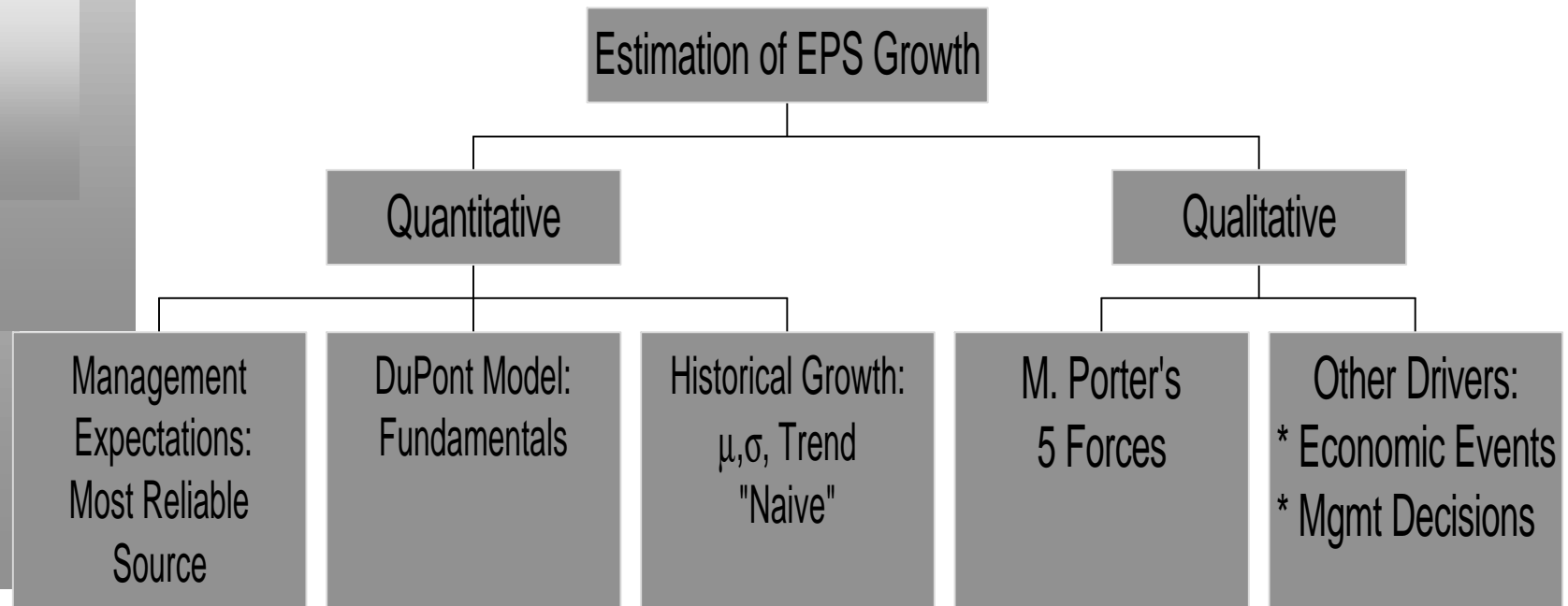




Valuation: The DuPont Model

Crocker H. Liu

Estimation of Equity Growth:

