CFA® Examinations

Exam tips and studying

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CFA®: Level I Exam Format

Morning and afternoon sessions, each:
• Covers all topics in order
• 120 questions, three choices
• 3 hours, average 1.5 min per question

Old exams are NOT available
CFA®: Syllabus Weights

<table>
<thead>
<tr>
<th>Level:</th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethics</td>
<td>15%</td>
<td>10-15%</td>
<td>10-15%</td>
</tr>
<tr>
<td>Economics</td>
<td>10%</td>
<td>5-10%</td>
<td>5-15%</td>
</tr>
<tr>
<td>Quant</td>
<td>12%</td>
<td>5-10%</td>
<td>0%</td>
</tr>
<tr>
<td>FRA</td>
<td>20%</td>
<td>15-20%</td>
<td>0%</td>
</tr>
<tr>
<td>Corp Fin</td>
<td>7%</td>
<td>5-15%</td>
<td>0%</td>
</tr>
</tbody>
</table>

**Asset valuation**

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity</td>
<td>10%</td>
<td>15-25%</td>
<td>5-15%</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>10%</td>
<td>10-20%</td>
<td>10-20%</td>
</tr>
<tr>
<td>Derivatives</td>
<td>5%</td>
<td>5-15%</td>
<td>5-15%</td>
</tr>
<tr>
<td>Alternative Inv</td>
<td>4%</td>
<td>5-10%</td>
<td>5-15%</td>
</tr>
<tr>
<td>Portfolio mgt</td>
<td>7%</td>
<td>5-10%</td>
<td>40-55%</td>
</tr>
</tbody>
</table>

CFA® Pass Rates

- Pass rates speak for themselves.
- Global exam results were:

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level I</strong></td>
<td>46/34%</td>
<td>42/36%</td>
<td>39/38%</td>
<td>38/37%</td>
<td>38/43%</td>
<td>42/44%</td>
<td>42%</td>
</tr>
<tr>
<td><strong>Level II</strong></td>
<td>41%</td>
<td>39%</td>
<td>43%</td>
<td>42%</td>
<td>43%</td>
<td>46%</td>
<td>46%</td>
</tr>
<tr>
<td><strong>Level III</strong></td>
<td>49%</td>
<td>46%</td>
<td>51%</td>
<td>52%</td>
<td>49%</td>
<td>54%</td>
<td>53%</td>
</tr>
</tbody>
</table>

NB - This only includes candidates attending the actual exam day
Study Commitment

300 hours per level

Start in July
- 22 Weeks
- Approx. 15 hours per week

Level I
- Core finance knowledge
- Main battle = volume
- Study hours may be reduced with relevant background

Levels II & III
- Advanced finance knowledge
- Main battles = exam style, technical difficulty and volume
- Unlikely to be able to reduce study hours regardless of background

CFA®: Learning Mythology

Underlining? Highlighting?
Low utility
Is memory a muscle? Does rote learning of a poem or list help you remember other things?
Sorry, no way!
Does it help to have a specific ‘study space’ that is organized and quiet?
Not really, studying in multiple locations and conditions produces significantly better scores!
CFA®: Learning Mythology

It's best to use material that matches your “learning style”, Visual learners vs. auditory learners

No evidence from any rigorous study

Teaching style can make a difference, lively and entertaining beats shy and introverted

One doesn’t outperform the other

More techniques that have limited or no evidence of general effectiveness:

- Rereading
- Summarization
- Use of imagery for text-based learning
- Key word mnemonics

What Does Work?
## Elaborative Interrogation
Why does this make sense? Why is this true? Why does this apply to one situation and not another?

## Self Explanation
Explaining the reasons for steps and processes in problem solving during learning, the logic

The key to these may have to do with making associations of new material/techniques to what the learner already knows.

## Interleaved learning
Rather than practice with groups of problems on a single concept/technique, combine them for practice after initial learning.

