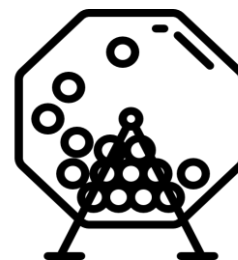


Let's play a game. Say I have 100 golf balls, 50 white and 50 yellow. You pick a color, I'll draw one out of my hypothetical bucket, then give you \$10 if you picked correctly. How much would you be willing to pay to play this game? Most would say about \$5, multiplying the reward by the probability of achieving that reward. Now, same terms, but you have no idea how many white or yellow golf balls are in the bucket. *Maybe only white ones, maybe 80% yellow.* How much would you be willing to pay with these rules? Probably much less than \$5. In the first game, the chance of winning was known; the price was calculated on that chance. **This is known as risk.** In the second game, the chance of winning was unknown; the price was calculated subjectively. **This is known as uncertainty.**

The difference between risk and uncertainty is paramount. Risk is the kind of randomness that can be quantified using probability and statistics. Since it can be calculated, it can be priced. Insurance companies measure risk through actuarial tables, pharmaceuticals are approved based on side effects versus efficacy, and so on. As humans, we weigh risk/reward scenarios in nearly everything we do. Uncertainty isn't risk because it can't be quantified; therefore, priced. How often do we do something where the outcome probability is unknown? Would you get on a plane not knowing any crash statistics? A car? What about quitting a good job to work for a computer company in 1976? Or an online bookstore in 1994?¹



'Knightian Uncertainty'ⁱ as it's known, coined by economist Frank Knight in 1921, is enlightening in theory, but has an achilles heel in practice: the ability of humans to accurately price risk. In our first game the number of golf balls was known, making the pricing of risk simple. In reality, the data used to price risk is assumed or estimated more often than not – bringing all cognitive biases into play (recency bias, confirmation bias, survivorship bias, et al.)ⁱⁱ. The mispricing of risk can result in unexpected outcomes. Enter uncertainty. Can humans really even distinguish the difference? Maybe Mr. Bezos just greatly mispriced the risk of his online bookstore – and it really worked out.

Our job is to manage risk and navigate uncertainty. In other words, to identify where risk is mispriced and allow for reasonable uncertainty. We believe that investing in markets – where human biases including our own, are ubiquitous – is an art, not a science. Seldom does 'black & white' or 'all-in & all-out' exist in entirety. Therefore, we think of risk (investing) as a



¹ Referring to the founding of Apple and Amazon, both 'out there' concepts at the time.

sliding 1-10 scale. We are rarely at 0 or 10. Instead we move the slider up or down based on our belief of the prospective returns of the future.

The point of this lengthy preface was to underscore the importance of pricing and managing risk effectively, while recognizing uncertainties. *Doxa Capital has always managed portfolios in this manner, so why emphasize this now?*

Prices are elevated	Most valuation metrics are in the 85+ historical percentile
Prospective returns are low	The Buffett Indicator and CAPE ratio show trouble
Risk is mispriced	Central bank actions have shifted liquidity
Complacency & 'FOMO' are high	The 'fear of missing out (FOMO)' is overtaking discipline

Hopefully the preface makes a little more sense now. This is not a doomsday 'sell everything' note nor a recessionary warning. **We believe asset prices are inflated, central bank risk is being miscalculated, and uncertainty is being replaced with complacency.** We are simply saying 'the time for caution and discipline is now'. Fighting for the last leg up or the perfect market timing call is not a risk/reward scenario we find advantageous.

Of course, this wouldn't be a true Doxa note if we stopped here.

Our Case

Prices are elevated; prospective returns are low.

Market prices can be a function of expected future cash flows *times* a multiple.² Expected future cash flow is based on the economy, sales, profits, etc. and the multiple is what an investor is willing to pay to receive those future cash flows. Absent corresponding gains in expected cash flows, the higher a multiple (or price) goes, the lower future returns become. Imagine you bought a boat for \$10k that could be rented for \$1,000/yr. – the investment return would be 10% for that year. But if that same boat now cost \$20k – the return drops to 5%. Surely we would all rather buy the boat for \$10k. For every one dollar spent we receive ten cents back, whereas in the second scenario, for every one dollar spent we receive five cents back.

