

# **MARKET TIMING APPROACHES: VALUING/PRICING THE MARKET**

Cash flows, growth and risk?

# VALUATION APPROACHES

- Just as you can value individual stocks with intrinsic valuation (DCF) models and relative valuation (multiples) models, **you can value the market.**
- If you have faith in your market valuations, you view markets as **under valued (over valued) if they are priced at a level lower (higher)** than predicted by your intrinsic or relative value models.

# AN INTRINSIC VALUATION OF THE MARKET

- Following the same thesis that the value of a business (stock) is the present value of the cash flows on that business (stock), you can value the entire market.
- To value the market, you have to
  - **Estimate expected cash flows** from buying the entire market in future years. If you are looking at an equity index, these cash flows have to be to equity investors.
  - **Assess a rate of return** that you believe is a fair rate of return on stocks collectively, by adding a “fair” equity risk premium to a risk free rate.

# INTRINSIC VALUE: VALUING THE S&P 500 WITH A DIVIDEND DISCOUNT MODEL

- On January 1, 2025, the S&P 500 was trading at 5881.63, and the dividends on the index amounted to 73.40 over the previous year (on earnings of 243.32 during the year).
- On the same date, analysts were estimating an expected growth rate of 9.57% in earnings for the index for the following five years.
- Assuming that dividends grow at the same rate as earnings, we obtain the following:

	Last 12 months	1	2	3	4	5
<b>Expected Earnings</b>	243.32	266.62	292.14	320.12	350.77	384.35
<b>Expected Dividends</b>	73.40	\$ 80.42	\$ 88.12	\$ 96.56	\$ 105.81	\$ 115.94

# COMPLETING THE VALUATION

- To estimate the cost of equity, we assume a beta of one for the index and use the riskfree rate on January 1, 2025, of 4.58% and an equity risk premium of 4.5%:

$$\text{Cost of equity} = 4.58\% + 4.5\% = 9.08\%$$

- After year 5, earnings and dividends are expected to grow at 4.58%, the same nominal rate as the economy (assumed to be equal to the riskfree rate).
- The value that we obtained for the index is below:

$$\frac{80.42}{1.0908} + \frac{88.12}{1.0908^2} + \frac{96.56}{1.0908^3} + \frac{105.81}{1.0908^4} + \frac{115.94}{1.0908^5} + \frac{115.94 (1.0458)}{(.0908 - .0458)(1.0908^5)} = 2079.16$$

## FROM DIVIDENDS TO AUGMENTED DIVIDENDS...

- Since many of the companies in the index have chosen to return cash in the form of stock buybacks, rather than dividends, a more realistic estimate of value would incorporate these expected buybacks.
- **To do so, we added the buybacks in the last twelve months to the dividends to arrive at a value of 182.79 for augmented dividends on the index.**
- The payout ratio reflects current growth, and it can be adjusted over time to reflect the expectations that growth will be lower in the future. That would increase the payout ratio in stable growth. The value with these augmented cash flows is:

$$\frac{182.79}{1.0908} + \frac{199.63}{1.0908^2} + \frac{218.01}{1.0908^3} + \frac{238.08}{1.0908^4} + \frac{260.00}{1.0908^5} + \frac{260.00 (1.0458)}{(.0908 - .0458)(1.0908^5)} = 5098.07$$

