Finding the Right P/E Multiple – Or How to Handicap a Stock

By Geoff Gannon (originally published on Focused Compounding)

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First, a huge warning about the tables I'll be showing you in this memo. The P/E multiples shown here are useful as a theoretical tool for getting some idea of how important durability – being able to know a stock will still be turning an annual profit more than 5 years from now – and growth (being able to know a stock will compound intrinsic value faster than the overall market) is in finding the right P/E for a stock.

Basically, what I'm saying here is that if ***literally all you know about a business*** is that it will grow 5% a year for the next 5 years (and then you don't even know if it will lose money or not in year six) – you can't afford to pay anything but an incredibly low P/E for that stock. Likewise, to justify a P/E ratio of 30 or 100 or some number as unusually high as that – you will need to be able to project a stock will not just compound intrinsic value quickly – but that it will continue to compound at above market rates for 15 to 20 years (not just 5 to 10).

As you read this memo, remember those two principles. And remember this is not a magic formula table that tells you – based on past figures – whether a stock is mispriced or not. It's a thinking tool that tells you if you really are unusually certain about a stock's long-term compound future, just how much that certainty should change the P/E you're willing to pay.

For example, it tells you that you really can pay an absurdly high P/E ratio for a stock you are 100% certain will compound value faster than the S&P 500 – if and only if you know that compounding will last for 15-20 years. Knowing that above average growth will last for 5 years isn't enough.

Now, to today's question:

"Would be keen to get your thoughts on how you think about what multiple a stock should trade on and also how you appraise a stock's value. I think multiple is a function of a number of things – earnings growth, durability, industry evolution, reinvestment and earnings retention etc. – but very keen to hear how you think of it. It's something that I find difficult, particularly for higher quality businesses that are already on high multiples."

The formula that really matters in investing is simply:

Compounding Power / Price

If you take "compounding power" and you divide by "price" – you should always know which investment to make. If two stocks have the same price, you should always buy the stock that compounds better. And, if two stocks are equal compounders, you should always buy the cheaper stock.

Warren Buffett's business partner, Charlie Munger, has said:

"To us, investing is the equivalent of going out and betting against the pari-mutuel system. We look for a horse with one chance in two of winning, and that pays three to one. In other words, we're looking for a mispriced gamble. That's what investing is, and you have to know enough to know whether the gamble is mispriced."

Let's apply Charlie Munger's handicapping approach to stocks. Wikipedia describes horse handicapping like this:

"A handicap race in horse racing is a race in which horses carry different weights, allocated by the handicapper. A better horse will carry a heavier weight, to give him or her a disadvantage when racing against slower horses. The handicapper's goal in assigning handicap weights is to enable all the horses to finish together (in a dead heat)."

The stock market is like a handicap race for businesses. Some businesses are faster compounders than other businesses. However, the market applies a handicap of a higher price (heavier weight) to faster compounders. The different price weights public businesses carry lead to more equal investment returns than would be predicted by simply looking at the raw compounding power of the businesses themselves. **Amazon (AMZN)** is a faster compounder than **Staples (SPLS)**. However, Staples has a price-to-sales ratio of 0.34 while Amazon has a price-to-sales of 3.38. At least as of a couple years ago, Amazon and Staples extracted similar percentages of economic value from each dollar of sales. So, the market really is handicapping the race between Amazon and Staples in a way where Amazon has to carry 10 times the weight Staples does. It's as if a horse named Staples was ridden by a 110 pound jockey and a horse named Amazon was ridden by a 1,100 pound jockey. Amazon is considered to have just about the brightest future of any retailer and Staples is considered to have just about the grimmest future of any retailer. However, ask yourself how certain would you really be that the slowest thoroughbred alive carrying 110 pounds would lose a race to the fastest thoroughbred alive carrying 1,100 pounds. The difference between the speeds of the fastest and slowest thoroughbreds is huge. But, a thoroughbred only weighs about 1,000 pounds. So, I'm not sure it's possible for the fastest thoroughbred alive to outperform a snail when carrying 1,100 pounds of weight – because I'm not sure a horse can move when carrying 110% of its body weight. Likewise, I'm not sure a stock can move when carrying a price-to-sales ratio over 3 if it already has close to $150 billion in revenue.

