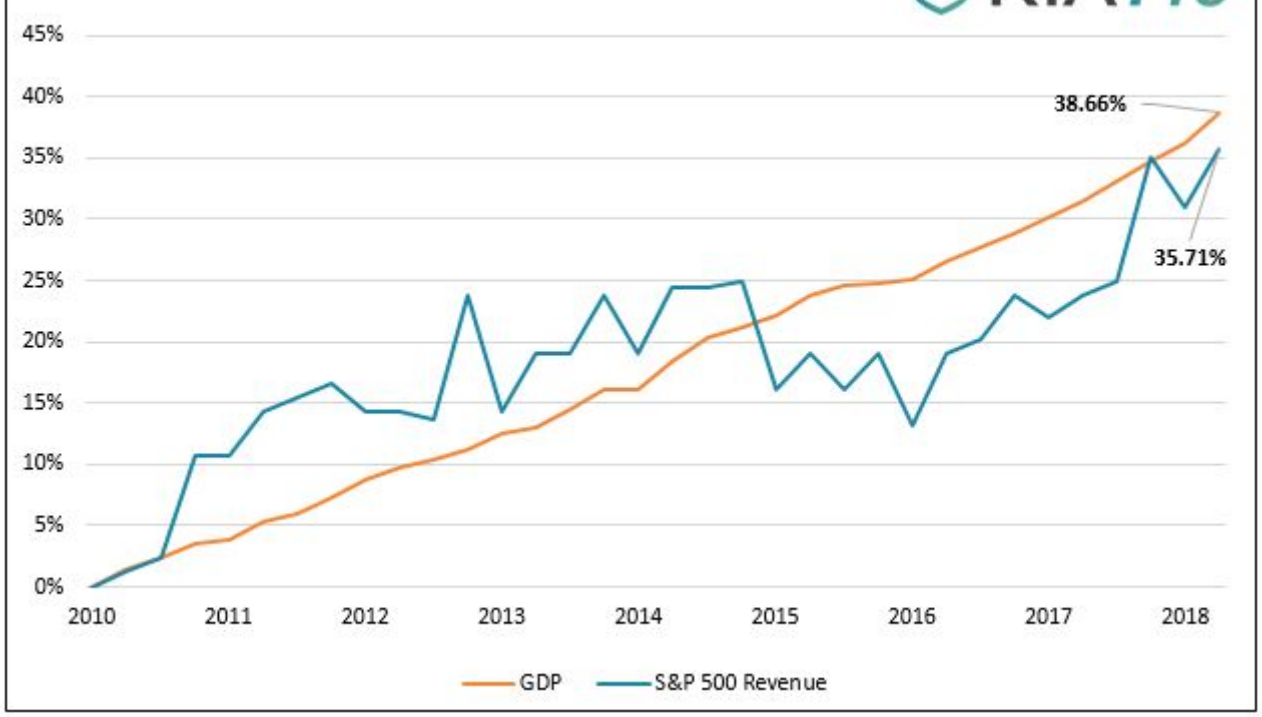
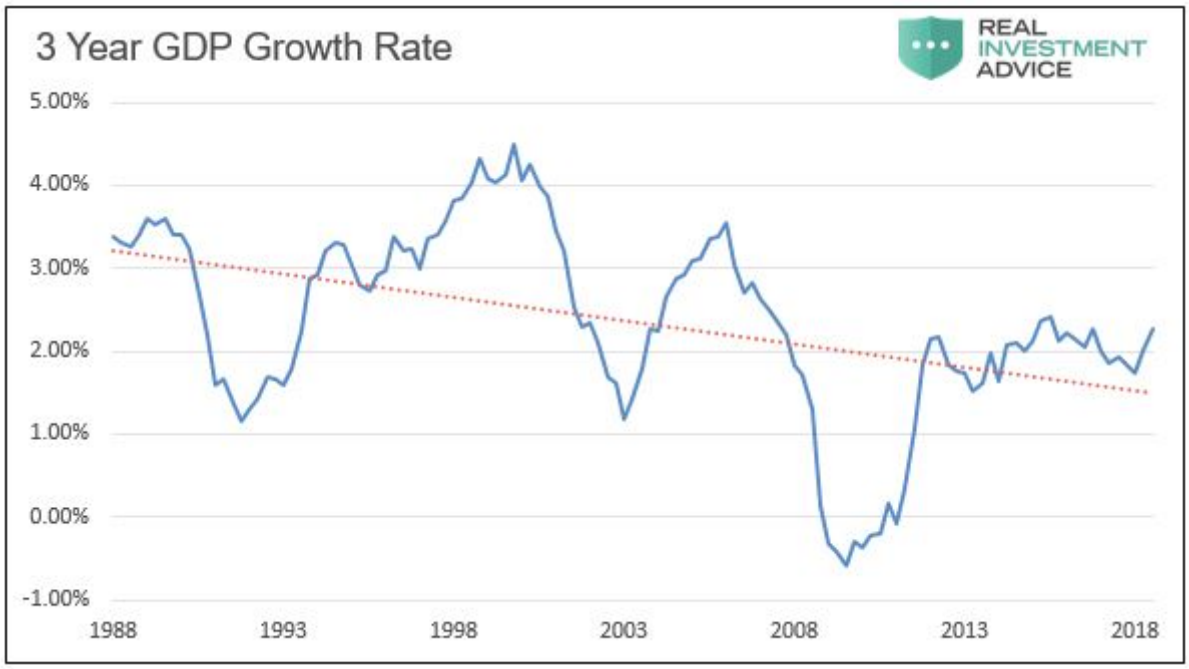
Quite often, our articles follow a similar format. We start with a ?hook? to grab your interest and then offer a summary of what?s to come. Next comes the meat of the article, with data, graphs and a discussion that supports our view on the subject matter. Our closing summary typically encapsulates the main takeaways along with investment implications if applicable. A quote or two along the way never hurts. In this article, we take a different tack. We present and analyze the factors that drove the bull market to record highs over the last nine years. It is these same factors that will also determine where the market will head in the coming years. However, instead of stating our opinions and giving a market forecast, we leave that to you. This approach will not only allow you to estimate the future price of the S&P 500, but importantly prove valuable in helping you understand the forces that drive market prices. **Foundations of the Bull** Valuing a stock or an index may seem complex, but there are only two factors that account for the price and its performance - estimates of a corporation?s future cash flows and the factor, or multiple, investors are willing to pay for those cash flows. While this does not occur neatly in a program or spreadsheet as the description might imply, the performance of every stock and index can be decomposed into those simple pieces. With that in mind, we turn to the current U.S. equity bull market which started in the shadow of the financial crisis of 2008/09. The 315% rally, which might celebrate its tenth anniversary in March of 2019, is the longest uninterrupted equity expansion in modern U.S. history. Given the extended duration of this rally, it is more important than ever to look forward and not assume yesterday gains will continue tomorrow. The following two sections look at corporate cash flows and valuation multiple trends on the S&P 500. This historical attribution analysis offers context and perspective about how those trends may or may not change going forward and ultimately what that means for the price of the index. **Cash Flows** Corporate cash flows that accrue to investors should be dissected into two components, revenues (sales) and profit margins. Not surprisingly, corporate revenues are highly correlated with economic growth. Since 2010, aggregate revenues of the S&P 500 grew by 35.7%, while GDP grew by a similar 38.6%. The graph below shows the tight correlation. Historical observations going back decades further support this data.



