A424: Chapter 15
Audit Sampling for Tests of Controls
and Substantive Tests of Transactions

Preparation questions:

1. A ________________ sample is a sample in which the characteristics in the sample are approximately the same as those in the population.

2. ________________ error (risk) is an inherent part of sampling that results from testing less than the entire population.

3. Non-probabilistic ________________ sample selection is the selection of each item in the sample without regard to its size, source, or other distinguishing characteristics.

4. The difference between the sample exception rate and the actual population exception rate is called ________________.

5. The exception rate that the auditor will permit in the population and still be willing to rely on controls is called the ________________ exception rate.

6. The exception rate that the auditor expects to find in the population before testing begins is called the ________________ population exception rate.

7. The sample exception rate equals the actual number of exceptions in the sample divided by ________________.

8. One minus acceptable risk of assessing control risk too low equals the auditor’s ________________ level.

9. In attributes sampling, before the population can be considered acceptable, the ________________ must be less than or equal to the tolerable exception rate.

10. The final step in attributes sampling is to decide the ________________ of the population.

11. If the assessed control risk is 100% then recommendation for the ARACR is __________.

12. If the account being considered is a very significant to the overall fair presentation of the financial statements then the recommended TER is ____________.

13. What is nonsampling risk?
I. Overview.
- Learning methodology on auditor decisions on sample size and items to select in regards to tests of controls and substantive tests of transactions.

II. Goal.
- Select a sample that represents the True Population (a 100% would be perfect representation, but not cost effective) so that we can make an informed decision on the effectiveness of the client's internal controls and reliability of the daily transactions.

III. Statistical (quantifiable results) versus Non-statistical sampling
- Both or either are acceptable audit practices.
- Sample selection (key issue):

<table>
<thead>
<tr>
<th>Probabilistic (each item has fair chance of selection)</th>
<th>Non-probabilistic (judgmental selection)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Simple random (computer or tables)</td>
<td>1. Directed sample selection (Judgmental)</td>
</tr>
<tr>
<td>2. Probability proportional to size (Monetary Unit Sampling)</td>
<td>2. Block sample selection</td>
</tr>
<tr>
<td>3. Stratified sample selection (Variable Sampling)</td>
<td>3. Haphazard sample selection</td>
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<tr>
<td>4. Systematic (Interval)</td>
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</tbody>
</table>


IV. Exceptions, Tests, and Associated Statistics:

<table>
<thead>
<tr>
<th>Type of Exception</th>
<th>Type of Test</th>
<th>Statistical Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deviation from control</td>
<td>Test of controls</td>
<td>Attribute</td>
</tr>
<tr>
<td>Monetary errors in transactions</td>
<td>Substantive test of transactions</td>
<td>Attribute or Variable</td>
</tr>
<tr>
<td>Monetary error of ending balances</td>
<td>Tests of details of balances</td>
<td>Monetary Unit or Variable</td>
</tr>
</tbody>
</table>

V. Concepts of attribute sampling
- Attribute of interest (yes or no, present or absent, right or wrong)
- Occurrence or exception rate (express as a %)
- Sampling error – difference between sample and population exception rate.
- Sampling risk (5 or 10% risk of being wrong) – reliability of estimate.
VI. Application of sampling

A. Plan the sample
1. State the objectives of the audit test [overall or cycle].
2. Decide if audit sampling applies.
3. Define attributes [characteristic of interest] and exception conditions.
4. Define the population. [Depends on the audit objective. For example, existence and completeness typically require samples to be drawn from different sets of documents in the same audit trail.]
5. Define the sampling unit. [Where can we find evidence of the attribute?] 
6. Specify tolerable exception rate. [Guidelines available in Table 15-4 and Table 15-5]
   - Example attributes:
     - Credit manager's authorization initials on sales order.
     - President, CFO, CEO signatures on authorization for major equipment purchase.
7. Specify acceptable risk of assessing control risk too low. [See 6]
   - Nonstatistical use L, M, H.
   - Statistical uses a percentage.
8. Estimate the population exception rate. [Use prior year results or a current year test sample]
9. Determine the initial sample size.
   - Nonstatistical use judgement.
   - Statistical use tables/computation (Table 15-8).

B. Select the sample and perform the audit procedures.
10. Select the sample.
    - Nonstatistical use nonprobabilistic.
    - Statistical use probabilistic.
11. Perform the audit procedures.

C. Evaluate the results.
12. Generalize from the sample to the population.
    - Nonstatistical use judgement.
    - Statistical use tables/computation (Table 15-9).
14. Decide the acceptability of the population.

VII. Major terminology for attributes sampling

A. Auditor Decisions:
   a. Tolerable exception rate (TER): Exception rate the auditor will permit in the population and still be willing to rely on internal controls. **Judgmentally set** based on importance of the control.
   b. Acceptable risk of assessing control risk too low (ARACR). The risk the auditor is willing to take of accepting a control as effective, when the true population exception rate is greater than the tolerable exception rate (i.e. risk of accepting control as effective when it is not or a false positive). Occurs when the sample is not representative of the population. For
statistical sampling set at either 5% or 10% (so we can use the tables provided in the text).

- When is the auditor more sure, when ARACR is 5% or 10%?