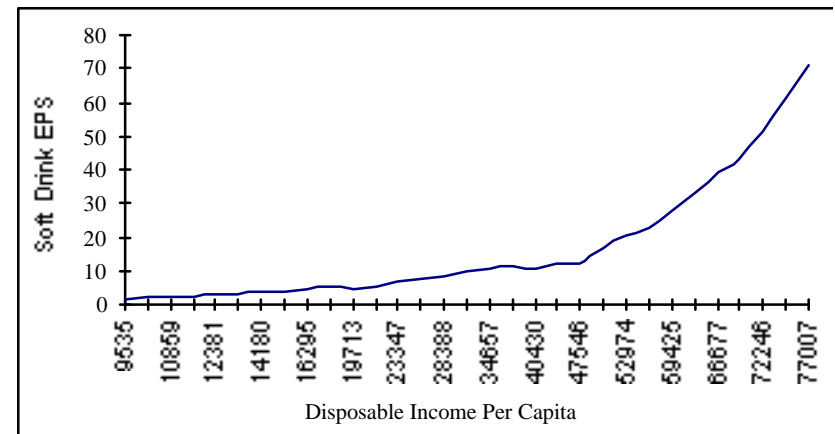
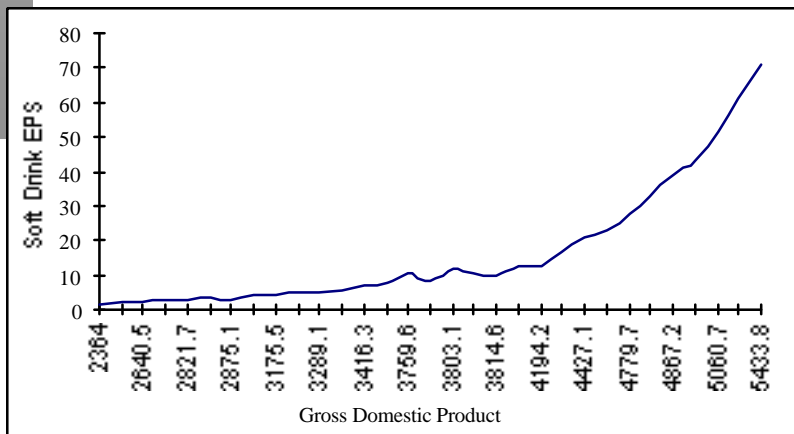
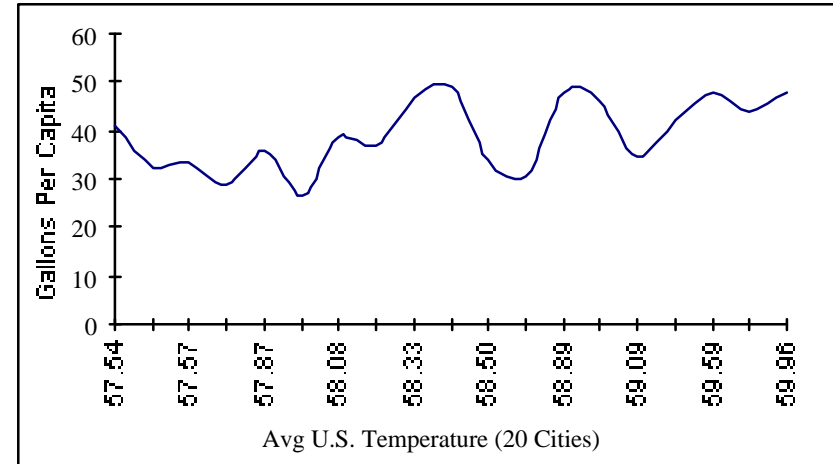
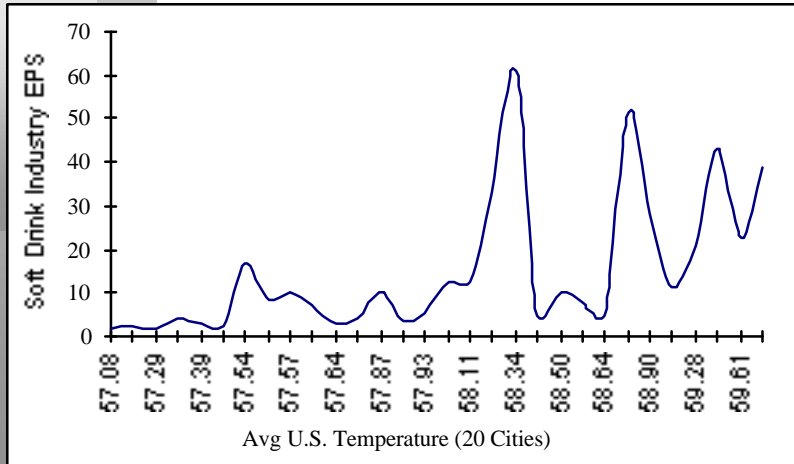


Where Does Coke's Revenue Come From?: The Starting Point for Analyzing Growth

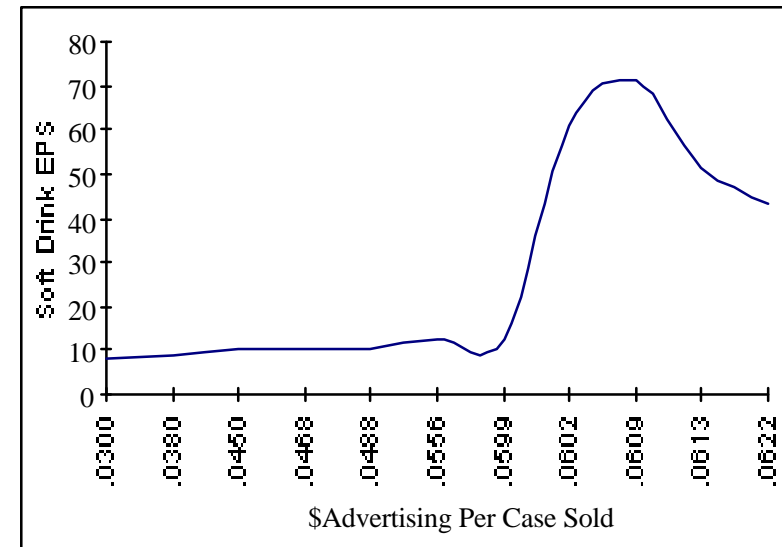
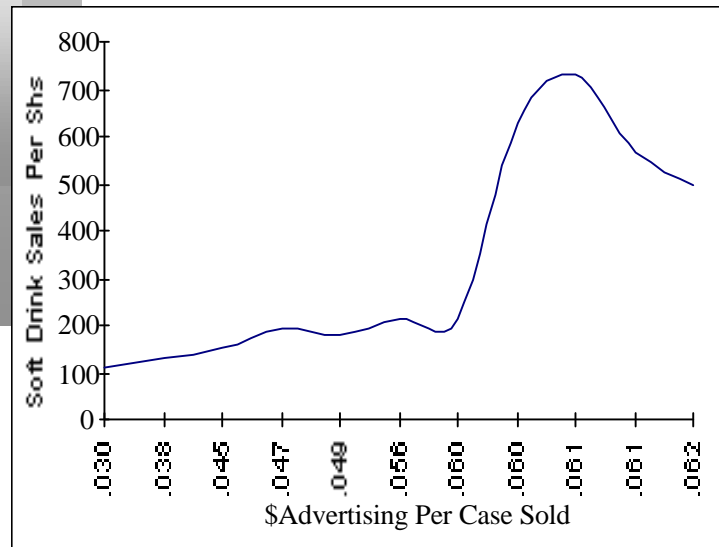
	Africa	Greater Europe	Latin America	Middle & Far East	North America
Net Sales					
1997	3%	29%	11%	23%	34%
1996	3%	32%	11%	22%	32%
1995	3%	33%	11%	22%	31%
Op Income					
1997	3%	27%	18%	28%	24%
1996	3%	28%	18%	30%	21%
1995	4%	28%	18%	31%	19%
Capital Exp ⁽¹⁾					
1997	2%	30%	7%	18%	24%
1996	3%	38%	8%	12%	27%
1995	2%	41%	9%	9%	31%
Op Assets ⁽¹⁾					
1997	3%	20%	13%	13%	37%
1996	3%	24%	12%	12%	32%
1995	3%	35%	10%	12%	28%

⁽¹⁾The remaining percentage of capital expenditures and operating assets are allocated to corporate.

