

Concepts in Accounting

Introduction for the MFM Orientation

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Introduction

Financial Accounting

Double-Entry Bookkeeping

Financial Statements

Investment Accounting

Performance Measurement

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If you intend to work with bankers, traders, or investment managers, it is important for you to understand the language and concepts of accounting, finance, and investment performance measurement.

I encourage you to consider taking relevant electives at the Carlson School of Business.

Topics

- ▶ terms and concepts in double-entry book-keeping
- ▶ income statement and balance sheet (flow & stock)
- ▶ cash basis vs. accrual basis
- ▶ accounting for hedges
- ▶ depreciation, amortization, adjustments, and impairments
- ▶ consolidation

Double-Entry Bookkeeping

entity concept autonomy with rights and obligations

going concern concept assume that the entity will persist

balance sheet financial condition at a point in time

income statement financial activity over a period in time

account elements asset, expense; liability, revenue, capital

journal entry amount, debit account, and credit account

closing the books periodic update of the balance sheet

$$\text{assets} = \text{liabilities} + \text{capital}$$

N.B.: One entity's debt and equity are other entities' assets

Financial Statements

Wells Fargo & Company

Income statement 2008 (\$ billions)

interest income	35	interest expense	14
commissions/fees	15	other expense	18
other income	2	<i>loan provisions</i>	16
		income taxes	1
		net income	3
total	52	total	52

Balance sheet 12/31/2008 (\$ billions)

cash	73	short-term debt	216
investments	233	long-term debt	213
loans	865	deposits	782
<i>loan provisions</i>	-21		
other assets	160	reserves	99
total	1,310	total	1,310

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Investment accounting generally uses **single-entry bookkeeping** on a **mark-to-market** basis with a daily close

In place of the dual aspect accounting identity, we have

$$\text{net assets} = \text{net cash} + \sum_{i \in \text{holdings}} \text{price}_i \cdot \text{quantity}_i$$

- ▶ cash enters and leaves the **portfolio** through **subscriptions** and **redemptions** or **dividends**
- ▶ cash also changes through **transactions** which create or modify **holdings**
- ▶ **net cash** is adjusted for unsettled trades, taxes payable, and accrued interest and fees

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Performance Measurement

- ▶ **daily return** is measured as

$$1 + \text{daily return}_t = \frac{\text{net assets}_t - \text{subscriptions}_t + \text{redemptions}_t + \text{dividends}_t}{\text{net assets}_{t-1}}$$

- ▶ this may be interpreted as a weighted average

$$\text{daily return}_t = \sum_i \text{weight}_{i,t} \cdot \text{daily return}_{i,t}$$

where the (beginning) weights satisfy

$$\sum_i \text{weight}_{i,t} = 1 - \frac{\text{net cash}_{t-1}}{\text{net assets}_{t-1}}$$

- ▶ return over longer periods is measured “geometrically”

$$\prod_{t \in \text{period}} (1 + \text{daily return}_t) - 1$$

Active Return

It may be important to assess the “added value” of an investment manager. Two approaches to this are:

- ▶ relative to a benchmark
 - ▶ an index can be interpreted as a portfolio
 - ▶ the relative return can therefore be expressed as the sum of the contributions for the each relative **overweight** and **underweight**

$$r - r' = \sum_i (w_i - w'_i) \cdot r_i$$

- ▶ to which one can apply various statistical measures, such as the **information ratio**
- ▶ relative to static weights
 - ▶ this is a newer concept appropriate for **hedge funds**
 - ▶ the manager should increase (decrease) weights in holdings that subsequently outperform (underperform)

$$E[r] = \sum_i E[w_i] \cdot E[r_i] + \sum_i \text{cov}[w_i, r_i]$$

Securities are claims on future cashflows from their issuer

- ▶ U. S. Treasury
 - ▶ (nominal, indexed) bond
- ▶ bank
 - ▶ interbank loan/deposit, commercial paper, repo
 - ▶ swap, over-the-counter derivative, currency contract
- ▶ corporation
 - ▶ (common, preferred) equity
 - ▶ (secured, senior, subordinated, convertible) bond
 - ▶ commercial paper
- ▶ municipality
 - ▶ (revenue, general obligation) bond
- ▶ derivatives clearinghouse
 - ▶ futures, option
- ▶ collective investments
 - ▶ (open-ended, closed-ended, exchange-traded) funds and unit trusts

Also: real estate, private equity, bank loan, etc.

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Securities Conventions

- ▶ equity trades shares and **lots** of 100 shares, and pays **dividends** to the registered holders as of the **ex date**
 - ▶ price quotation is per share, and trades settle in about three business days
 - ▶ the **broker** may be able to provide financing or locate shares to **short**
- ▶ bonds trade in increments of \$1,000 **par amount** and pay periodic (annual or semi-annual) **coupons**
 - ▶ price quotation is per \$100 notional and excludes **accrued interest** for the current coupon
 - ▶ settlement is typically two business days
- ▶ futures settle daily through a **margin account** according to the **tick size** and the **settlement price**
- ▶ the **underlying** for equity options is typically 100 shares, and they pay out upon **exercise**
- ▶ public open-ended funds trade at the end-of-day **net asset value** per share; ETF's trade like equities

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Institutions use the **financial markets** for at least three reasons:

- ▶ to raise funds
- ▶ to make investments
- ▶ to manage risks

Participants

Common participants

- ▶ commercial banker
- ▶ investment banker
- ▶ trader or dealer
- ▶ broker
- ▶ salesperson
- ▶ investor

Other participants

- ▶ clearing house
- ▶ custodian
- ▶ regulator
- ▶ exchange authority
- ▶ tax authority

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Broker terminology

In the role of **market maker**, the broker provides indicative **bid** and **ask** price quotations at which he is willing to buy or sell some small number of units of a security.

Client terminology

types of **orders** include

- ▶ market order
- ▶ limit order
- ▶ special instructions, such as conditional orders or non-standard settlement

On futures exchanges, special language is sometimes used

- ▶ “pay (price or market) **for** (quantity)”
- ▶ “sell (quantity) **at** (price or market)”

and the **handle** on the price is implicit

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1. futures
2. equities
3. bonds

- ▶ choose a case to work from –

<http://math.umn.edu/~dodso013/cases/>

- ▶ and please volunteer to present your results!

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