

September 28, 1984

TO Members of the Federal Open Market Committee and other Reserve Bank Presidents

SUBJECT: Bank Reserve Management in Recent Months

FROM Peter D. Sternlight
Manager for Domestic Operations
System Open Market Account

As an addendum to the latest Manager's Report on open market operations, you may be interested in the enclosed discussion of changes in bank reserve management practices since the Continental Bank funding problems emerged last May. The paper reviews patterns of reserve maintenance and discount window borrowings by large banks and finds some support for the view that these banks have managed their reserve positions more cautiously in recent months. Specifically, these banks seem to have been less willing to incur reserve deficiencies in the early part of reserve periods and more reluctant to use the discount window. This behavior would be consistent with the observed tendency for higher Federal funds rates to be associated with given levels of adjustment plus seasonal borrowing.

OFFICE MEMORANDUM

DATE September 28, 1984TO Mr. SternlightSUBJECT The Impact of The Continental BankFROM H. Esaki *HE*Crisis On Reserve Management By Large BanksA. Meulendyke *A. Meulendyke*

Since the problems experienced by Continental Illinois Bank surfaced in early May, the Federal funds rate frequently has been higher than would be expected from the relationship that prevailed between the funds rate and the targeted level of discount window borrowing before Continental's problems developed. One possible reason for this shift is that banks began to manage reserves more cautiously, attempting to substitute borrowing in the Federal funds market for discount window borrowing. The behavior of excess and borrowed reserves through the statement period were analyzed for indications of cautious management. The results do suggest more cautious reserve management by big banks in the wake of the Continental crisis. The limited number of observations and the wide period-to-period variation in reserve figures make any inferences tentative. Highlights of the results are the following:

- Two categories of large banks, "14 large money center banks" and "other large" banks, appeared to have become more cautious in reserve management.
- These groups of banks became more likely to build up cumulative excess reserve positions early in maintenance periods after the Continental crisis although they did not appear to increase excess reserves for the periods as a whole.
- The large banks, other than the 14 largest banks, appear to have cut back their use of the discount window early in the maintenance periods, suggesting increased reluctance to borrow.
- The reluctance of the "other large" banks to borrow looks more striking when allowance is made for the growth of seasonal borrowing during the period. Since reserve paths incorporate the sum of adjustment and seasonal borrowing, adjustment borrowing shrank. It is the adjustment category that carries with it pressure for prompt repayment which is thought to work through to the Federal funds rate.

Behavior of Excess Reserves

Looking for signs of more cautious reserve management requires examination of normal reserve management practices with respect to cumulating excess and borrowed reserves over a maintenance period. Typically, whenever a bank expects interest rates to stay the same or fall within a two-week maintenance period, aggressive management of reserves would lead it to seek to run deficits in the early part of the period which it would offset with surpluses as the period drew to a close. Should reserves come in higher than expected, it would be less likely to find itself with an unusable excess (carryover is limited). If reserves were scarcer than expected, it could make up the shortage at the discount window.

If banks were cautious during the period, they would be more anxious to avoid cumulative deficiencies or would seek to build excess reserve positions early in the period. To see if there had been a shift in preferences in the wake of the Continental crisis, excess reserve behavior was examined. For the maintenance period as a whole, excess reserves did not appear to change significantly. However, the caution is likely to be greatest early in the period. Thus, the study concentrated on excess reserve positions over the first week and first 13 days of the two-week maintenance period. It also focused on large banks, where aggressive reserve management takes place.

For the period from June 7 to August 29 ^{1/} (six maintenance periods), both the 14 large money center banks (excluding Continental)

^{1/} The two maintenance periods from May 9 to June 6 were treated as transition periods.

and banks in the "other large" category had an average excess reserve position going into the settlement day larger than the average for the first 13 days of the four maintenance periods prior to May 9 (Table 1). This difference was not significant at the five percent level of confidence but is nonetheless suggestive of a shift.^{2/} In each of the five maintenance periods before the Continental crisis, both the "14 large" and "other large" banks had reserve deficits at the end of the first week of the period. In the six periods after June 6, these categories of banks ran deficits in the first week only twice each (Table 2). The differences in average excess positions before and after Continental are closer to being statistically significant for the weekly figures than for the 13-day data.

Borrowing Behavior

Another possible manifestation of caution is a reluctance to borrow from the discount window. Borrowing for the two week maintenance period as a whole is partly forced, since banks have limited scope for altering requirements within the period and the Trading Desk provides nonborrowed reserves consistent with planned borrowing levels and estimated requirements. Hence, first week and 13 day borrowings are investigated.

