1 Using Capital One as an example, I examine the appropriate procedures for the
2 estimation of mail volume for an individual company. I find that a regression analysis is
3 inadequate, being hampered by the lack of access to private, unverifiable information. I
4 conclude that the previous year's mail volume adjusted by previous levels of growth can
5 serve as an estimator of the next year's level of mail volume. Such a number may be
6 deficient, as is the case for Capital One, apparently due to changes in marketing
7 approaches. However, such an estimate uses prior management behavior, rather than
8 opinions, as the basis for forecasting.

9 III. THE BASIS FOR THE PROPOSED NEGOTIATED SERVICE AGREEMENT IS
10 INADEQUATE: ADDITIONAL INFORMATION IS NEEDED

11 A. The Postal Service and Capital One have not Provided Credible
12 Substantiation for their Estimates of Projected Mail Volumes

13 Capital One has provided an estimate of 1.4 billion pieces of mail absent the
14 implementation of the Negotiated Services Agreement (NSA).¹ Based on witness
15 Elliott's application of a Postal Service elasticity study for work-shared First-Class Mail,
16 the estimated mail volume with implementation of the NSA was projected to increase by
17 15,458,969 pieces.² The forecast lacks credibility. In addition to the absence of a
18 verifiable quantitative analysis for the base-case projection of 1.4 billion pieces, witness
19 Elliott used an irrelevant elasticity study for the projection of increased volume. The
20 elasticity for workshared First-Class letters applies to mail from all types of customers; it
21 is not specific to Capital One. In fact, Capital One's Solicitation mail may be quite

¹ Direct Testimony of Donald Jean, Docket No. MC2002-2. COS-T-1, at 4, line 19.

² Direct Testimony of Stuart Elliott, Docket No. MC2002-2, COS-T-2, at 5.

1 different from other workshared First-Class mail. Workshared mail could contain billing,
2 customer communication, and possibly other types of mail in addition to solicitation mail;
3 such is not, however, the case for Capital One's Solicitation mail. In addition, Capital
4 One is a large mass mailer of advertising material. The market drivers underlying the
5 demand for advertising mail by Capital One would logically be expected to be a function
6 of mailing list quality and cost, the persuasiveness of advertising copy in eliciting
7 response rates, market penetration and competition by competing firms, and a variety of
8 other factors. The drivers for other types of workshared mail may be quite different from
9 those of Capital One's Solicitation mail. Finally, the Capital One forecasts are proposed
10 for mail levels as low as 1.025 billion pieces under certain circumstances.³ Apparently
11 there is a substantial doubt about forecast accuracy. A forecast of 1.025 billion pieces
12 is only 73 percent of the original forecast of 1.4 billion pieces.

13 B. An Objective Estimate of Projected Mail Volumes is Needed in Order to
14 Avoid a Free-Rider Problem

15 Proposing a threshold volume for the payment of incentives at a lower than
16 forecasted volume (i.e., at levels lower than 1.4 billion pieces in this case) creates a
17 significant free-rider problem. The free-rider problem is the payment of an incentive
18 where none is necessary, i.e., for pieces which would have been sent absent an
19 incentive. The Postal Service needs a benchmark estimate of projected mail volume
20 that is tied to an objective, verifiable estimate of the mailer's projected mail volume. The
21 incentive should encourage additional mailings beyond the threshold level that would

³ Request of the United States Postal Service for a Recommended Decision on Experimental Changes to Implement Capital One NSA, Docket No. MC2002-2, Attachment B, Rate Schedule 610B.

1 have been achieved absent the incentive, or retain mail levels in the event of a
2 projected decline in mail.

3 C. Accurate Determination of a Forecasted Mail Level is Important: the Level
4 can have Substantial Financial Impacts

5 Table 1 presents a spreadsheet model of the proposed discount schedule and its
6 benefits at various levels of projected mail, ranging from 1.275 billion pieces to
7 1.600 billion pieces. Based on the data presented in the case, there are two types of
8 cost and revenue impacts:

- 9
- 10 • Changes in margins: revenue from the additional 15.5 million pieces of mail,
11 offset by the amounts paid as incentives, has a negative \$4.9 million (Table 1,
12 Col. G. line 17) impact on Postal Service finances. Although additional margins
13 are generated by the increased volume of mail, the discounts begin at 1.225
14 billion pieces and increase with volume. Accordingly, discounts totaling \$7.4
15 million (Table 1, Col. G, line 8) will have been paid by the time total mail volume
16 has increased by 15.5 million pieces.
 - 17 • Savings from ending the return of UAA First-Class Mail to the mailer, offset by
18 the cost of electronic notification: This represents a fundamental change in
19 operating procedures — i.e., the disposal, rather than the physical return, of
20 First-Class Mail — producing savings caused by decreased mail handling. The
21 savings to the Postal Service are projected to be \$13.3 million (Table 1, Col. G,
22 line 22) based on attaining the Capital One level of 1.423 billion pieces.

23 The actual financial impact of the NSA is, however, unknown. The Capital One
24 volume forecast is not substantiated with a formal study. Although the forecasted level
25 of mailings approaches plausibility, apparently there is substantial uncertainty over the
26 actual level of projected mailings. In fact, a later section of this testimony develops a
forecasted level of mail close to 1.6 billion pieces.