Now, there is a way to calculate how much faster Amazon the business has to be as a compounder for its stock to outperform a stock like Staples. However, we need one other variable to make this calculation.

Unlike complex team sports like football, basketball, etc. where mismatches both individually between players and systematically between teams could cause a situation where team A is favored in a match against team B, team B is favored in a match against team C, and yet team C is favored in a match against team A – a horse race is a simple contest. Faster horses beat slower horses. If horse A races horse B and wins and then horse B races horse C and wins – we know horse A should beat horse C whenever they run in the same race. Given the same odds – you should always bet the faster horse.

There is, however, a catch. Horse races are run over different distances. Horse handicappers know the distances over which a horse ran at a certain speed in the past (in fact, when rating a horse's speed – they normalize for this) and they will know the distance over which this next race will be run.

We know that the winning horse at next year's Kentucky Derby will defeat the next closest contender at a point in space that is 1.25 miles from where the two horses started. We don't know exactly how

much time the race will be judged at. If you froze any moment in time, a different horse might “win” (12 seconds in, 37 seconds in, 1 minute 2 seconds in, etc.) – and we might not be able to predict the winner at every point in time very well. But, we don’t have to. All we have to predict to know who will win the Kentucky Derby is which horse will be in front exactly 1.25 miles from the start.

So, picking the right horse – not betting on one, but just picking the winner – in a handicap race depends on you knowing 3 things:

1. Speed
2. Weight
3. Distance

How fast is each horse relative to the others? How much weight is each horse carrying relative to the others? And at what point – in space – will this race be called.

Likewise, picking the right stock to buy depends on you knowing 3 things:

1. Compounding power (equivalent to speed)
2. Price (equivalent to weight)
3. Holding period (equivalent to distance)

There are mathematical ways of expressing this – but they aren’t as useful as a more practical expression in table form. If you are a long-term investor – not a trader – and you are buying established, real-world public companies (not start-ups) almost all of your “actionable ideas” are going to roughly fall into one of the 16 boxes found in this table of four rows and four columns:

	5 Years	*10 Years*	*15 Years*	*20 Years*
5%	$1.28	$1.63	$2.08	$2.65
10%	$1.61	$2.59	$4.18	$6.73
15%	$2.01	$4.05	$8.14	$16.37
20%	$2.49	$6.19	$15.41	$38.34

What I've built here is a compounding speed table for businesses. The percentages on the left are the annual rate of compounding. The holding periods at the top are the number of years you – the investor – intend to hold the stock. There is no P/E multiple (equivalent to the handicap weight on a horse) given here because that's the variable we want to determine.

This is just a speed and distance table. It measures raw compounding power. For example, this table tells you that one dollar of earnings per share today compounds to $38.34 if it grows at 20% a year for 20 years and yet only grows to $1.28 a year if it grows at 5% a year for 5 years.

Let's now use our compounding power (speed and distance) table to come up with some P/E multiple handicaps.

First, we need a pace horse. A broad basket of shares in big companies like the S&P 500 tends to compound intrinsic value at between 5% and 10% a year (through a combination of EPS growth and dividend payout). Robert Shiller has calculations of stock prices going back about 130 years. He uses a Cyclically Adjusted P/E Ratio (CAPE). That figure is more stable than the reported P/E of the index. So, I will use it instead. The median Shiller P/E from the 1800s through today is about 16. The standard deviation is about 6.

So, a "market multiple" has tended to be 10 to 22 in most years.

The Shiller P/E is now about 30. I don't expect the S&P 500 to compound intrinsic value at 10% a year for the next 20 years. But – for the purposes of this exercise – I'm willing to assign a P/E of 22 (so one standard deviation above the historically typical market multiple) to the "20 years at 10%" square.

