Midterm Review

15.501/516 Accounting
Spring 2004

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Exam Structure

- Ques 1: Tabular analysis of the effects of various transactions on the balance sheet equation
- Ques 2: Revenue recognition and accounts receivables
- Ques 3: Inventories
- Ques 4: Cash flow from operations
- Expect to be tested on anything discussed in class
Balance Sheet Equation:
Assets = Liabilities + Owner’s Equity

- Assets = probable future economic benefits owned by the firm
- Liabilities = probable future economic sacrifices
- Owners’ Equity = Assets – Liabilities
  owners’ claim = “own” – “owe”
  (Owners’ Equity is sometimes also called shareholders’ equity, net book value, or the “residual claim”)
- Assets = Liabilities + Owners equity
Changes in Shareholders’ Equity

Beginning of year:

S. E.

Beginning Paid in Capital
+ new paid in capital

Ending Paid in Capital

Beginning Retained Earnings
+ Net Income
- Dividends

Ending Retained Earnings

End of year:

S. E.
Balance Sheet Equation

- Assets = Liabilities + Owner’s Equity
- Key: Every economic event that leads to an accounting entry has two sides
- Given an event and an accounting entry, you should be able to identify the two sides
Contra-Asset Accounts

- Contra asset accounts act like liability accounts – increases are recorded as credits.
- Their existence is tied to specific asset accounts.
- For example:
  - Allowance for Doubtful Accounts (existence tied to Accounts Receivables, a current asset).
  - Accumulated Depreciation (existence tied to depreciable long-term assets like PP&E).
- On the balance sheet, Accounts Receivables is reported net of ADA and PP&E is reported net of Accumulated Depreciation.
- Thus, contra-asset balances are not reported on the liabilities side, but as negative numbers on the asset side.
- Assets – Contra-Assets (if any) = Liabilities + Stockholders’ Equity.
Debits and Credits

- Assets = Liabilities + Owner’s Equity
- Increases in assets are debits
- Increases in liabilities are credits
- Increases in Owner’s Equity (Capital Stock, RE) are credits
- Revenues increase Retained Earnings – Credits
- Expenses reduce Retained Earnings - Debits
Accounting Entries

- Every accounting entry has two sides – a debit and a credit. This is the same point as two slides before
Accounting Entries

- Two kinds:
  - Transactions based
  - Adjusting entries
- Transactions-based entries record the effects of specific transactions
- Adjusting entries are entries that arise out of the basic principles of accrual accounting
  - Depreciation expense
  - Salaries expense even when employees have not actually been paid
  - Bad debt expense
Basic Principles of Accrual Accounting

- Determine what net income has been *earned* during a period, not just what cash has been generated during the period from operations
  - Why? To capture the economic events that have occurred during the period

- Determine revenues applying the revenue-recognition principles

- Report as expenses those costs that *have been* or *will be* incurred to generate those revenues
Accruals and Cash flows: Four Cases

1) Cash precedes expense

Time

Pay Cash \hspace{2cm} \text{(a)} \hspace{2cm} \text{Recognize Expense} \hspace{2cm} \text{(b)}

Balance Sheet Date

Examples: Rent paid in advance, Prepaid Insurance, PP&E, Inventory

Associated entries:

\[
\begin{align*}
\text{(A)} & \quad \text{Cash} & \quad \text{Prepaid Rent} & \quad \text{Ret. Earn.} \\
\text{(a)} & \quad -$ & \quad +$ & \quad \\
\text{(b)} & \quad -$ & \quad -$ (rent expense)
\end{align*}
\]
Example: Prepaid Rent

- Assume on Jan 1, you pay rent for the next year for $1,000 per month
  
  Dr Prepaid Rent (CA) 12,000
  Cr Cash (CA) 12,000

- Say you make adjusting entries at the end of every month. At the end of the first month, on Jan 30th, you would record the following expense:
  
  Dr Rent Expense (RE) 1,000
  Cr Prepaid Rent (CA) 1,000

- The first entry increase a current asset (Prepaid Rent) and decreased Cash

- The second entry decreased Retained Earnings and also decreased a current asset (Prepaid Rent)
Accruals and Cash flows: Four Cases

