Investment Banking

at a Crossroads

Prof Ian Giddy
New York University

Investment Banking

Sales

Corporate Finance

Customer-Driven Securities

Capital Markets
What is Investment Banking?

- Sales and Trading
- Funds Management
- Underwriting and Distribution
- Advisory Services, including M&A
- Research

Investment Banking’s Future

- Banks vs. Markets
- Relationships vs. Transactions
- On Balance Sheet vs. Off
- Domestic vs. Regional vs. Global
- Debt vs. Equity
- Bricks vs. Bytes
Banks vs. Markets

- Where are investors going?
- What do today’s shareholders expect?
- Where are corporate clients going?
- Where is your bank going?

- Common theme: “The end of entitlement” (which implies the end of special responsibilities)

Relationships vs. Transactions

- Lower barriers to entry – more price competition
- Frequent re-calculation of benefits: “What will you do for me next?”
- Shareholder pressure weakens traditional relationships, obligations
- In business, the effect is toward alliances, contract manufacturing, out-sourcing
- Stability requires “new communities,” the more broadly-based the better
Financial Innovation and the Shorter Product Life Cycle

- More financial innovation
- But most innovations fail
- Fewer geographic barriers to entry
- Fewer information barriers to entry

Innovation as Value Creation

- Innovations are costly to develop and produce, and easily copied, so
- For an innovation to succeed, it must create differentiated value for issuer, investor, or risk manager, by:
  - **Unbundling**: create simple, more primitive instruments to isolate risks, or
  - **Bundling**: create tailor-made instruments to reduce costs, minimize taxes, or circumvent restrictions or imperfections.
**On Balance Sheet vs. Off**

- “All my assets are for sale, all the time”
- Maximize ROE by increasing capital turnover – become originators instead of lenders

![Market value of transactions in Europe](chart)

**Domestic, Regional or Global?**

- Which are more mobile?
  - Goods markets
  - Labor
  - Services
  - Financial services
- Even domestic institutions must be able to compete in the world arena
Debt vs. Equity

A $1 Investment in Different Types of Portfolios: 1926-1996

Passive vs. Active Investors

- It’s an internet information age
- Domestic shareholders want global returns – asset managers must beat benchmarks
- Corporations or financial institutions which cling to underperforming assets will have lower ROE and share prices
- Which makes them vulnerable to restructuring or takeover – Europe’s new market for corporate control
Passive vs. Active Investors

- Investors expect results or sell their shares; “friendly holdings” become too costly, opportunity costs become explicit.
- Venture capital, private equity funds attract investors by offering higher returns.
- Market-based returns now expected by investors and lenders, and required of managers; local differences persist, but diminishing.

Bricks vs. Bytes

- It’s a Nasdaq world, and it’s moving at “internet time”
- The old economy needs the new economy to meet shareholder expectations
  - “To B2B, or not to be?”
- E-business or m-business?
- Equity, not debt, is financing the new economy.
**Whither European Financial Services?**

- The Anglo-Saxon model of transparent financial markets is coming, at internet speed
- All assets must meet the test of the market – global shareholder return standards
- Otherwise…

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**Example: Deutsche-Dresdner**

- What is Deutsche’s strategy?
- Does the Dresdner acquisition advance that strategy?
- What does it take to succeed in investment banking?

Deutsche-Dresdner case study
The Commercial Banking Model

Assets

- Loans
  - Net interest revenues

Liabilities

- Deposits
  - Net interest costs

Goal: Add assets with positive net interest margin

The Investment Banking Model

Sales

Corporate Finance

Customer-Driven Securities

Goal: Originate deals and sell them in the capital market as quickly as possible

Capital Markets
What Strategy?
Client-Arena-Product Matrix

Products

- Credit products
- Trading and positioning
- Risk management products
- Financial engineering and structured finance
- Underwriting and distribution
- Asset management
- Retail and private client services
- Transactions services
### Range of Financial Services

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<th>FDIC Insured Depository</th>
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* Minor involvement

SOURCE: The National Journal, the American Financial Services Association and Annual Reports.