Operating earnings for the S&P 500 over the last twelve months was \$116. This sentence would have also been accurate three years ago, July 2014 (the index earned \$114). Since then, the

Scenario	Probability	2016 EPS	2017e EPS	2018e EPS	Fwd. P/E	Y.E. 2017
Bull	15%	\$120	\$133	\$146	19.0x	2775
<i>Growth</i>		1.30%	11.00%	10.00%		
Base	65%	\$120	\$128	\$136	16.5x	2250
<i>Growth</i>		1.30%	7.00%	6.00%		
Bear	20%	\$120	\$125	\$113	14.0x	1600
<i>Growth</i>		1.30%	5.00%	-10.00%		
Consensus		\$120	\$131	\$142	17.5x	2485
<i>Growth</i>		1.30%	9.00%	8.50%		

All numbers adjusted for comparison to consensus

Source: Doxa Research, S&P Capital IQ

² Expected earnings [e]E * multiple = price.

price of the index is higher by roughly 20% and the cash flow³ provided is higher by about 0%.⁴ So the price of the boat (market) has gone up, this isn't groundbreaking. **But is it still worth it?**

- 1) Higher prices are welcome if the expected cash flow is similarly higher as well. In the chart above we have outlined our expectations for future earnings versus the consensus estimate⁵. We are slightly lower than consensus for a couple of reasons (detailed in our [2017 Macro Outlook](#)):
 - a. Unemployment is low⁶, pushing low-end wages higher. This should be a drag on profit margins – currently the highest ever at 10.38%.
 - b. Another margin drag is prices (inflation). Consumer shifts & low commodity prices have kept price inflation stubbornly low.ⁱⁱⁱ
 - c. We don't believe energy earnings meaningfully recover in the near term, and are doubtful bank earnings will achieve lofty expectations.
- 2) Even if we are all wrong about future earnings, the index has still appreciated more than the consensus earnings growth has been revised higher. This is due to multiple expansion. The amount an investor is willing to pay (a multiple) is directly influenced by an investors pricing of risk/uncertainty. The higher the multiple, the less risk and uncertainty is perceived and vice versa. In the chart below, we show 8 different ratios⁷ and how they stand compared to past markets. More than 250 stocks are in the 94%+ percentile in 6 of the 7. **Why wouldn't we be cautious here?**

Source: Goldman Sachs

Metric	Aggregate Index			Median Stock		
	Current	LT Avg.	%ile	Current	LT Avg.	%ile
Forward P/E	17.5	12.8	87%	17.7	13.1	94%
EV/Sales	2.2	1.3	94%	2.7	1.4	98%
EV/EBITDA	11.2	8.2	86%	11.7	8.1	98%
Price/Book	3.1	2.5	83%	3.3	2.2	98%
P/E to Growth (PEG)	1.4	1.1	87%	1.8	1.2	100%
CAPE	25.4	18.7	87%			
Cash Flow Yield	7%	9%	87%	7%	9%	96%
FCF Yield	4%	4%	52%	4%	4%	47%

- 3) **Let's be really clear: high valuations do not predict recessions, drawdowns, or crashes.** Valuations are simply good predictors of forward returns in the long run. Go back to our boat rental opportunity: nothing was mentioned about the rental market, just about the purchase price of the boat. *True or false: "The higher the purchase price of the boat, the more likely the boat rental market will collapse."* This is clearly false - the two are relatively unrelated. As a prospective buyer of the boat however, two things factor into your decision: **a)** the higher the price, the lower future return, and **b)** is the lower return enough to compensate me for the risk and uncertainty of the boat rental market? Substitute our boat for an asset and the boat rental market for the stock market; the same reasoning applies. The more investors that accept (a) and answer yes to (b), the higher the

³ This is for the past twelve months, not next twelve (expected); however in both years the forward estimates weren't too far apart.

⁴ Yes, there are many nuances and accounting issues here. We are happy to discuss in detail.

