



FASANARA CAPITAL

MARKET FRAGILITY

HOW TO POSITION FOR TWIN BUBBLES BUST

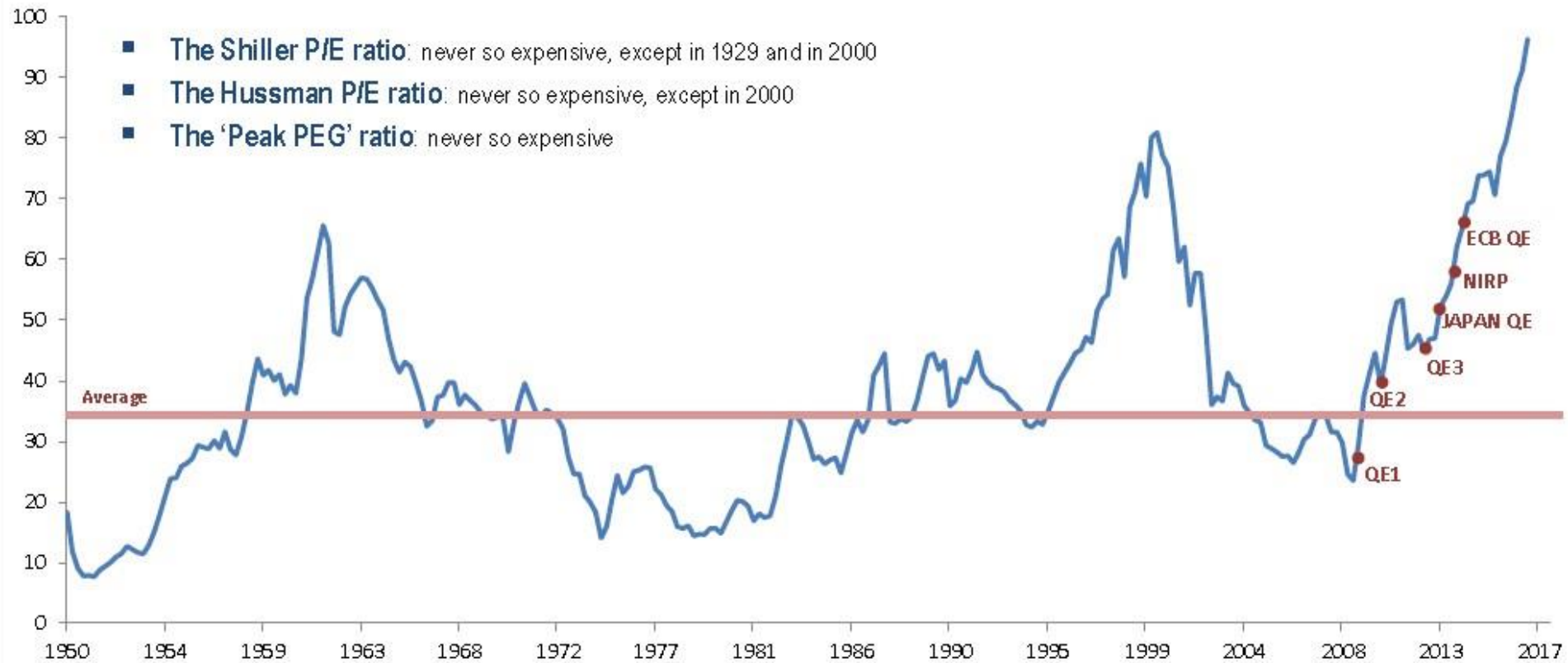
WHY IS THIS A MARKET BUBBLE

**FINANCIAL BOOMS DO
NOT GO ON INDEFINITELY;
THEY CAN FALL UNDER
THEIR OWN WEIGHT**

Claudio Borio, BIS, 2017

MEASURING THE EQUITY BUBBLE

THE 'PEAK PEG' RATIO: price to peak earnings, adjusted for trend growth, on the S&P