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Product Profitability Cycle

Excess returns

Do you want to be a Nescafe bank?
Or a Starbucks bank?

Time

Client-Arena-Product Matrix

Build versus buy?

Products offered

Clients served

Markets covered
Using Industry Structure Analysis

**COMPETITIVE ADVANTAGE**

**SUBSTITUTES**
- Questions:
  - Do substitutes exist?
  - What is their price/performance?
- Potential Action:
  - Fund venture capital and joint venture to obtain key skills
  - Acquire position in new segment

**CUSTOMERS**
- Questions:
  - Is the customer base concentrating?
  - Is value added to customer end product high, changing?
- Potential Actions:
  - Create differentiated product
  - Forward - integrate

**SPECIALISTS**
- Questions:
  - Is supplier industry concentrating?
  - Is supplier value/cost added to end product high, changing?
- Potential Actions:
  - Backward - integrate

**BARRIERS TO ENTRY**
- Questions:
  - Do barriers to entry exist?
  - How large are the barriers?
  - Are they sustainable?
- Potential Actions:
  - Acquire to achieve scale in final product or critical component
  - Lock up supply of critical industry input

Complementarity and Cross-Selling

- Insurance
- Retail
- Wholesale
- Asset Management
- Citigroup?
The Future of Banking: Where Do You Want To Go Today?

- Banks vs. Markets
- Relationships vs. Transactions
- On Balance Sheet vs. Off
- Domestic vs. Regional vs. Global
- Debt vs. Equity
- Bricks vs. Bytes

Raising Money for Companies

Prof Ian Giddy
New York University
The CFO Questions

- How fast can we grow? What criteria for spending money? Acquisitions? Divestitures?
- How should we finance our growth? What kind of equity? What’s our exit plan? Private or public?
- How much (cheap) debt should we have?
- What kind of debt should we have? Maturity? Fixed/floating? Currency? Asset-backed? Hybrids, such as convertibles?
- How should we manage our financial risks?
Financing X Inc

Operating Results

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<tr>
<td>Revenue ($ mil)</td>
<td>5,732.4</td>
<td>6,942.9</td>
<td>8,620.3</td>
<td>10,250.1</td>
<td>10,914.8</td>
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<tr>
<td>Net Income ($ mil)</td>
<td>748.3</td>
<td>505.9</td>
<td>715.3</td>
<td>1,221.3</td>
<td>1,945.2</td>
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<td>Net Margin (%)</td>
<td>13.05</td>
<td>6.06</td>
<td>6.30</td>
<td>11.90</td>
<td>11.14</td>
<td>11.82</td>
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<td>Book value/share ($)</td>
<td>3.65</td>
<td>10.23</td>
<td>5.68</td>
<td>6.05</td>
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<td>Earnings/share ($)</td>
<td>1.04</td>
<td>1.63</td>
<td>1.18</td>
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Dividend Policy

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<td>Dividends/share ($)</td>
<td>0.24</td>
<td>0.34</td>
<td>0.28</td>
<td>0.37</td>
<td>0.07</td>
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<td>Payout ratio (%)</td>
<td>22.7</td>
<td>30.9</td>
<td>32.6</td>
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Profitability

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<td>Ret. on Equity (%)</td>
<td>20.56</td>
<td>15.90</td>
<td>20.71</td>
<td>30.82</td>
<td>32.40</td>
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<td>Ret. on Assets (%)</td>
<td>12.74</td>
<td>6.70</td>
<td>9.41</td>
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Assets ($ mil)