Data

Courtesy Bloomberg Given the recent and longer-term correlation, it is sensible to assume that expectations for future economic growth, or GDP, are a solid proxy for future revenue growth. The following graph of the long-term trend of GDP provides guidance for future revenue expectations. As we have written all too often, demographics, the increasing debt burden, and declining



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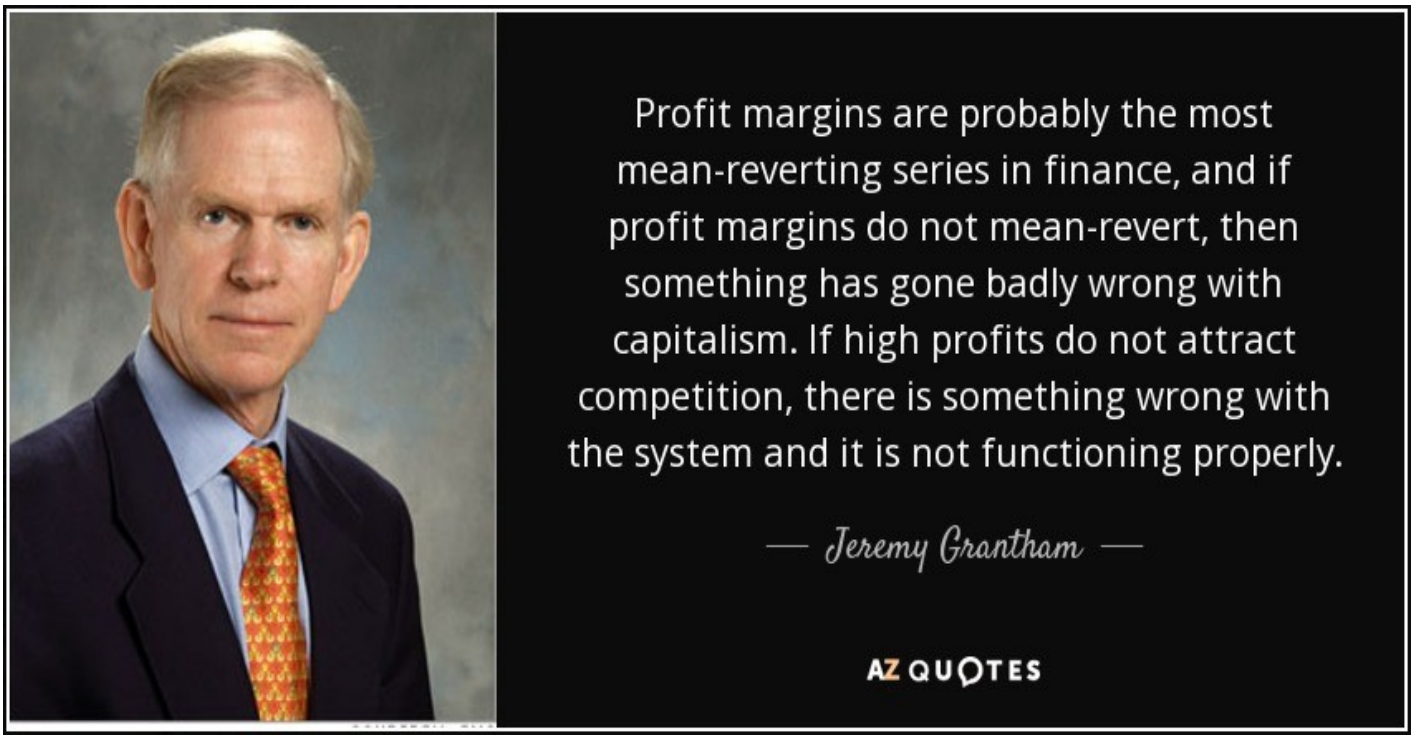
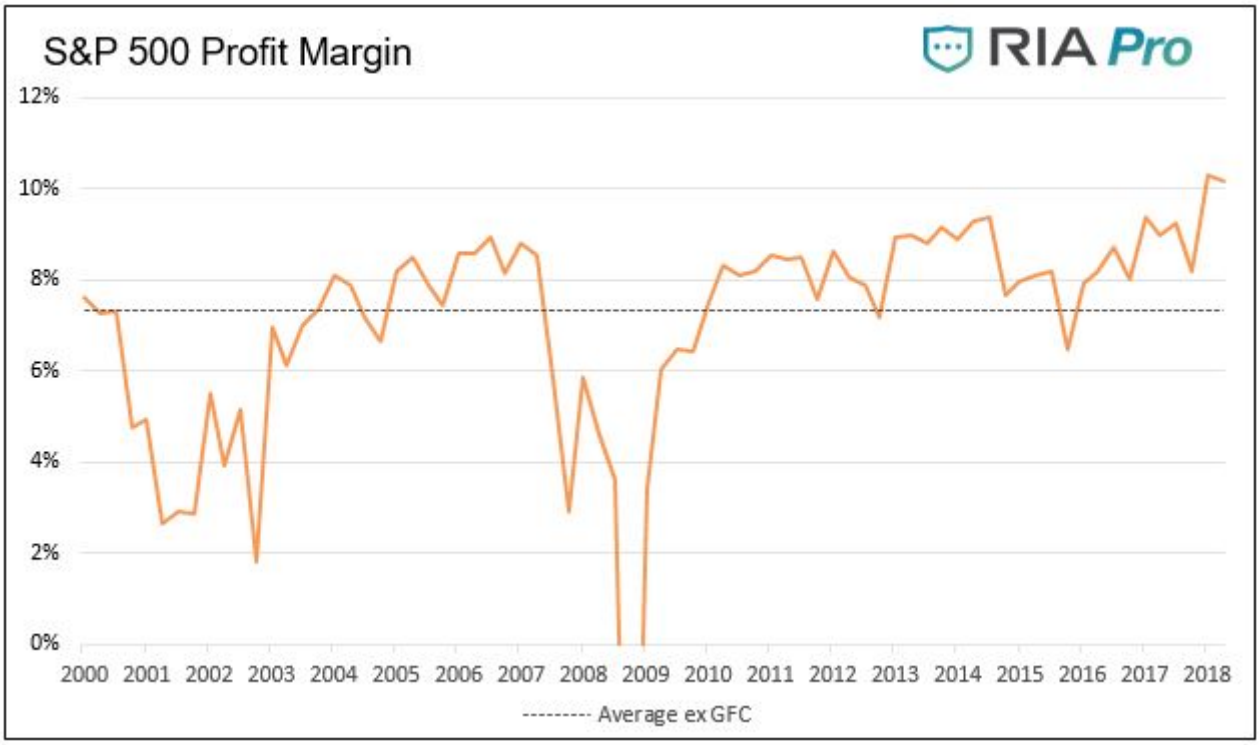
Data