**c. Nonstatistical sampling only (discussed in greater detail below)**
- Initial sampling size
- Computed upper exception rate (or sampling error)

### B. Auditor Estimate:

- **a. Estimated population exception rate (EPER):** Exception rate the auditor expects to find in the population, before testing begins. Base on historical or preliminary sample.
- **b. Population size:** Only effects sample size if the population is small. The finite correction factor allows for the reduction of the sample size for small populations.

### C. Auditor Calculations:

- **a. Initial sample size:**
  - Statistically: Sample size determined from attributes sampling tables (Table 15-8).
  - Non-statistically: Set sample size judgmentally.

**Note: At this point, select sample and do tests.**

- **b. Sample exception rate (SER):** Number of exceptions in the sample divided by the sample size.
- **c. Computed upper exception rate (CUER) adds sampling error to SER. CUER is the worst likely exception rate in the population at a given ARACR. (For assessing control risk, auditor's doesn't care about the best the ER could be, concerned only with the worst for deciding on effectiveness of controls.)
  - Statistically: Determined from attributes sampling tables (Table 15-9).
  - Non-statistically: Judgmentally select sampling error and add to SER.
    - or TER - SER = range of sampling error → decide if range acceptable

### D. Evaluation

- **If TER ≥ CUER accept control as effective or transactions as reliable.**
- **If CUER < TER then,**
  1. Revise TER upward.
  2. Increase sample size.
  3. Revise CR (control risk) upward.
  and, send letter to management.

<table>
<thead>
<tr>
<th>Factor*</th>
<th>Change to factor</th>
<th>Affect on Sample size</th>
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</thead>
<tbody>
<tr>
<td>TER</td>
<td>increase (care less)</td>
<td>decrease</td>
</tr>
<tr>
<td>ARACR</td>
<td>increase (less sure)</td>
<td>decrease</td>
</tr>
<tr>
<td>EPER</td>
<td>decrease (less likely)</td>
<td>decrease</td>
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</table>

*In combo TER and EPER have greatest effect on sample size.
### Millennium Microsystems, Inc.
**Test of Controls and Substantive Tests of Transactions**
**Sales and Collection Cycle - Sampling**
*12/31/X1*

<table>
<thead>
<tr>
<th>Procedures</th>
<th>Sample Selection Method</th>
<th>TER &amp; ARACR</th>
<th>Sample Size</th>
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</thead>
<tbody>
<tr>
<td><strong>Sales Transactions:</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>General:</strong></td>
<td></td>
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<tr>
<td>1. Review entries in the sales journal for reasonableness. Examine support for unusual items noted.</td>
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<tr>
<td>2. Trace totals in the sales journal to proper posting in the general ledger.</td>
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<tr>
<td>3. Review general ledger sales account for posting from sources other than the sales journal.</td>
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<tr>
<td>4. Review appropriate analytical procedures related to the sales balance for impact on assessment of control risk.</td>
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</tr>
<tr>
<td><strong>Sales Transactions:</strong></td>
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<tr>
<td>5. On a test basis, account for the numeric sequence of sales invoices in the sales journal.</td>
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<tr>
<td>6. Select a random sample of sales invoices from the client's computerized listing of sales transactions in the sales journal.</td>
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<td></td>
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<tr>
<td>a) Trace to entries in accounts receivable subsidiary ledger.</td>
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<tr>
<td>b) Examine supporting documents (bill of lading, sales order) for inclusion and agreement.</td>
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<tr>
<td>c) Vouch prices to approved price list.</td>
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<tr>
<td>d) Test arithmetic accuracy of invoice.</td>
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<tr>
<td>e) Determine if credit was properly approved.</td>
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<tr>
<td>f) Note evidence of verification of extensions.</td>
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<tr>
<td>g) Verify that Bill of Lading, Sales Invoice, and Sales Journal dates agree.</td>
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<tr>
<td>7. On a test basis, account for the numeric sequence of shipping documents from the delivery advice file.</td>
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</tbody>
</table>
Millennium Microsystems, Inc.
Test of Controls and Substantive Tests of Transactions
12/31/X1

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</tr>
</thead>
<tbody>
<tr>
<td>8. Select a random sample of shipping documents from the client's computerized listing of shipments.</td>
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<tr>
<td>a. Agree the items to entry in the sales journal.</td>
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<tr>
<td>b. Agree to invoices in sales invoice package file.</td>
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<tr>
<td>9. Select a sample of shipping documents from the last 3 business days of the current year and the first 3 business days of the next fiscal year. Trace to the sales journal, comparing dates, to determine that sales are recorded in the proper time period.</td>
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**Cash Receipts Transactions:**

**General:**

10. Review entries in the cash receipts journal for reasonableness. Examine support for unusual items noted.

11. Trace totals to proper posting in the general ledger.

12. Review general ledger cash account for debit postings from source other than cash receipts.

**Cash Receipts Transactions:**

13. Select random sample of receipts recorded in the cash receipts journal.

a. Trace to posting in the accounts receivable subsidiary ledger.

b. Determine whether discounts were granted in accordance with sales terms by noting dates and recomputing amounts.

c. Where applicable, determine if interest was assessed in accordance with the terms of related sales.

**Conclusion:**

14. Set CR for cycle. List all internal controls and identify as effective or ineffective.

15. For weaknesses, list recommendations for client.