# HOW WELL DO INTRINSIC VALUATION MODELS WORK?

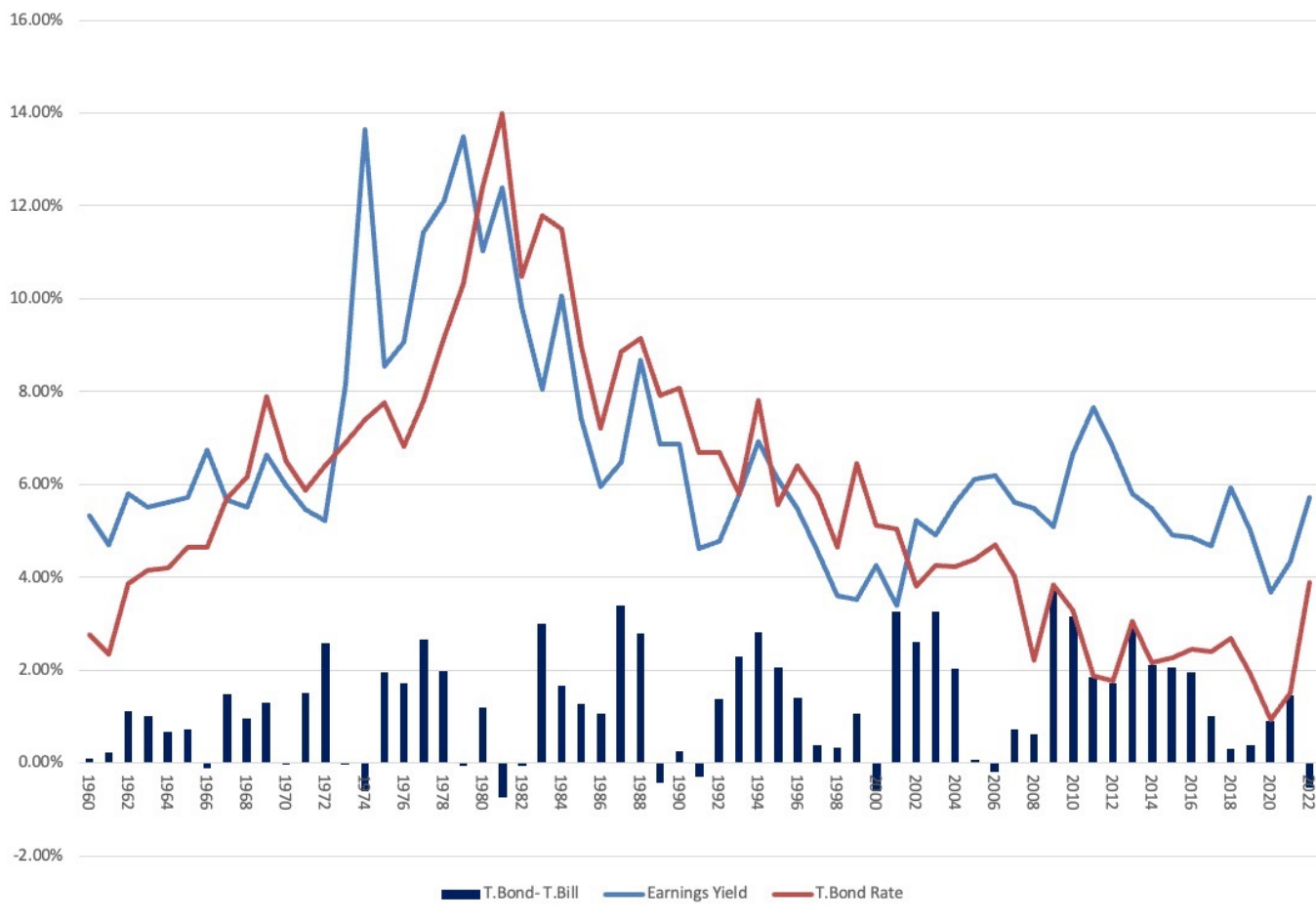
- Generally speaking, the **odds of succeeding increase as the quality of your inputs improves and your time horizon lengthens**. Eventually, markets seem to revert back to intrinsic value but eventually can be a long time coming.
- There is, however, a **significant cost associated with using intrinsic valuation models when they find equity markets to be overvalued**. If you take the logical next step of not investing in stocks when they are overvalued, **you will have to invest your funds in either other securities that you believe are fairly valued (such as short term government securities) or in other asset classes**. In the process, you may end up out of the stock market for extended periods while the market is, in fact, going up.
- The problem with intrinsic value models is their **failure to capture permanent shifts in attitudes towards risk or investor characteristics**. This is because so many of the inputs for these models come from looking at the past.

# RELATIVE VALUATION (PRICING) MODELS

- In pricing models, you examine how markets are priced relative to other markets and to fundamentals.
- While it shares some characteristics with intrinsic valuation models, **this approach is less rigid**, insofar as it does not require that you work within the structure of a discounted cashflow model.
- Instead, you either **make comparisons of markets over time (the S&P in 2019 versus the S&P in 1990) or different markets at the same point in time (U.S. stocks in 2019 versus European stocks in 2019)**.

