THE ONE NUMBER THAT TELLS THE WHOLE STORY: EQUITY RISK PREMIUMS

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Risk Premiums and Asset Prices

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- If investors are risk averse, they need inducement to invest in risky assets. That inducement takes the form of a risk premium, a premium you would demand over and above the riskfree asset to invest in a risky asset.
- Every risky asset market has a "risk" premium that determines how individual assets in that market are priced.
  - In an equity market, that risk premium for dealing with the volatility of equities and bearing the residual risk is the equity risk premium.
  - In the bond market, the risk premium for being exposed to default risk is the default spread.
  - In real asset markets, there are equivalent (though less widely publicized markets).

General Propositions about Risk Premiums

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- Proposition 1: Risk premiums and prices for risky assets are inversely related. When risk premiums go up, risky asset prices go down.
- Proposition 2: Any statement about the magnitude of expected risk premiums is really a statement about the level of asset prices. Thus, if you argue that expected risk premium for a risky asset is too low, you are arguing that its priced too high.
- Proposition 3: Asset allocation and market timing decisions are really judgment calls on the future direction of risk premiums in different asset markets.

The macro determinants of equity risk..

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- Economic risk: As the underlying economy becomes more uncertain, equity risk will rise. Higher volatility in GDP -> Higher equity risk.
- Political risk: As the uncertainty about fiscal and government policy increases, equity risk will rise.
- Information opacity: As the information provides by companies becomes more opaque and difficult to assess, equity risk premiums will rise.
- Liquidity: As liquidity of equities decreases, equity risk increases.
- Catastrophic risk: There is always the potential for catastrophic risk in investing in equities. As that perceived likelihood increases, equity risk will rise.

The ubiquitous historical risk premium

- The historical premium is the premium that stocks have historically earned over riskless securities.
- While the users of historical risk premiums act as if it is a fact (rather than an estimate), it is sensitive to
  - How far back you go in history…
  - Whether you use T.bill rates or T.Bond rates
  - Whether you use geometric or arithmetic averages.
- For instance, looking at the US:

	Arithmetic Average		Geometric Average	
	Stocks - T. Bills	Stocks - T. Bonds	Stocks - T. Bills	Stocks - T. Bonds
1928-2017	8.09%	6.38%	6.26%	4.77%
Std Error	2.10%	2.24%		
1968-2017	6.58%	4.24%	5.28%	3.29%
Std Error	2.39%	2.70%		
2008-2017	9.85%	5.98%	8.01%	4.56%
Std Error	6.12%	8.70%		

An Implied Equity Risk Premium

Base year cash flow (last 12 mths)
Dividends (TTM): 48.12
+ Buybacks (TTM): 60.16
= Cash to investors (TTM): **108.28**

Expected cashflow growth in next 5 years
Cash flow growth = Top down analyst estimate of earnings growth for S&P 500 = 7.05%

	Last 12 months	1	2	3	4	5	*Terminal Year*
Expected Earnings	124.94	133.75	143.18	153.27	164.08	175.64	179.88
Expected Dividends + Buybacks =	108.28	$ 115.91	$ 124.08	$ 132.83	$ 142.19	$ 152.22	155.88

Earnings and Cash flows grow @2.41% (set equal to risk free rate) a year forever.

S&P 500 on 1/1/18= **2673.61**

$$2673.61 = \frac{115.91}{(1+r)} + \frac{124.08}{(1+r)^2} + \frac{132.82}{(1+r)^3} + \frac{142.19}{(1+r)^4} + \frac{152.22}{(1+r)^5} + \frac{152.22\ (1.0241)}{(r-0.0241)(1+r)^5}$$

The last term in this equation is the expected index level at the end of year 5 (capturing price appreciaiton)