Table 1

A	B	C	D	E	F	G	H	I	J
2	Projected Mail Levels--Total	1,275,000,000	1,325,000,000	1,375,000,000	1,408,000,000	1,423,458,969	1,450,000,000	1,525,000,000	1,600,000,000
3	Additional Pieces	50,000,000	50,000,000	50,000,000	33,000,000	15,458,969	26,541,031	75,000,000	75,000,000
4	Customer Mail	640,000,000	640,000,000	640,000,000	640,000,000	640,000,000	640,000,000	640,000,000	640,000,000
5	Solicitation Mail	635,000,000	685,000,000	735,000,000	768,000,000	783,458,969	810,000,000	885,000,000	960,000,000
6	Cents per Piece--Discount	0.030	0.035	0.040	0.045	0.045	0.045	0.050	0.055
7	Discount Dollars for Incremental Load	1,500,000	1,750,000	2,000,000	1,485,000	695,654	1,194,346	3,750,000	4,125,000
8	Cumulative Discount Dollars	1,500,000	3,250,000	5,250,000	6,735,000	7,430,654	8,625,000	12,375,000	16,500,000
9	Additional Margin	-	-	-	-	2,540,819	4,362,254.47	12,326,916.98	12,326,916.98
10	Cumulative Additional Margin (plus)	-	-	-	-	2,540,819	6,903,074	19,229,990	31,556,907
11	UAA Mail Returned--Current-pieces	60,960,000	65,760,000	70,560,000	73,728,000	75,212,061	77,760,000	84,960,000	92,160,000
12	UAA Mail Returned--Projected--pieces	9,144,000	9,864,000	10,584,000	11,059,200	11,281,809	11,664,000	12,744,000	13,824,000
13	UAA Mail Returned--Current-cost	32,596,187	35,162,816	37,729,444	39,423,420	40,216,968	41,579,388	45,429,331	49,279,274
14	UAA Mail Returned--Projected--cost	4,889,428	5,274,422	5,659,417	5,913,513	6,032,545	6,236,908	6,814,400	7,391,891
15	UAA Mail Returned--dollar savings (plus)	27,706,759	29,888,393	32,070,028	33,509,907	34,184,423	35,342,480	38,614,931	41,887,383
16	Cost/Electronic--UAA returnedmail	17,210,443	18,565,596	19,920,749	20,815,150	21,234,136	21,953,479	23,986,209	26,018,938
17	Contribution, New Volume, line 9 - line 7:	(1,500,000)	(3,250,000)	(5,250,000)	(6,735,000)	(4,889,835)	(1,721,926)	6,854,990	15,056,907
18	Savings--from not returning First-Class mail								
19	From UAA Mail no longer returned--line 15	27,706,759	29,888,393	32,070,028	33,509,907	34,184,423	35,342,480	38,614,931	41,887,383
20	Cost of Electronic Notification	17,210,443	18,565,596	19,920,749	20,815,150	21,234,136	21,953,479	23,986,209	26,018,938
21	Net Gain--Not Physically Returning Mail	10,496,315	11,322,797	12,149,278	12,694,756	12,950,287	13,389,001	14,628,723	15,868,445
22	Adj for Contingency(*1.03)	10,811,205	11,662,481	12,513,757	13,075,599	13,338,796	13,790,671	15,067,585	16,344,499
23									
24	NSA--Net Benefits: lines 17 + 22	9,311,205	8,412,481	7,263,757	6,340,599	8,448,961	12,068,744	21,922,575	31,401,406
Line	Line-by-Line Analysis								
2	Capital One forecast is 1.4 Billion pieces; increments are based on NSA.								
3	Incremental Pieces based on proposed NSA and are included in total figure in line 1.								
4	Customer Mail--Capital One assumption.								
5	C2-C4: Total Mail minus customer mail.								
6	Discount per NSA.								
7	C3*C6: This is the discount for the mail increment.								
8	Cumulative summation of discount dollars in terms of increasing volume.								
9	Additional Margin generated by additional pieces: (.290995019148621-.126636126131282)*G3								
10	Cumulative additional margin: summation as volume varies across columns of line 9								
11	UAA Mail Returned--Current-pieces	.096*(c5)							
12	UAA Mail Returned--Projected--pieces	.15*.096*c5							
13	UAA Mail Returned--Current-cost	5347*c11							
14	UAA Mail Returned--Projected--cost	5347*c12							
15	UAA Mail Returned--dollar savings (plus)	c15-c16							
16	Dollar Cost/Electronic--UAA mail (minus)	.33*c5*.096*.85							
17	Contribution, anew Volume, line 9-line 7	c9-c7							
18	Title								
19	Line 15	c15							
20	Cost of Electronic Notification	c16							
21	Net Gain--Not Physically Returning Mail	c19-c20							
22	Contingency Adjustment	1.03							
23									
24	NSA--Net Benefits: lines 17 + 22	9,311,205							