2) Cash follows expense

Time

<table>
<thead>
<tr>
<th>Recognize Expense</th>
<th>Pay Cash</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>(b)</td>
</tr>
</tbody>
</table>

Balance Sheet Date

Examples: Taxes paid after yearend, Salaries paid on the 15th of the month, bad debt expense, warranty expenses

Associated entries:

\[
\begin{align*}
(A) &= (L) + (SE) \\
\text{Cash} &= \text{Salaries Payable}^* \\
\text{Ret. Earn.} &= -$ (salary expense)
\end{align*}
\]

(a) $+$

(b) $-$

* sometimes also called “accrued salaries”
Accruals and Cash flows: Four Cases

3) Cash precedes revenue

Receive Cash | Recognize Revenue
(a) | (b)
---|---
Balance Sheet Date

Examples: Airplane tickets sold in advance
Newspaper subscriptions sold in advance

Associated entries:

<table>
<thead>
<tr>
<th></th>
<th>Cash</th>
<th>Unearned Revenue*</th>
<th>Ret. Earn.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>+$</td>
<td>+$</td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td></td>
<td>−$</td>
<td>$ (revenue)</td>
</tr>
</tbody>
</table>

*sometimes also called “deferred revenue”
Accruals and Cash flows: Four Cases

4) Cash follows revenue

<table>
<thead>
<tr>
<th>Recognize Revenue</th>
<th>Receive Cash</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>(b)</td>
</tr>
</tbody>
</table>

Time

Balance Sheet Date

Examples: Accounts Receivable
- Goods shipped but cash not yet received
- Services provided but cash not yet received

Associated entries:

<table>
<thead>
<tr>
<th>(A)</th>
<th>(A)</th>
<th>(SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>Accounts Receivable</td>
<td>Ret. Earn.</td>
</tr>
<tr>
<td>(a)</td>
<td>+$</td>
<td>+$ (revenue)</td>
</tr>
<tr>
<td>(b)</td>
<td>$</td>
<td>_$</td>
</tr>
</tbody>
</table>
Revenue Recognition

- Revenue recognition principles: Service has been provided by the company, customer has been billed and there is reasonable certainty of cash collection

- Issues in revenue recognition
  - Credit sales
  - Warranties and returns
  - Bill & hold sales, SAB 101
Accounts Receivable

● Not all accounts receivables will be collected in cash.

● The balance in Allowance for Doubtful Accounts at the end of the year reflects estimated defaults.

● Bad debt expense is recorded at the end of every period to adjust the balance in ADA to the desired amount.
## Income Statement and Balance Sheet Relations

### Accounts Receivable (A)

<table>
<thead>
<tr>
<th>Beg Balance</th>
<th>Amount of Credit Sales</th>
<th>Cash collected</th>
<th>Write-offs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ending balance</th>
</tr>
</thead>
</table>

### Allowance for doubtful accounts (XA)

<table>
<thead>
<tr>
<th>Beg Balance</th>
<th>Amount of Bad Debt Expense</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Write-offs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<table>
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<tr>
<th>Ending balance</th>
</tr>
</thead>
</table>

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AR and ADA Account Balances

Accounts Receivable (A)

Beginning Balance
  + Credit Sales
    – Cash Collected
    – Net Amounts Written Off

= Ending Balance

Allowance For Doubtful Accounts (XA)

Beginning Balance
  + Amounts Recorded as Bad Debt Expense
  – Net Amounts Written Off

= Ending Balance
## Inventories - The Key Equation

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Cost of goods sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beg. Inventory</td>
<td></td>
</tr>
<tr>
<td>Purchases/Production</td>
<td></td>
</tr>
<tr>
<td>End. Inventory</td>
<td></td>
</tr>
</tbody>
</table>

\[ \text{Beg. inventory} + \text{purchases/production} - \text{COGS} = \text{End. inventory} \]
# Accounting for Inventory

## A Comparison of LIFO and FIFO

<table>
<thead>
<tr>
<th>Income Statement</th>
<th>Balance Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIFO</td>
<td></td>
</tr>
<tr>
<td>New costs*</td>
<td>Old costs</td>
</tr>
<tr>
<td>FIFO</td>
<td></td>
</tr>
<tr>
<td>Old costs</td>
<td>New costs</td>
</tr>
</tbody>
</table>