Solve for r

r = Implied Expected Return on Stocks = 7.49%

Minus

Risk free rate = T.Bond rate on 1/1/18= 2.41%

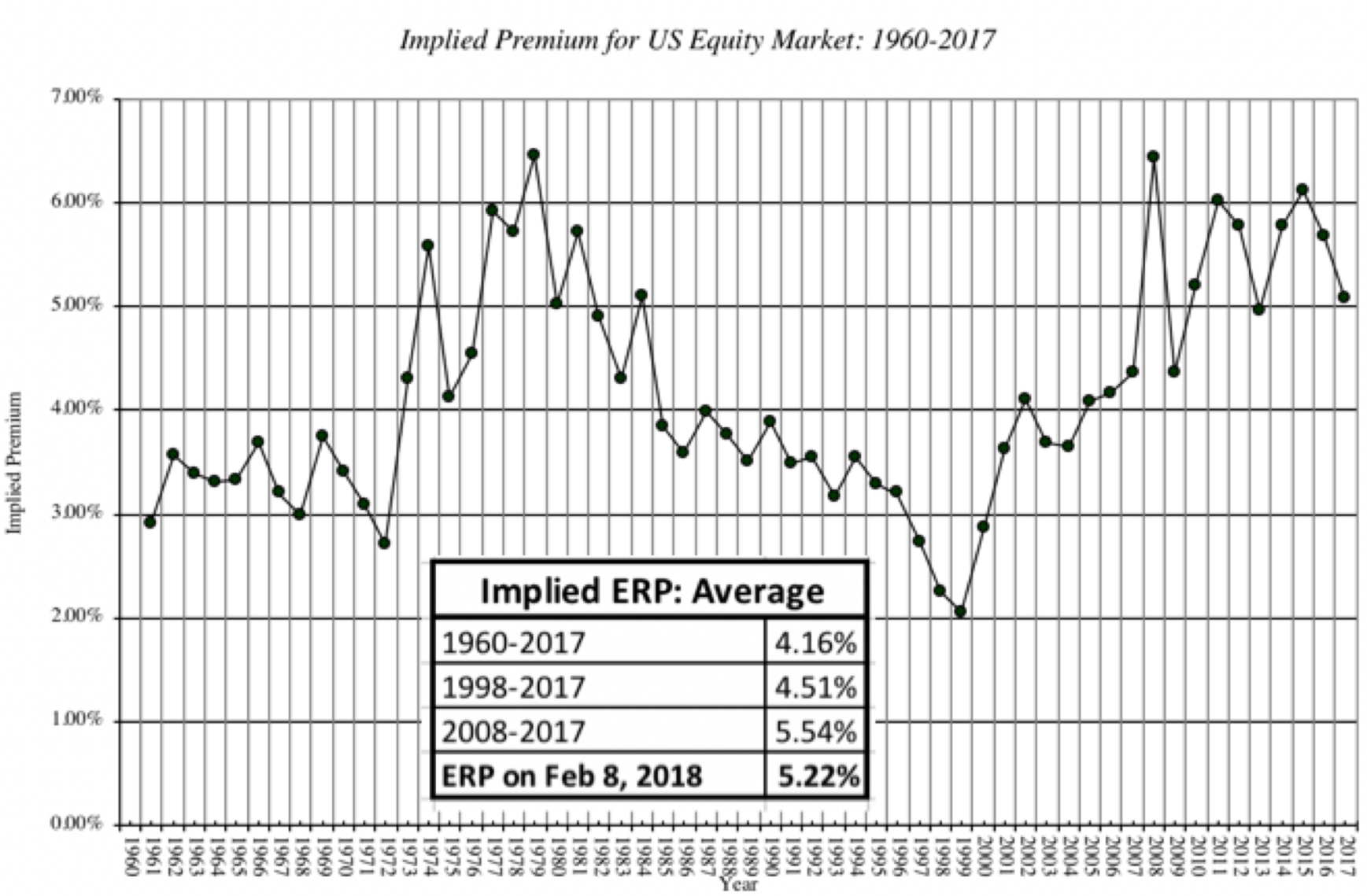
Equals

Implied Equity Risk Premium (1/1/18) = 7.49% - 2.41% = **5.08%**

If you want market neutrality..

