A424: Chapter 17
Audit Sampling for Tests of Details of Balances

I. Introduction
Methods for evaluating dollar misstatements of an account balance:
• Non-statistical – use judgment.
• Statistical:
  • Monetary unit sampling
  • Variable sampling

II. Terminology:

Preparation questions:
1. The amount of misstatement that the auditor will permit in the population and still be willing to accept the account as fairly stated is called ______________________.

2. The amount by which the auditor expects the population to be misstated by before testing begins is called the _____________________ misstatement in the population.

3. In monetary unit sampling, before the population can be considered acceptable, both the __________________________ and the __________________________ must be between the under and over tolerable misstatement amounts.

4. Assume you are using monetary unit sampling while auditing accounts receivable. At year-end, there are 57 accounts receivable totaling $319,952. The population size is ____________.

5. Subdividing a population into two or more sub-populations is called ________________________ sampling.

6. Acceptable risk of incorrect acceptance is the risk that the auditor is willing to take of accepting a balance as correct when the true misstatement in the balance is greater than the __________________________.

7. The primary factor affecting the auditor’s acceptable risk of incorrect acceptance is __________________________.

8. In monetary unit sampling, the sampling unit is an individual __________________ in an account balance.
Many terms for ending balance statistical analysis are parallel to the attribute sampling terms from Chapter 15:

A. Misstatement condition vs. Exception condition
B. Tolerable misstatement (TM) vs. TER
C. Acceptable Risk of Incorrect Acceptance (ARIA) vs. ARACR
D. Estimate of misstatement in population vs. EPER
E. Analyze misstatements vs. Analyze exceptions

### Major Terminology for Monetary Unit Sampling (MUS)

<table>
<thead>
<tr>
<th>Auditor Decisions:</th>
<th>Term</th>
<th>Definition</th>
<th>Change to Item</th>
<th>Affect on SS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tolerable Misstatement</td>
<td>Total misstatement the auditor will allow in the population</td>
<td>increase</td>
<td>decrease</td>
<td></td>
</tr>
<tr>
<td>Acceptable risk of incorrect acceptance [either 5% or 10%]</td>
<td>Risk that the sample supports the conclusion that the recorded account balance is not materially misstated when it is materially misstated (false positive, think okay but really misstated).</td>
<td>increase [CR &lt; 100% ST of T 0% AAR High AP 0%]</td>
<td>decrease</td>
<td></td>
</tr>
<tr>
<td>Acceptable risk of incorrect rejection (ARIR)</td>
<td>Risk that the sample supports the conclusion that the recorded account balance is materially misstated when it is not materially misstated (false negative, think misstated, but really okay).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assumption of average percent of misstatement</td>
<td>For those population items misstated, the assumed average size of each misstatement compared to the recorded amount.</td>
<td>decrease</td>
<td>decrease</td>
<td></td>
</tr>
</tbody>
</table>

### III. Sample Size (MUS)

Three Steps:
1. TM = Tolerable Misstatement / Average misstatement assumption (usually 100%)
   (that is, assume sample item misstated by 100%, very conservative)
2. Allowable percent error bound = TM / Rec'd population value
3. Use Table 15-8:
   a. Expected exception rate (0 to 1%)
   b. ARIA [=ARACR] (See Table 17-3 5% if CR = 100%, 10% if CR < 100%)
   c. Allowable percent error bound = TER
   d. Sample size (SS) frequently, needs to be interpolated:
      \[ SS = SS_{\text{LowerTER}} - [\text{excess fraction}] \times [SS_{\text{LowerTER}} - SS_{\text{HigherTER}}] \]
Example: 5% ARACR, 0% EPER, 3.5% TER
Sample size = 99 - (.5)(99-74) = 86.5 say 87

Example: same as above, except 3.2% TER
Sample size = 

e. Do example: 17-14
   Tolerable misstatement _________
   / Ave. misstmt % assumption _________
   = _________
   / Recorded popl'n value _________
   = Tolerable exception rate _________

Table 15-8 (10% ARACR, 0% EPER, ____ TER):
Sample Size =

IV. Select sample using Probability Proportional to size
   Start Problem 17-30 as an example.

V. Analysis of Results of Procedures (MUS)
   A. No Exceptions Found
      1. Table 15-9: Precision limit in percent (n is sample size)
         Interpolated % = n_{above} + \left[ \frac{n_{above} - n}{n_{above} - n_{below}} \right] \times [n_{below} - n_{above}]
         Example: n = 57, no exceptions, 10% ARIA
         Interpolated % = 

         2. Error bound = Rec'd popl'n value X Precision limit in %
            Compute error bound for question 17-14 assuming n=57 and no
            exceptions found in sample. Error bound is:

         3. Decision rule: Error bound < Tolerable misstatement (to accept balance)
B. With Exceptions

- Evaluate over- and under-statements separately, then adjust (to ease the conservatism of the methodology).
- Finally, compare to tolerable misstatement.

1. Compute % of misstatement (direction important) = (Recorded - Audited) / Recorded

2. Upper error bound (overstatements, +s): Order from greatest to least of % misstated.

<table>
<thead>
<tr>
<th>No. of misstatement</th>
<th>Recorded Value</th>
<th>$x$ CUER portion</th>
<th>$x$ % of misstatement</th>
<th>= Error bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Pop'ln value</td>
<td>Use Table 17-9 SS read across; 0=base incremental for each additional misstatement</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Pop'ln value</td>
<td>Worst % misstatement found in sample</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Pop'ln value</td>
<td>2$^\text{nd}$ worst % misstatement found in sample</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continue as needed</td>
<td></td>
<td></td>
<td></td>
<td>Sum</td>
</tr>
</tbody>
</table>

3. Adjustment

- MLE (most likely estimate) Under = Sum of misstatement % for opposite direction $x$ Rec’d value / SS
- Adjusted bound = Initial error bound - MLE Under

4. Lower error bound ➔ Repeat 2 and 3 for understatements (-s).

5. Decision: Compare adjusted error bounds to tolerable misstatement. Error in sample needs to be below tolerable misstatement in order to accept the balance as free from material misstatement.


Calculate amount and percent of misstatement:

<table>
<thead>
<tr>
<th>Misstatement</th>
<th>Rec’d Value</th>
<th>Audited Value</th>
<th>Misstatement</th>
<th>% Misstated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Use SS of 100 and ARIA of 10%. Assume that for a zero misstatement rate the percent of misstatement is 100%.
Upper misstatement bound:

<table>
<thead>
<tr>
<th>No. of misstatement</th>
<th>Recorded Value</th>
<th>X CUER portion</th>
<th>X % of misstatement</th>
<th>= Error bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adjustment

Lower misstatement bound:

<table>
<thead>
<tr>
<th>No. of misstatement</th>
<th>Recorded Value</th>
<th>X CUER portion</th>
<th>X % of misstatement</th>
<th>= Error bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adjustment

Conclusion:
Based on this calculation method, the population is not acceptable as stated since the upper misstatement bound exceeds the $500,000 materiality limit.

C. What to do when a boundary is above tolerable misstatement.
1. Look at other tests being done - alternative BRAO procedures.
2. Segregate misstatements, test separately any pervasive problem.
3. Increase sample size.
5. Request client to review and correct.
6. Qualify opinion.
7. Adjust tolerable misstatement.

Nonstatistical sample size: See Figure 17-2.