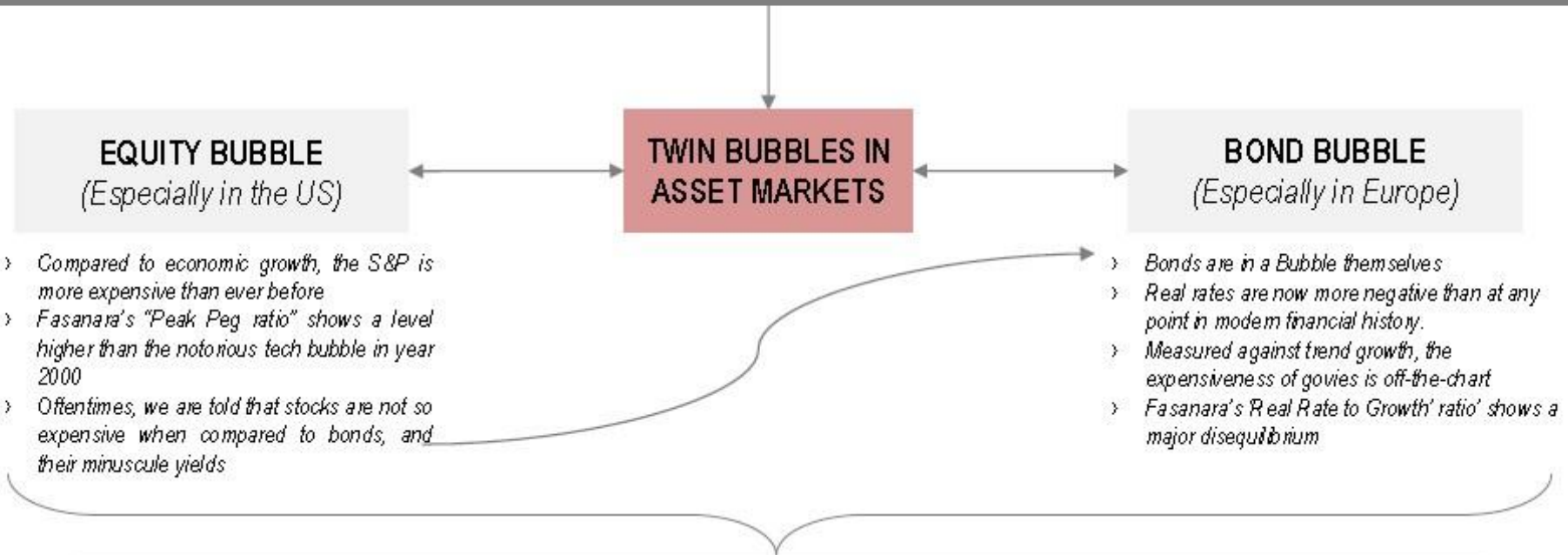
Source: Fasanara Capital Ltd

Data Set:

- S&P quarterly price data, source Bloomberg
- Corporate Profits After-Tax, quarterly data, average of the two highest quarters over the previous 10 years, source FED & Louis
- US Real GDP % Change, rolling 10-year average, quarterly data, source IMF

TWIN BUBBLES

10 YEARS OF MASSIVE PASSIVE PUBLIC FLOWS BY MAJOR CENTRAL BANKS (TOGETHER WITH NIRP POLICIES) LED TO FEW YEARS OF LARGE-SCALE PASSIVE FLOWS BY A PRIVATE SECTOR MADE OF ETFS, RISK PARITY FUNDS, VOL FUNDS, TREND-CHASING ALGOS



- 1 We have bubbles in major equities and major bonds at the same time, **AT A MOMENT WHEN EMERGENCY POLICYMAKING AND ULTRA-LOOSE MONETARY POLICY ARE BEING PHASED OUT** due to:
 - ✓ Capital destruction on core EU savers after inflation resurrected
 - ✓ Capacity constraints (no more bonds to buy past mid-2018)
 - ✓ Income inequality threatening to trigger regime change
- 2 The speed at which risk premia is re-built into the system will determine the **ODDS OF A DISORDERLY ADJUSTMENT** and one cannot just assume - as complacent markets do today - that it will be smooth sailing all the way through
- 3 The bond market says nothing much will change in the next two years. We doubt that the adjustment can take that long and we expect it to cause **POTENTIAL DEEP RE-PRICINGS ALONG THE WAY.**

TODAY IS SIMILAR TO ALL 13 BUBBLES BEFORE..



THIS MAY NOT BE A MARKET BUBBLE, BUT IT SHOWS STARK SIMILARITIES TO ALL PREVIOUS 13 HISTORICAL PARALLELS OF PRICE COLLAPSES

- Robert Shiller: "The US stock market today looks a lot like it did at the peak before all 13 previous price collapses. That doesn't mean that a bear market is imminent, but it does amount to a stark warning against complacency."

