Active Learning and Teaching for

Security Analysis and Risk Management

HSG TRADING ROOM*

Frauendorfer/Gutsche/Rif

CC Security Analysis
ior/cf-HSG
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Founding Pillars

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

Main Goals

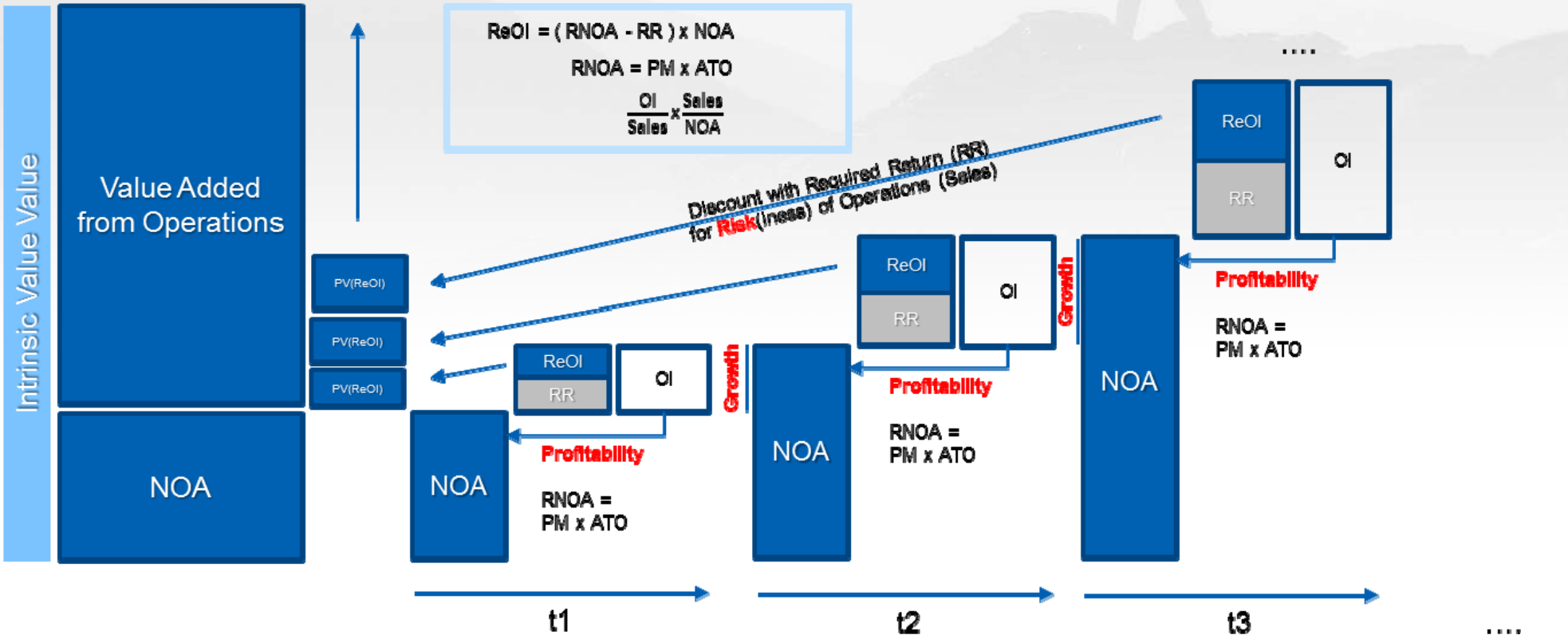


- Promote thorough Investment Analysis and Risk Management
- Bridging Practice with Theory, Accounting with Principles of Finance
- Integration of Fundamental and Market Data

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

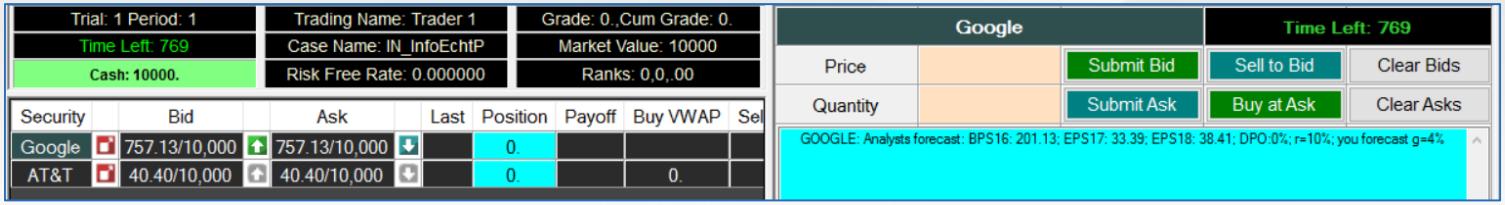
Framework: Forecasting Profitability and (Risky) Growth



Gutsche/Rif (2017)