	5 Years	*10 Years*	*15 Years*	*20 Years*
5%	$1.28	$1.63	$2.08	$2.65
10%	$1.61	$2.59	$4.18	**$6.73 (22 P/E)**
15%	$2.01	$4.05	$8.14	$16.37
20%	$2.49	$6.19	$15.41	$38.34

Using that value of a 22 P/E handicap being the weight carried by a pace horse that can run at 10% a year over a distance of 20 years – we get these P/E multiples as the weights needed to correctly handicap this stock race:

(Market Multiple = 22)

	5 Years	*10 Years*	*15 Years*	*20 Years*
5%	4	5	7	9
10%	5	8	14	***22***
15%	7	13	27	53
20%	8	20	50	125

Those are the correct P/E ratios if we believe a P/E of 22 is the right P/E for something we know will grow 10% a year for the next 20 years.

Here's what the table would look like if we used the historically normal P/E of 16 as our "market multiple":

(Market Multiple = 16)

	5 Years	*10 Years*	*15 Years*	*20 Years*
5%	3	4	5	6

10%	4	6	10	**16**
15%	5	10	19	39
20%	6	15	37	91

Finally, I'll show you the kind of stock handicapping table you'd get using today's Shiller P/E of 30:

(Market Multiple = 30)

	5 Years	*10 Years*	*15 Years*	*20 Years*
5%	6	7	9	12
10%	7	12	19	**30**
15%	9	18	36	73
20%	11	28	69	171

I think these tables are the most useful way of thinking about the idea of a "right" multiple for a stock. But, there are two huge caveats here.

One, the overall market level has a huge influence on the multiple you should pay for a stock. For example, in today's market environment you should be willing to pay almost as much (a P/E of 9) for a stock you're only certain will compound earnings at 15% a year for the next 5 years as you would normally pay (a P/E of 10) for a stock you're certain will compound earnings at 10% a year for the next 15 years. So, the bar is a lot lower today.

Two, these P/E multiples look weird because this isn't just a compounding power table – it's a compounding certainty table.

Let's look at two of the weirdest looking handicapping multiples in today's table (the one with the market multiple of 30) to see what I mean:

	5 Years	*10 Years*	*15 Years*	*20 Years*
5%	**6**	7	9	12
10%	7	12	19	**30**
15%	9	18	36	73
20%	11	28	69	**171**

This handicapping table seems to be saying that it's an equally good idea to pay a P/E of 171 for a stock you expect will compound earnings at 20% a year for the next 20 years as it is to pay a P/E of 6 for a stock that will compound earnings at 5% a year for the next 5 years.

Value investors will say the stock with a P/E of 6 growing at 5% a year is the better bet.

I'd agree – but only because of the lack of certainty. You really should only pay a P/E of 6 for a stock that we know will grow 5% a year for 5 years and then have no clue what will happen. For example, a company with one drug that will have the same number of prescriptions from now through 2022 and will push through a 5% price escalation and then will go off patent. Such a stock deserves a P/E of 6.

Likewise, a stock that we're certain – or as certain as we are about the future of the S&P 500 generally – will grow earnings by 20% a year for 20 years, really does deserve the astronomical P/E of 171. But, I know of no such stock.

I included that square because I do know of stocks that – retrospectively – grew 20% a year for 20 years. Amazon did. Berkshire Hathaway did (though not these past 20 years). Wal-Mart did (though not these past 20 years). Southwest Airlines did (though not these past 20 years). Early on in their history, some great public companies do grow 20% a year for 20 years. I'm not sure this table is ever saying it's fine to pay 171 times earnings for those companies. For example, if the business you buy

grows 15% a year for 20 years instead of 20% a year – this table tells you the right multiple is a P/E of 73. In other words, you paid 2.3 times too much for your shares even though the company grew faster than almost any business around for longer than almost any business around. What the table is really telling you is that if you find a business you honestly believe has a very good shot of growing 20% a year for 20 years – you shouldn't short that stock even if it trades at 170 times earnings. And I agree with that.