⁵ As calculated by S&P CapitalIQ, roughly 24 analyst estimates.

⁶ U3 unemployment rate was 4.4% in August, per BLS.

⁷ All ratios are estimates as of 9/15/2017 and are the most commonly used.

market prices will go until an equilibrium is reached. The drawdowns/crashes occur when investors decide they aren't getting paid enough for the risk & uncertainty in the future. **This means that stock prices are largely a function of liquidity; not much else.**

Our take: We see two options here – 1) predict **when** a marketplace full of humans, each with their own unique situations & biases, will collectively decide the future return isn't worth the future risk and uncertainty (with little historical precedent⁸), or 2) **methodically** remove risk when it seems expensive and add to it when it seems cheap. In other words, "When we are getting value cheap, we should be aggressive; when we're getting value expensive, we should pull back", to quote the legendary Mr. Howard Marks.^{iv}

If an investor believes high asset prices are supported by low interest rates, then they effectively believe that quantitative easing worked. So through the transitive property, quantitative easing boosted asset prices. Yet, these same investors believe that unwinding these programs (quantitative tightening) will have no effect on inflated asset prices. *This is completely nonsensical.*

So when is value cheap or expensive? One good indicator is 'total market capitalization to GDP', or 'the Buffett Indicator'. This is far from a good 'when' or timing indicator, but rather a fairly accurate portrayal of future returns. The 128% today equates to about an average annual return of 0% over the coming decade⁹. For context, at the peak of 2001 this indicator predicted an average annual return of -5.5% over the next ten years. In actuality, the average annual return was -2.9%.^v **Unless your human behavior prediction skills are uncanny, is the next 5% or 10% higher worth a decade of near 0% average annual returns?**

Source: Doxa Research, US Bureau of Economic Analysis/FRED

The Buffett Indicator: Market Capitalization to GDP



⁸ History doesn't provide much of a read on market timing.

⁹ This is equated by assuming a reversion to the mean (long term regression line).

Risk is mispriced.

The most common push back to the ‘valuations are high’ case is ‘interest rates are low so it’s ok’.¹⁰ We very much agree. Two things that must be paired with this argument that are commonly absent: 1) to aggressively buy equities now underscores a high conviction that interest rates will remain very low in the future, and 2) the ~\$10.5 trillion asset purchasing programs (quantitative easing) by the three major central banks had no effect.^{vi}