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<th>2003</th>
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<td>Cash</td>
<td>2,247.2</td>
<td>3,396.8</td>
<td>29.34</td>
<td>28.81</td>
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<td>Inventories</td>
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<td>1,518.6</td>
<td>17.52</td>
<td>12.98</td>
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<td>Other</td>
<td>2,336.1</td>
<td>4,266.4</td>
<td>30.50</td>
<td>36.19</td>
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<td>Current assets</td>
<td>5,925.3</td>
<td>9,181.8</td>
<td>77.37</td>
<td>77.87</td>
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<td>Non-current assets</td>
<td>1,733.0</td>
<td>2,408.7</td>
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<td>22.13</td>
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<td>Total assets</td>
<td>7,658.3</td>
<td>11,790.5</td>
<td>100.00</td>
<td>100.00</td>
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Liabilities & Shareholders' Equity ($ mil)

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<th>2001</th>
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<th>2003</th>
<th>2004</th>
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<td>Current liabilities</td>
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<td>5,322.4</td>
<td>44.03</td>
<td>44.28</td>
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<td>Long-term debt</td>
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<td>252.0</td>
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<td>Total liabilities</td>
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<td>Shareholders' equity</td>
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<td>6,003.8</td>
<td>51.57</td>
<td>56.92</td>
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<td>Total Liab. &amp; equity</td>
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Balance Sheet Ratios

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<td>Debt/equity ratio</td>
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### Financing X Inc

**X Company**
$94.56 03/21 PM CT

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<th>Historical Growth Rates (%)</th>
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<th>3-year annualized</th>
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<td>Revenue growth</td>
<td>44.24</td>
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<td>Net income growth</td>
<td>59.27</td>
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<td>Earnings/share</td>
<td>56.44</td>
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<td>Equity</td>
<td>52.82</td>
<td>23.58</td>
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<td>Proj. 5-year EPS growth</td>
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### Corporate Financing Life-Cycle

**Leverage**

Growth companies  Mature companies
**Firm Characteristics as Growth Changes**

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<th>Variable</th>
<th>High Growth Firms tend to</th>
<th>Stable Growth Firms tend to</th>
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<td>Risk</td>
<td>be above-average risk</td>
<td>be average risk</td>
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<td>Dividend Payout</td>
<td>pay little or no dividends</td>
<td>pay high dividends</td>
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<td>Net Cap Ex</td>
<td>have high net cap ex</td>
<td>have low net cap ex</td>
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<tr>
<td>Return on Capital</td>
<td>earn high ROC (excess return)</td>
<td>earn ROC closer to WACC</td>
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<tr>
<td>Leverage</td>
<td>have little or no debt</td>
<td>higher leverage</td>
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**Financing Growth Companies: The Agenda**

- Where can we get the initial equity financing we need to grow?
- Do we want money, management, or more?
- When do we want to sell out, and how?
- When is the right time for debt for a growth company? What kind?
First, Why Equity?

- Benefits of Equity
  - Flexibility: cannot afford to have fixed obligations
  - Strategic partners
  - Interventionist partners

- Disadvantages
  - No tax shield
  - Expensive!

What Kind of Equity?

- Sources of Equity
  - Private investors
  - Strategic investors
  - Interventionist investors
  - Public market

- And Kinds
  - Common stock
  - Stock with restricted voting rights
  - Hybrids, including convertibles
.comfax

- Started in September 1997, .comfax enables users to send faxes and receive faxes over the internet at a low cost.
- By June 1998 the company had expanded its services and was signing up subscribers at the rate of 100,000 a day.
- Initial funding was “Angel” finance, but now the expansion was exceeding the company’s financial, physical and managerial capacity. On two occasions it had literally run out of money.
- What form of equity financing would be appropriate for .comfax?

Pre-IPO Equity Financing

- Friends and family
- Angel
- Venture capital
- Strategic partners
**Pre-IPO Equity Financing**

- Friends and family
- Angel
- Venture capital
- Strategic partners

---

**Private Equity Funds**

- Private equity funds are generally structured as partnerships specializing in venture capital, leveraged buyouts, and corporate restructuring.
- The private equity fund mobilizes funds, selects and monitors investments, eventually exiting the investment and paying back the investors.
Silipos Inc

Where do you want to go?