Example 1 – Trading Situation 1

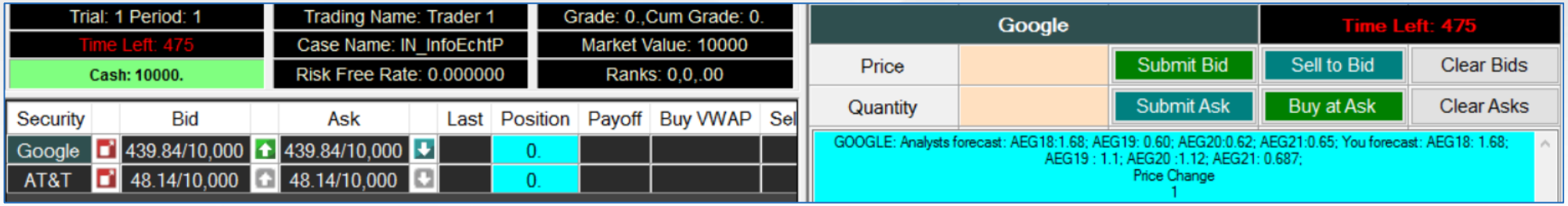
- **Trading task:** Sell/Buy decision based on the market implied vs own forecasted growth rate
- **Learning goal:** Actively challenge the current market price through fundamental analysis

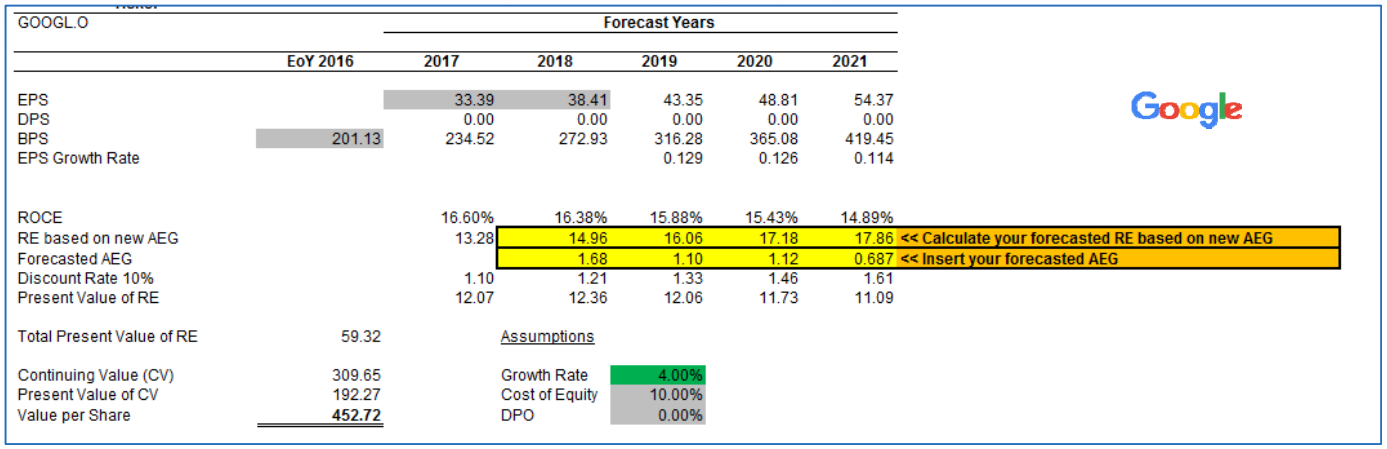


Ticker						
GOOGL.O		Forecast Years				
	EoY 2016	2017	2018	2019	2020	2021
EPS		33.39	38.41	42.85	47.76	53.18
DPS		0.00	0.00	0.00	0.00	0.00
BPS	201.13	234.52	272.93	315.78	363.54	416.72
EPS Growth Rate				0.116	0.115	0.114
ROCE		16.60%	16.38%	15.70%	15.12%	14.63%
RE at 10% Charge		13.28	14.96	15.56	16.18	16.83
Discount Rate 10%		1.10	1.21	1.33	1.46	1.61
Present Value of RE		12.07	12.36	11.69	11.05	10.45
Total Present Value of RE	57.62					
			Assumptions			
Continuing Value (CV)	291.65		Growth Rate	4.00%	<<<Initially this is the mark	
Present Value of CV	181.09		Cost of Equity	10.00%		
Value per Share	439.84		DPO	0.00%		

