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A Clarification of Certain Statistics Reported in *A Method for Improving the Benchmarks Used to Monitor ACH Returns*

An Addendum to the March 2010 Federal Reserve Bank of Minneapolis Financial Policy Working Paper Titled *A Method for Improving the Benchmarks Used to Monitor ACH Returns*

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Some readers have requested clarification of how to interpret the tables in *A Method for Improving the Benchmarks Used to Monitor ACH Returns*, a 2010 Federal Reserve Bank of Minneapolis Financial Policy Working Paper that I co-authored with Olivier Armantier, Michele Braun, Ron J. Feldman, Dennis Kuo, and Mark I. Lueck.[*] For this reason, and because the tables are dense, I am providing this clarification of what the figures in certain tables in that paper mean. I will focus on Table 5 and use its Panel E as my example. However, my explanations apply directly to the other panels of Table 5 and to the table that makes up Appendix 3. My explanation of rows 34 and 35 of Table 5 also apply to the tables that make up Appendix 2, Parts 1 to 3.

Table 5, Panel E, describes the distribution of returns, return rates, and return reasons among a group of 452 financial institutions that met two criteria—they had at least 100 ACH consumer debit forward items (of any kind) and they originated at least some WEB forwards.
Row 34 describes the distribution of return rates among the 452 institutions. The first number in that row, 2.0, is the average return rate for the whole group. [Algebraically, if F is the total number of forwards the 452 institutions sent and R is the total number of returns, then $2.0 = 100*(R/F)$.] The second number, 0.1, is the 25th percentile of the distribution of return rates. That is, 25 percent of the 452 institutions had return rates of 0.1 percent or less (up to rounding error). The next three columns are similar but correspond to higher percentiles. For the median, or 50th percentile, half of the 452 institutions had return rates of 0.6 percent or less. In the same manner, 75 percent of the institutions had returns rates of 1.7 percent or less and 95 percent had return rates of 7.1 percent or less. The final column of row 34 gives the highest return rate in our sample, or 73.6 percent. One hundred percent of the 452 institutions had return rates at or below 73.6 percent, including at least one that had exactly this rate. None of the 452 institutions in Panel E had a WEB return rate over 73.6 percent.

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[*] Available at www.minneapolisfed.org/publications_papers/pub_display.cfm?id=4405.

Row 35 describes the cumulative distribution of returns among institutions ranked by their return rates. The figures in this row are not return rates of any kind. These figures refer to the share of total returns associated with certain subgroups of institutions; that is, the denominator for each of these percentages is not a count of forward items (as it would be for a return rate) but is instead the total number of return items for the 452 institutions covered in Panel E. The numerator is the number of return items associated with each respective subgroup of the 452 institutions. For example, the first figure in the row, 59.4 percent, is the percentage of all WEB returns (of the 452 institutions) that are associated with institutions whose return rates were at or below average. [Algebraically, again let R equal the total number of returns for all 452 institutions and let A equal the total number of returns for the group of institutions whose individual return rates were at or below 2.0, the overall average return rate reported in the row above. Then $59.4 = 100*(A/R)$.] Put another way, somewhere around 80 percent of the institutions in our sample had return rates at or below average. (We did not compute this figure exactly, but the fact that the average return rate, 2.0 percent, is a bit above the 75th percentile return rate of 1.7 percent means that somewhat over 75 percent of the institutions had below-average return rates. Eighty percent is a reasonable estimate.) These 80 percent with return rates at or below average accounted for 59.4 percent of the entire group's return items. The remaining 20 percent or so of institutions with above-average return rates accounted for the remaining 40.6 percent of the return items.

The rest of the figures in row 35 are similar. The percentage of total returns attributed to institutions with return rates at or below the 25th percentile return rate (0.1 percent, see row 34) was 0.0 percent, at least to one decimal place. (Ninety of the 452 institutions had no return items.) The percentage of total returns attributed to institutions with return rates at or below the median, or 50th percentile, return rate (0.6 percent, see row 34) was 15.4 percent. The percentage of total returns attributed to institutions with return rates at or below the 75th percentile return rate (1.7 percent, see row 34) was 25.5 percent. The percentage of total returns attributed to institutions with return rates at or below the 95th percentile return rate (7.1 percent, see row 34) was 76.1 percent. The remaining 23.9 percent of return items were attributed to the 5 percent of institutions with the highest return rates (between 7.1 and 73.6 percent). The final figure in row 35, 100.0 percent, expresses the simple fact that all of the returns can be attributed

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to banks with return rates at or below the highest return rate in the group (73.6 percent, see row 34).

Rows 36 through 40 of Panel E analyze return rate reasons for the group of 362 institutions (from among the 452 analyzed above) that had at least one return item. The first column of numbers there, from 2.2 percent down to 1.3 percent, pertains to the subgroup of these 362 institutions whose return rates were below the full group average return rate of 2.0 percent shown in row 34. For these institutions, the distribution of reasons for returns was 2.2 percent unauthorized, 66.6 percent NSF, 17.4 percent administrative, 12.6 percent suspicious, and 1.3 percent Other, where the categories (unauthorized, NSF, etc.) are as defined in Table 2 of the paper. Note that the figures in rows 36 to 40 of this column (under "Mean") sum to 100 percent (up to rounding error). The remaining columns in these rows are similar but apply to different subgroups of the 362 institutions. For example, under the column "Median," the subgroup is institutions with at least one WEB return item whose return rate was at or below 0.6 percent, the median return rate in row 34. Rows 36 through 40 under the column "Median" show the distribution of return reasons for this subgroup. The distribution of return reasons for the entire group of 362 banks appears in the far right column, under the header "100th." (That is, the 100th column for rows 36 to 40 shows the distribution of return reasons for institutions whose return rate was at or below the maximum return rate, but, of course, all institutions had return rates at or below the maximum.) For the whole group of 362 institutions with WEB returns covered in Panel E, 3.2 percent of return reasons were "unauthorized," 67.0 percent were "NSF," etc.

The other panels of Table 5 have the same structure as Panel E but pertain to other types of ACH forwards. For example, Panel C is based on 148 institutions that had at least 100 forward items (of any kind) and some ARC forward items. (See Table 1 in the paper for a definition of WEB, ARC, and other forward items.) Row 18 shows that the average ARC return rate for these institutions was 1.4 percent, the median return rate was 0.6 percent, and the maximum return rate was 18.0 percent. Row 19 in Panel C is analogous to Row 35 in Panel E, etc. The panels corresponding to each additional transaction type shown in Appendix Table 3 also follow the structure of Table 5, Panel E. In the tables that make up Appendix 2, the pair of rows shown for each transaction type follows the structure of rows 34 and 35 in Panel E of Table 5.