Better initial performance with ‘blocked learning’

Retention is significantly improved by interleaved learning.
CFA®: Learning Mythology: Highly Effective Methods

**Distributed Practice**
- Spread learning over time
- Better learning and better retention
- Cramming has very short-term benefits

**The “Test Effect”**
- Taking quizzes aids learning more than spending additional study time
- Test effect works even with no answers provided
- Doing problems within 24 hours of study is best

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**Prepare Practice Perform Framework**

- Backed by the latest academic research into effectiveness of study techniques
- Designed to make the most efficient use of study time

**Prepare**
Develop knowledge and understanding

**Practice**
Reinforcement via question practice

**Perform**
Build exam technique and performance focused on the real exam
Kaplan Study Methodology

Prepare – Practice – Perform™

1. Start Studies Early
   Don’t underestimate the time it will take to fully prepare for each level; the CFA Institute recommend 300 hours per level as a minimum.
   Use the online Schweser Study Planner to build a programme that will ensure all the material is covered and there is time to revise.

2. Attend Tuition Phase (15 week online)
   Annotating the class room slide packs ensures candidates can focus on the tutor’s explanations – the priority is accelerating your understanding of core technical material.

Kaplan Tuition 15 Week online

- Focus on understanding and knowledge
- Covers key & technically challenging LOS
- Worked examples of challenging calculations
- All examples unique to the material
- Slides fully referenced to the Schweser and CFAI materials – integrated with the on-demand video series
- LOS references and command words
- Slide packs cover all LOS
- Full integration with Schweser On-Demand Videos
- Included in Premium Instruction Packages
Online and Live Instruction

- Complete Schweser ClassNotes Workbook
- Include Video Instruction
- Expert instructors
- Full Schweser Library
- Faculty email support

- Commenced January
  (Don’t worry past classes fully archived)

Sample Tuition Phase Slide

The Black-Scholes-Merton Model

- The Black-Scholes-Merton (BSM) model prices European options on non-dividend paying stock:

\[
C_0 = \left( S_0 \times N(d_1) \right) - \left[ X \times e^{-R_f \times T} \times N(d_2) \right]
\]

\[
d_1 = \frac{\ln \left( \frac{S_0}{X} \right) + \left[ R_f + (0.5 \times \sigma^2) \right] \times T}{\sigma \times \sqrt{T}}
\]

\[
d_2 = d_1 - (\sigma \times \sqrt{T})
\]
Kaplan Methodology

Prepare – Practice – Perform™

3. Review Kaplan Schweser/CFAI material
Add notes from the SchweserNotes™ and CFA Institute material to the Tuition phase slide packs. This approach allows candidates to build one comprehensive set of notes and ensures that there is plenty of time for question practice.
Use the Schweser On-Demand video series to compliment classroom studies.
Use Institute material to supplement Schweser material on tricky areas.

SchweserNotes™

- Five volumes
- All LOS covered
- Key Concept summaries
- End-of-reading questions
- Topic self-tests
4. Attempt Kaplan Schweser and CFA Institute end of chapter questions
   This will quickly demonstrate whether the candidate has fully understood the concepts and can apply knowledge to exam style questions. If they are struggling go back and review the notes you have taken and practice additional questions before moving on to the next reading.

5. Use SchweserPro™
   The online question banks provided within SchweserPro are the ideal way to gain additional question exposure on problematic areas. SchweserPro contains thousands of questions, explained solutions and the ability to design tests around specific readings.

6. Ensure you have covered all the study sessions before the final month
   The final month of studies should be focused on reviewing the material, practicing questions and developing exam technique.
SchweserPro™ Question Bank

- Download, online, offline
- LOS and CFA curriculum page references
- Updated for 2016 changes
- 4,000+ Level I questions
- Level II item sets
- Level III essay + and item sets
  Tablet and pc

Kaplan Methodology

Prepare – Practice – Perform™

7. Attend a revision course

Our revision courses will cover all the areas of the syllabus in overview and drill down into the toughest LOS. Time is taken practicing and debriefing questions in the class room to ensure that candidates can apply their knowledge to exam standard questions. The tutor will also discuss exam techniques and how to approach the exam.