Likewise, the table is telling you that even if you find a stock trading at a P/E of 6 and growing 5% a year (for now) – you shouldn't buy that stock if you have no clue what will happen beyond the next 5 years.

Consider that stock growing 20% a year for 20 years with the P/E of 171. Often, we won't actually have very strongly held views on whether the business will grow 20% a year for the next 20 years or 20% a year for just the next 10 years.

What's the difference?

Well, it's the difference between a stock that deserves a P/E of 171 or a P/E of 28. In other words, it's a good idea to buy a stock at a P/E of 20 if you feel strongly it can grow 20% a year for more than 10 years. But, it's a bad idea to buy a stock at a P/E of 70 to 170 if you feel you can't really tell the difference between a business that will grow 20% a year for the next 10 years, 15 years, or 20 years. And usually you can't.

So, usually you can't pay more than 28 times earnings for any stock.

The table I showed you was for illustration purposes only. I just wanted to show how the multiples would look in today's market. Let's now build the P/E handicapping tool I would really use.

The Table I'd Really Use

So, let's start with the two assumptions I believe are roughly right. One, the S&P 500 will normally trade at about 16 times earnings. Two, the S&P 500 will normally compound wealth at about 7.5% a year. For example, it will grow EPS by 5% a year while paying a 2.5% dividend yield.

Let's plug those two figures into our table. This puts the market multiple at 16. And it places that multiple equidistant between the 5% a year for 20 years square and the 10% a year for 20 years square.

	5 Years	*10 Years*	*15 Years*	*20 Years*
5%	4	6	7	9

10%	5	9	14	23
15%	7	14	28	56
20%	8	21	53	131

The “market multiple” is now not a single square – it’s a range of two squares. Basically, we’re saying the S&P 500 will compound its intrinsic value – over the next 20 years – at somewhere between 5% a year and 10% a year and it will trade at somewhere between a P/E of 9 and a P/E of 23.

I believe those numbers. And I believe they are more useful than more precise numbers.

A Good Theory

To me, a good theory is not something that best approximates the capital T “Truth” of the way the universe really works. A good theory is a useful operating assumption. It’s a belief that helps those who hold it get work done.

The most theoretically correct and elegant way to assign the right multiple to a stock would be to come up with a formula that fits Buffett’s definition:

“In The Theory of Investment Value, written over 50 years ago, John Burr Williams set forth the equation for value, which we condense here: ‘The value of any stock, bond or business today is determined by the cash inflows and outflows – discounted at an appropriate interest rate – that can be expected to occur during the remaining life of the asset.’ Note that the formula is the same for stocks as for bonds…The investment shown by the discounted-flows-of-cash calculation to be the cheapest is the one that the investor should purchase – irrespective of whether the business grows or doesn’t, displays volatility or smoothness in its earnings, or carries a high price or low in relation to its current earnings and book value.”

- **Warren Buffett, 1992 Letter to Shareholders**

This DCF approach is theoretically correct – but it's dangerously impractical. A discounted cash flow (DCF) calculation has 3 flaws that make it difficult to apply:

1. The problem being considered is ***unbounded*** (there's no defined time limits)
2. It is overly ***precise***
3. It is overly ***determined***

To avoid these problems, a DCF often includes assumptions to fix temporal problems (for example, the "terminal growth rate" cheat) and fix uncertainty problems (for example, the "risk adjusted rate" cheat).

