Active Learning and Teaching for Security Analysis and Risk Management

HSG TRADING ROOM*

Frauendorfer/Gutsche/Rif

*This research is part of the activities of SCCER CREST, which is financially supported by the Swiss Commission for Technology and Innovation (CTI).
Founding Pillars

- Active and experiential-based learning
- Foster financial digital literacy
- Promote the use of financial databases
- Research projects
Main Goals

- Promote thorough Investment Analysis and Risk Management
- Bridging Practice with Theory, Accounting with Principles of Finance
- Integration of Fundamental and Market Data
Why this approach is unique

- Challenge and reverse engineer current analyst-issued target prices and investment recommendations with immediate feedback loops
- Back-test and track trading strategies using real-time and historical data feeds
- Explore historical events through integration of equity and credit analysis by means of existing data providers
Framework: Forecasting Profitability and (Risky) Growth

\[ \text{ReOI} = ( \text{RNOA} - \text{RR} ) \times \text{NOA} \]

\[ \text{RNOA} = \frac{\text{OI}}{\text{Sales}} \times \frac{\text{Sales}}{\text{NOA}} \]

Discount with Required Return (RR) for Risk (un)ease of Operations (Sales)

Intrinsic Value

Value Added from Operations

NOA

PV(RnO)

PV(NcO)

PV(NcD)

PV(NcD)

NOA

ReOI

RR

OI

ReOI

Profitability

RNOA = PM \times ATO

Growth

t1

t2

t3

Profitability

Gutsche/Rif (2017)
Example 1 – Trading Situation 1

- **Trading task:** Sell/Buy decision based on the market implied vs own forecasted growth rate
- **Learning goal:** Actively challenge the current market price through fundamental analysis
Example 1 – Trading Situation 2

- **Trading task:** Sell/Buy decision based on the market expectations vs own valuation
- **Learning goal:** Actively implement various fundamental valuation methods
Example 1 – Trading Situation 3

- **Trading task:** Sell/Buy decision based on the market expectations vs own valuation
- **Learning goal:** Actively implement various fundamental valuation methods
Example 2: Analysis of P/E-P/B relationship

<table>
<thead>
<tr>
<th>P/E Ratio</th>
<th>P/B Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>High</td>
<td>$\overline{RE} &gt; RE_0$</td>
</tr>
<tr>
<td></td>
<td>$RE_0 &gt; 0$</td>
</tr>
<tr>
<td>Normal</td>
<td>$\overline{RE} = RE_0$</td>
</tr>
<tr>
<td></td>
<td>$RE_0 &gt; 0$</td>
</tr>
<tr>
<td>Low</td>
<td>$\overline{RE} &lt; RE_0$</td>
</tr>
<tr>
<td></td>
<td>$RE_0 &gt; 0$</td>
</tr>
</tbody>
</table>

$\overline{RE} = $ Expected future residual earnings  
$RE_0 = $ Current residual earnings
Example 2 - Trading Situation 1

- **Trading task:** Determine best investment decision based on the given P/E and P/B ratios
- **Learning goal:** Apply the P/E and P/B relationship

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>P/E=10; P/B = 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1</td>
<td>Market</td>
</tr>
<tr>
<td>Asset</td>
<td>P/B</td>
</tr>
<tr>
<td>A</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
</tr>
</tbody>
</table>
Example 3: Risk Management and Commodity Trading

- Fundamentals of Crude Oil Markets and Futures Trading
- Value-at-Risk, Hedging Deliveries
- Arbitrage Opportunities, Cost-of-carry
- Electricity Markets and Black-Scholes in Practice