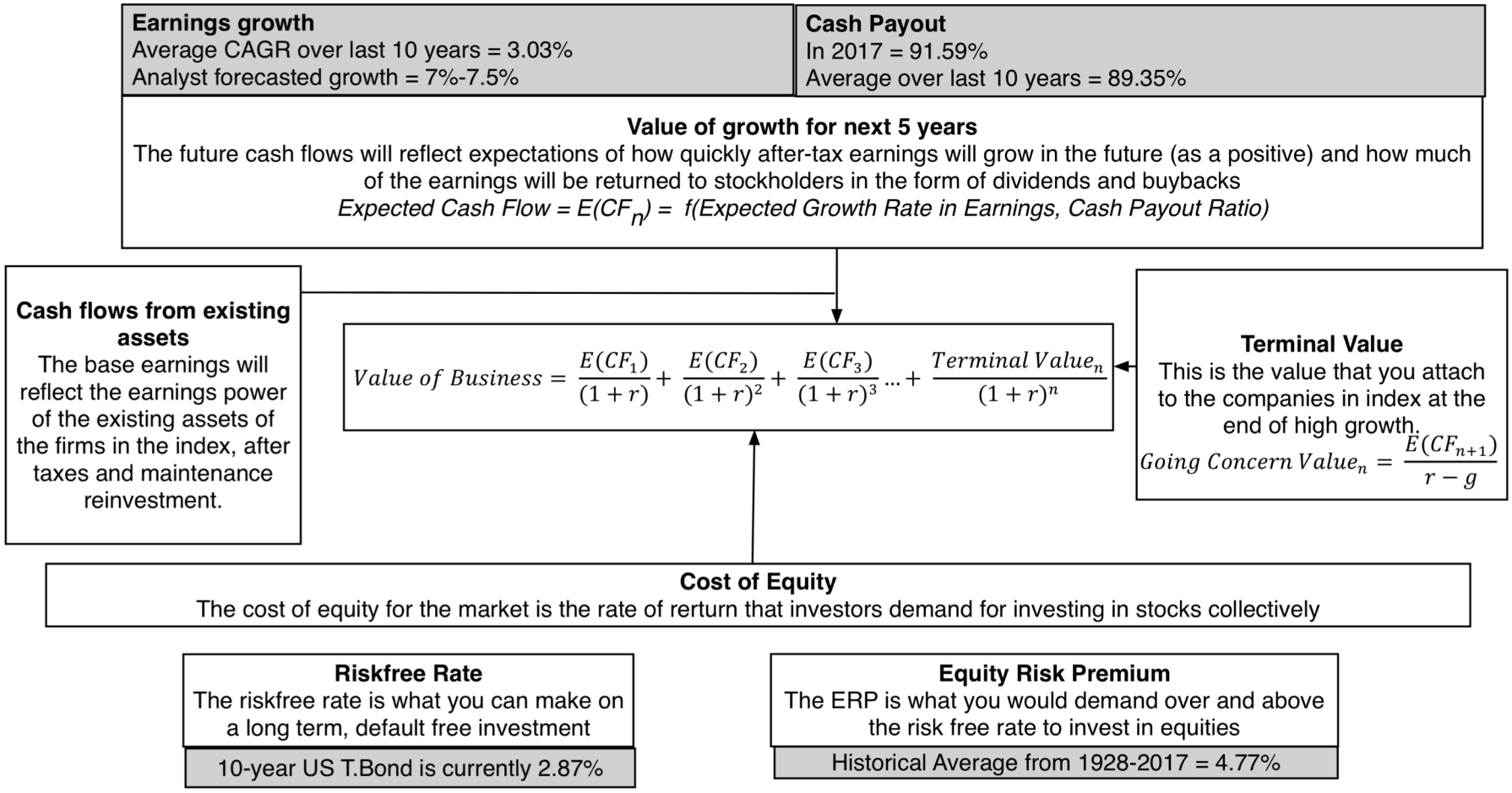
- Because your job description proscribes market views: If your job is to value individual companies, not pass judgment on the overall market, you should use the current implied equity risk premium and move on, no matter how much you disagree with it.
- Because you have a bad history at market timing: If you have a history of bad market timing, you should stick with the current implied ERP.

