PRINCIPLES OF SECURITY VALUATION: BOTTOM-UP ANALYSIS

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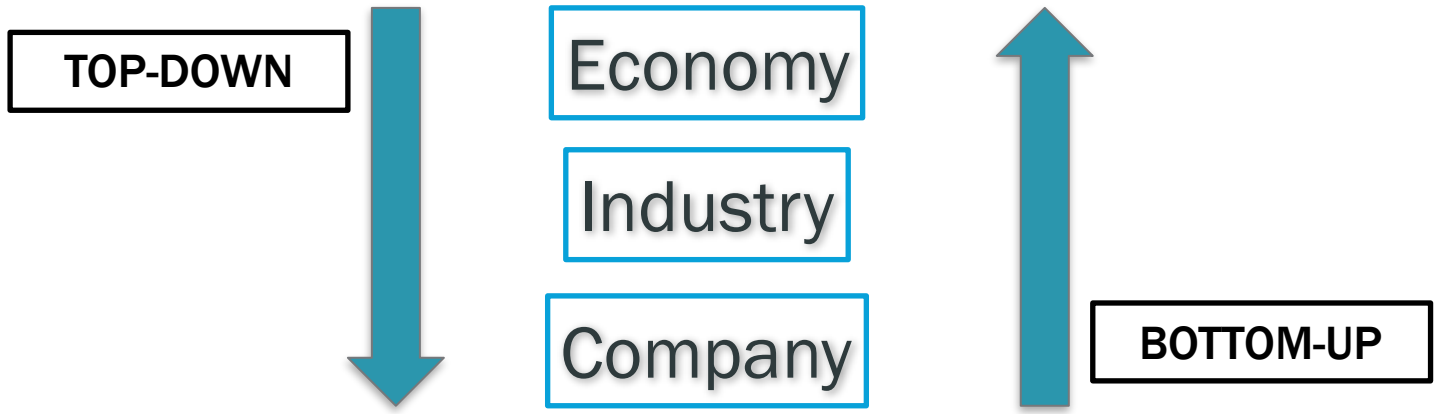
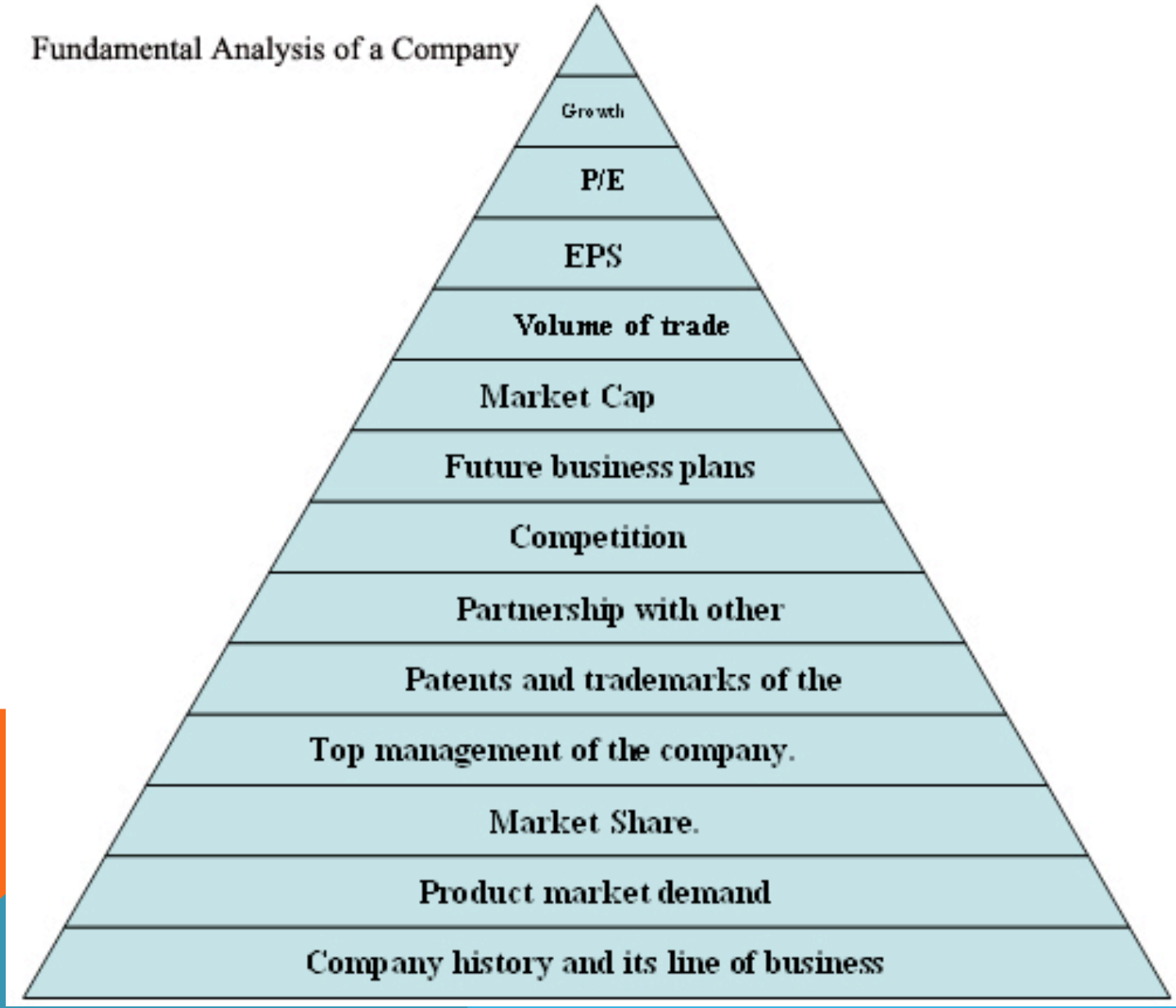
TOP-DOWN V. BOTTOM-UP FUNDAMENTAL ANALYSIS