WE HEAR THIS IS NO BUBBLE BECAUSE OF HIGH EARNINGS AND LOW VOLATILITY. PROF SHILLER NOTES THAT PAST MARKET PEAKS TEND TO SHOW HIGH EARNINGS GROWTH AND LOW MARKET VOLATILITY

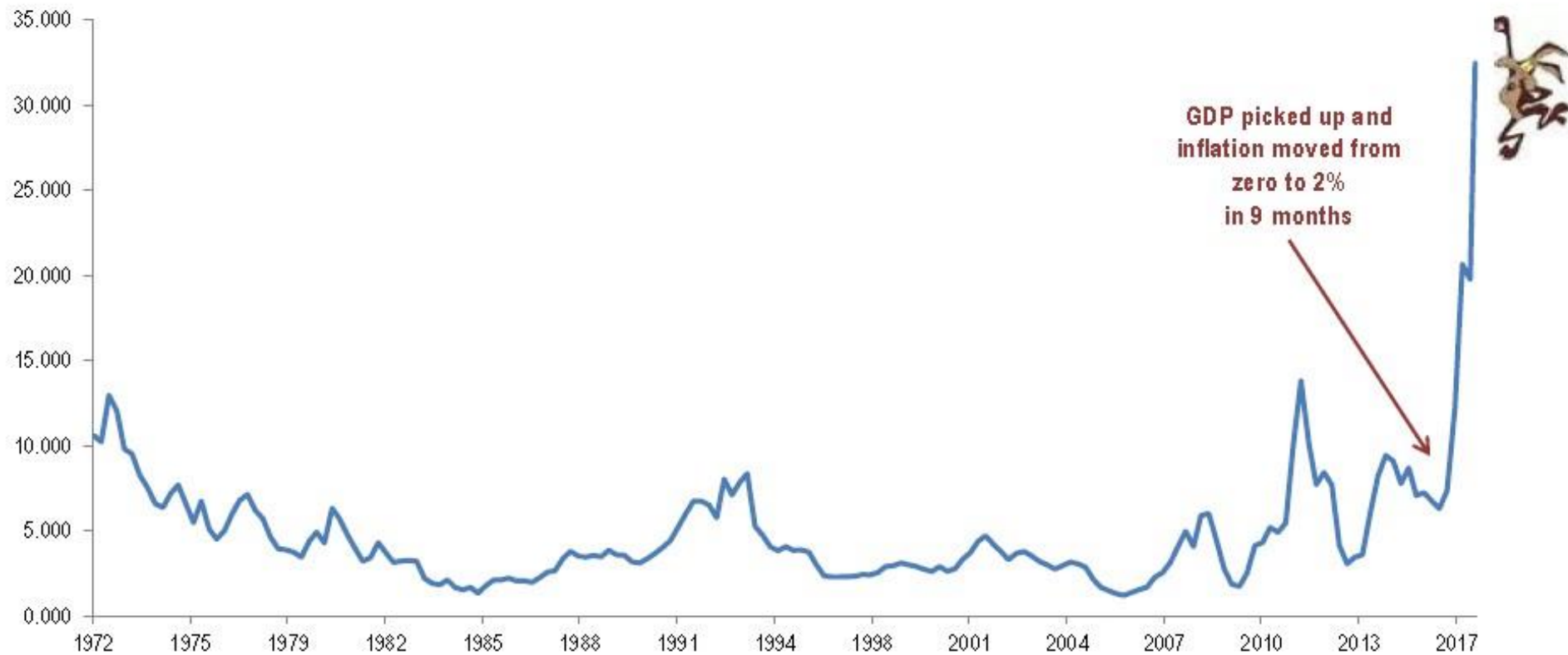
- Rising Earnings: "peak months before past bear markets also tended to show high real earnings growth: 13.3% per year, on average, for all 13 episodes. **Moreover, at the market peak just before the biggest ever stock-market drop, in 1929-32, 12-month real earnings growth stood at 18.3%.**"
- Lower volatility: "**stock-price volatility was lower than average in the year leading up to the peak month preceding the 13 previous US bear markets**, though today's level is lower than the 3.1% average for those periods. At the peak month for the stock market before the 1929 crash, volatility was only 2.8%.

MEASURING THE BOND BUBBLE



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The REAL RATE to GROWTH ratio, on German Bunds



Source: Fasanara Capital Ltd

Data Set:

- German CPI YoY, quarterly data, source OECD
- German 2 year government bond yield to maturity, quarterly data, source Bloomberg
- German GDP YoY %Change, rolling 5-year average, quarterly data, source IMF