Courtesy Bloomberg Revenue is only half of the cash flow story. Net earnings, which is what investors are ultimately paying for, account for all of the expenses required to produce revenue. Net earnings as a percent of revenues, better known as profit margin, is the common metric used to express this. Aggregate profit margins historically vacillate above and below the historical average, but they have always been mean reverting.• To wit, here is the wisdom of an investing legend:



The following graphs provide historical context on profit margins over the last two and seven decades respectively.



Data

Courtesy Bloomberg and St. Louis Federal Reserve In both graphs, the profit margin post-financial crisis is at or near all-time highs and has failed to regress to the mean despite the wisdom of Jeremy Grantham. While not an extensive list, consider the following chief factors responsible for elevated profit margins:

- Lowest interest rates in recorded history
- Minimal wage growth
- Low input costs
- Unchanged shipping, trucking, and freight costs

Corporate Expenses		
	Last 3 Years	Last 12 Mos.
Wage Growth (annualized)	1.49%	3.14%
Int. Expense (5yr UST)	1.59%	3.02%*
Input Prices (CRB)	186.10	191.20
Shipping (Baltic Dry)	10.24	13.04
Freight Trucking (PPI index)**	-0.09%	8.29%
Freight Rail (PPI Index)***	3.16%	7.65%
Trade/Tariffs	n/a	n/a

*Current
** PPI: General Freight Trucking - Long Distance
*** PPI: Rail Transportation Freight

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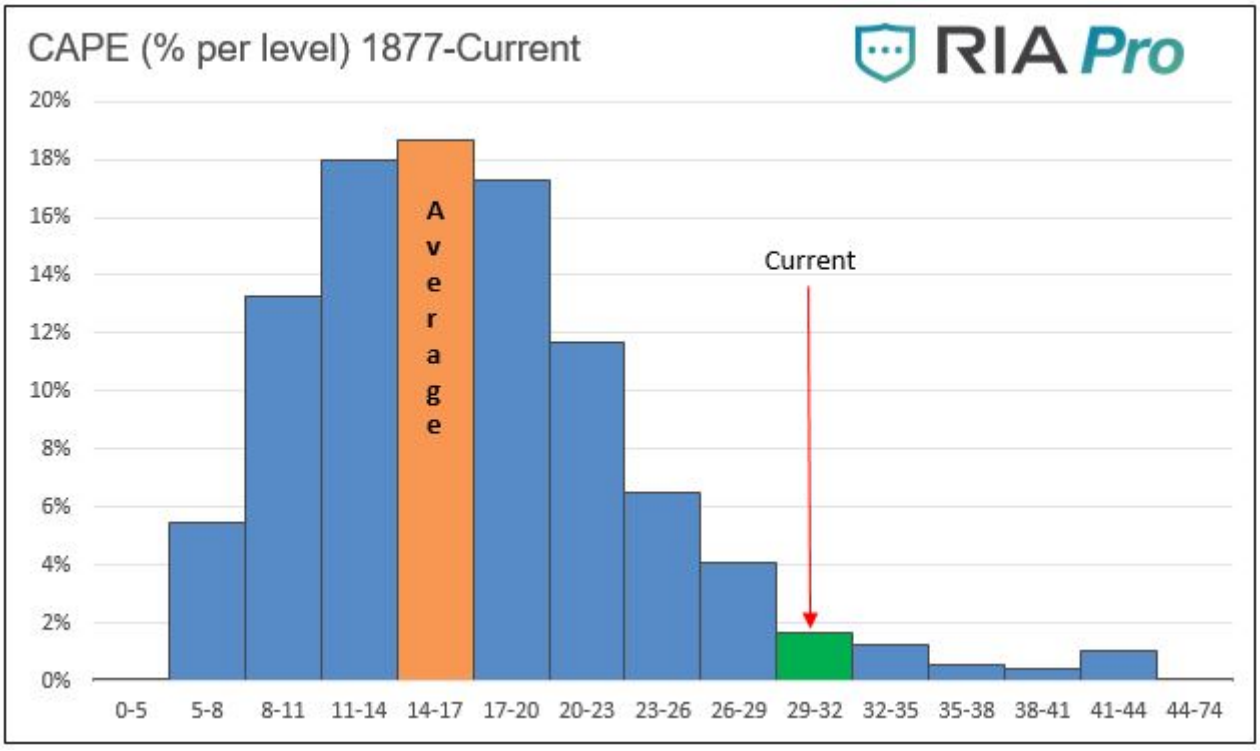
Data Courtesy