Fundamental Analysis. The use of all market & non-market data to evaluate the current & future profitability of a company in order to assess its fair market value. Critical to long-term investors. Analysis of balance sheets, industries, and economies.

- *Top-Down Analysis.*
- *Bottom-Up Analysis*.



ELEMENTS OF BOTTOM-UP



MARKET CAPITALIZATION

Formula: Mkt Cap = # of Outstanding Shares X Share Price

Important notes:

- The larger the company, the more efficient its market AND the less volatile its price
- Stocks are typically sorted into the following market cap classifications:
  - *Micro-cap.* <$250 million
  - *Small-cap.* $250 million - $2 billion
  - *Mid-cap.* $2 billion - $10 billion
  - *Large-cap.* $10 billion - $100 billion
  - *Mega-cap.* >$100 billion

WHAT IS THE BASIC ACCOUNTING EQUATION?

$$A - L = E$$

COMPONENTS

Assets (A) include both current (cash, accounts receivable, liquid investments) and noncurrent (real estate, equipment, illiquid investments). These items comprise the *asset base* which generates *cash flow* for the business.

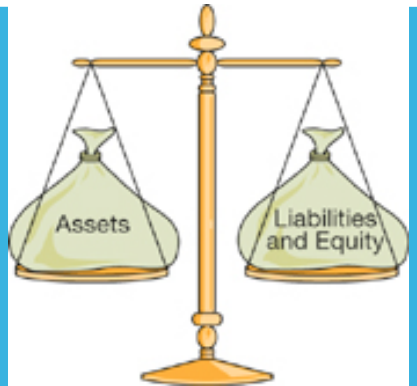
Liabilities (L) are financial debts and future obligations.

Shareholders' Equity (E), sometimes referred to as *capital*, is simply what is leftover.

KEY FEATURES

- Double entry bookkeeping system (debits & credits) ensures that a company's books will always be "in balance."
- A measure of both a company's profitability and total value.

A = L + E



ACCOUNTING FOR STOCK PICKERS

- *Balance Sheet*, also known as a *Statement of Financial Position*, reflects the entire financial condition of a company at a single point in time.
- *Income Statement*, also known as a *Profit & Loss (P&L) Statement* as well as a host of other things, documents the total revenues and expenses of a company over a particular period (quarter, half-year, year).
- *Statement of Cash Flows* reconciles accrual basis accounting to a cash basis accounting system to give a true picture of a company's liquidity.

These are often referred to as the

3 Basic Accounting Statements

A SIMPLE BALANCE SHEET

Notice the arrangement according to the basic accounting equation.