Both categories of large banks did borrow less from the discount window on average going into the final day for the recent

^{2/} In all of the calculations in this memorandum, sample standard deviations are large relative to means partly because of the small sample size.

Table 1

Excess Reserves in First 13 Days of Maintenance Period

<u>Maintenance Period Ending</u>	<u>Other Large Excess</u>	<u>14 Large* Excess</u>
8/29	71	12
8/15	10	314
8/ 1	- 70	-121
7/18	-267	- 95
7/ 4+	- 45	281
6/20	<u>-282</u>	<u>-102</u>
Average	- 97	48
Standard Deviation	133	182
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5/ 9	-163	-190
4/25	- 88	- 11
4/11	-178	- 32
3/28	- 18	281
3/14	<u>-253</u>	<u>-197</u>
Average	-140	- 30
Standard Deviation	80	174

* excludes Continental Illinois

+ first twelve days because of July 4 holiday.

Table 2
1st Week Excess Reserves
(Computed on 14-day average required reserves)

<u>Maintenance Period Ending</u>	<u>14 Large</u>	<u>Other Large</u>
8/29	111	-7
8/15	137	44
8/ 1	-5	49
7/18	-179	-167
7/ 4	1189	579
6/20	<u>150</u>	<u>204</u>
Average	234	117
Standard Deviation	442	233

5/ 9	-439	-734
4/25	- 67	-455
4/11	- 23	-431
3/28	- 96	-279
3/14	<u>-421</u>	<u>-278</u>
Average	-209	-435
Standard Deviation	182	167

6 maintenance periods as compared to the pre-Continental periods ^{3/} (Table 3). However, this difference is again not significant at the 5 percent level of confidence.^{4/}

Another way of looking at the figures is to examine the share of borrowing done by the large banks as the periods progressed. Table 3 also shows adjustment borrowing by the "14 large" and "other large" banks as a percentage of total adjustment borrowing and as a percentage of total seasonal and adjustment borrowing for the first 13 days of the period. The share of borrowing by the other large banks does appear to have declined after the advent of Continental's crisis. However, these declines are not statistically significant. There is no discernible shift in the share for the 14 largest banks, but they rarely borrow before the settlement day.

The decrease in the relative size of adjustment borrowing is more striking when changes in seasonal borrowing are considered and indeed comes closer to statistical significance. During the period of March through August, seasonal borrowing rose almost steadily, from about \$120 million to about \$360 million (Table 4). In this period, total seasonal and adjustment borrowing was targeted at \$1 billion; a rise in the seasonal component decreases the share of adjustment borrowing. Adjustment borrowing carries with it a requirement to repay

^{3/} These four maintenance periods had total adjustment plus seasonal borrowing of about \$1 billion, the same as in post-Continental periods included here.

^{4/} First week borrowing by both categories of banks shows a similar decrease after the Continental crisis. See Table 4 for details.

Table 3

Borrowed Reserves in First 13 Days of Maintenance Period

Maintenance Period Ending	Other Large			14 Large*			AB at 14 large + Other as a % of Total AB + SB
	AB	As a % Total AB	As a % of AB+SB	AB	As of % of AB	As a % of AB+SB	
8/29	188	31	19	43	7	4	24
8/15	48	14	7	0	0	0	7
8/ 1	153	25	16	65	11	7	23
7/18	33	8	5	33	8	5	9
7/ 4+	223	28	21	20	3	2	22
6/20	<u>218</u>	<u>38</u>	<u>26</u>	<u>111</u>	<u>19</u>	<u>13</u>	<u>39</u>
Average	144	24	16	45	8	5	21
Standard Deviation	77	10	7	35	6	4	11
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5/ 9	167	23	19	91	13	10	29
4/25	262	40	33	21	3	3	36
4/11	375	35	31	236	22	20	51
3/28	434	44	38	58	6	5	43
3/14	<u>120</u>	<u>29</u>	<u>23</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>23</u>
Average	272	34	29	81	9	8	36
Standard Deviation	119	8	7	83	8	3	10

* excludes Continental Illinois
+ first twelve days because of July 4 holiday.
AB = adjustment borrowing
SB = seasonal borrowing

the loan promptly. Seasonal borrowing can go on without question as long as historical data show a recurrent seasonal bulge in loans. Thus, an increase in adjustment borrowing is thought to put upward pressure on the Federal funds rate. Seasonal borrowing may increase in response to a higher funds rate, but it does not push the rate up. Hence, the decline in adjustment borrowing associated with the higher seasonal borrowing and unchanged objective should have lowered the funds rate between spring and summer. The fact that the funds rate went up rather than down suggests that such adjustment borrowing as did occur at large banks was undertaken more reluctantly.