Debt?
IPO?
Acquisition?
Sell?
IntraLinks’ Choices

- Issue debt, either by borrowing from one of the big New York banks keen to get more involved in promising Internet businesses, or by means of a private placement of debt notes, possibly with “sweeteners” such as warrants to attract a lender.
- Seek out one or more private equity investors, ones who believed in the company’s product and its management.
- Do an initial public offering (IPO).
- Find another corporation who would be willing to acquire IntraLinks.
Why Venture Capitalists Prefer Preferred

- Senior status in bankruptcy
- Does not put a value on the shares
- Is convertible into common stock before the IPO
- Conversion price is set such that if there is a liquidation all the money goes to the preferred shareholders (equity is worth zero)

Case Study: Photronics
Case Study: Photronics

Photronics is the world’s leading and fastest growing manufacturer of photomasks. Photomasks are high precision quartz plates that contain microscopic images of electronic circuits. A key element and enabling technology in the manufacture of semiconductors, photomasks are used to transfer circuit patterns onto semiconductor wafers during the fabrication of integrated circuits. They are produced in accordance with circuit designs provided by customers at strategically located manufacturing facilities in North America, Europe and Asia.

Case Study: Photronics

### Sales, 1994-99

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales (USD millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>117.0</td>
</tr>
<tr>
<td>1995</td>
<td>128.0</td>
</tr>
<tr>
<td>1996</td>
<td>190.1</td>
</tr>
<tr>
<td>1997</td>
<td>228.1</td>
</tr>
<tr>
<td>1998</td>
<td>237.2</td>
</tr>
</tbody>
</table>

### Balance Sheet, end-1999

<table>
<thead>
<tr>
<th>Category</th>
<th>1999 (USD millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td>Liabilities &amp; Equity</td>
</tr>
<tr>
<td>Cash</td>
<td>7.6</td>
</tr>
<tr>
<td>Other current assets</td>
<td>59.9</td>
</tr>
<tr>
<td>Long term assets</td>
<td>319.6</td>
</tr>
<tr>
<td>Total</td>
<td>387.1</td>
</tr>
<tr>
<td>Current liabilities</td>
<td>50.2</td>
</tr>
<tr>
<td>Long term liabilities</td>
<td>132.7</td>
</tr>
<tr>
<td>Shareholder's equity</td>
<td>204.2</td>
</tr>
<tr>
<td>Total</td>
<td>387.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Book</th>
<th>Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market capitalization</td>
<td>720</td>
<td>264</td>
</tr>
<tr>
<td>P/E</td>
<td>26.4</td>
<td></td>
</tr>
<tr>
<td>EBIT/Int cost</td>
<td>5.77</td>
<td></td>
</tr>
<tr>
<td>D/E</td>
<td>0.90</td>
<td>0.25</td>
</tr>
<tr>
<td>D/(D+E)</td>
<td>0.47</td>
<td>0.20</td>
</tr>
</tbody>
</table>
The Company’s Debt

<table>
<thead>
<tr>
<th>NOVEMBER 1, 1998</th>
<th>NOVEMBER 1, 1997</th>
</tr>
</thead>
<tbody>
<tr>
<td>6% Convertible Subordinated Notes due June 1, 2004</td>
<td>$103,500</td>
</tr>
<tr>
<td>Acquisition indebtedness payable December 1, 1998, net of interest of $9 in 1998 and $122 in 1997</td>
<td>1,781</td>
</tr>
<tr>
<td>Instalment note payable by foreign subsidiary with interest at 4.75% through June 2001</td>
<td>665</td>
</tr>
<tr>
<td>Industrial development mortgage note, secured by building, with interest at 6.50%, payable through November 2005</td>
<td>381</td>
</tr>
<tr>
<td>Less current portion</td>
<td>2,036</td>
</tr>
<tr>
<td>Long-term debt</td>
<td>$104,261</td>
</tr>
</tbody>
</table>

Should Photronics Have More Debt?