Key outcomes:

1. Identify your competencies
2. Develop your exam technique
Kaplan Revision Phase Courses

- The only 5 day revision courses in the market
- Assumes you have studied the syllabus fully
- Focus on applying knowledge to exam questions
- Overview reviews of each study session
- Detailed revision of the more demanding topics
- Development of candidate exam strategy and technique
- Question debriefs
- Mindmap subject overview slides
- Revision Q&A books
- Drop in clinics (last two weeks)
- 99% of June 2015 candidates would recommend these classes

Example Mindmap slide

Serial Correlation

Description
- Autocorrelation (serial correlation) arises when the residuals are correlated with one another
- Usually arises with time series data
- Autocorrelation may be positive or negative

Effect on statistical inference
- Positive autocorrelation can lead to too low estimates of coefficient standard errors, hence too large t-stats, causing Type I errors.
- Negative autocorrelation can cause the standard errors to be overstated, causing Type II errors.

Correction
- Adjust the coefficient standard errors, e.g. using the Hansen method (which also corrects for conditional heteroskedasticity)
- Improve the specification of the model

Detection (if not autoregressive model)
- Scatter plot of residual errors
- Calculate the Durbin-Watson Statistic, \( DW = 2(1 - r) \)
  Where \( r = \) sample correlation coefficient between consecutive residuals
8. Complete the Kaplan Schweser practice exams Volume 1 and 2
   Practicing mocks to time is essential; one of the biggest battles candidates face is completing the examinations in the time given. The mock examinations should be used to develop exam technique, highlight weaknesses and gain familiarity with the style of the real exam.
   If the practice exams highlight weak areas candidates should use a combination of Kaplan Financial tutors and additional question practice via SchweserPro to bring these areas up to exam speed.

9. CFA Institute questions
   In the last couple of months prior to the exam the CFA Institute publish mock examinations on their website.
   One sample examination is included in the CFA Institute examination fees. (These are not written by the exam writing team)

10. Complete Kaplan Schweser Online Mock Examinations
    Included in all packages containing revision courses
Overview of Framework - **PREPARE**

- Schweser Video Library
- Online Tuition Classes
- Schweser On-Demand Video Instruction
- Schweser StudyNotes™

Overview of Framework - **PRACTICE**

- Schweser Concept Checkers & Challenge problems
- CFA Institute End of Chapter Questions
- Areas requiring additional work
  - No remaining conceptual weaknesses
  - Identified conceptual weaknesses

- SchweserPro Online QBank
- Move on to next Reading/Study Session
- Return to PREPARE - review materials & examples
Overview of Framework - PERFORM
[Final Month]

- 5 Day Review Course
- Practice Examinations Schweser and CFA Institute
- Mock Examinations
- Return to PRACTICE – SchweserPro QBank
- Drop in clinics & Doctor email

Debrief identified conceptual weaknesses

Questions

Thank you for attending!

How to book:

T: ++31(0) 20 894 378344 (via Top Finance)
E: info@top-finance.net
W: www.schweser.com/cfa/frankfurt
Importance of Cash Flow Statement

Net income from accrual accounting does not tell us about the sources and uses of cash to meet liabilities and operating needs.