Bloomberg Two aspects of corporate expenses omitted from the table are taxes and tariffs. Recent tax reform boosted margins and helped more than offset the negative effects of the rise in costs shown above. The consequences of the on-going ?trade war? are yet to be seen, but they are likely negative. **Valuation Multiple** Since 1877 there are 1654 monthly measurements of Cyclically Adjusted Price -to- Earnings (CAPE 10). Of these 82, only about 5%, have been the same or



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Courtesy Shiller Valuations are a function of investor sentiment. When sentiment is exuberant, as it has been recently, investors are willing to pay more for a series of cash flows in expectations that revenue and earnings will rise at a heady rate in the future. Conversely, when investors are concerned about future earnings and economic growth, valuations tend to decline. Looking back, there are many factors that drove investors to pay a higher multiple for cash flows over the last ten years. Consider a few: **Historically Low-interest rates**

- Lower discounting rates made the value of future earnings higher.
- Resulted in a push towards higher returning, riskier, longer duration securities like equities and long maturity bonds.

Heavy Monetary Stimulus

- Record low-interest rates and burgeoning central bank holdings of financial assets here and abroad.

Corporate Share Repurchases

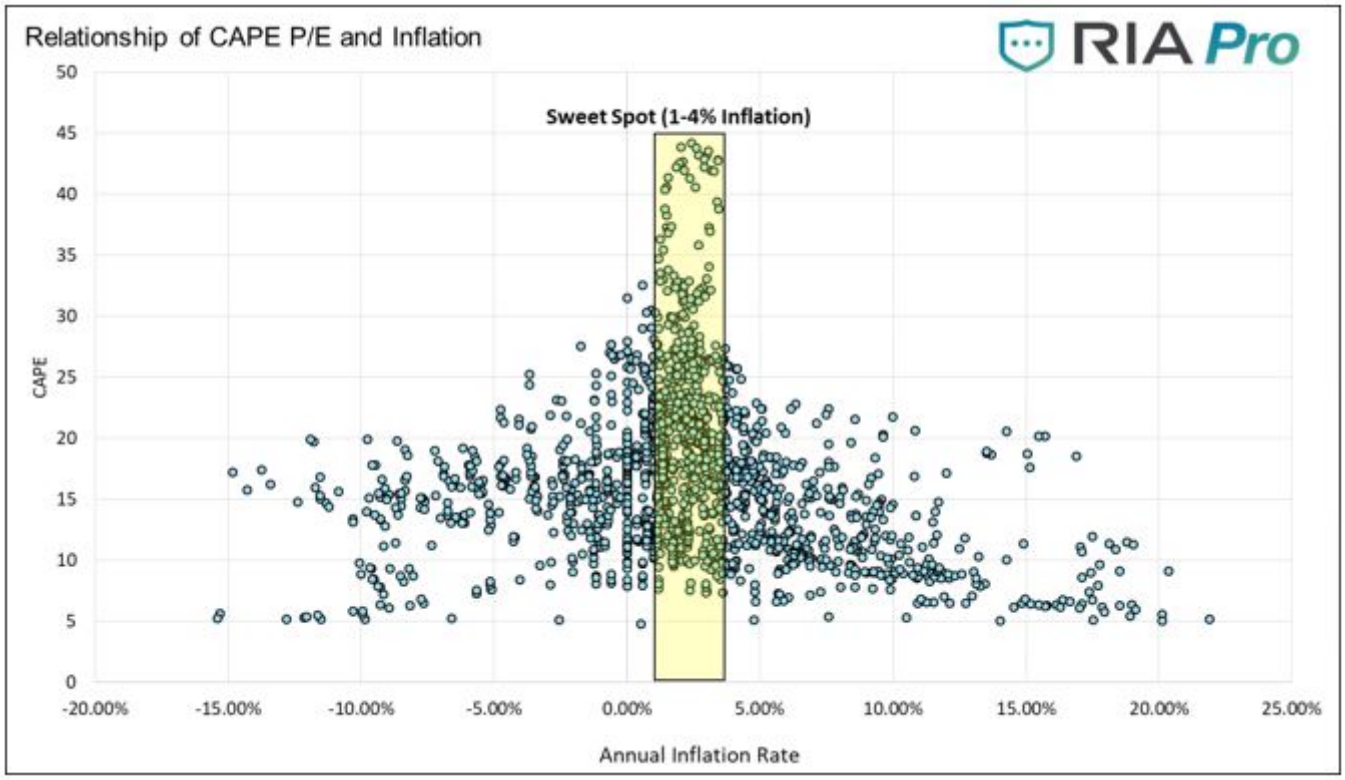
- Since 2013, S&P 500 companies have annually bought back 3% of their outstanding shares in aggregate.