Other Factors Affecting Revenue: The Case of Coke (KO)



Other Factors Affecting Revenue: The Case of Coke (KO)



Past Growth : When History Is Not a Guide to the Future

- Fundamental change in the line of products made
- Fundamental change in the manufacturing or sales policy
- Change in Management
- Loss of a special advantage

Expiration of patents or licensing contracts, exhaustion of natural resources

Coke: Is it Still the R-E-A-L Thing?

■ **Analyst's Long Term EPS Growth Forecast (3-5 Years)**

The expected annual increase in operating earnings over the next full business cycle (3-5 years) is 17% according to IBES.

■ **Management's Expectations: (1997 Annual Report)**

“Looking ahead over the long term, **we see** ... earnings-per-share ***growth averaging in the upper teens (15-20%)***...Our track record for the last five years (18% average compounded EPS growth from continuing operations), 10 years (19%) and 15 years (17%) is indicative of our expectations for the future.”

Coke: Will History Repeat?

■ Past History:

<u>Per Share</u>	<u>1997</u>	<u>1996</u>	<u>1995</u>	<u>1994</u>	<u>1993</u>	<u>1992</u>
Revenues	7.64	7.48	7.19	6.34	5.38	5.00
Depreciation	0.25	0.19	0.18	0.16	0.14	0.12
EBIT	2.02	1.58	1.63	1.45	1.20	1.06
Net Income	1.64	1.38	1.17	0.98	0.83	0.62
Time	6.00	5.00	4.00	3.00	2.00	1.00

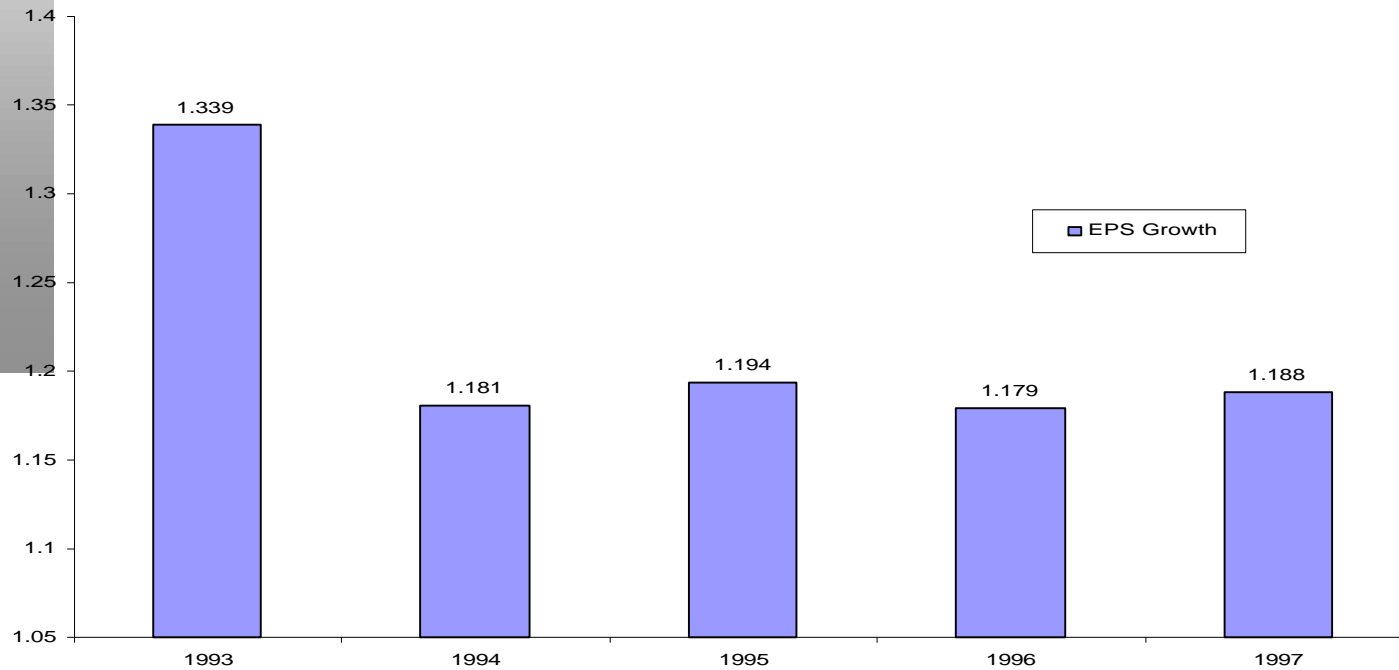
Ways to obtain the growth rate:

❶ $EPS_{97} = EPS_{92}(1+g)^5$ $\hat{=} (1.64/0.62)^{1/5} - 1 \hat{=} g = 21.5\%$