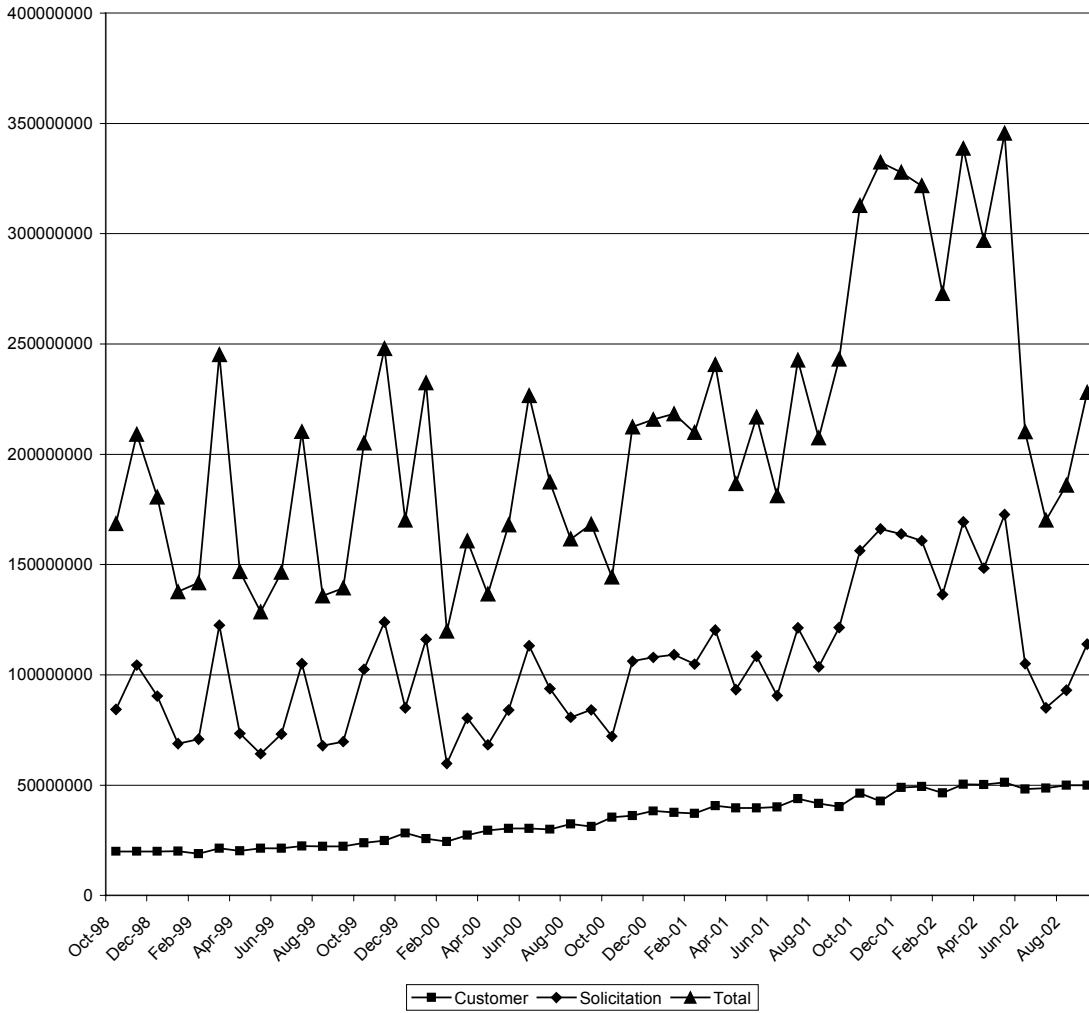
1 IV. CAPITAL ONE MAILING TRENDS SUGGEST THAT A FORECAST OF
2 1.4 BILLION PIECES IS AT A LOWER BOUND

3 A forecast of 1.4 billion pieces for 2003 approaches plausibility but appears to be
4 at the lower range of possible outcomes. Graph 1 presents monthly mailings by Capital
5 One, as delineated by witness Elliott in his testimony.⁴ The underlying data and 12-
6 month moving averages are presented in Appendix 1 of this testimony. Monthly
7 Customer mailings gradually increased during the time period Oct-98 to Sept-02. In
8 comparison, monthly Solicitation mailings fluctuated substantially from month to month
9 during October 1998 through August 2001. Subsequently for October 2001 through
10 May of 2002, there was a substantially higher level of Solicitation mailings, again
11 subject to substantial fluctuation. It is difficult to see a meaningful time trend in the
12 Solicitation data in Graph 1. Graph 2 presents 12-month moving totals of Customer,
13 Solicitation, and Total mailings. The key question is the outlook for 2003.

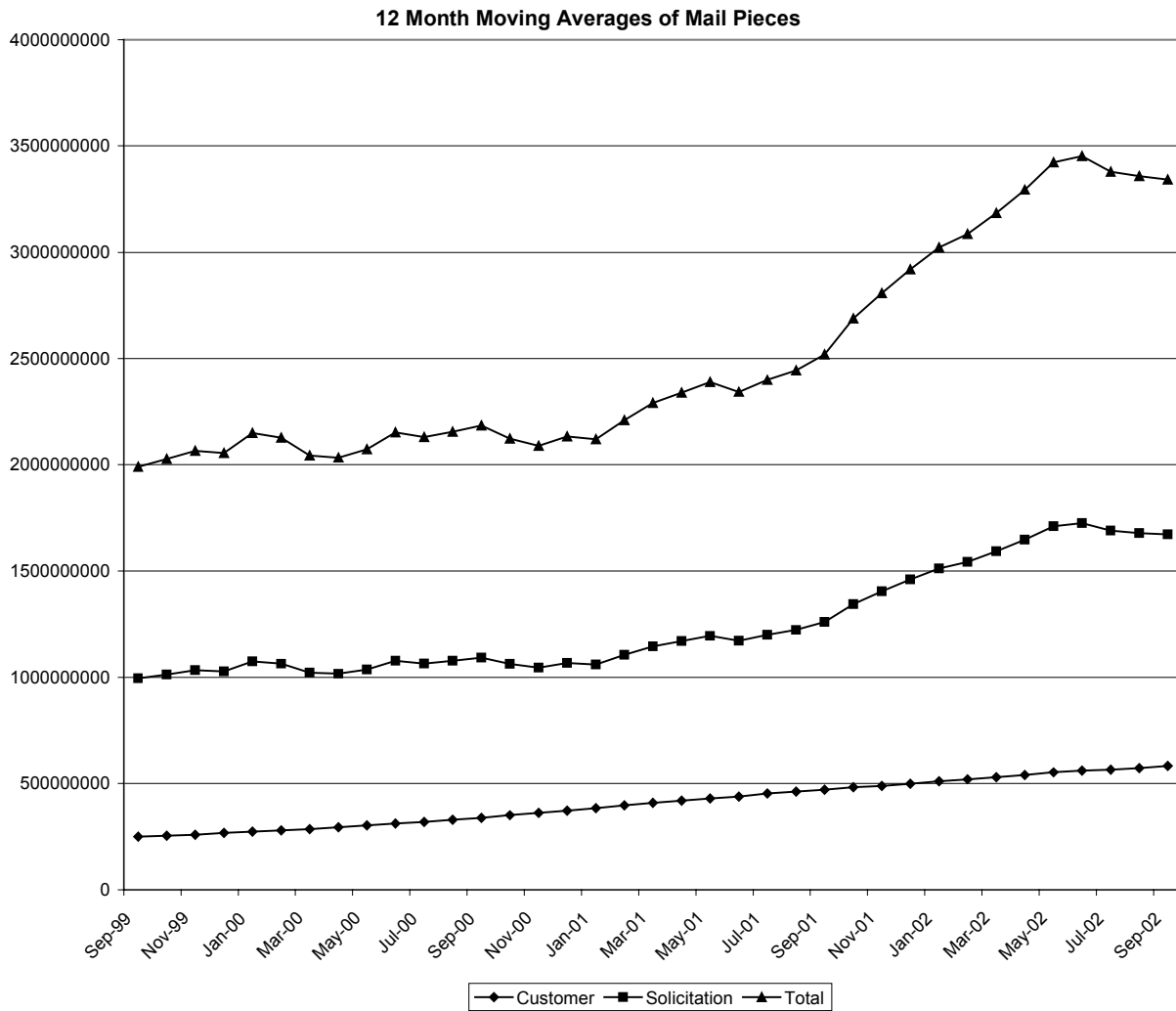
⁴ Direct Testimony of Stuart Elliott, Docket No. MC2002-2, COS-T-2. Exhibit 2.