If you want to value (or time) markets, you have to decide on a reasonable ERP

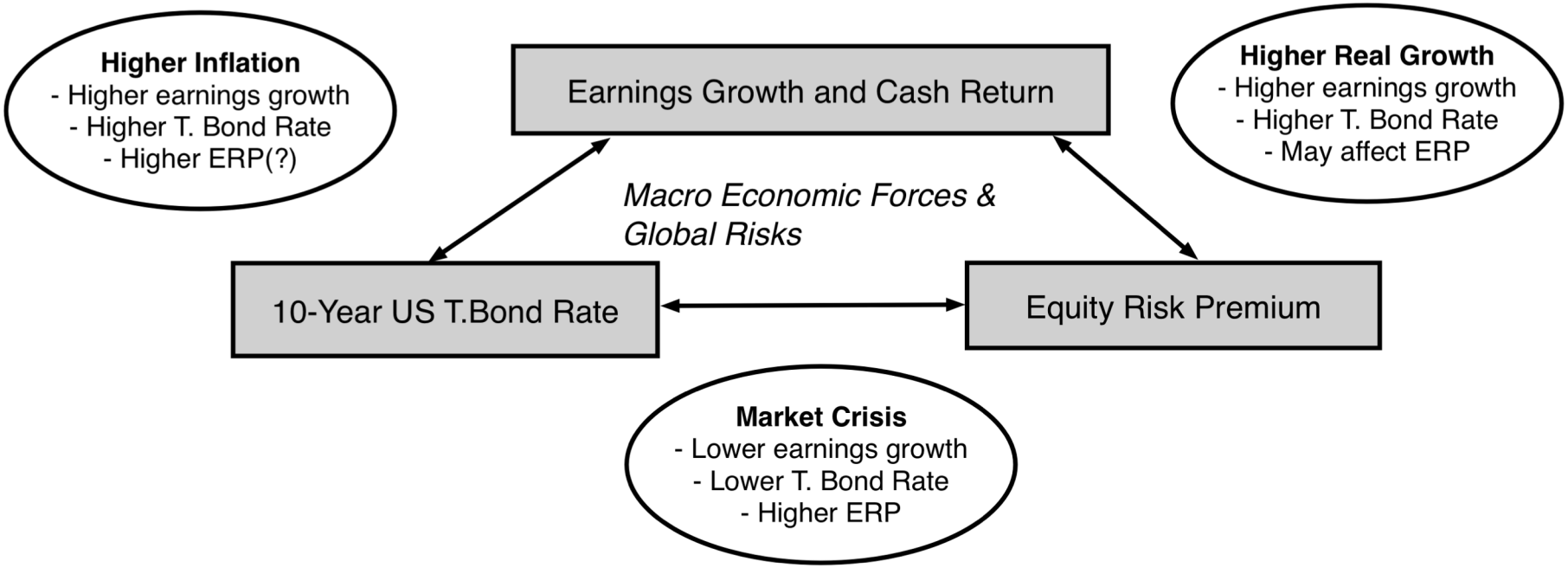


Implied ERP: Average	
1960-2017	4.16%
1998-2017	4.51%
2008-2017	5.54%
ERP on Feb 8, 2018	**5.22%**