❷ $\ln EPS = a + \beta * Time = -.6084 + .1876 * Time$

$\hat{=} g = [\exp(\beta)] - 1 = 20.6\%$

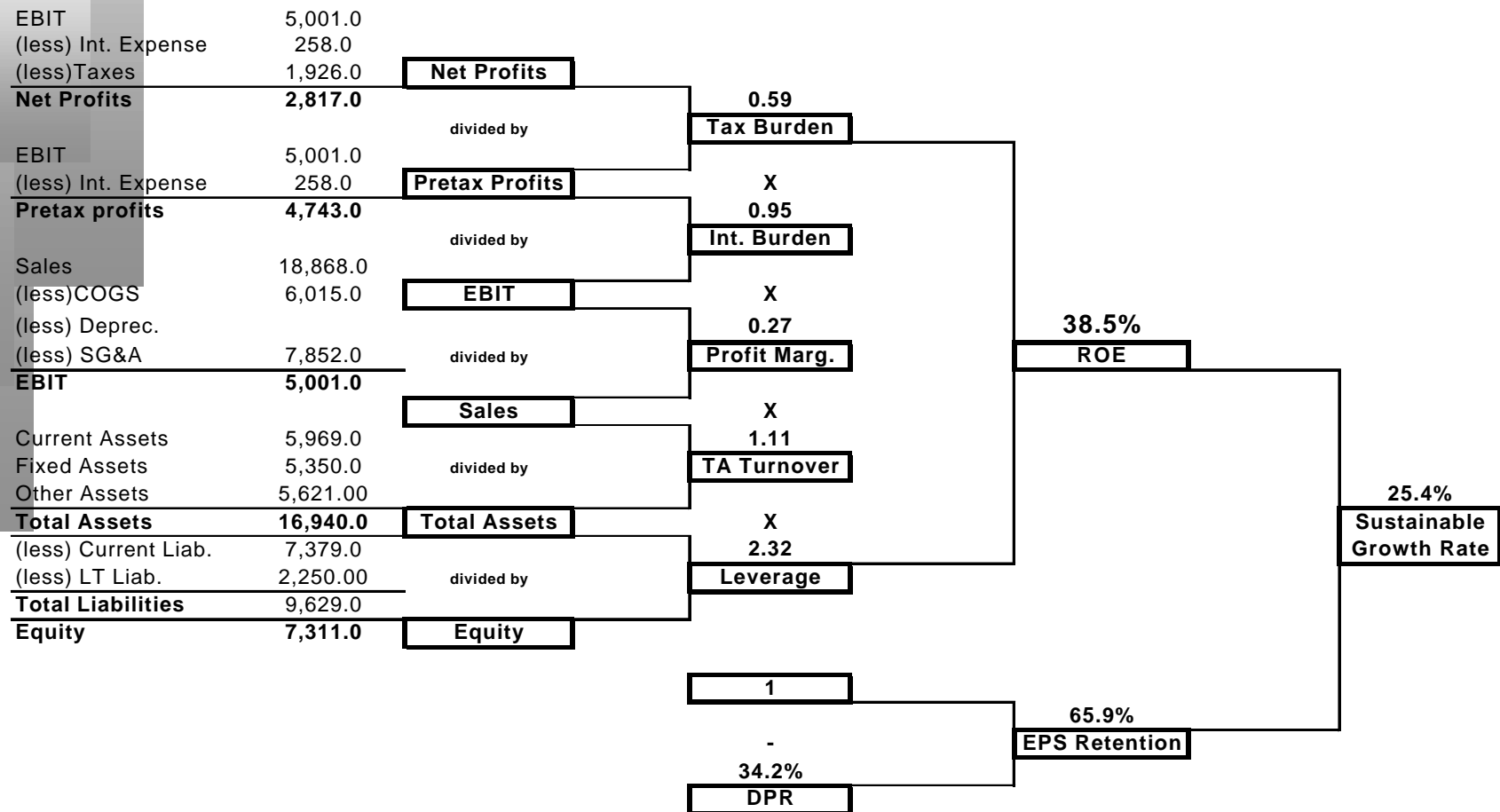
Over What Time Period Should Historic Growth for Coke be Calculated?