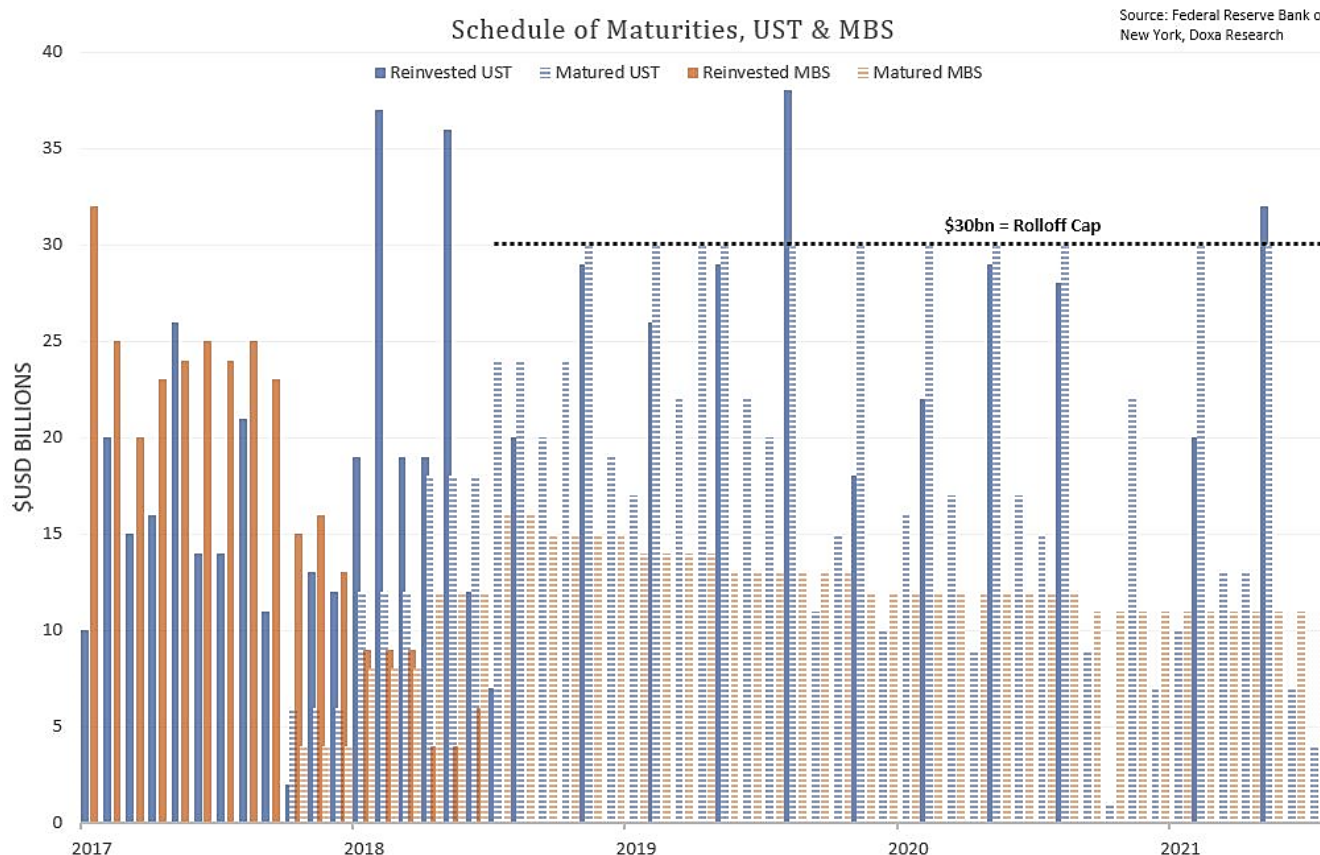
These are two really big caveats that breed high levels of future risk and uncertainty.

In fact, then-Chairman of the FOMC, Ben Bernanke, defended the committee’s decision to continue QE in a 2010 Washington Post column: *“This approach eased financial conditions in the past and, so far, looks to be effective again. Stock prices rose and long-term interest rates fell when investors began to anticipate the most recent action.”*^{vii}

We don’t want to be the ones to ‘have our cake and eat it too’. **What was a tailwind is turning into a headwind; this cannot be overlooked.** As JP Morgan CEO & Chairman Jaime Dimon stated at a conference this summer, ‘[The unwind]...could be a little more disruptive than people think’.^{viii}

By the numbers.

We are not going to pretend like we know how all of this plays out. If anything, we have a lot more questions than we have answers – but that is just the point. We do not believe central banks can reverse 8 years of loose monetary policy without causing an ounce of market disruption along the



¹⁰ Also known as the ‘equity risk premium’, equity prices are a function of interest rates to an extent.