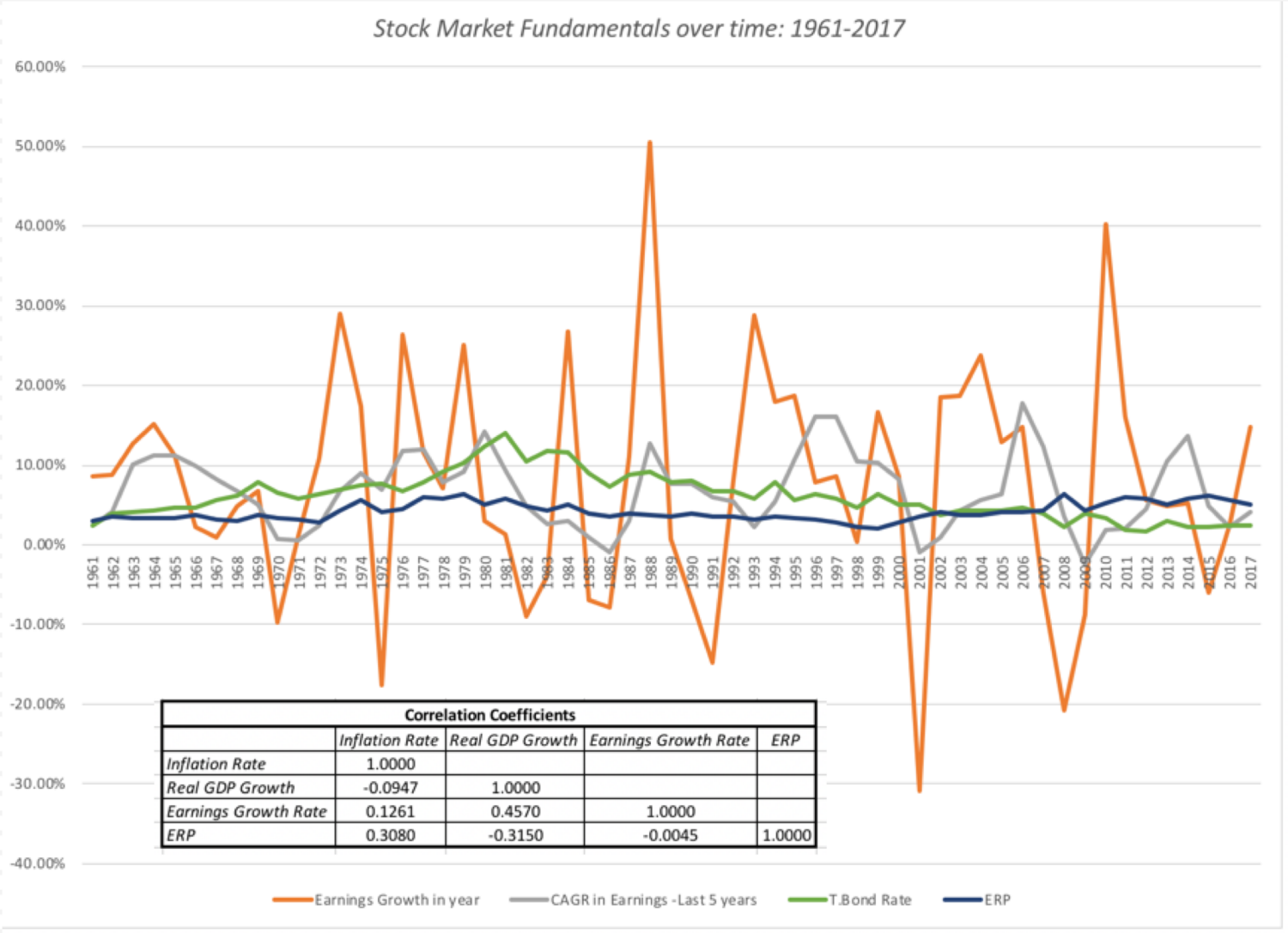
Market Value: The Big Picture



And the drivers are interconnected..



History reflects this..



Correlation Coefficients				
	Inflation Rate	*Real GDP Growth*	*Earnings Growth Rate*	*ERP*
Inflation Rate	1.0000			
Real GDP Growth	-0.0947	1.0000		
Earnings Growth Rate	0.1261	0.4570	1.0000	
ERP	0.3080	-0.3150	-0.0045	1.0000