Table 4: Excess Reserves, Adjustment Borrowing, and Seasonal Borrowing

<u>Main Period</u> <u>Ending</u>	<u>Ex</u>	<u>Total</u>		<u>14 Large</u>		<u>Other large</u>		
		<u>AB</u>	<u>1/</u>	<u>SB</u>	<u>Ex</u>	<u>AB</u>	<u>1/</u>	<u>Ex</u>
<u>2/29</u>								
2 weeks avg.	750	498	116	-96	100	-5	80	
1st 13 days	1026	413	116	156	100	32	49	
1st week	300	514	114	-124	186	-301	79	
<u>3/14</u>								
2 week avg.	744	550	118	81	99	16	152	
1st 13 days	107	416	117	-197	0	-253	120	
1st week	-157	368	116	-421	0	-278	83	
<u>3/28</u>								
2 week avg.	735	956	149	55	54	-1	406	
1st 13 days	928	989	148	281	58	-18	434	
1st week	267	908	138	-96	107	-279	407	
<u>4/11</u>								
2 week avg.	311	1145	132	-54	312	-172	400	
1st 13 days	225	1059	132	-32	236	-178	375	
1st week	-118	935	142	-23	224	-431	227	
<u>4/25</u>								
2 week avg.	586	1051	138	39	303	-74	350	
1st 13 days	479	660	137	-11	21	-88	262	
1st week	-23	587	127	-67	0	-455	240	
<u>5/9</u>								
2 week avg.	622	844	159	22	213	14	172	
1st 13 days	153	720	158	-190	91	-163	167	
1st week	-709	803	156	-439	71	-734	206	

Table 4: Excess Reserves, Adjustment Borrowing, and Seasonal Borrowing
(Cont.)

<u>Main Period</u> <u>Ending</u>	<u>Ex</u>	<u>Total</u> <u>AB</u> <u>1/</u>	<u>SB</u>	<u>14 Large</u>		<u>Other large</u>	
				<u>Ex</u>	<u>AB</u> <u>1/</u>	<u>Ex</u>	<u>AB</u>
<u>5/23</u>							
2 week avg.	634	657	196	7	66	-36	135
1st 13 days	539	582	194	-24	0	-100	132
1st week	3710	689	187	1614	0	977	195
<u>6/6</u>							
2 weeks avg.	514	734	239	-114	172	-11	128
1st 13 days	384	596	240	-79	87	-102	60
1st week	702	669	234	385	0	-81	100
<u>6/20</u>							
2 week avg.	746	734	257	130	157	-19	316
1st 13 days	142	580	256	-102	111	-282	218
1st week	361	266	246	150	0	204	98
<u>7/4</u>							
2 week avg.	1064	775	288	163	17	126	217
1st 12 days ^{2/}	967	790	292	281	20	-45	223
1st week	2324	673	286	1189	0	579	166
<u>7/18</u>							
2 week avg.	469	460	284	24	59	-115	39
1st 13 days	169	420	283	-95	33	-267	33
1st week	124	388	281	-179	61	-167	5
<u>8/1</u>							
2 week avg.	662	716	341	-73	139	58	188
1st 13 days	504	609	340	-121	65	-70	153
1st week	685	545	334	-5	21	49	119

Table 4: Excess Reserves, Adjustment Borrowing, and Seasonal Borrowing
(Cont.)

<u>Main Period</u> <u>Ending</u>	<u>Ex</u>	<u>Total</u> <u>AB</u> <u>1/</u>	<u>SB</u>	<u>14 Large</u> <u>Ex</u> <u>AB</u> <u>1/</u>		<u>Other large</u> <u>Ex</u> <u>AB</u>	
<u>8/15</u>							
2 week avg.	695	673	338	69	287	-31	94
1st 13 days	928	338	339	314	0	10	48
1st week	650	309	331	137	0	44	5
<u>8/29</u>							
2 weeks av.	698	603	359	-13	40	10	180
1st 13 days	769	610	359	12	43	71	188
1st week	826	569	354	111	80	-7	121

1/ Excludes borrowing by Continental Illinois

2/ Settlement day was a holiday

Ex = excess reserves, AB = adjustment borrowing, SB = seasonal borrowing