- **Benefits of Debt**
  - Tax Benefits
  - Adds discipline to management

- **Costs of Debt**
  - Bankruptcy Costs
  - Agency Costs
  - Loss of Future Flexibility
How Much Debt? Relative Analysis

The “safest” place for any firm to be is close to the industry average

- Subjective adjustments can be made to these averages to arrive at the right debt ratio.
  - Higher tax rates -> Higher debt ratios (Tax benefits)
  - Lower insider ownership -> Higher debt ratios (Greater discipline)
  - More stable income -> Higher debt ratios (Lower bankruptcy costs)
  - More intangible assets -> Lower debt ratios (More agency problems)

The CFO Questions

- How fast can we grow? What criteria for spending money? Acquisitions? Divestitures?
- How should we finance our growth? What kind of equity? What’s our exit plan? Private or public?
- How much (cheap) debt should we have?
- What kind of debt should we have? Maturity? Fixed/floating? Currency? Asset-backed? Hybrids, such as convertibles?
- How should we manage our financial risks?
Raising Equity: The Investment Banker’s Job

- Market conditions
- Corporate needs
- Valuation
- Information
- Distribution

Deutsche Telekom: The Sequence

- See case Exhibit 2
What's a Company Worth to Investors?

- Required Returns
- Types of Models
  - Balance sheet models
  - Dividend discount & corporate cash flow models
  - Price/Earnings ratios
  - Option models
- Estimating Growth Rates

Equity Valuation: From the Balance Sheet

Value of Assets
- Book
- Liquidation
- Replacement

Value of Liabilities
- Book
- Market

Value of Equity
Deutsche Telekom: Book Value

See case Exhibit 3

<table>
<thead>
<tr>
<th></th>
<th>At December 31</th>
<th>At June 30</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(in million)</td>
<td>(in million)</td>
</tr>
<tr>
<td></td>
<td>DMR</td>
<td>DFI</td>
</tr>
<tr>
<td><strong>Consolidated Balance Sheet Data</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total assets</td>
<td>139,216</td>
<td>129,813</td>
</tr>
<tr>
<td>Debt</td>
<td>148,480</td>
<td>139,016</td>
</tr>
<tr>
<td><strong>Total liabilities</strong></td>
<td>113,271</td>
<td>109,516</td>
</tr>
<tr>
<td>Shareholders' equity</td>
<td>15,119</td>
<td>13,495</td>
</tr>
</tbody>
</table>

Do valuation ratios make sense?

- Price/Earnings (P/E) ratios
  - and variants (EBIT multiples, EBITDA multiples, Cash Flow multiples)
- Price/Book (P/BV) ratios
  - and variants (Tobin's Q)
- Price/Sales ratios

It depends on how they are used -- and what's behind them!
Deutsche Telekom: Ratios and Comparables

See case page 9

Discounted Cashflow Valuation: Basis for Approach

\[ \text{Value} = \sum_{t=1}^{n} \frac{CF_t}{(1+r)^t} \]

where
- \( n \) = Life of the asset
- \( CF_t \) = Cashflow in period \( t \)
- \( r \) = Discount rate reflecting the riskiness of the estimated cashflows
Deutsche Telekom: Earnings

See case page 8

Valuing a Firm with DCF: An Illustration

- Historical financial results
- Adjust for nonrecurring aspects
- Gauge future growth
- Projected sales and operating profits
- Adjust for noncash items

Discount to present using weighted average cost of capital (WACC)

Present value of free cash flows + cash, securities & excess assets - Market value of debt = Value of shareholders equity

Terminal year FCFF

Stable growth model or P/E comparable

Year 1 FCFF → Year 2 FCFF → Year 3 FCFF → Year 4 FCFF → ...
Next

- Bond Markets
- Equity Markets
- Domestic
- International

Ian H. Giddy

Stern School of Business
New York University
44 West 4th Street, New York, NY 10012, USA

Tel 212-998-0332; Fax 917-463-7629
ian.giddy@nyu.edu
http://giddy.org