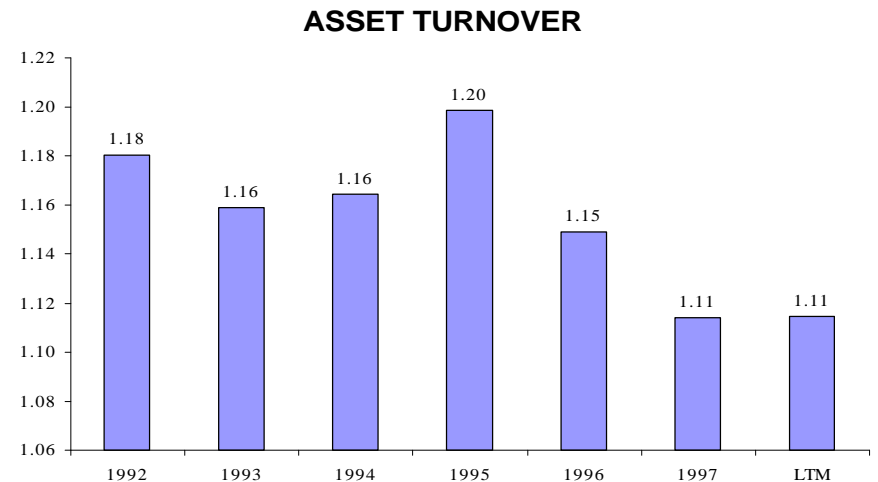
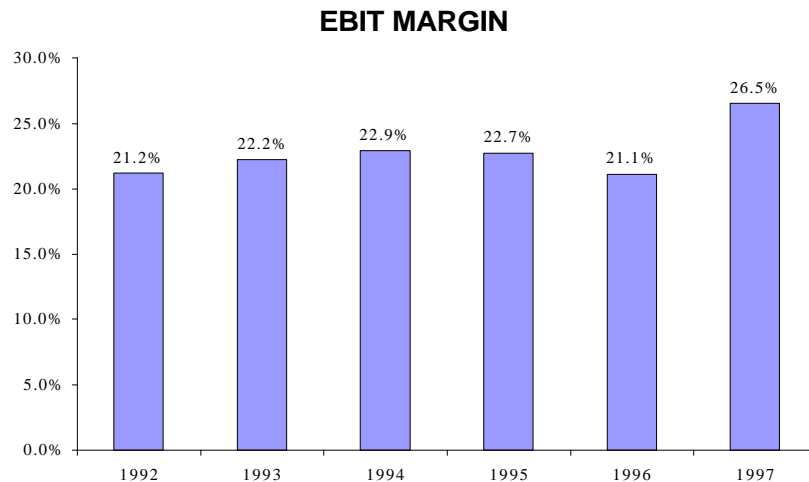
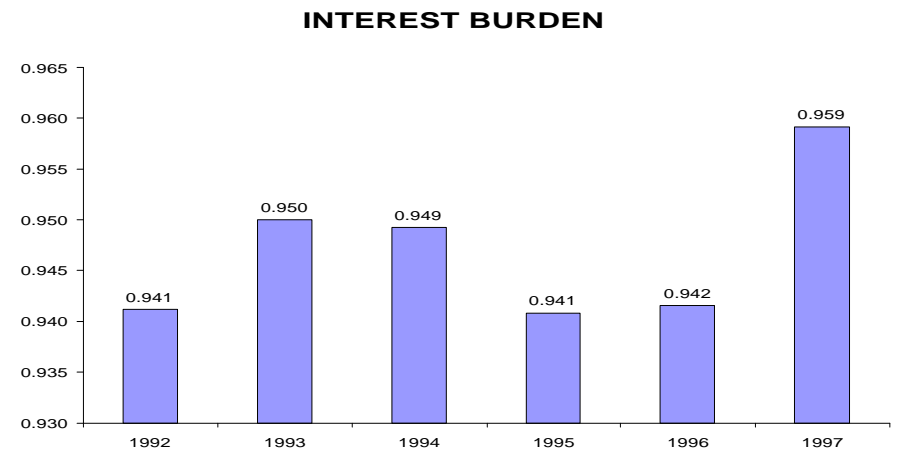
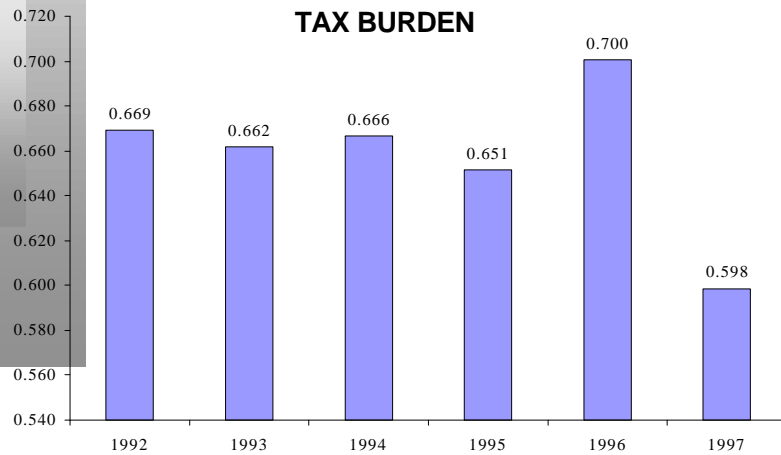
If 4 years were used instead of 5 years, then growth is 18.6%