Sample Small Business Balance Sheet[10]

Assets (current)		**Liabilities and Owners' Equity**	
Cash	$6,600	**Liabilities**	
Accounts Receivable	$6,200	Notes Payable	$5,000
Assets (non-current)		Accounts Payable	$25,000
Tools and equipment	$25,000	*Total liabilities*	$30,000
		Owners' equity	
		Capital Stock	$7,000
		Retained Earnings	$800
		Total owners' equity	$7,800
Total	$37,800	*Total*	$37,800

A BASIC CASH FLOW STATEMENT

Where is the cash being used?

- Is it being used to run the *present* business? (operations)
- … to invest in assets for the *future*? (investing)
- … to pay off *past* purchases? (financing)

Statement of Cash Flow - Simple Example *for the period 1 Jan 2006 to 31 Dec 2006*	
Cash flow from operations	$4,000
Cash flow from investing	($1,000)
Cash flow from financing	($2,000)
Net cash flow	**$1,000**
Parentheses indicate negative values	

INCOME STATEMENT EXAMPLE

Your Company
Income Statement
For Year Ending Dec. 31, 2012

Revenue:			
	Gross Sales		xxxx.xx
	Less: Sales Returns/Allowance		xxxx.xx
	Net Sales		xxxx.xx
Cost of Goods Sold:			
	Purchases	xxxx.xx	
	Delivery Charges	xxxx.xx	
	Cost of Goods Sold		xxxx.xx
	Gross Sales Profit (Loss)		xxxx.xx
Expenses:			
	Expense 1	xxxx.xx	
	Expense 2	xxxx.xx	
	Expense 3	xxxx.xx	
	Total Expenses:		xxxx.xx
	Net Operating Income:		xxxx.xx
Other Income:			
	Income 1		xxxx.xx
	Income 2		xxxx.xx
	Income 3		xxxx.xx
	Total Other Income:		xxxx.xx
Net Income (Loss):			xxxx.xx

COMPARABLE COMPANY ANALYSIS

- Valuation is similar to real estate valuation, where location, square footage, vintage, amenities, etc. are triangulated amongst a pool of similar assets to determine an *implied valuation*.
- Based on the premise that similar companies should have similar valuation multiples.

($ in millions, except price per share)

Defense Primes	Stock Price 06/17/11	Stock Price 06/24/11	Stock Price Δ 1-Week	Stock Price Δ 1-Year	Market Cap	2011E P/E	2011E EV/EBITDA
Boeing Co.	**$74.16**	**$71.26**	**(3.9%)**	**10.0%**	**$52,609.5**	**17.4x**	**8.3x**
Lockheed Martin Corporation	80.01	79.20	(1.0%)	2.4%	27,682.2	10.9x	6.2x
General Dynamics Corp.	**71.67**	**72.29**	**0.9%**	**13.3%**	**26,891.9**	**10.1x**	**6.1x**
Northrop Grumman Corporation	64.69	66.35	2.6%	9.9%	19,422.0	9.9x	5.7x
Raytheon Co.	**48.77**	**47.93**	**(1.7%)**	**(4.0%)**	**17,071.7**	**9.7x**	**5.7x**
BAE Systems plc	5.02	4.88	(2.7%)	5.4%	16,686.8	8.9x	3.9x
L-3 Communications Holdings Inc.	**81.87**	**84.54**	**3.3%**	**8.8%**	**8,972.1**	**9.9x**	**6.7x**
Median			(1.0%)	8.8%	$19,422.0	9.9x	6.1x

PRICE-TO-BOOK (P/B) RATIOS

Formula: $P/B = \frac{\text{Market Value}}{\text{Book Value}}$

Book value. the net worth of a company as reported on its balance sheet, or the value of E from the *basic accounting equation*, A – L = E

Liquidation value. The amount of money that the company could get from selling all of its assets immediately. This value should set the floor for the stock price.

Replacement cost. The amount of money it would take to recreate the company's business if it were starting from scratch.

TOBIN'S Q

Formula: $Q = \frac{\text{Market Value}}{\text{Replacement Cost}}$

In the very long run, this ratio will tend towards 1.

However, this ratio can differ significantly from 1 for years or even decades, especially with today's internet companies because they carry very little real assets (hard assets) on their balance sheet.