The statement of cash flows has three components under both IFRS and US GAAP:

- Cash provided or used by operating activities
- Cash provided or used by investing activities
- Cash provided or used in financing activities
### Operating Cash Flows (CFO)

<table>
<thead>
<tr>
<th>Description</th>
<th>$</th>
<th>X/ (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash received from customers</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Cash dividends received</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Cash interest received</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Other cash income</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Payments to suppliers</td>
<td>(X)</td>
<td></td>
</tr>
<tr>
<td>Cash expenses (wages etc)</td>
<td>(X)</td>
<td></td>
</tr>
<tr>
<td>Cash interest paid</td>
<td>(X)</td>
<td></td>
</tr>
<tr>
<td>Cash taxes paid</td>
<td>(X)</td>
<td></td>
</tr>
<tr>
<td>CFO</td>
<td>X/ (X)</td>
<td></td>
</tr>
</tbody>
</table>

Cash generated and spent in the course of the firm’s main trading operation

### Investing Cash Flows (CFI)

- Purchases of property, plant, and equipment
- Proceeds from sales of assets
- Investments in joint ventures and affiliates
- Payments for businesses acquired
- Purchases and sales of intangibles
- Purchases or sales of marketable securities

**Excludes:**
- Trading securities (part of CFO)
- Cash equivalents (part of B/S cash)
Financing Cash Flows

Issue and redemption of:
- Common stock
- Preferred stock
- Treasury stock repurchases
- Debt
- Dividend payments (dividends rec'd CFO—U.S. GAAP)

Excludes:
- Indirect financing via accounts payable (CFO)

Non-Cash Investing and Financing Activities

Several types of transactions do **not involve the payment or receipt of cash** and are **not reflected in financing and investing cash flows**, but are **disclosed in the footnotes** or other schedules **Non-cash financing and investing activities**:
- Converting debt or preferred into common equity
- Assets acquired under capital leases
- Purchase of assets via issuance of debt/equity
- Exchanging one non-cash asset for another
- Stock dividends
Understanding the Cash Flow Statement

### U.S. GAAP vs. IFRS

<table>
<thead>
<tr>
<th></th>
<th>U.S. GAAP (SFAS 95)</th>
<th>IAS GAAP (IAS 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest received</td>
<td>CFO</td>
<td>CFO or CFI</td>
</tr>
<tr>
<td>Interest paid</td>
<td>CFO</td>
<td>CFO or CFF</td>
</tr>
<tr>
<td>Dividends received</td>
<td>CFO</td>
<td>CFO or CFI</td>
</tr>
<tr>
<td>Dividends paid</td>
<td>CFF</td>
<td>CFO or CFF</td>
</tr>
<tr>
<td>Taxes paid</td>
<td>CFO</td>
<td>CFO or CFI &amp; CFF</td>
</tr>
<tr>
<td>Bank overdraft</td>
<td>CFF</td>
<td>*</td>
</tr>
</tbody>
</table>

* Considered part of cash and cash equivalents

### Statement of Cash Flow:
Direct vs. Indirect Method

Direct vs. indirect method refers only to the calculation of CFO, the value of CFO is the same for both methods; CFI and CFF are unaffected

- **Direct method**: Identify actual cash inflows and outflows; e.g., collections from customers, amount paid to suppliers

- **Indirect method**: Begin with net income and make necessary adjustments to get operating cash flow
### Linkages Between Statements

<table>
<thead>
<tr>
<th>Last year’s balance sheet</th>
<th>Accounts Receivable ‘T’ Account</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount B/Fwd</td>
<td>18,000</td>
</tr>
<tr>
<td>Sales</td>
<td>200,000</td>
</tr>
<tr>
<td>This year’s income statement</td>
<td>218,000</td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash collections</td>
<td>198,000</td>
</tr>
<tr>
<td>Amount C/Fwd</td>
<td>20,000</td>
</tr>
<tr>
<td>This year’s balance sheet</td>
<td>218,000</td>
</tr>
</tbody>
</table>

### Direct Method CFO

1. Take each income statement item in turn – e.g., sales
2. Move to the balance sheet and identify asset and liability accounts that relate to that income statement item—e.g., accounts receivable
3. Calculate the change in the balance sheet item during the period (ending balance – opening balance)
4. Apply the rule:
   - Increases in an asset: deduct
   - Increase in a liability: add
   - Decrease in an asset: add
   - Decrease in a liability: deduct
Direct CFO