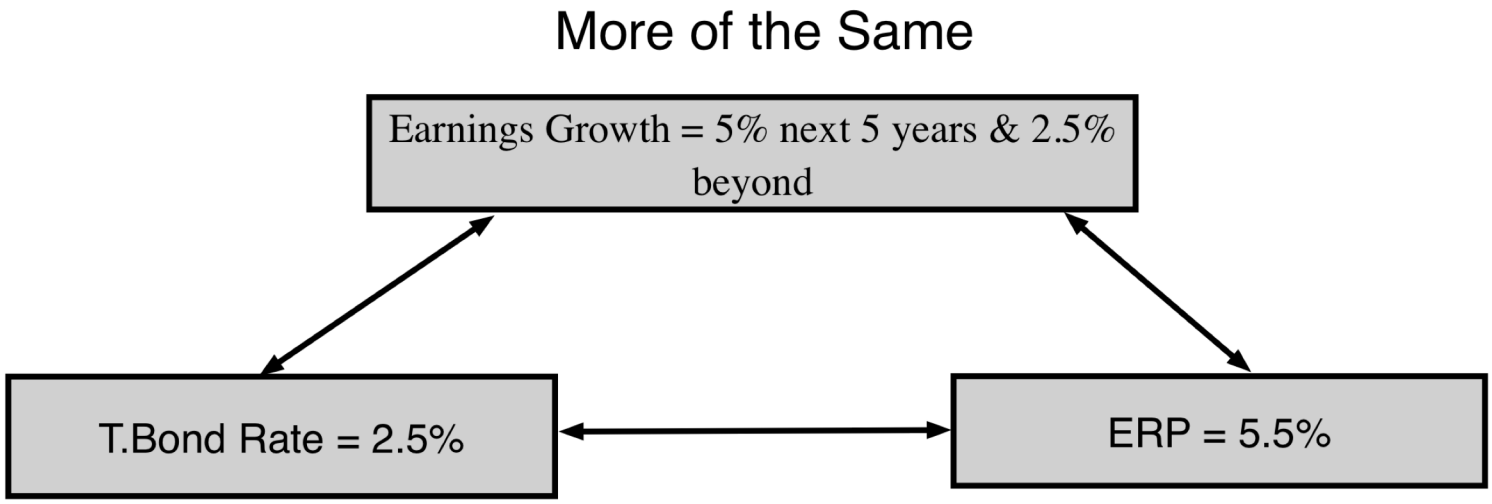
Value has to be built around a consistent narrative..

- Your assessed value for equities will depend upon your assumptions about earnings growth, equity risk premiums and risk free rates.
- Your assumptions about risk premiums, earnings growth and the treasury bond rate should have a macro and market story underlying your numbers, and this story has to be internally consistent and fully worked through.
- If you don't have a story, you can make assumptions about growth, risk and interest rates that are internally inconsistent.

Two inconsistent narratives

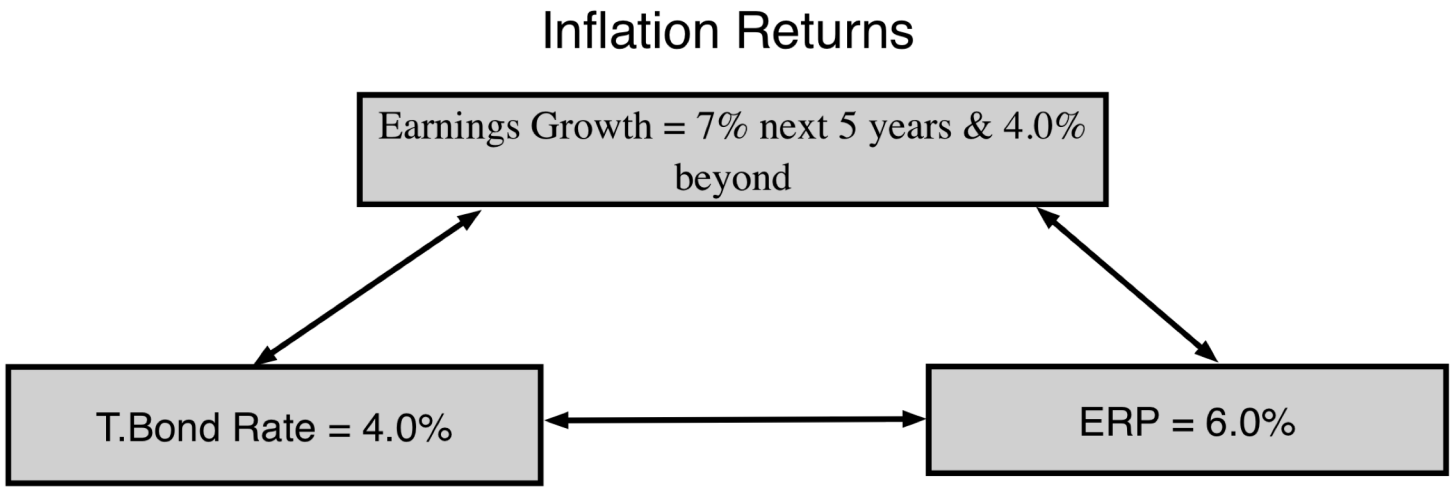
- In the bearish version, which is call the *Interest Rate Apocalypse*, all of the inputs (earnings growth for the next five years and beyond, equity risk premiums) into value are held constant, while raising the treasury bond rate to 4% or 4.5%.
- In the bullish version, which I will term the *Real Growth Fantasy*, all of the inputs into value are left untouched, while higher growth in the US economy causes earnings growth rates to pop up.