# US STOCKS: E/P RATIOS , T.BOND RATES AND TERM STRUCTURE OVER TIME

EP Ratios, Rates and the Yield Curve



# REGRESSION RESULTS

	Earnings Yield	T. Bond Rate	T.Bond minus T.Bill
Earnings Yield	1.0000		
T. Bond Rate	0.6873	1.0000	
T.Bond minus T.Bill	-0.0544	-0.0175	1.0000

Correlation between E/P and interest rate

- In the following regression, using 1960-2024 data, we regress E/P ratios against the level of T.Bond rates and a term structure variable (T.Bond - T.Bill rate)
  - EP Ratio = 0.0341 + **0.5618** T.Bond Rate - 0.1161 (T.Bond Rate - T.Bill Rate)
 

(6.47)      **(7.45)**                                      (-0.08)
  - R squared = 47.4%
  
- In 2008, this is what the regression looked like:
  - E/P = 2.56% + 0.7044 T.Bond Rate - 0.3289 (T.Bond Rate-T.Bill Rate)
 

(4.71)      (7.10)                                      (1.46)
  - R squared = 50.71%
  - **The R-squared has dropped and the differential with the T.Bill rate has lost significance. How would you read this result?**

## 2. COMPARISONS ACROSS MARKETS: MARKETS WITH THE LOWEST PE IN 2025

Country	Number of firms	Trailing PE)
Zambia	15	4.31
Kenya	50	4.43
Ghana	23	5.34
Cyprus	64	6.08
Pakistan	424	6.24
Serbia	17	6.69
Kazakhstan	21	6.82
Isle of Man	16	7.32
Sri Lanka	262	7.49
Mauritius	75	7.51
Tanzania	15	7.52
Nigeria	126	7.90
Macau	16	8.30
Ivory Coast	34	8.41
Tunisia	76	8.68
Bermuda	62	8.69
Malawi	14	8.71
Colombia	28	8.71
Chile	122	8.84
Lithuania	29	8.87

# EXAMPLE : EMERGING MARKETS: JUNE 2000

<i>Country</i>	<i>PE Ratio</i>	<i>Interest Rates</i>	<i>GDP Real Growth</i>	<i>Country Risk</i>
Argentina	14	18.00%	2.50%	45
Brazil	21	14.00%	4.80%	35
Chile	25	9.50%	5.50%	15
Hong Kong	20	8.00%	6.00%	15
India	17	11.48%	4.20%	25
Indonesia	15	21.00%	4.00%	50
Malaysia	14	5.67%	3.00%	40
Mexico	19	11.50%	5.50%	30
Pakistan	14	19.00%	3.00%	45
Peru	15	18.00%	4.90%	50
Phillipines	15	17.00%	3.80%	45
Singapore	24	6.50%	5.20%	5
South Korea	21	10.00%	4.80%	25
Thailand	21	12.75%	5.50%	25
Turkey	12	25.00%	2.00%	35
Venezuela	20	15.00%	3.50%	45

# REGRESSION RESULTS

- The markets that trade at low PE ratios also have high interest rates and high country risk.
- To control for those differences, I regressed PE ratios on these variables—
  - $PE = 16.16$                       - 7.94 Interest Rates
  - + 154.40 Growth in GDP
  - - 0.1116 Country Risk
  - R Squared = 73%

# PREDICTED PE RATIOS

<i>Country</i>	<i>PE Ratio</i>	<i>Interest Rates</i>	<i>GDP Real Growth</i>	<i>Country Risk</i>	<i>Predicted PE</i>
Argentina	14	18.00%	2.50%	45	13.57
Brazil	21	14.00%	4.80%	35	18.55
Chile	25	9.50%	5.50%	15	22.22
Hong Kong	20	8.00%	6.00%	15	23.11
India	17	11.48%	4.20%	25	18.94
Indonesia	15	21.00%	4.00%	50	15.09
Malaysia	14	5.67%	3.00%	40	15.87
Mexico	19	11.50%	5.50%	30	20.39
Pakistan	14	19.00%	3.00%	45	14.26
Peru	15	18.00%	4.90%	50	16.71
Phillipines	15	17.00%	3.80%	45	15.65
Singapore	24	6.50%	5.20%	5	23.11
South Korea	21	10.00%	4.80%	25	19.98
Thailand	21	12.75%	5.50%	25	20.85
Turkey	12	25.00%	2.00%	35	13.35
Venezuela	20	15.00%	3.50%	45	15.35

# DETERMINANTS OF SUCCESS AT USING FUNDAMENTALS IN MARKET TIMING

- This approach has two limitations:
  - Since you are basing your analysis by looking at the past, you are **assuming that there has not been a significant shift in the underlying relationship.**
  - Even if you assume that the past is prologue and that **there will be reversion back to historic norms**, you do not control this part of the process..
- How can you improve your odds of success?
  - You can **try to incorporate into your analysis those variables that reflect the shifts** that you believe have occurred in markets.
  - You can have a **longer time horizon**, since you improve your odds on convergence.