5. Adjust the income statement amount by the change in the balance sheet
6. Tick off the items dealt with in both the income statement and balance sheet
7. Move to the next item on the income statement and repeat
8. Ignore depreciation/amortization and gains/losses on the disposal of assets as these are non-cash or non-CFO items

Direct CFO

9. Keep moving down the income statement until all items included in net income have been addressed applying steps 1-8
10. Total up the amounts and you have CFO
Ecclestone Industries has the following income statement for 20x9 and balance sheets for 20x8 and 20x9. You are to construct the statement of cash flows using the direct method.

Additional information:
Equipment was purchased for $50,000
Ecclestone has a tax rate of 40%

### Income Statement for Year to 31 December 20x9

<table>
<thead>
<tr>
<th>Category</th>
<th>20x9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales revenue</td>
<td>$200,000</td>
</tr>
<tr>
<td>Expenses:</td>
<td></td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>$80,000</td>
</tr>
<tr>
<td>Salaries</td>
<td>$10,000</td>
</tr>
<tr>
<td>Depreciation</td>
<td>$14,000</td>
</tr>
<tr>
<td>Interest</td>
<td>$1,000</td>
</tr>
<tr>
<td>Total expenses</td>
<td>$105,000</td>
</tr>
<tr>
<td>Gain from sale of PPE</td>
<td>$20,000</td>
</tr>
<tr>
<td>Pre-tax income</td>
<td>$115,000</td>
</tr>
<tr>
<td>Provision for taxes</td>
<td>$40,000</td>
</tr>
<tr>
<td>Net income</td>
<td>$75,000</td>
</tr>
</tbody>
</table>
## Ecclestone Balance Sheet Data

<table>
<thead>
<tr>
<th>Balance Sheets</th>
<th>20X8</th>
<th>20X9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>18,000</td>
<td>66,000</td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>18,000</td>
<td>20,000</td>
</tr>
<tr>
<td>Inventory</td>
<td>14,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Non-current assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross PPE</td>
<td>282,000</td>
<td>312,000</td>
</tr>
<tr>
<td>Accum. Depr.</td>
<td>(80,000)</td>
<td>(84,000)</td>
</tr>
<tr>
<td>Total Assets</td>
<td>252,000</td>
<td>324,000</td>
</tr>
</tbody>
</table>

## Understanding the Cash Flow Statement

<table>
<thead>
<tr>
<th>Balance Sheets</th>
<th>20X8</th>
<th>20X9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current liabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts payable</td>
<td>10,000</td>
<td>18,000</td>
</tr>
<tr>
<td>Salaries payable</td>
<td>16,000</td>
<td>9,000</td>
</tr>
<tr>
<td>Interest payable</td>
<td>6,000</td>
<td>7,000</td>
</tr>
<tr>
<td>Taxes payable</td>
<td>8,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Dividends payable</td>
<td>2,000</td>
<td>12,000</td>
</tr>
<tr>
<td>Noncurrent liabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bonds</td>
<td>20,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Deferred taxes</td>
<td>30,000</td>
<td>40,000</td>
</tr>
<tr>
<td>Stockholders’ equity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common stock</td>
<td>100,000</td>
<td>80,000</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>60,000</td>
<td>118,000</td>
</tr>
<tr>
<td>Total Liabilities &amp; Equity</td>
<td>252,000</td>
<td>324,000</td>
</tr>
</tbody>
</table>
### Direct Method: CFO

#### Cash Inflows

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>200,000</td>
</tr>
<tr>
<td>Less: Increase in A/R</td>
<td>(2,000)</td>
</tr>
<tr>
<td>Cash collected from customers</td>
<td>198,000</td>
</tr>
</tbody>
</table>