Coke's EPS Growth via Fundamentals

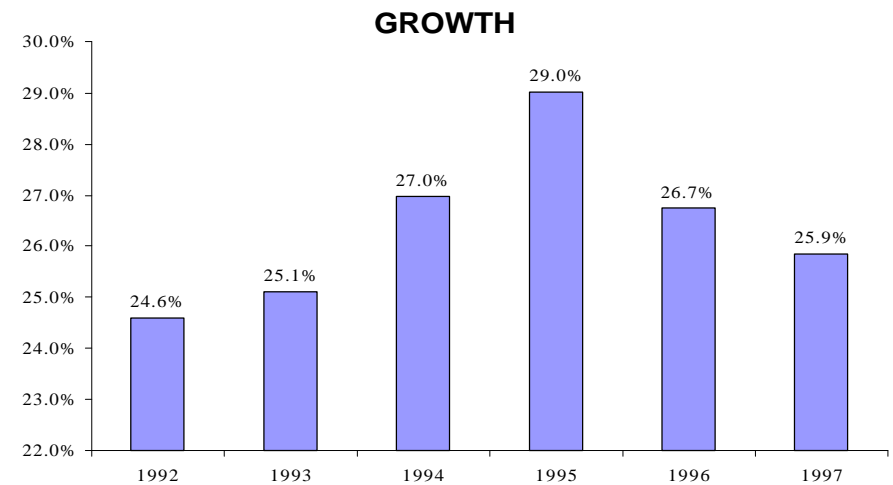
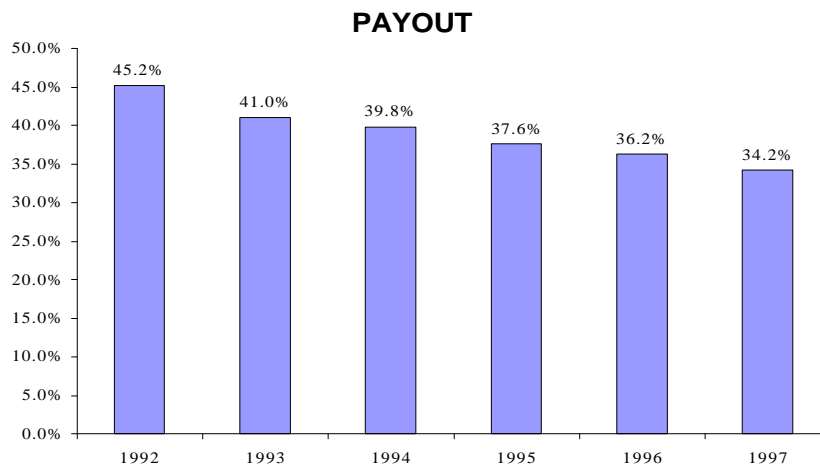
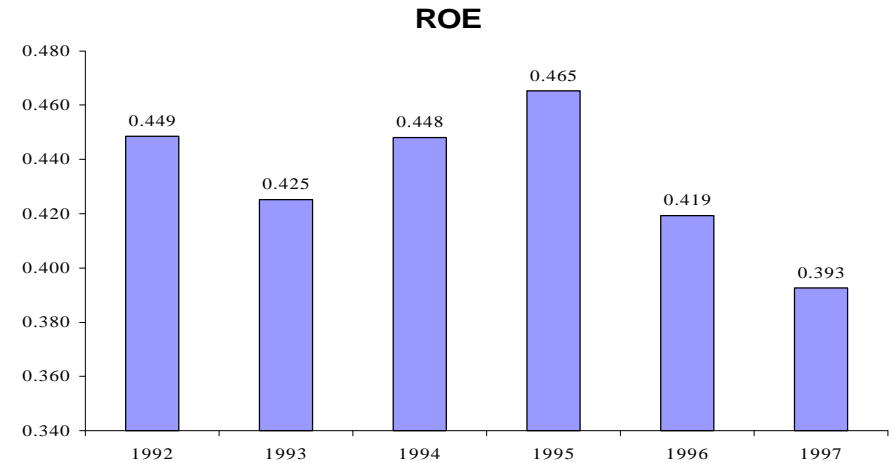
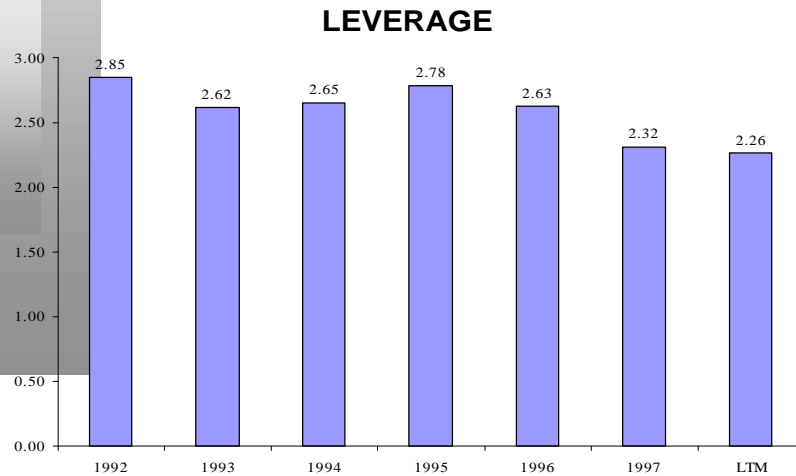
2. ROE Calculation:



Coke Fundamentals: Looking at Trends in the Components of Growth



Coke Fundamentals: Looking at Trends in the Growth Components

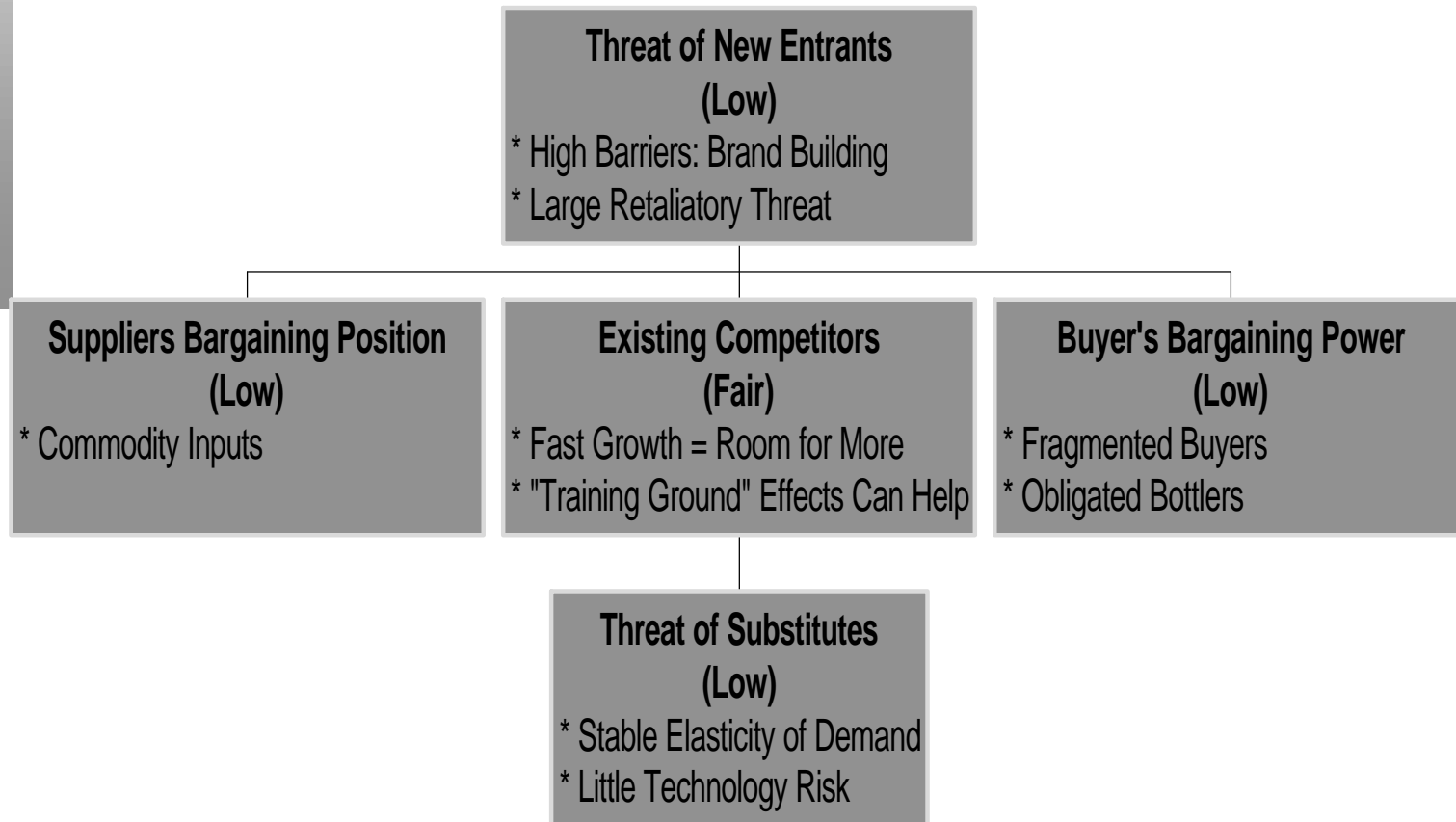


Coke: Is it Still the R-E-A-L Thing?

■ **Qualitative Factors Affecting Future Performance:**

- Roberto Goizueta, CEO, died of cancer in 1997
- Strong dollar is causing weaker sales abroad
- Implementation of EVA as a performance benchmark (Impacts on beta, k_e , and WACC)
- Strategy of buying underperforming bottlers, improving their performance, and then selling them to powerful anchor bottlers to further drive sales (Extraordinary Gains)

Coke's Future Growth ala Porter:



Consensus EPS and EPS Announcements: What Happens When Growth Estimates Differ

Earnings Surprises:

$$SUE = \frac{\text{Actual EPS} - \text{Expected EPS}}{S_{\text{Analysts' Estimates}}}$$

Example: On June 10, 1996, First Call reported for Coke

- Est. EPS=.42.
- $\sigma(\text{EPS})=.01$

Coke announced a reported EPS=.42 for 96Q2 so

$$SUE = (.42-.42)/.01=0$$

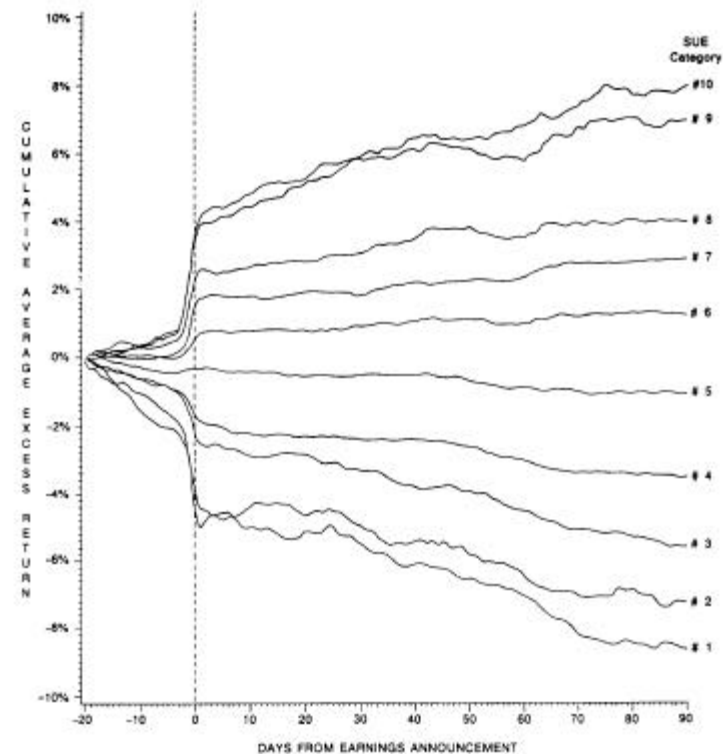


Fig. 1. Cumulative excess returns averaged over the 36 quarter period 1971.3-1980.2 for 10 SUE categories ranging from the most negative SUE category (#1, $SUE \leq -4.0$) to the most positive SUE category (#10, $SUE > +4.0$). The sample size ranges from a minimum of 618 companies (1971.3) to a maximum of 1496 in 1980.1 (see table 1 for additional details on sample size). Day 0 on the horizontal axis is the announcement date of earnings.