*if LIFO liquidation old and new costs*
Using the “LIFO Reserve”:
Income Statement

\[
\begin{align*}
E\text{Inv}_{\text{FIFO}} &= B\text{Inv}_{\text{FIFO}} + \text{Purchases} - \text{COGS}_{\text{FIFO}} \\
E\text{Inv}_{\text{LIFO}} &= B\text{Inv}_{\text{LIFO}} + \text{Purchases} - \text{COGS}_{\text{LIFO}}
\end{align*}
\]

Subtracting these two equations yields:

\[
E\text{Inv}_{\text{FIFO}} - E\text{Inv}_{\text{LIFO}} = B\text{Inv}_{\text{FIFO}} - B\text{Inv}_{\text{LIFO}} - (\text{COGS}_{\text{FIFO}} - \text{COGS}_{\text{LIFO}})
\]

\[
E\text{Inv}_{\text{FIFO}} - E\text{Inv}_{\text{LIFO}} - (B\text{Inv}_{\text{FIFO}} - B\text{Inv}_{\text{LIFO}}) = \text{COGS}_{\text{LIFO}} - \text{COGS}_{\text{FIFO}}
\]

End LIFO Reserve – Beg. LIFO Reserve = \text{COGS}_{\text{LIFO}} - \text{COGS}_{\text{FIFO}}

\[\Rightarrow\] Change in LIFO Reserve = LIFO-FIFO difference in COGS
LIFO versus FIFO COGS

- In inflationary economies, in general LIFO COGS will be higher than FIFO.
- There are tax benefits to using LIFO
- Of course, for companies that face declining costs FIFO COGS will be higher: Intel was an example
- If input prices do not change, LIFO COGS = FIFO COGS
- (LIFO COGS excluding the effects of any LIFO liquidation – FIFO COGS) is a measure of difference in COGS under the two methods that is driven solely by changes in input prices
LIFO Liquidation

- Relevant for firms that report LIFO
- Occurs when production < sales
- You are selling out of beginning inventory
- Under LIFO, beginning inventory is at older costs
- Firms disclose LIFO liquidation profits in the footnotes
- Watch out for: whether LIFO liquidation profits are disclosed post-tax or pretax
- LIFO COGS without LIFO liquidation – LIFO costs reported after LIFO liquidation =
  Pre-tax LIFO liquidation profits =
  \( \frac{(Post-tax LIFO liquidation profits)}{(1-tax rate)} \)
Cash Flow Statements

- Change in net cash = 
  Operating cash flows + 
  Investing cash flows + 
  Financing cash flows 
- Given two, you should be able to work out the third 
- Two methods: Indirect and Direct 
- For the exam: worry about Indirect
The Indirect Method

- **Operating**
  - Start with Net Income
  - Make adjustments to arrive at CFO (cash flow from operations or operating cash flows)

- **Investing**
  - Purchase of PPE and/or other long-term assets (outflows)
  - Proceeds from sale of PPE and/or other long-term assets (inflows)

- **Financing**
  - Dividends paid (outflows)
  - Issuance of securities (inflows)
  - Retirement of securities (outflows)
Operating Cash Flows (CFO)

- Net Income includes non-cash revenues and non-cash expenses.
- These non-cash revenues/expenses usually are captured in changes in operating current assets and operating current liabilities (recall the two-sidedness of all entries).

Step 1: Identify operating non-cash current assets and operating current liabilities.

Step 2: Identify non-cash revenues or expenses that do not affect operating current assets or operating current liabilities (example: Depreciation Expense).

Step 3:
- Start with net income.
- Add/(subtract) to it any non-cash expense/(revenue) that does not affect operating current assets or operating current liabilities **
- Subtract/(add) any increase/(decrease) in non-cash operating current assets.
- Add/(subtract) any increase/(decrease) in operating current liabilities.
- Arrive at CFO.

** Sometimes transactions that have cash consequences are similarly adjusted out of the operating section because they are not considered a result of operating activities – do not worry about this yet.
Summary

- Understand how events are translated into accounting reports via the BSE.
- Understand the differences between accrual accounting numbers and cash flows
  - Revenue vs. cash collected
  - COGS vs. purchases vs. cash paid for purchases
  - Reconciliation net income and cash flow from operations