#### Direct cash outflows

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of goods sold</td>
<td>(80,000)</td>
</tr>
<tr>
<td>Add: Decrease in inventory</td>
<td>4,000</td>
</tr>
<tr>
<td>Purchases</td>
<td>(76,000)</td>
</tr>
<tr>
<td>Add: Increase in A/P</td>
<td>8,000</td>
</tr>
<tr>
<td>Cash paid to suppliers</td>
<td>(68,000)</td>
</tr>
<tr>
<td>Operating expense (wages)</td>
<td>(10,000)</td>
</tr>
<tr>
<td>Less: Decrease in salaries payable</td>
<td>(7,000)</td>
</tr>
<tr>
<td>Cash paid to employees</td>
<td>(17,000)</td>
</tr>
</tbody>
</table>

### Direct cont.

#### Cash outflows

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Expense</td>
<td>(1,000)</td>
</tr>
<tr>
<td>Add: Increase in interest payable</td>
<td>1,000</td>
</tr>
<tr>
<td>Cash interest paid</td>
<td>0</td>
</tr>
<tr>
<td>Tax Expense</td>
<td>(40,000)</td>
</tr>
<tr>
<td>Add: Increase in deferred tax liab.</td>
<td>10,000</td>
</tr>
<tr>
<td>Tax payable</td>
<td>(30,000)</td>
</tr>
<tr>
<td>Add: Increase in taxes payable</td>
<td>2,000</td>
</tr>
<tr>
<td>Cash taxes paid</td>
<td>(28,000)</td>
</tr>
</tbody>
</table>

CFO 85,000
Indirect Method CFO

Steps
1. Start with net income
2. Adjust net income for changes in relevant balance sheet items:
   - Increases in an asset: deduct
   - Increase in a liability: add
   - Decrease in an asset: add
   - Decrease in a liability: deduct

Indirect method continued

3. Eliminate depreciation and amortization by adding them back (they've been deducted in arriving at net income but are non-cash expenses)

4. Eliminate gains on disposal by deducting them and losses on disposal by adding them back (these are CFI, not CFO)
### Indirect Method Solution

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net income</strong></td>
<td>$75,000</td>
</tr>
<tr>
<td><strong>Non Cash Charges</strong></td>
<td></td>
</tr>
<tr>
<td>Add: Depreciation</td>
<td>$14,000</td>
</tr>
<tr>
<td>Less: Gain from sale of PPE</td>
<td>($20,000)</td>
</tr>
<tr>
<td>Add: Increase in deferred taxes</td>
<td>$10,000</td>
</tr>
<tr>
<td><strong>Current asset adjustments</strong></td>
<td></td>
</tr>
<tr>
<td>Less: Increase in accounts receivable</td>
<td>($2,000)</td>
</tr>
<tr>
<td>Add: Decrease in inventory</td>
<td>$4,000</td>
</tr>
<tr>
<td><strong>Current liability adjustments</strong></td>
<td></td>
</tr>
<tr>
<td>Add: Increase in accounts payable</td>
<td>$8,000</td>
</tr>
<tr>
<td>Less: Decrease in salaries payable</td>
<td>($7,000)</td>
</tr>
<tr>
<td>Add: Increase in interest payable</td>
<td>$1,000</td>
</tr>
<tr>
<td>Add: Increase in taxes payable</td>
<td>$2,000</td>
</tr>
</tbody>
</table>

**Cash flow from operations** $85,000

---

### Indirect Method CFO (Alternative)

\[ \text{CFO} = \text{NI} + \text{NCC} - \Delta \text{WC}_{\text{inv}} \]

- + Depreciation
- + Amortisation
- + Impairments
- + Loss on asset disposal
- - Gain on asset disposal
- + Loss on early debt retirement
- - Gain on early debt retirement
- + Increase in DTL, decrease in DTA
- - Decrease in DTL, increase in DTA
- + Non cash expenses (provisions)

\[ \Delta \text{Current assets excluding cash and investments} \]

\[ \Delta \text{Current liabilities excluding debt instruments and dividends payable} \]