Characteristics of High Growth vs. Stable Growth Firms

High Growth Firms usually

- ❶ Pay little or no dividends
- ❷ Have high risk
- ❸ Earn high return on capital
- ❹ Have a high net capital exp.
- ❺ Have low leverage

Stable Growth Firms usually

- ❶ Pay high dividends
- ❷ Have average risk
- ❸ Earn ROC closer to WACC
- ❹ Have lower net capital exp
- ❺ Have leverage closer to industry average

Length of Supernormal Growth Period

- Length of time that barriers to entry and differential advantages remain in place
 - Length of government restrictions e.g., cable TV monopolies
 - Length of Patents (drug companies)

- Management expectations

In Starbucks 1995 annual report, Starbucks stated its goal of opening 2000 coffee houses by the year 2000 after which management foresees a leveling off of growth due to market saturation.

- Effective life of franchise executives e.g. Bill Gates

Length of Supernormal Growth Period

- Holt's Growth Duration (T): Assuming that a growth stock g and a stable growth stock (S&P500) have *similar risk and payout*, the value of the stocks should be directly proportional to their earnings in year T

$$\ln\left(\frac{\text{Current PE}_{\text{Stock}}}{\text{Current PE}_{\text{Market}}}\right) \cong T * \ln\left(\frac{1+g_{\text{Stock}} + \text{Dividend Yield}_{\text{Stock}}}{1+g_{\text{Market}} + \text{Dividend Yield}_{\text{Market}}}\right)$$

T = time when growth company begins to grow at same rate as the market

Dividend Yield = Dividends per share/Price

g = growth rate in earnings per share

Information on Coke for Holt's T

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 DELAY 9:59 Vol 403,800 Op 79¹/₁₆ N Hi 79⁵/₁₆ N Lo 78⁷/₈ N ValTrd 31925116 **Page 1 / 10**
DESCRIPTION
K O UN COCA-COLA COMPANY (THE) 11) CN All News/Research
Beverages-Non-alcoholic 12) HH Hoover's Handbook
 CUSIP 191216100
 The Coca-Cola Company manufactures, markets, and distributes soft drink concentrates and syrups. The Company manufactures and sells soft drink and noncarbonated beverages, including fountain syrups, some finished beverages, and certain juice and juice-drink products. Coca-Cola sells its concentrates and syrups for bottled and canned beverages to authorized bottling and canning operations.

STOCK DATA				9)DVD DIVIDENDS - Quarterly			
1)GPO	Current Price	\$	79 ¹ / ₁₆	Indicated Gross Yld		.76%	
	52Wk High 7/15/1998	\$	88 ¹⁵ / ₁₆	Dividend Growth 5YR		13.35%	
	52Wk Low 10/28/1997	\$	50	Ex-Date Type Amt			
	YTD Chng (18.56%)	\$	12 ³ / ₈	9/11/98 Reg. Cash		\$.15	
2)TRA	1 Yr Total Return		32.09%	EARNINGS			
3)CH1	Shares Out as of 7/31		2465.494M	Trailing 12mo EPS \$		1.570	
	Market Cap		194928.11M	9)EE Est EPS 12/1998\$		1.608	
	Float		2352.82M	10)GE P/E 50.36 Est P/E		49.17	
5)BETA	Beta vs. SPX		1.21	LT Growth 16.29 Est PEG		3.02	
6)OCM	Options avail & Stk Marginable						

Copyright 1998 BLOOMBERG L.P. Frankfurt:69-920410 Hong Kong:2-977-6000 London:171-330-7500 New York:212-318-2000
 Princeton:609-279-3000 Singapore:226-3000 Sydney:2-9777-8666 Tokyo:3-3201-8900 Sao Paulo:11-3048-4500
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What's the Supernormal Growth Period for Coke?

Coke has an implicit patent in the syrup formula.

Price-EPS	$PE_{\text{Coke}} = 50.36$	$PE_{\text{SP500}} = 26.02$
Expected Growth Rates	$g_{\text{Coke}} = .17$	$g_{\text{SP500}} = .074$
Dividend Yields	$DY_{\text{Coke}} = .0017$	$DY_{\text{SP500}} = .0145$
Beta	$\beta_{\text{Coke}} = .99$	$\beta_{\text{SP500}} = 1$ (by definition)

Observe that the betas are similar and the dividend yield for Coke is in the same ball park as that for the S&P500 so the conditions for using this model as satisfied.

$$\ln\left(\frac{50.36}{26.02}\right) / \ln\left(\frac{1+.17+.0017}{1+.074+.0145}\right) \cong T = 8.96 \text{ say } 9 \text{ years}$$

Caveats When Using Holt's Implied Duration Model

- Technique assumes equal risk

May be acceptable when comparing a large firm to the SP500 but probably isn't valid when comparing a small firm to the SP500

- Technique assumes that stocks with higher PE ratios have higher growth rates so that the PEG is around one (*correctly valued*)
- Technique assumes that the PE for the stock is greater than the PE for the market

If this isn't the case, a meaningless negative duration value will obtain.