Graph 1: Total Monthly Mailings, Capital One

Monthly Pieces -- Customer, Solicitation, Total



Graph 2: 12 Month Moving Averages, Capital One



1 Customer Mail

2 A time trend analysis based on 12-month moving averages indicates that the level
 3 of Customer mail is gradually rising. As of September 2002 total Customer mail was at
 4 a rate of 582 million pieces per year, having increased since September of 2000 and
 5 September of 2001 at rates of 2.29 percent and 1.80 percent per month respectively.

1 Annualized, the growth rates were respectively 31 percent and 24 percent. Witness
2 Jean predicts Customer mail level at 640 million pieces for 2003.⁵

- 3 • An estimate of 640 million pieces of Customer mail for 2003 represents the
4 results of an approximately 10 percent growth rate.
- 5 • An estimate of 722 million pieces for 2003 represents the results of a 24 percent
6 annual growth rate, the experience during the previous year, Sept 01 — Sept 02.

7 **Solicitation Mail**

8 Solicitation mail was at an annual level of 760 million pieces in August of 2001. As
9 of September 2002 total Solicitation mail was at an annual rate of 1.088 billion pieces
10 per year, having increased since September of 2000 and September of 2001 at rates of
11 1.5 percent and 2.7 percent per month respectively. Annualized, the growth rates were
12 respectively 20 percent and 38 percent.

- 13 • 760 million pieces of Solicitation mail represents the level of Solicitation mailings
14 as of August 2001.
- 15 • 1.308 billion pieces represents the level of Solicitation mail for 2003 assuming
16 growth subsequent to 2002 at the rate of growth from Sept 2000 to Sept 2002.
- 17 • 1.501 billion pieces of Solicitation mail represents the results of a growth rate
18 from Sept 2001 to Sept 2002 extrapolated to 2003.

19 Based on the extrapolation of Customer mail and Solicitation mail for 2002 at their
20 growth rates for 2002, one would obtain Customer mail at 722 million pieces, and
21 Solicitation mail at 1.5 billion pieces, for a total of 2.2 billion pieces. This estimate of
22 total mail is different from the estimate of 1.4 billion pieces provided by Capital One.
23 The estimate simply assumes that Capital One will continue to mail in its previous
24 patterns. Capital One has asserted that previous experience is not reflective of future
25 performance, but has provided no analysis substantiating future levels of mailings other

⁵ Direct Testimony of Donald Jean, Docket No. MC2002-2, COS-T-1 at 4, line 15.

1 than assertions from its managers.⁶ Essentially Capital One asserts that the year 2002
2 was a special case, with abnormally high levels of Solicitation mail. Accordingly, a
3 special estimate of Customer mail at 640 million pieces for 2003, representing the
4 results of a 10 percent growth rate from 2002 coupled with Solicitation mail at
5 760 million pieces generates the 1.4 billion-piece estimate. It is clear that the threshold
6 level for the initiation of discounts should start at not less than 1.4 billion pieces. Based
7 on previous experience, however, the overall level of mailings could be significantly
8 higher. Accordingly, discounts beginning at a lower level are inappropriate,
9 representing a free-rider problem. Furthermore, it would be desirable to have an
10 improved understanding of the exogenous factors driving the level of mail, which have
11 in the past caused the level of mail to increase more rapidly than is currently projected,
12 and which may have an impact on future projections.

13 V. A COMPANY-SPECIFIC DEMAND STUDY IS NEEDED FOR A FULL
14 UNDERSTANDING OF FUTURE MAILING LEVELS

15 A. Such a Study is Unavailable for Capital One and may not be Available for
16 Other Companies

17 A company-specific demand study would present forecasted volume as a
18 function of price and other exogenous factors related to business conditions. The
19 forecast would provide the basis for determining the volume level at which discounts
20 would be appropriate. The presentation of a demand study may not always, however,
21 be feasible. First, the level of study costs in comparison to NSA benefits may render
22 development of a study uneconomic for a mailer. Second, a specifically prepared study

⁶ Direct Testimony of Donald Jean on Behalf of Capital One Services, Inc., Docket No. MC2002-2, COS-T-1 at 3, lines 9-13.