= change in non-cash working capital
Indirect Method CFO (Alternative)

\[ \text{CFO} = \text{NI} + \text{NCC} - \text{WC}_{\text{inv}} \]

\[
\begin{array}{ccc}
\text{20x8} & \text{20x9} \\
\hline
\text{NI} & 75,000 & 4,000 + 6,000 = 85,000 \\
\text{NCC} & 14,000 & 10,000 \\
\text{Dep}^n & (20,000) & \\
\text{Disposal gain} & + & 4,000 \\
\text{DTL} & + & 10,000 \\
\text{Current assets} & 50,000 & 96,000 \\
\text{-Cash & Inv'} & (18,000) & (66,000) \\
\text{Current liabilities} & 42,000 & 56,000 \\
\text{-Debt & divs'} & (2,000) & (12,000) \\
\text{Working Capital} & 40,000 & 44,000 \\
\text{△ WC} = (6,000) & 8,000 & (14,000) \\
\end{array}
\]

Calculating CFI

\[ \text{CFI} = \text{investment in assets} - \text{cash received on asset sales} \]

Net book value =
Gross PPE – accumulated depreciation

Gain (loss) on sale = sales price – net book value
## Calculating NBV of asset sold

<table>
<thead>
<tr>
<th>Gross Plant and Equip.</th>
<th>Accumulated Depr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning PPE</td>
<td>282,000</td>
</tr>
<tr>
<td>Additions</td>
<td>50,000</td>
</tr>
<tr>
<td>PPE disposal</td>
<td>(20,000)</td>
</tr>
<tr>
<td>Ending PPE</td>
<td>312,000</td>
</tr>
</tbody>
</table>

$\text{NBV of disposal} = \text{Proceeds} - \text{Gain(loss) on sale} = \$10,000$

## Understanding the Cash Flow Statement

**Ecclestone CFI**

<table>
<thead>
<tr>
<th>Cash Flow Statement</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sale Proceeds</td>
<td>$30,000</td>
</tr>
<tr>
<td>NBV of disposal</td>
<td>$10,000</td>
</tr>
<tr>
<td>Gain(loss) on sale</td>
<td>$20,000</td>
</tr>
</tbody>
</table>

**CFI = cash additions – cash received on disposal**

\[
\text{CFI} = -\text{additions} + \text{proceeds}
\]

\[
\text{CFI} = -\$50,000 + $30,000 = -$20,000
\]
Computing CFF

- Change in debt
- Change in common stock
- Cash dividends paid

\[
\begin{align*}
\text{Net income} & \times \text{Dividends declared} \quad (X) \\
\text{Dividends declared} & \times \Delta \text{Dividends payable} \quad X \\
\Delta \text{in retained earnings} & \times \text{Cash paid} \quad (X)
\end{align*}
\]

Ecclestone CFF

\[
\begin{align*}
\text{Change in debt} & = 10,000 \\
\text{Change in common stock} & = (20,000) \\
\text{Cash dividends paid} & = (7,000) \\
\text{Net income} & = 75,000 \\
\text{Dividends declared} & = (17,000) \\
\Delta \text{in R/E} & = 58,000 \\
\text{Cash div. paid} & = (7,000)
\end{align*}
\]
### Putting the Cash Flow Statement Together

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash flow from operations</td>
<td>$85,000</td>
</tr>
<tr>
<td>Cash flow from investments</td>
<td>$(20,000)</td>
</tr>
<tr>
<td>Cash flow from financing</td>
<td>$(17,000)</td>
</tr>
<tr>
<td>Net increase in cash</td>
<td>$48,000</td>
</tr>
<tr>
<td>Cash balance 12/31/x8</td>
<td>$18,000</td>
</tr>
<tr>
<td>Cash balance 12/31/x9</td>
<td>$66,000</td>
</tr>
</tbody>
</table>

### Cash Flow Statement Analysis

- **Benefits for the analyst**
  - Do regular operations generate enough cash to sustain the business?
  - Is enough cash generated to pay off maturing debt?
  - Highlights the need for additional finance
  - Ability to meet unexpected obligations
  - The flexibility to take advantage of new business opportunities
Analysis

1. **Analyze the major sources and uses of cash flow (CFO, CFI, CFF)**
   - Where are the major sources and uses?
   - Is CFO positive and sufficient to cover capex?