I think these approaches lead to fuzzy thinking. They disguise the simplifying assumptions you make. Let's instead go back to the table I created. But, this time, we are going to imagine placing two poker chips on two different squares:

	5 Years	*10 Years*	*15 Years*	*20 Years*
5%	4	6	7	**9**
10%	5	9	14	**23**
15%	7	14	28	56
20%	8	21	53	131

This table fixes the three problems I mentioned:

1. Potentially unbounded time becomes a clearly defined holding period with temporal limits at 5-years and 20-years. All calculations are made for a 5-year to 20-year investment timeframe.
2. False precision is eliminated by moving from continuous measurement to discrete measurement. We only measure in full step up intervals of 5, 10, 15, and 20 years. And we only measure in full step up intervals of 5%, 10%, 15% and 20% a year compounding rates. We no longer try to tell the difference between a business that will compound at 7.4% a year and 5% a year – we treat them both the same.
3. A fixed future becomes an indeterminate future. We no longer say a business will compound at 5% a year for 20 years. We now say a business's two most likely futures are that it will compound at roughly 5% a year for 20 years or roughly 10% a year for 20 years.

A few words of advice. In real world investing, you will rarely use the outside of the table:

	5 Years	*10 Years*	*15 Years*	*20 Years*
5%	4	6	7	~~9~~
10%	5	9	14	~~23~~
15%	7	14	28	~~56~~
20%	~~8~~	~~21~~	~~53~~	~~131~~

Growth rates of 20% a year are uncommon. And predictions you can make over 20 years or more – concerning a single business – are also uncommon.

The other bit of advice is that you should always prefer raw compounding speed when possible. This is because it leaves you in a better position once you've reached your "certainty horizon".

Let me use an example. I own a stock called **BWX Technologies (BWXT)**. That company recently gave this guidance:

"Beyond 2017, we continue to anticipate an EPS CAGR in the low double digits over the next 3-5 years based upon our robust organic growth strategy and remaining balance sheet capacity."

Let's apply that guidance – as closely as we can – to my table:

	5 Years	*10 Years*	*15 Years*	*20 Years*
5%	$1.28	$1.63	$2.08	$2.65
10%	**$1.61**	$2.59	$4.18	$6.73
15%	**$2.01**	$4.05	$8.14	$16.37
20%	$2.49	$6.19	$15.41	$38.34

If we assume that "low double digit" EPS means 10% to 15% growth and "3-5 years" means 5 years – we get a prediction that every $1 of EPS will be $1.61 to $2.01 in 2022. This year's EPS guidance for BWXT is $1.85 to $1.95. So, we get a range (5-6 years out) of $2.98 a share to $3.92 a share in EPS for BWXT. Let's just round that off to $3 to $4 a share in EPS in about 5 years. That's the medium term.

In the long-term, I expect BWXT will compound its intrinsic value at close to 10% a year indefinitely. This is because I expect about a 3% real increase in spending by the U.S. Navy for BWXT products, a 3% rate of inflation in what the Navy pays for those products, and dividends/buybacks of close to 3% a year while BWXT grows at that rate.

So, let's assume that BWXT earns about $3 to $4 a share in about 5-6 years and then trades at the kind of multiple a business that compounds at 10% a year for 20 years would grow at.

In a normal stock market environment (with a Shiller P/E of 16) – which we'll assume the year 2022 is – the right multiple for BWX Technologies would be this green square:

	5 Years	*10 Years*	*15 Years*	*20 Years*

5%	4	6	7	9
10%	5	9	14	**23**
15%	7	14	28	56
20%	8	21	53	131

So, if BWX earns about $3 a share and trades at 23 times earnings – the stock price should be $69 at the end of 2022. And, if BWX earns about $4 a share and trades at 23 times earnings – the stock price should be $92 a share at the end of 2022.

So, those are our two 5-year out futures for the stock. The stock now trades at $48 a share. So – ignoring the tiny dividend – we would be assuming a 5-year compound annual growth rate in the stock's price of 7.5% to 13.9%.

So, you can see why I still hold BWX Technologies despite the P/E already being 26. The stock looks priced to return 7% to 14% a year over the next 5 years and then maybe 8% to 10% a year after that. Basically, it looks like it can still return 10% a year forever from this point despite carrying the relatively heavy weight of a P/E of 26.