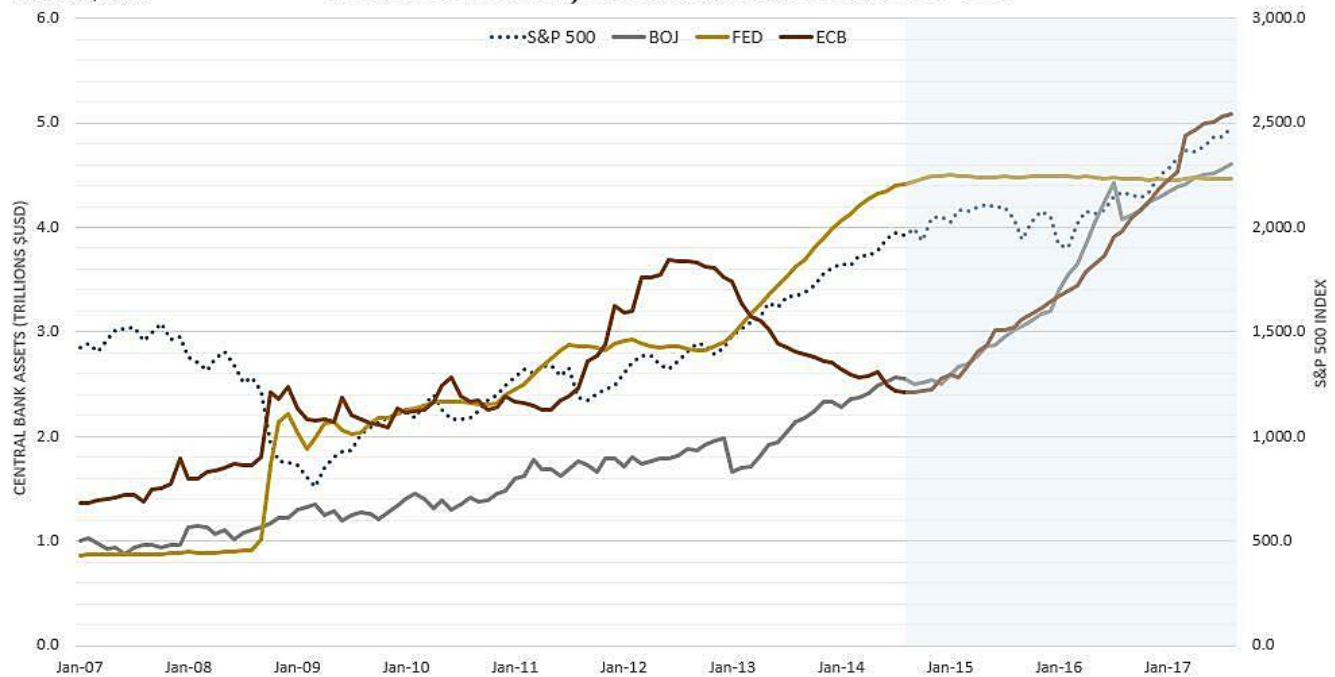
way. Said another way, we think the market is mispricing future liquidity risk and is not properly discounting the uncertainty of policy implications.

Why?

- 1) **Displacement & size.** If we've heard it once, we've heard it a million times: "the unwind will be slow, gradual, and telegraphed to not be disruptive." We disagree – the same could be said on the way up. This is a liquidity issue, not a PR announcement. Explained:
 - a. QE works because it displaces investment money to other 'riskier' areas. Say the FOMC buys \$60bn US treasuries and US agency-backed debt per month.¹¹ Since there is not an unlimited amount of US debt offered, the private investors who intended to buy that \$60bn got 'crowded out' of the market. This money doesn't go to 0% yielding cash of course, it moves to the next best thing on the risk scale – say investment grade (IG) corporate debt. These investors have now 'crowded out' some corporate IG investors, who go to the next best thing on the risk scale, and so on. Near the end of this waterfall is stocks since they are seen as 'more risky'.
 - b. Is the waterfall big enough to matter? The Federal Reserve will unwind \$1.7 trillion MBS's (18% of the entire market) and \$1 trillion US treasuries (8% of the entire market)^{ix}. The \$2.7tr combined is roughly 12% of the market capitalization of the US entire stock market. That is not a small gap that has to be filled.^x
- 2) **Central Bank harmony.** This is perhaps the most important point and one where most questions lie. The two pushbacks we hear on the points above are 'the Fed stopped buying additional bonds at the end of 2014 and all was fine,'¹² and 'unwinding over four years will minimize the size impact.' Again, both true, but missing a critical element: money moves freely across borders and the world's financial markets are interconnected.

Source: Doxa Research, US Bureau of Economic Analysis/FRED

Total Assets of Major Central Banks & the S&P 500



¹¹ How the Federal Open Market Committee (FOMC) purchases bonds [here](#).

¹² This was known as the 'taper tantrum'. The FOMC continued to reinvest maturing bonds, but stopped purchasing additional ones.