a. More of the Same



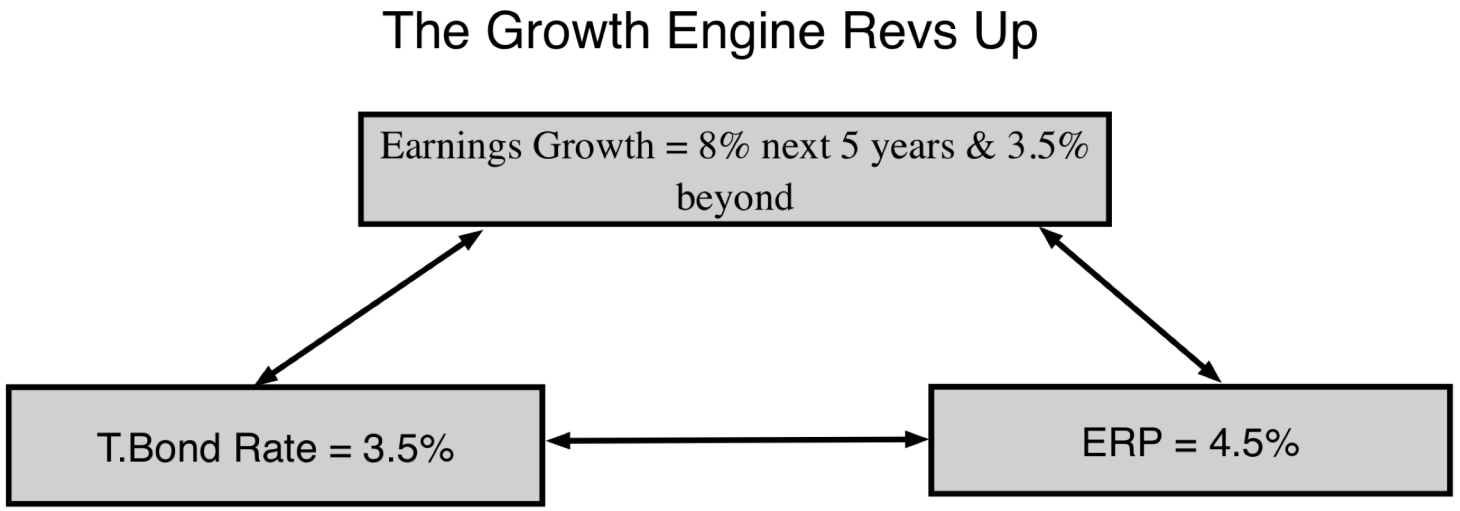
	1	2	3	4	5	*Terminal Year*
Earnings Growth Rate	5.00%	5.00%	5.00%	5.00%	5.00%	2.50%
Expected Earnings	124.13	130.34	136.85	143.70	150.88	154.65
Expected Dividends + Buybacks =	$ 113.69	$ 119.37	$ 125.34	$ 131.61	$ 138.19	141.65
Expected Terminal Value =					$ 2,575.38	
Risk free Rate	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
ERP	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%
Present Value =	$ 105.27	$ 102.34	$ 99.50	$ 96.74	$ 1,846.81	
Intrinsic Value of Index =	**$ 2,250.66**					