1 would probably need to be subject to formal regulatory review. This could require the
2 disclosure of otherwise unverifiable private information specific to company operations;
3 this has to some degree been an issue in the current case.⁷

4 Finally, an appropriate statistical methodology for a company-specific study may
5 be very different from that of a typical demand study. There is a difference between
6 forecasting the number of units of a product that the public might purchase at a given
7 price and forecasting what a specific individual or firm might do. In the case of the
8 public's purchasing decisions for a product, actual sales are the result of a large number
9 of decision-makers acting independently. In the case of the single firm, Capital One,
10 only one decision-maker produces the projected volume of solicitation letters. The level
11 of Customer mail is also very dependent on the business decisions of Capital One,
12 consumer acceptance of solicitation offers, and the level of Solicitation mail. The
13 number of Customer mailings is a near-deterministic function of the number of existing
14 credit cards (i.e., monthly statements, a possible additional annual statement, and
15 notifications to customers who miss payment deadlines). These are likely to be
16 generated routinely. A regression analysis on Solicitation and Customer mailings over
17 time can be performed. Such an analysis may be meaningless, being subject to
18 changing management objectives and practices.

⁷ Presiding Officer's Ruling Granting Second Motion of Capital One Services, Inc. for Issuance of Protective Order, Docket No. MC2002-2.

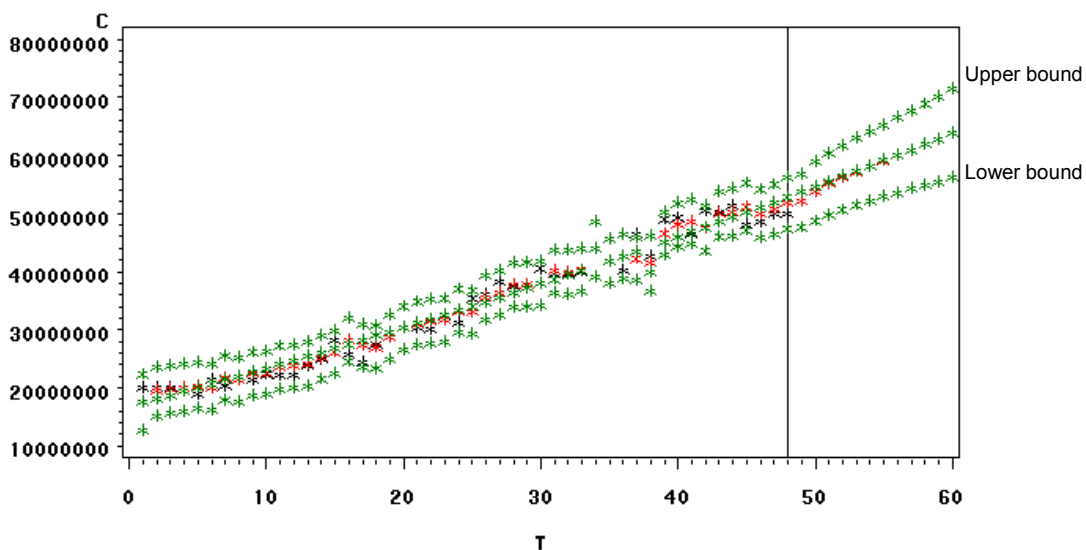
1 B. Time Trend Regression for the Measurement of Projected Mail Levels has
 2 not Worked Adequately for Capital One

3 Based on a regression trend analysis, the levels of actual and predicted mailing
 4 levels are presented in Graph 3 for Customer mailings and in Graph 4 for Solicitation
 5 mailings. The SAS programs for Customer and Solicitation mailings are presented in
 6 the Library Reference, OCA-LR-1/MC2002-2: Part 1 for Customer mailings, Part 2 for
 7 Solicitation mailings.

8 The time trend regression line simply finds the best fit based on the available
 9 data and extrapolates the previous trends. A trend analysis is inadequate in terms of
 10 analyzing turning points in the data and changing exogenous factors such as changing
 11 business conditions and strategies. Despite these limitations, a trend analysis does
 12 provide the basis for the comparison of a forecast with previous experience.⁸

Customer Mailings--Graph 3

Customer Mail: Pieces vs. Time



⁸ Equation 5 in Part 1 of Library Reference 1 provides the associated information.

1 For Customer mailings, the monthly data for Capital One mail pieces were
 2 regressed against time for 48 months, with the relationship extrapolated for another
 3 12 months. Month 1 is Oct-98; month 60 is Sep-03. The results are available in the
 4 Library Reference and the equations considered are summarized in Table 2.

Table 2					
Customer Mail: Summary of Regression Results					
	1	2	3	4	5
DW	2.03	1.9467	1.8424	1.93	2.05
Total RSQ	0.9725	0.9834	0.9828	0.9819	0.9778
t--Intercept	14.26	11.28	10.12	10.75	11.63
t--t	5.71	4.19	3.65	4.18	4.51
t--tsq	1.19	1.12	1	0.83	0.98
SSE	1.53E+14	9.25E+13	9.60E+13	1.00E+14	1.23E+14
MSE	3.48E+12	3.08E+12	3.09E+12	2.65E+12	2.95E+12
SBC	1533	1564	1561	1537	1531
dv1		0.04	0.16		
dv2		1.49	1.1	1.21	
dv3		0.29	0.26		
dv4		-1.26	-0.72		
dv5		0.29	0.08		
dv6		0.28	0.11		
dv7		-0.79	-0.24		
dv8		1.67	1.49	1.61	
dv9		1.89	1.96	2.14	1.94
dv10		-3.53	-2.93	-3.19	-2.82
dv11		1.7	1.45	1.61	
dv12		1.17	1.34	1.5	
dv13		-1.13	-0.91		
AR1	-2.08	-3.62	-3.59	-4.23	-3.7
AR2		1.15			

5 The graph for Customer mailings appears to be a relatively smooth trend. The

6 Customer regressions are characterized as follows:

- 7 • Equation 5 is the preferred regression. It was generated by the SAS Proc
 8 Autoreg procedure, with a one period lag used, given that a larger lag would be
 9 meaningless.