- a. When the FOMC shifted to maintaining the balance sheet from increasing it late in 2014, it should be noted that the Bank of Japan (BoJ) and the European Central Bank (ECB) stepped in with the fastest pace of asset purchases seen since the crisis [light blue highlight in the chart above]. It is no coincidence the US dollar's rise coincided with these events.¹³ In fact, these programs were vastly more expansive than the US's – the ECB not only bought Eurobonds, but IG corporate bonds as well.^{xi} The BoJ owns 45% of the JGB market and 75% of the Japanese ETF market!^{xii} ¹⁴ Point being is that displaced Japanese investor money doesn't have to stay in Japan. Many times investors will move to US treasuries, GILTS, etc.¹⁵ **In the past two years, net global monetary displacement has been very elevated and broadly supportive of asset prices around the globe.**
- b. Glancing at the Fed's runoff schedule on page 5, it would seem that four years is a good amount of time to allow for adjustments. But now imagine the ECB starts a similar unwind next summer (official plans are expected for release in a few weeks)^{xiii}, and the BoJ has already started to slightly ease off the JGB gas pedal.^{xiv} **All together, these actions can easily turn a \$500bn net annual injection (2017) to a \$1,000bn net annual draw (2018).** Going from an extreme level of accommodation to a net draw isn't 'slow and gradual' and will disrupt markets, currencies, and interest rates in a big way.

Complacency and 'fear of missing out' are high.

We have outlined why we see market complacency as high through some of the thing above, but we want to call out some additional data points collected throughout the year that are telling in terms of 'mispricing risk and not discounting uncertainty'.

- For a few days in August, the BofA ML EU High Yield Index yielded **LESS** than the BofA ML US Treasury Index. Yes, this means that subpar corporate borrowers in Europe were paying less to borrow money than the AAA United States Government. The normal spread between these two is 3-6%.^{xv} *This isn't normal.*
- More than \$23bn of Italian debt yields less than US debt. Which do you think has a higher chance of default?
- German 10yr bunds yield roughly 0.40% versus the US 10yr treasury at 2.2%. Both countries have about the same rate of inflation, give or take.¹⁶ *This isn't normal.*
- Future contracts on the Fed funds rate can be used to judge where the market believes the Federal Reserve will set the overnight rate in the future. For 2018, the market currently sees a zero to one rate hike, whereas the Fed forecasts three.^{xvi} This disconnect is unusually large, and the reality probably lies somewhere in the middle.
- A single digit VIX reading is not sustainable and was only seen in 1993 and 2007, briefly. The VIX index is a measure of volatility across the financial markets and has been at record lows this year. *This will not continue.*
- Staying with volatility, emerging market volatility is less than NASDAQ volatility. *This doesn't even make sense.*

¹³ The USD rose about 25% against a basket of currencies from mid-2014 into 2015.

¹⁴ As a bonus, the Swiss National Bank owns \$85bn of US stocks. Marginal yes, but just their stock portfolio would be the second largest hedge fund in the states.

¹⁵ GILTS are UK backed, long term debt.

¹⁶ Citing the International Fischer Effect.

- General market positioning is dangerous. Net speculative shorts on the USD were the most ever in August. Net shorts in the retail sector just surpassed the 2008 level. Net percent of fund managers that are overweight cash continues to fall.^{xvii}
- North Korea is lobbying ICBM's over Japan?¹⁷ *We won't even go here.*

We don't believe now is the time to add risk. We don't believe now is the time to pile on what's been working. **The easy thing to do is follow the crowd and pick up the crumbs along the way. That will work until it doesn't.** When positioning is so misplaced and risk is mispriced, violent reactions can take place as the underlying pipes are being reconfigured. A normal 3% drawdown can turn into a 20% selloff quickly. The tightening of financial conditions and relocation of capital will be massive. Volatility will increase. Equities will face headwinds. Interest rates and currencies will be wildcards.

Our job is to manage risk and navigate uncertainty. Asset prices are high, risk is miscalculated, and uncertainty is becoming complacency. **We are simply saying 'the time for caution and discipline is now', so why not slide down that risk scale a little?**

Chase Lee

Director of Research

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^{xvii} BofA Fund Manager Survey, September 2017

¹⁷ Referring to the recent inter-continental ballistic missiles.

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