Margin debt

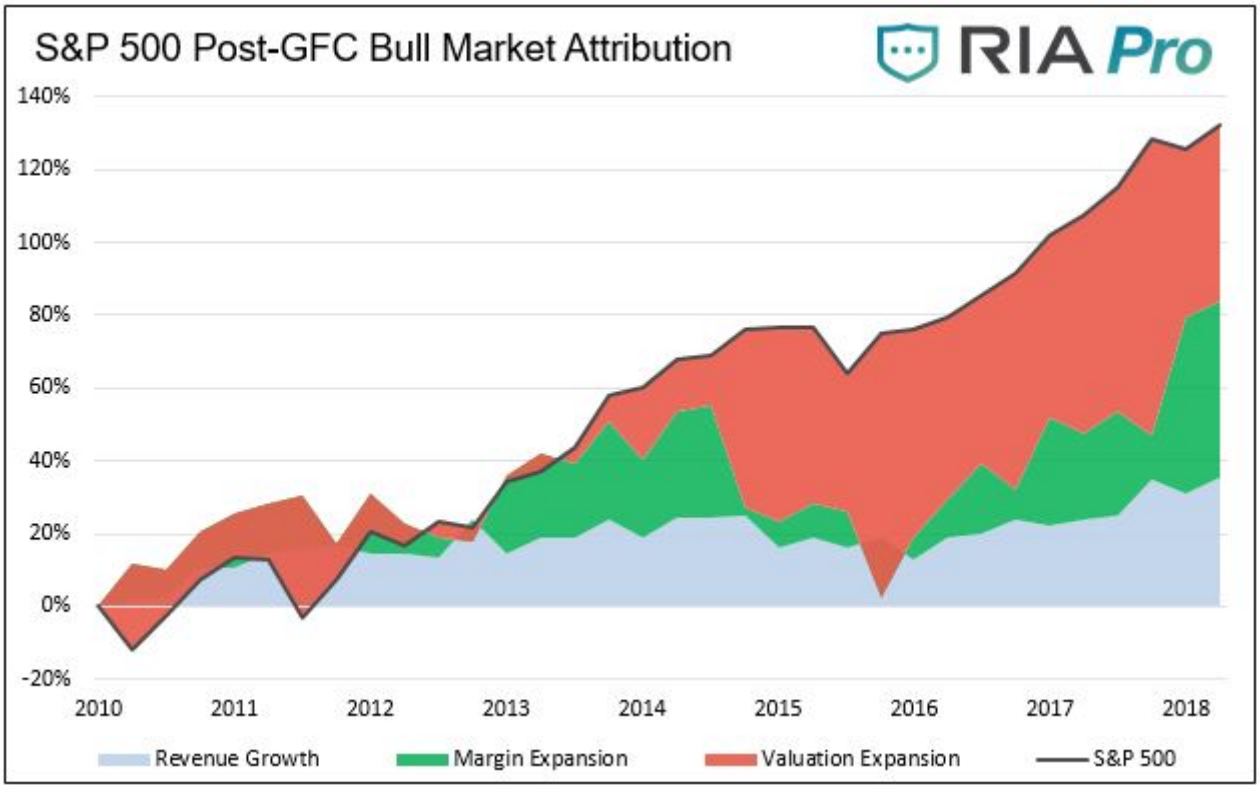
- Since 2012, net credit balances have been larger than those seen before the market drawdowns of 2000 and 2008.
- Currently, balances are 3x larger than any peak seen in at least the last 36 years.