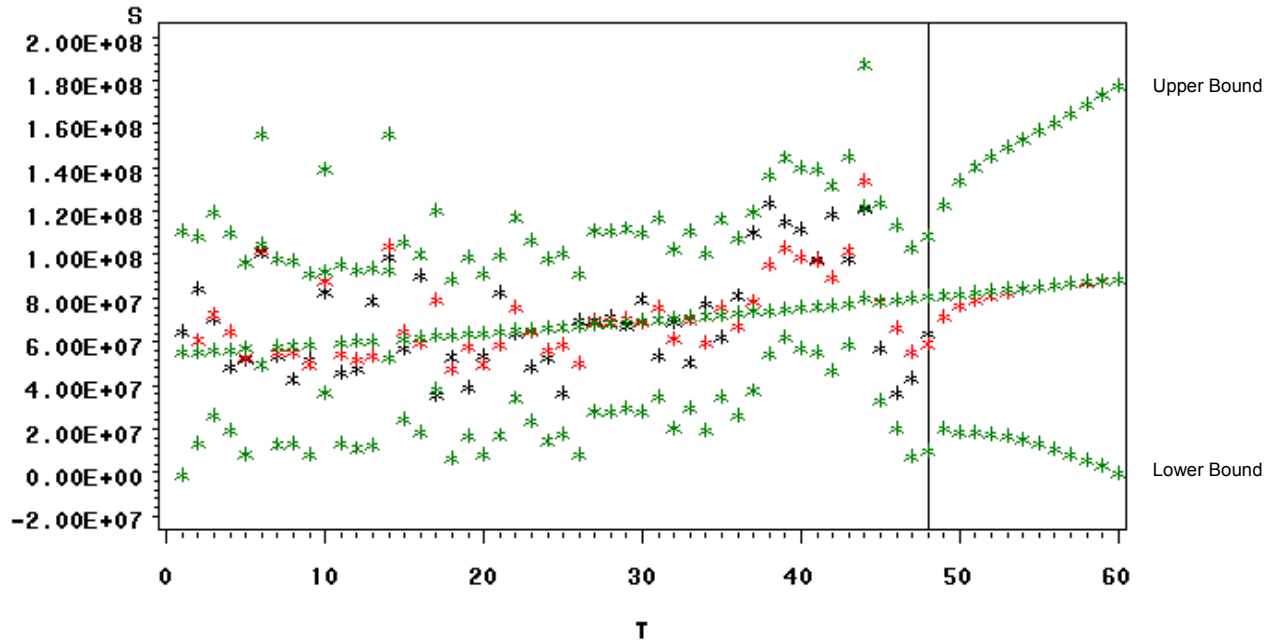
- 1 • A number of dummy variables were considered for the improvement of the
2 equation; several were found to be statistically significant.
- 3 • The R-squared and Durbin-Watson statistics are acceptable.
- 4 • The t value for TSQ is less than two but was left in the regression.
- 5 • The trend results and upper and lower bounds are forecasted for Months
6 49 through 60, corresponding to the time period October 2002 through
7 September 2003.
- 8 • It was clear in Graph 1 that Customer data appeared to be seasonal.
9 Accordingly, the Customer regression was run for n=12, but the results were
10 actually worse than for n=1, with a lower Durbin-Watson statistic. Accordingly,
11 the n=1 case was used, along with Dummy variables. As a practical matter, the
12 choice of either case will not make much difference in the results.
- 13 • Data were tested for heteroskedasticity, which did not appear to be a problem.
14 The test is delineated in the Library Reference.

15 **Solicitation Mailings**

16 The Solicitation mailings Graph 4 seems to imply that the level of Solicitation
17 mailings will rise slowly, based on the trend line. This appears to be due to a relatively
18 high level of mailings in 2002 in comparison to previous years. An examination of the
19 underlying data, as plotted in Graph 1 indicates that, over the four years for which data
20 were available, Capital One exhibited basically two levels of Solicitation mailings:
21 approximately 40-80 million pieces per month during 1998-2001, and approximately 100
22 million pieces per month for much of 2002, tapering off to a lower level starting in June
23 of 2002. It is not surprising, therefore, that the regression equations did not find a
24 strong, increasing relationship between Solicitation mail and time.

Graph 4

Solicitation Mail: Pieces vs. Time



- 1 The Solicitation mail regressions, with various time periods tested for lags, are
- 2 found in Part 2 of Library Reference 1. The equations are summarized in Table 3.
- 3 • For Equation 6, the n=1 lag regression was chosen over a longer lag alternative.
- 4 • A simple plotting of the data in Graph 1 led to the conclusion that the data are
- 5 cyclical. Accordingly, Equation 7 tested a number of dummy variables. Many of
- 6 the dummy variables were statistically insignificant.
- 7 • Equation 8 retained statistically meaningful dummy variables and an n=1 lag.
- 8 • Neither the data for Solicitation or Customer mail had problems with
- 9 heteroskedasticity. This was confirmed in the analyses presented in the Library
- 10 Reference.