b. Inflation Returns



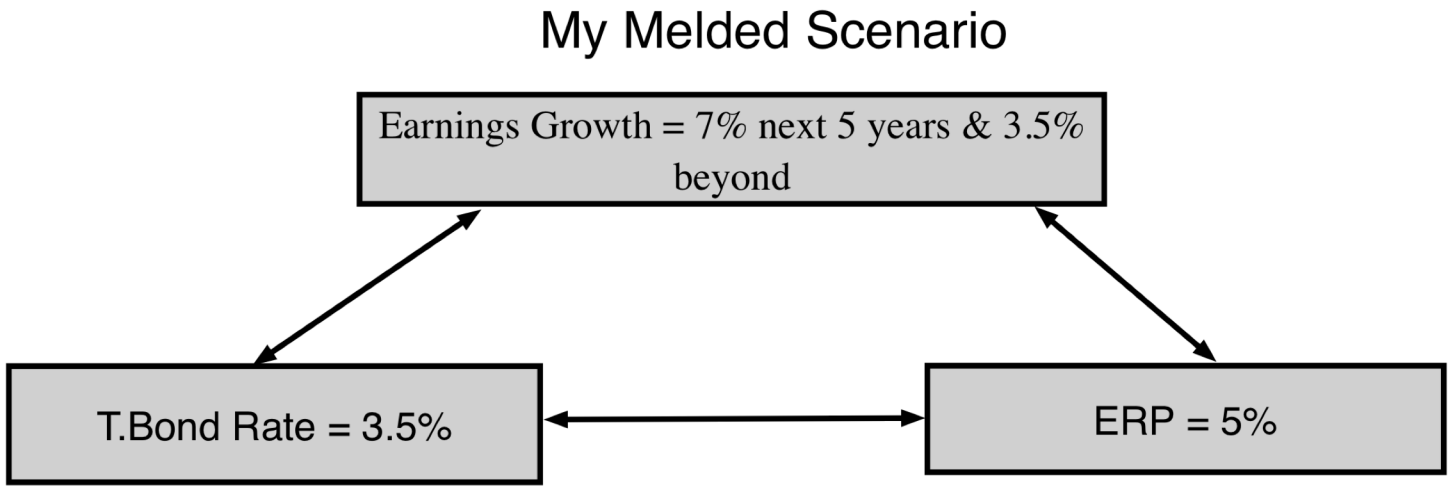
	1	2	3	4	5	*Terminal Year*
Earnings Growth Rate	7.00%	7.00%	7.00%	7.00%	7.00%	4.00%
Expected Earnings	126.49	135.35	144.82	154.96	165.81	172.44
Expected Dividends + Buybacks =	$ 115.86	$ 123.97	$ 132.64	$ 141.93	$ 151.86	157.94
Expected Terminal Value =					$ 2,632.29	
Risk free Rate	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
ERP	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
Present Value =	$ 105.32	$ 102.45	$ 99.66	$ 96.94	$ 1,728.74	
Intrinsic Value of Index =	$ 2,133.11					

c. The Growth Engine Revs up



	1	2	3	4	5	*Terminal Year*
Earnings Growth Rate	8.00%	8.00%	8.00%	8.00%	8.00%	3.50%
Expected Earnings	127.68	137.89	148.92	160.84	173.70	179.78
Expected Dividends + Buybacks =	$ 116.94	$ 126.29	$ 136.40	$ 147.31	$ 159.09	164.66
Expected Terminal Value =					$ 3,659.15	
Risk free Rate	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
ERP	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%
Present Value =	$ 108.28	$ 108.28	$ 108.28	$ 108.28	$ 2,598.63	
Intrinsic Value of Index =	**$ 3,031.74**					

My Melded Version



	1	2	3	4	5	*Terminal Year*
Earnings Growth Rate	7.00%	7.00%	7.00%	7.00%	7.00%	3.50%
Expected Earnings	126.49	135.35	144.82	154.96	165.81	171.61
Expected Dividends + Buybacks =	$ 115.86	$123.97	$132.64	$141.93	$ 151.86	157.18
Expected Terminal Value =					$3,143.56	
Risk free Rate	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
ERP	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Present Value =	$ 106.78	$105.30	$103.85	$102.41	$2,191.61	
Intrinsic Value of Index =	$2,609.95					

The Bottom Line

- Reject half-baked narratives: If a market prediction is based upon a half baked story, where everything else is held constant, and only one variable is moved, be suspicious.
- Develop your own narrative: You can listen to the narratives that others have, but it is your money that you are investing, and ultimately, it has to be based upon your narrative.
- Be open to feedback: You will get signals from the world, in the form of macroeconomic data or market reactions, that should lead you to fine tune, adjust or even abandon your narrative.