A huge issue I need to point out here is the concept of a certainty horizon. For example, a lot of people ask why I continue to hold BWX Technologies despite it now having a P/E of 26 and yet I don't buy Howden Joinery at a P/E of maybe 15.

My certainty horizon for Howden is pretty short. I can project above average compounding out only 5 years. Then, maybe, average compounding after that. However, at BWX Technologies I am willing to project above average compounding – closer to 10% a year than 5% a year – over periods ***beyond*** 20 years.

That almost never happens. For me, it does happen with an advertising agency stock like **Omnicom (OMC)**.

Let's look at the handicapping tool again – but this time using the market's current Shiller P/E of 30:

	5 Years	**10 Years**	**15 Years**	**20 Years**

5%	8	10	13	**17**
10%	10	17	27	**43**
15%	13	26	52	105
20%	16	40	99	245

It's easy to predict that – as of today – a true buy and hold approach in Omnicom will outperform a true buy and hold approach in the S&P 500. A stock should have a higher multiple to the extent that you are certain of:

1. A faster rate of compounding
2. A longer distance over which this compounding race will be run

Simply put, the better and longer the future you feel you can predict for the company is – the higher the P/E you should pay. I feel that Omnicom's future is indeterminate between a 5% annual rate of compounding and a 10% annual rate of compounding. However, if you put a gun to my head, I would lean toward the higher number. This is because the combination of organic sales growth and stock buybacks should – if the buybacks are done at anything like today's P/E ratio – lead to compounding in the share price of closer to 8% to 10% than say 5% to 7%. I'm very confident in that calculation. So, I'd be leaning more towards a P/E of 43 than a P/E of 17 in this table. And that's if I believed the future I foresaw for Omnicom stretched out 20 years.

Now, normally, I don't feel I can even imagine what a business would look like 15-20 years from now. But, here, I feel I can imagine that the ad agency business model will still be compounding at closer to 8% to 10% a year in value than 5% to 7% a year well beyond that 20 year time horizon cut off on my chart. Although I don't want to quantify it – I will remind you that if two stocks are compounding at the same rate and we can foresee a longer positive future for one stock, that stock deserves a higher P/E.

So, I'm pretty certain that Omnicom deserves a P/E of more than 17 but less than 43. That doesn't sound like a useful thing to know. The appraisal band is too broad.

But, look at Omnicom's P/E ratio right now. It's 17.

Based on that, the situation is definitive enough for me to call a race between OMC and the S&P 500 using this table. Over the next 20 years, Omnicom's stock will outperform the S&P 500. That's what the table is telling you.

So, again, think of this as a table with a certainty horizon. And remember that the price level of other stocks will change the price this table tells you it's okay to pay for a business. I'll leave you with two tables. One, is the normal P/E multiple table as I see it (this uses a P/E of 16 and an annual return of 7.5% as normal for the market as a whole) and the other table is "today's" handicapping tool. Using today's handicapping tool, will predict which stocks can give you a better relative result versus the market. However, it will not guarantee an adequate absolute return if the S&P 500 itself returns very little over your holding period in the stock.

The "Normal Market Environment" Stock Handicapping Tool:

	5 Years	*10 Years*	*15 Years*	*20 Years*
5%	4	6	7	9
10%	5	9	14	23
15%	7	14	28	56
20%	8	21	53	131

"Today's Market Environment" Handicapping Tool:

	5 Years	**10 Years**	**15 Years**	**20 Years**
5%	8	10	13	17
10%	10	17	27	43

15%	13	26	52	105
20%	16	40	99	245

Again, these multiples are only valid to the extent you can confidently predict the future at the coordinates you are using. For example, it's safe – in the sense you should match the market – to now pay a P/E of 17 for a stock you can confidently predict will compound intrinsic value at 10% a year for the next 10 years.

Use with caution.