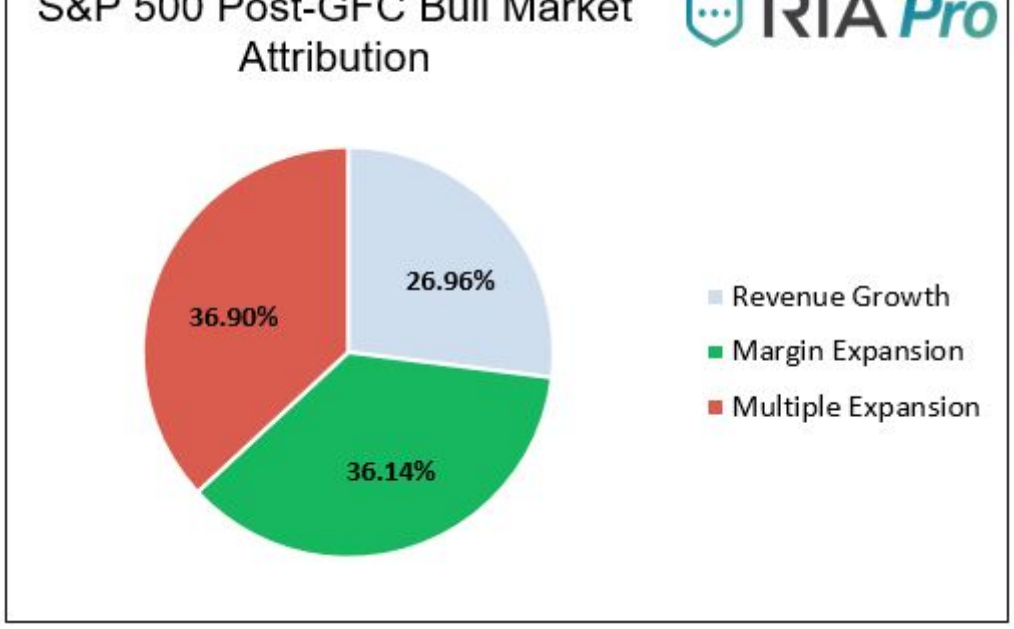
The proliferation of passive investment strategies which tend to ignore valuations The expansion of corporate leverage to record highs nominally and as a percent of GDP To that list we submit one important factor **- inflation**. The following graph demonstrates that valuations have only been well above the norm during periods when annual inflation is running between one and four percent. Outside of the ?sweet spot,? CAPE valuations tend to peak about 25-30% lower

than current levels.



Data Courtesy Shiller **How The Market Got Here** With an understanding of the factors that account for price performance since 2010, we now turn to the graphs below which decompose the gains of the last eight years into the components: revenue growth, profit margin expansion, and valuation expansion.





As shown, durable organic growth only accounted for 26.96% of the gains in the S&P 500 index since 2010. **In other words, without multiple and margin expansion, the S&P 500 would stand at 1587, a far cry from the current 2790. DIY- Forecasting the S&P 500** Now we let you forecast where the S&P 500 might be headed over the next five years based on your expectations for revenue, profit margins, and valuations. To formulate a personalized forecast, you will need to complete a two-step process. **First**, answer the three questions below. **Next**, feed your answers into one of three tables provided below. The result will be your forecast.• To help with answering questions two and three below, we provide current levels along with minimum, average, and maximum historical levels. We also urge you to go back and consider the graphs and factors that drove recent trends.

1. *How much will GDP, and therefore corporate revenues grow over the next five years?*
2. *Will margins stay at current levels, expand further or contract back to or below historical norms?*
3. *Will valuations stay at current levels, expand further or contract back to or below historical norms?*

Once the questions are answered, the data can be used to generate a forecast. The example below offers a guide to the process. In the example shown, the question responses are that GDP growth will average 1% a year for the next five years, and that profit margins and valuations will stay the same for five years. The resulting output of 2838, as highlighted, is the expected value of the S&P 500 in five years.

CAPE Valuation		Profit Margin (%)								
		Minimum		Average			Current Maximum			
		4.10%	5.00%	**6.37%**	7.00%	8.00%	**9.50%**	**10.06%**	11.00%	12.00%
Minimum	**4.8**	193	235	299	329	376	447	473	517	564
	7	281	343	437	480	548	651	690	754	823
	10	402	490	624	686	783	930	985	1077	1175
	13	522	637	811	891	1019	1210	1281	1401	1528
	16	642	783	998	1097	1254	1489	1576	1724	1880
Average	**16.9**	679	828	1055	1159	1325	1573	1666	1822	1987
	19	763	930	1185	1303	1489	1768	1872	2047	2233
	22	883	1077	1372	1508	1724	2047	2168	2370	2586
	25	1004	1224	1560	1714	1959	2326	2463	2693	2938
	28	1124	1371	1747	1920	2194	2605	2759	3016	3291
Current	**30.5**	1225	1494	1903	2091	2390	2838	3005	3286	3584
	33.5	1345	1640	2090	2297	2625	3117	3301	3609	3937
	36.5	1466	1787	2277	2502	2860	3396	3596	3932	4290
	39.5	1586	1934	2464	2708	3095	3675	3892	4255	4642
	42	1686	2057	2620	2879	3291	3908	4138	4525	4936
Maximum	**44.2**	1775	2164	2757	3030	3463	4112	4355	4762	5195
	45	1807	2204	2807	3085	3526	4187	4434	4848	5289
	48	1927	2350	2995	3291	3761	4466	4729	5171	5641

Choosing among the three tables below is based on your forecast for future economic growth: low 1%, average 3% or high 5%. Once you select the appropriate table, find your expected profit margin for five years from now on the horizontal axis at the top and your estimate for CAPE valuations on the vertical axis on the left. The estimate for the future level of the S&P 500 lies at the intersection of the two forecasts.