Table 3			
Solicitation Mail: Summary of Regression Results			
	6	7	8
DW	2.0482	1.98	2.09
Total RSQ	0.2614	0.67	0.5286
t--Intercept	3.97	2.52	3.13
t--t	-0.02	0.21	0.26
t--tsq	0.38	-0.02	0.07
SSE	2.12E+16	9.48E+15	1.35E+16
MSE	4.82E+14	3.06E+14	3.38E+14
SBC	1770	1782	1764
dv1		1.25	
dv2		3.36	3
dv3		2.32	2.04
dv4		2.2	2.01
dv5		1	
dv6		1.66	
dv7		1.11	
dv8		1.3	
dv9		1.42	
dv10		0.96	
dv11		1.57	
dv12		3.05	2.72
dv13		0.58	
AR1	-2.94	-4.7	-4.43
AR2			

1 The regression results for Solicitation Mail are of poor quality. This is probably
2 due to the absence of some of the key driving variables and the apparent change in
3 marketing approaches in 2002. The driving variables for Capital One are private
4 unverifiable information along with the opinions of some of Capital One's managers.
5 These undisclosed factors are the basis for the forecast presented by Capital One. It
6 must be stressed that the Capital One forecast cannot be replicated: the necessary
7 data are not available and were not in the regression. Even a simple trend analysis
8 does not offer sufficient credibility upon which to base a forecast.

1 C. Accordingly, a Regression Analysis has not Worked in Forecasting Capital
2 One's Potential Future Mailings

3 Although one can obtain a trend analysis for Customer mailings, a trend analysis
4 for Solicitation mailings appears to be meaningless. The regression effort presented in
5 this testimony highlights how little is actually known about Capital One's level of
6 mailings. Capital One management has indicated fundamental shifts in their marketing
7 approaches in terms of choice of media and operations⁹. It is not surprising that a
8 regression analysis has not provided strong results. If one had access to Capital One's
9 private undisclosed information one might, of course, obtain better results. Such,
10 however, is not currently the case. The regression approach has failed in the case of
11 Capital One, probably due to the unavailability of private unverifiable information.

12 D. An Alternative to Regression Analysis is the Extrapolation of the Previous
13 Year's Level of Mailing Effort, Increased Somewhat to Allow for Additional
14 Company Efforts

15 The Appendix presents 12-month rolling averages for Customer and Solicitation
16 mail. Every December the 12-month roll becomes the total for a calendar year. Every
17 month the 12-month roll becomes the total for a 12-month year ending in that month.

18 A forecast of mail volume for the test year is necessary to establish a threshold
19 for the initiation of per piece discounts. OCA has studied a forecast for the next year
20 that is based on the level of the 12-month roll as of the end of the previous year,
21 adjusted for the growth that occurred during that year. Table 4 gives an example.

⁹ Direct Testimony of Stuart Elliott on Behalf of Capital One Services, Inc., COS-T-2, Docket No. MC2002-2, at 4, lines 9-19. Direct Testimony of Donald Jean on Behalf of Capital One Services, Inc., COS-T-1, Docket No. MC2002-2, at 3, line 11 and at 4, line 11.

- 1 • Customer mail at the level of 582 million pieces is projected on the growth rate of
2 2001-2002 to be 722 million pieces in 2003.
- 3 • Solicitation mail, at 1.088 billion pieces in the 12 months ending September
4 2002, is projected to be 1.502 billion pieces in 2003, based on the growth rate
5 over 2001-2002. In the case of Capital One, such a projection may appear to be
6 unrealistic — but it is plausible when considered in the context of the information
7 presented by Capital One coupled with previous trends.
- 8 • Recognizing that the growth in Solicitation mail may be overstated, as indicated
9 by Capital One testimony, an alternative projection is provided: Solicitation mail
10 for the 12 months ending September 2001 is extrapolated for two years at the
11 growth rate for Solicitation mail over the period 2000-2001, obtaining a somewhat
12 lower projection.

Table 4				
	12 mo ending Sep-02	Growth 2001-2002	Projection 2003	Alternative Projection
Customer	582,872,941	1.238594341	721,943,126	721,943,126
Solicitation	1,088,407,932	1.379599819	1,501,567,386	864,590,059
Total	1,671,280,873		2,223,510,512	1,586,533,185

13 There are significant drawbacks to this approach. First, it is a simple extrapolation of
14 previous experience: i.e., mail volumes as of September 2002 extrapolated to 2003,
15 with a more reasonable growth rate applied for Solicitation mail. Second, in developing
16 the Alternative Projection, it was necessary to use analyst judgment rather than simply
17 letting the trends speak for themselves. The application of a revised growth rate
18 requires a degree of judgment and ignores potential migration to the Internet of some
19 billing statements.

20 VI. CONCLUSIONS

- 21 1. The projection of future mail levels is important, serving as the basis for the
22 avoidance of a free-rider problem. In this case, Capital One has arrived at a forecast

1 at the lower end of plausibility. However, the Capital One forecast is based on
2 opinion rather than on reproducible study and analysis. Without an analysis, one
3 does not know where to set the threshold for rebates. A major drawback of a poll of
4 operating personnel is that the poll may be inaccurate or subject to gaming.

5 2. The alternative of a regression analysis did not yield meaningful results. This is
6 probably due to the unavailability of private undisclosed information, such as
7 information on the overall drivers of mail, management policies, and the state of
8 various exogenous factors.

9 3. The extrapolation of the previous year's experience to the current projected year, is
10 a crude approach, expecting that future behavior will mirror past behavior.¹⁰
11 However, no evidence that is readily quantifiable has been presented to the contrary
12 in this case. This may be the least bad alternative: it does not rely on private
13 undisclosed information and involves minimal analyst judgment. In the case of
14 Capital One, however, the results are of mediocre quality.

15 4. Consideration of the various approaches to the estimation of the threshold volume
16 leads to the conclusion that the discount threshold should be based on publicly
17 available data and based on an estimating technique that requires a minimum of
18 analyst judgment. Whether a regression approach, either based on drivers which
19 would have to be publicly available or on simple time trends, would work is not clear;
20 this is an issue that will need to be resolved, possibly on a company-by-company
21 basis.