PRICE-TO-EARNINGS (P/E) RATIOS

Formula: $P/E = \frac{\text{Stock Price}}{\text{Earnings Per Share}}$

The P/E ratio can either be

- trailing, where the past 12 months of *actual* earnings determine the earnings per share (EPS) figure
- leading (or forward), where *estimates* for the next 12 months are reflected in the EPS figure

PRICE-TO-SALES (P/S) RATIOS

Formula: $P/S = \frac{\text{Stock Price}}{\text{Revenue Per Share}}$

P/S ratios are used when companies are not yet profitable, either because they are still young or are investing heavily in their business

Very useful to compare retailers

Can also use market cap / total revenues to compute this ratio

Examples:

- Amazon has a ridiculous trailing P/E of 800, but a reasonable P/S of 1.8
- Apple has a trailing P/E of 16, but a P/S of 3.4

PRICE-TO-CASH FLOW (P/CF) RATIOS

Formula: $P/CF = \frac{\text{Stock Price}}{\text{Cash Flow Per Share}}$

A measure of value that excludes all of the various ways that management decisions can distort earnings and zeroes in on what truly matters: cash.

Seeks to exclude distortions caused by:

- Accounting decisions
- Asset allocation decisions
- Strategic decisions
- Past mistakes (maybe from another management team)

DIVIDEND YIELD

Formula: $DY = \frac{\text{Annual Dividend}}{\text{Stock Price}}$

Dividend. A payment made by a corporation to its shareholders, typically as a portion of its quarterly profit.

Trailing dividend yield. Dividends received in the past 12 months / stock price

Forward dividend. Next expected quarterly dividend multiplied by 4 / stock price

However, high dividends do not always indicate a company's health:

- They may be borrowing money to finance the dividend.
- They may not have any good investment opportunities for the company, which will eventually translate into lower growth. By contrast, no dividend may indicate outsized growth.
- The payout ratio may be too high, limiting growth opportunities.

Payout ratio. The percentage of earnings per share paid out in dividends.

Retention ratio (plowback ratio). This inverse of the payout ratio indicates the percentage of profits reinvested in the business.

DIVIDEND ARISTOCRATS

Members of the S&P 500 that have consistently raised their dividend for 25 consecutive years. Currently there are 54 companies.

Unlike other dividend portfolios, these companies are not primarily financials and utilities, but rather have a value-oriented component.

3M
Aflac
Coca-Cola
P&G
Kimberly-Clark
CLOROX
SYSCO
WAL★MART
WE SELL FOR LESS, EVERY DAY
SHERWIN-WILLIAMS

CORPORATE GOVERNANCE

Corporate governance. system of internal controls and procedures by which individual companies are managed.

We want to get a sense of the quality of corporate governance and layer this understanding on top of our quantitative assessments of industry and finances.

- What is the experience/qualifications of the CEO and other executives? (LinkedIn profiles)
- What is the structure of the business?
- Is there insider ownership?
- Are there a majority of independent Board members?
- Is executive compensation aligned with shareholder interests?
- Is there a visionary founder CEO?