1% Annual GDP Growth

CAPE Valuation		Profit Margin (%)								
		Minimum		Average			Current Maximum			
		4.10%	5.00%	**6.37%**	7.00%	8.00%	**9.50%**	**10.06%**	11.00%	12.00%
Minimum	**4.8**	193	235	299	329	376	447	473	517	564
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Maximum	**44.2**	1775	2164	2757	3030	3463	4112	4355	4762	5195
	45	1807	2204	2807	3085	3526	4187	4434	4848	5289
	48	1927	2350	2995	3291	3761	4466	4729	5171	5641

3% Annual GDP Growth

RIA Pro

CAPE Valuation		Profit Margin (%) Minimum 4.10%	5.00%	Average 6.37%	7.00%	8.00%	Current 9.50%	Maximum 10.06%	11.00%	12.00%
Minimum	4.8	213	259	330	363	415	493	522	570	622
	7	310	378	482	529	605	718	761	832	907
	10	443	540	688	756	864	1026	1087	1188	1296
	13	576	702	895	983	1123	1334	1413	1545	1685
	16	709	864	1101	1210	1383	1642	1739	1901	2074
Average	16.9	749	913	1164	1279	1461	1735	1838	2009	2192
	19	842	1026	1307	1437	1642	1950	2065	2258	2463
	22	974	1188	1514	1664	1901	2258	2391	2614	2852
	25	1107	1350	1720	1890	2161	2566	2717	2971	3241
	28	1240	1512	1927	2117	2420	2873	3043	3327	3630
Current	30.5	1351	1647	2099	2306	2636	3130	3315	3624	3954
	33.5	1484	1809	2305	2533	2895	3438	3641	3981	4343
	36.5	1617	1971	2512	2760	3154	3746	3967	4337	4732
	39.5	1749	2134	2718	2987	3414	4054	4293	4694	5120

5% Annual GDP Growth

RIA Pro

CAPE Valuation		Profit Margin (%) Minimum 4.10%	5.00%	Average 6.37%	7.00%	8.00%	Current 9.50%	Maximum 10.06%	11.00%	12.00%
Minimum	4.8	234	285	364	400	457	542	574	628	685
	7	341	416	530	583	666	791	837	916	999
	10	488	595	758	833	951	1130	1196	1308	1427
	13	634	773	985	1082	1237	1469	1555	1701	1855
	16	780	951	1212	1332	1522	1808	1914	2093	2283
Average	16.9	825	1006	1281	1408	1609	1911	2023	2212	2413
	19	926	1130	1439	1582	1808	2147	2273	2486	2712
	22	1073	1308	1667	1832	2093	2486	2632	2878	3140
	25	1219	1487	1894	2081	2379	2825	2991	3271	3568
	28	1365	1665	2121	2331	2664	3164	3350	3663	3996
Current	30.5	1487	1814	2311	2539	2902	3446	3649	3990	4353
	33.5	1633	1992	2538	2789	3187	3785	4008	4383	4781
	36.5	1780	2170	2765	3039	3473	4124	4367	4775	5209
	39.5	1926	2349	2992	3288	3758	4463	4726	5167	5637
	42	2048	2498	3182	3497	3996	4745	5025	5495	5994
Maximum	44.2	2155	2628	3348	3680	4205	4994	5288	5782	6308
	45	2194	2676	3409	3746	4281	5084	5384	5887	6422
	48	2341	2854	3636	3996	4567	5423	5743	6279	6850

Summary

The framework described above can be used for something as simple as finding one answer as we did in the example, but it also allows an investor to conduct scenario analysis to arrive at a range of possibilities. By assigning various probabilities to one, two or all variables, one can calculate a weighted average outcome. For example, hold CAPE and Profit Margin constant and assign a 30% probability to 1% GDP growth, 60% probability to 3% growth and 10% probability to 5% growth. Repeating that process produces a range of answers which could effectively be used to gauge risk versus return. Although relatively simple in its construction, the ability to customize your forecast and apply multiple scenarios is a powerful risk management tool.