¹⁰ An alternative estimate using some judgment arrived at a projection of 1.6 billion pieces.

1 5. For the current NSA, the threshold should certainly be set at no less than 1.4 billion
2 pieces, not the significantly lower level advocated by Capital One. In fact, a higher
3 threshold could be justified.

4 6. Accordingly, the least bad approach to forecasting mail levels for the next
5 12 months in the case of Capital One may be an analysis of 12-month rolling totals,
6 with simple extrapolation to the following year. This approach is reproducible,
7 captures whatever trends are driving the business — either positively or negatively
8 — and is not particularly open to gaming. The drawback is that such an approach
9 may disadvantage a company such as Capital One whose mailings deviated
10 significantly upwards in the year prior to the test year. It should, however, be noted
11 that Capital One's explanation of the deviation has not been proven or substantiated
12 in testimony.

13 In order to have meaningful volume-based discounts, there has to be a good
14 understanding of the level of future business so as to avoid a free rider problem and to
15 justify the level of the discounts. The use of a 12-month roll may be the best forecasting
16 approach, given resource constraints and the need to remove unverifiable opinion from
17 the methodology. A regression or other approach might also yield meaningful
18 conclusions but should be based on publicly available information.

Data from Witness Elliott's Testimony and Interrogatories and Twelve Month Rolls

Date	Customer	Solicitation	Total	Time	12 mo Roll Customer	12 mo Roll Solicitation	12 mo Roll Total
Oct-98	20000000	64312211	84312211	Oct-98			
Nov-98	20000000	84513668	104513668	Nov-98			
Dec-98	20000000	70330103	90330103	Dec-98			
Jan-99	20093585	48713996	68807581	Jan-99			
Feb-99	18936302	51911135	70847437	Feb-99			
Mar-99	21429647	101113831	122543478	Mar-99			
Apr-99	20237967	53185873	73423840	Apr-99			
May-99	21493755	42784936	64278691	May-99			
Jun-99	21315898	51911418	73227316	Jun-99			
Jul-99	22366963	82763889	105130852	Jul-99			
Aug-99	22218406	45709167	67927573	Aug-99	Customer	Solicitation	Total
Sep-99	22283276	47420011	69703287	Sep-99	250375799	744670238	995046037
Oct-99	23753037	78771652	102524689	Oct-99	254128836	759129679	1013258515
Nov-99	24924804	99036307	123961111	Nov-99	259053640	773652318	1032705958
Dec-99	28323271	56759404	85082675	Dec-99	267376911	760081619	1027458530
Jan-00	25733873	90404633	116138506	Jan-00	273017199	801772256	1074789455
Feb-00	24438019	35453537	59891556	Feb-00	278518916	785314658	1063833574
Mar-00	27320181	53057033	80377214	Mar-00	284409450	737257860	1021667310
Apr-00	29480138	38846756	68326894	Apr-00	293651621	722918743	1016570364
May-00	30351077	53642857	83993934	May-00	302508943	733776664	1036285607
Jun-00	30470815	82813549	113284364	Jun-00	311663860	764678795	1076342655
Jul-00	30068221	63641402	93709623	Jul-00	319365118	745556308	1064921426
Aug-00	32449688	48333024	80782712	Aug-00	329596400	748180165	1077776565
Sep-00	31289392	52860401	84149793	Sep-00	338602516	753620555	1092223071
Oct-00	35458669	36680749	72139418	Oct-00	350308148	711529652	1061837800
Nov-00	36222564	69978222	106200786	Nov-00	361605908	682471567	1044077475
Dec-00	38333630	69555071	107888701	Dec-00	371616267	695267234	1066883501
Jan-01	37538604	71609132	109147736	Jan-01	383420998	676471733	1059892731
Feb-01	37228200	67678601	104906801	Feb-01	396211179	708696797	1104907976
Mar-01	40595396	79707394	120302790	Mar-01	409486394	735347158	1144833552
Apr-01	39584216	53734153	93318369	Apr-01	419590472	750234555	1169825027
May-01	39613572	68816452	108430024	May-01	428852967	765408150	1194261117
Jun-01	40094283	50499839	90594122	Jun-01	438476435	733094440	1171570875
Jul-01	43936373	77390674	121327047	Jul-01	452344587	746843712	1199188299
Aug-01	41780602	61920684	103701286	Aug-01	461675501	760431372	1222106873
Sep-01	40206176	81359208	121565384	Sep-01	470592285	788930179	1259522464
Oct-01	46379476	109959062	156338538	Oct-01	481513092	862208492	1343721584
Nov-01	42756595	123429831	166186426	Nov-01	488047123	915660101	1403707224
Dec-01	49050084	114868000	163918084	Dec-01	498763577	960973030	1459736607
Jan-02	49347570	111473290	160820860	Jan-02	510572543	1000837188	1511409731
Feb-02	46416492	90000000	136416492	Feb-02	519760835	1023158587	1542919422
Mar-02	50472716	118835045	169307761	Mar-02	529638155	1062286238	1591924393
Apr-02	50248542	98176516	148425058	Apr-02	540302481	1106728601	1647031082
May-02	51306612	121404738	172711350	May-02	551995521	1159316887	1711312408
Jun-02	48162673	56909685	105072358	Jun-02	560063911	1165726733	1725790644
Jul-02	48732181	36351765	85083946	Jul-02	564859719	1124687824	1689547543
Aug-02	50000000	43000000	93000000	Aug-02	573079117	1105767140	1678846257
Sep-02	50000000	64000000	114000000	Sep-02	582872941	1088407932	1671280873