2. **Analyze CFO**
   - What are the major determinants of CFO?
   - Is CFO higher or lower than NI?
   - How consistent is CFO?

3. **Analyze CFI**
   - What is cash being spent on?
   - Is the company investing in PP&E?
   - What acquisitions have been made?

4. **Analyze CFF**
   - How is the company financing CFI and CFO?
   - Is the company raising or repaying capital?
   - What dividends are being returned to owners?
### Free Cash Flow (FCF)

- **FCF** is cash available for discretionary uses.
- Frequently used to value firms.
- \[ \text{FCFF} = \text{NI} + \text{NCC} - \text{WCInv} + \text{Int} (1 - T) - \text{FCInv} \]
- \[ \text{FCFF} = \text{CFO} + \text{Int} (1 - T) - \text{FCInv} \]
- \[ \text{FCFE} = \text{CFO} - \text{FCInv} + \text{Net
debt
declare} \]

### Free Cash Flow (FCF) Ecclestone

- \[ \text{FCFF} = \text{CFO} + \text{Int} (1 - T) - \text{FCInv} \]
  - $65,600 = $85,000 + $1,000 (1 - 0.4) - $20,000
- \[ \text{FCFE} = \text{CFO} - \text{FCInv} + \text{Net
debt
declare} \]
  - $75,000 = $85,000 - $20,000 + $10,000
- \[ \text{FCFE} = \text{FCFF} - \text{Int} (1 - T) + \text{Net
debt
declare} \]
  - $75,000 = $65,600 - $1,000 (1 - 0.4) + $10,000
### Cash Flow Performance Ratios

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash flow to revenue</td>
<td>CFO</td>
</tr>
<tr>
<td>Cash return on assets</td>
<td>CFO</td>
</tr>
<tr>
<td>Cash return on equity</td>
<td>CFO</td>
</tr>
<tr>
<td>Cash to income</td>
<td>CFO</td>
</tr>
<tr>
<td>Cash flow per share*</td>
<td>CFO – pref div</td>
</tr>
</tbody>
</table>

*IFRS: If dividends paid were treated as CFO, they must be added back.*
### Cash Flow Coverage Ratios

<table>
<thead>
<tr>
<th>Description</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt coverage</td>
<td>( \frac{\text{CFO}}{\text{Total debt}} )</td>
</tr>
<tr>
<td>Interest coverage*</td>
<td>( \frac{\text{CFO + interest + tax}}{\text{Interest paid}} )</td>
</tr>
<tr>
<td>Reinvestment</td>
<td>( \frac{\text{CFO}}{\text{Cash paid for long-term assets}} )</td>
</tr>
<tr>
<td></td>
<td>*IFRS: If interest paid was treated as CFF, no addition is required</td>
</tr>
</tbody>
</table>

### Cash Flow Coverage Ratios

<table>
<thead>
<tr>
<th>Description</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt payment</td>
<td>( \frac{\text{CFO}}{\text{Cash paid for long-term debt repayment}} )</td>
</tr>
<tr>
<td>Dividend payment</td>
<td>( \frac{\text{CFO}}{\text{Dividends paid}} )</td>
</tr>
<tr>
<td>Investing and financing</td>
<td>( \frac{\text{CFO}}{\text{Cash outflows for CFI &amp; CFF}} )</td>
</tr>
</tbody>
</table>