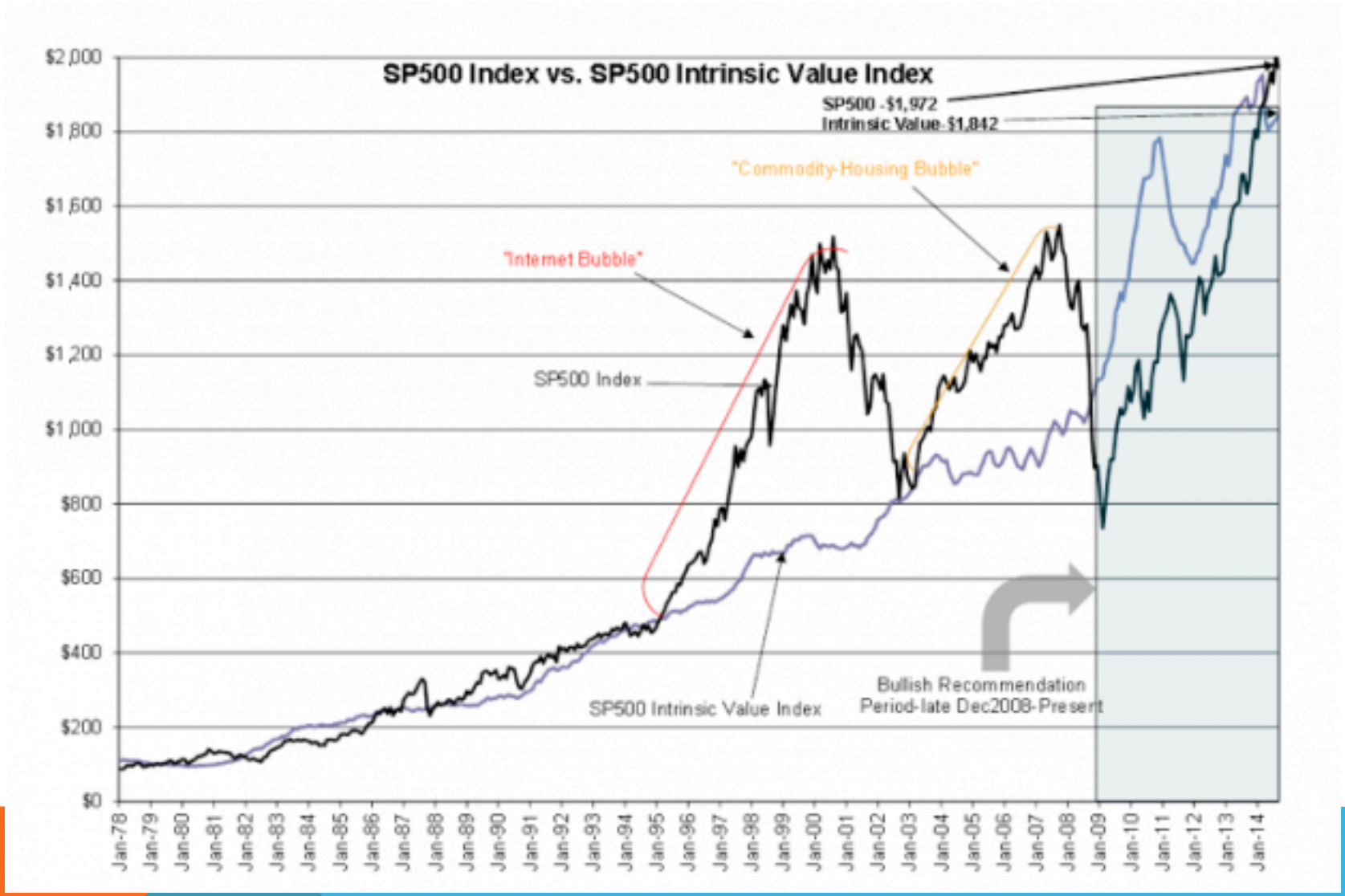
INTRINSIC V. MARKET VALUE

Market value. The amount that a company could get for its assets in a public auction. Essentially, market value is the market cap of a company. It changes daily.

Book value. The accounting value of the firm.

Intrinsic value. The long-term value of a company's collection of assets. Intrinsic value only applies to assets that generate cash flow.

- If assets do not generate cash flow, by definition their value can only be their *liquidation value*.
- Intrinsic value changes slowly over time.
- Intrinsic value is not always reflected by the market value.
- In the long run, market value and intrinsic value should converge.
- The *discounted cash flow* (DCF) method is the accepted method for the determination of intrinsic value.



Source: Valuewalk.com

MR. MARKET

- Allegory put forth by Buffett mentor Benjamin Graham that likens the stock market to a “remarkably accommodating” schizophrenic man, Mr. Market.
- He quotes a daily price for his business.
- Some days he quotes a very high price for his business.
- Some days he quotes a very low price for his business.
- He doesn’t mind being ignored, even for years.

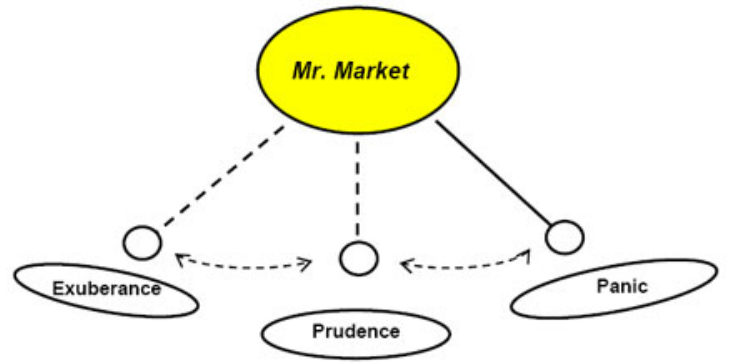
BUFFETT QUOTES:

“Mr. Market is there to serve you, not to guide you… it will be disastrous if you fall under his influence.”

“If you aren’t certain that you understand and can value your business far better than Mr. Market then you don’t belong in the game.”

Exhibit 4

***Mr. Market*’s Mood Swing – From Exuberance to Semi-panic**



Source: Morgan Stanley Research.