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





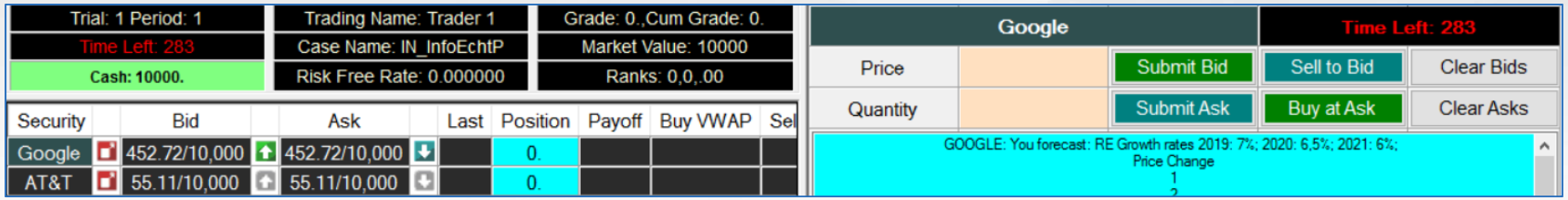
GOOGL.O

	EoY 2016	Forecast Years 2017	2018	2019	2020	2021	
EPS		33.39	38.41	43.35	48.81	54.37	
DPS		0.00	0.00	0.00	0.00	0.00	
BPS	201.13	234.52	272.93	316.28	365.08	419.45	
EPS Growth Rate				0.129	0.126	0.114	
ROCE		16.60%	16.38%	15.88%	15.43%	14.89%	
RE based on new AEG		13.28	14.96	16.06	17.18	17.86	<< Calculate your forecasted RE based on new AEG
Forecasted AEG			1.68	1.10	1.12	0.687	<< Insert your forecasted AEG
Discount Rate 10%		1.10	1.21	1.33	1.46	1.61	
Present Value of RE		12.07	12.36	12.06	11.73	11.09	

Total Present Value of RE	59.32	Assumptions	
Continuing Value (CV)	309.65	Growth Rate	4.00%
Present Value of CV	192.27	Cost of Equity	10.00%
Value per Share	452.72	DPO	0.00%

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



Trial: 1 Period: 1	Trading Name: Trader 1	Grade: 0.,Cum Grade: 0.
Time Left: 283	Case Name: IN_InfoEchtP	Market Value: 10000
Cash: 10000.	Risk Free Rate: 0.000000	Ranks: 0,0,.00

Security	Bid	Ask	Last	Position	Payoff	Buy VWAP	Sel
Google	452.72/10,000	452.72/10,000		0.			
AT&T	55.11/10,000	55.11/10,000		0.			

Google			Time Left: 283	
Price		Submit Bid	Sell to Bid	Clear Bids
Quantity		Submit Ask	Buy at Ask	Clear Asks

GOOGLE: You forecast: RE Growth rates 2019: 7%; 2020: 6,5%; 2021: 6%;
Price Change
1
2

GOOGL.O

		Forecast Years				
	EoY 2016	2017	2018	2019	2020	2021
EPS		33.39	38.41	43.30	48.67	54.56
DPS		0.00	0.00	0.00	0.00	0.00
BPS	201.13	234.52	272.93	316.22	364.89	419.45
EPS Growth Rate				0.127	0.124	0.121
ROCE		16.60%	16.38%	15.86%	15.39%	14.95%
RE at 10% Charge		13.28	14.96	16.01	17.05	18.07
Discount Rate 10%		1.10	1.21	1.33	1.46	1.61
Present Value of RE		12.07	12.36	12.03	11.64	11.22

<< Calculate RE based on New Growth Rate

Total Present Value of RE to 2023	59.32	Assumptions			
		RE Growth Rate	7.00%	6.50%	6.00%
Continuing Value (CV)	478.82	Cost of Equity	10.00%		
Present Value of CV	297.31	DPO	0.00%		
Value per Share	**557.76**				

<<< Insert your New Growth Rates

Example 2: Analysis of P/E-P/B relationship

	P/B Ratio		
P/E Ratio	High $\overline{RE}_0 > 0$	Normal $\overline{RE}_0 = 0$	Low $\overline{RE}_0 < 0$
High	$\overline{RE} > RE_0$	$\overline{RE} > RE_0$ $RE_0 < 0$	$\overline{RE} > RE_0$ $RE_0 < 0$
Normal	$\overline{RE} = RE_0$ $RE_0 > 0$	$\overline{RE} = RE_0$ $RE_0 = 0$	$\overline{RE} = RE_0$ $RE_0 < 0$
Low	$\overline{RE} < RE_0$ $RE_0 > 0$	$\overline{RE} > RE_0$ $RE_0 < 0$	$\overline{RE}_0 < 0$

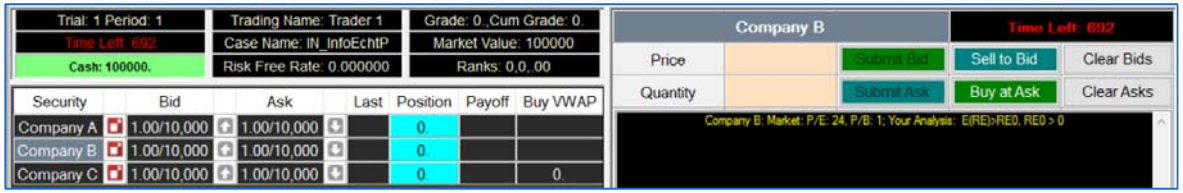
$\overline{RE}$ = Expected future residual earnings

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







Benchmark P/E=10; P/B = 1		Scenario 1				
Asset	Starting Price	Market		Your Analysis		Price 1
		P/B	P/E	E(RE)	RE0	
A	1	1.5	10	E(RE) = RE 0	RE 0 > 0	1
B	1	1	24	E(RE) > RE 0	RE 0 > 0	1.1
C	1	1	10	0 < E(RE) < RE 0	RE 0 > 0	0.9

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