MEASURING THE BOND BUBBLE

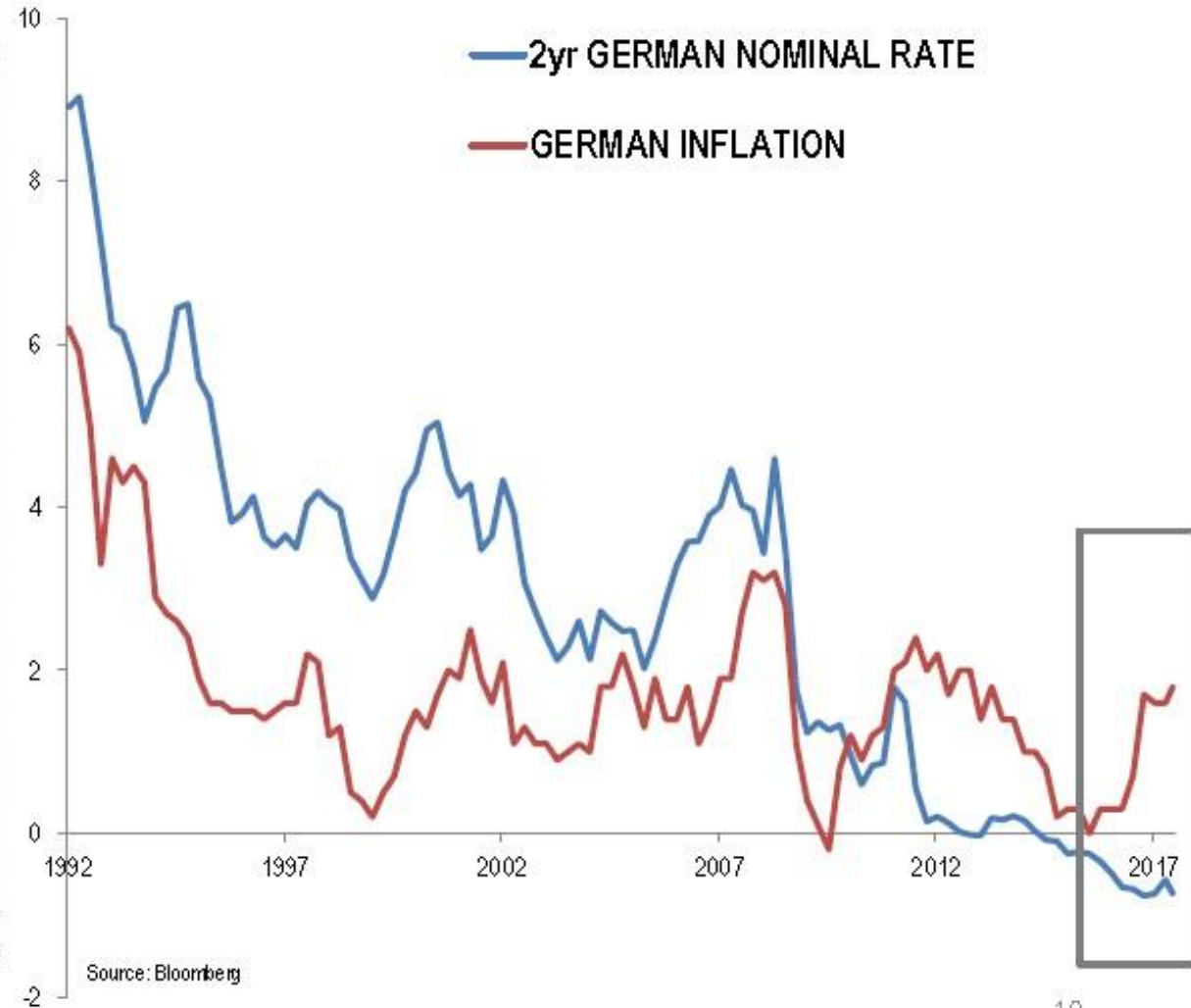


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REAL RATES DIPPED DOWN RECENTLY AS INFLATION RESURRECTED FROM ZERO, WHILE NOMINAL RATES HELD STEADY

2-Year Yields			
Country	2-year Yields	CPI	Real Yields
SWEDEN	-0.683%	2.20%	-2.880%
UK	0.164%	2.60%	-2.436%
GERMANY	-0.749%	1.67%	-2.422%
BELGIUM	-0.549%	1.78%	-2.330%
DENMARK	-0.646%	1.49%	-2.139%
NETHERLANDS	-0.691%	1.33%	-2.021%
SPAIN	-0.356%	1.55%	-1.904%
FRANCE	-0.589%	0.72%	-1.307%
FINLAND	-0.699%	0.53%	-1.227%
ITALY	-0.073%	1.10%	-1.172%
SWITZERLAND	-0.815%	0.30%	-1.115%
NORWAY	0.596%	1.53%	-0.935%
USA	1.138%	1.73%	-0.590%
JAPAN	-0.148%	0.40%	-0.548%
IRELAND	-0.512%	-0.20%	-0.314%
POLAND	1.697%	1.80%	-0.108%
CANADA	1.237%	1.16%	0.073%
CHINA	3.573%	1.40%	2.173%
GREECE	3.174%	1.00%	2.175%
RUSSIA	7.820%	3.86%	3.955%
BRAZIL	8.265%	2.71%	5.553%

As of: 29-08-2017 Source: OECD Data - ©Fasanara

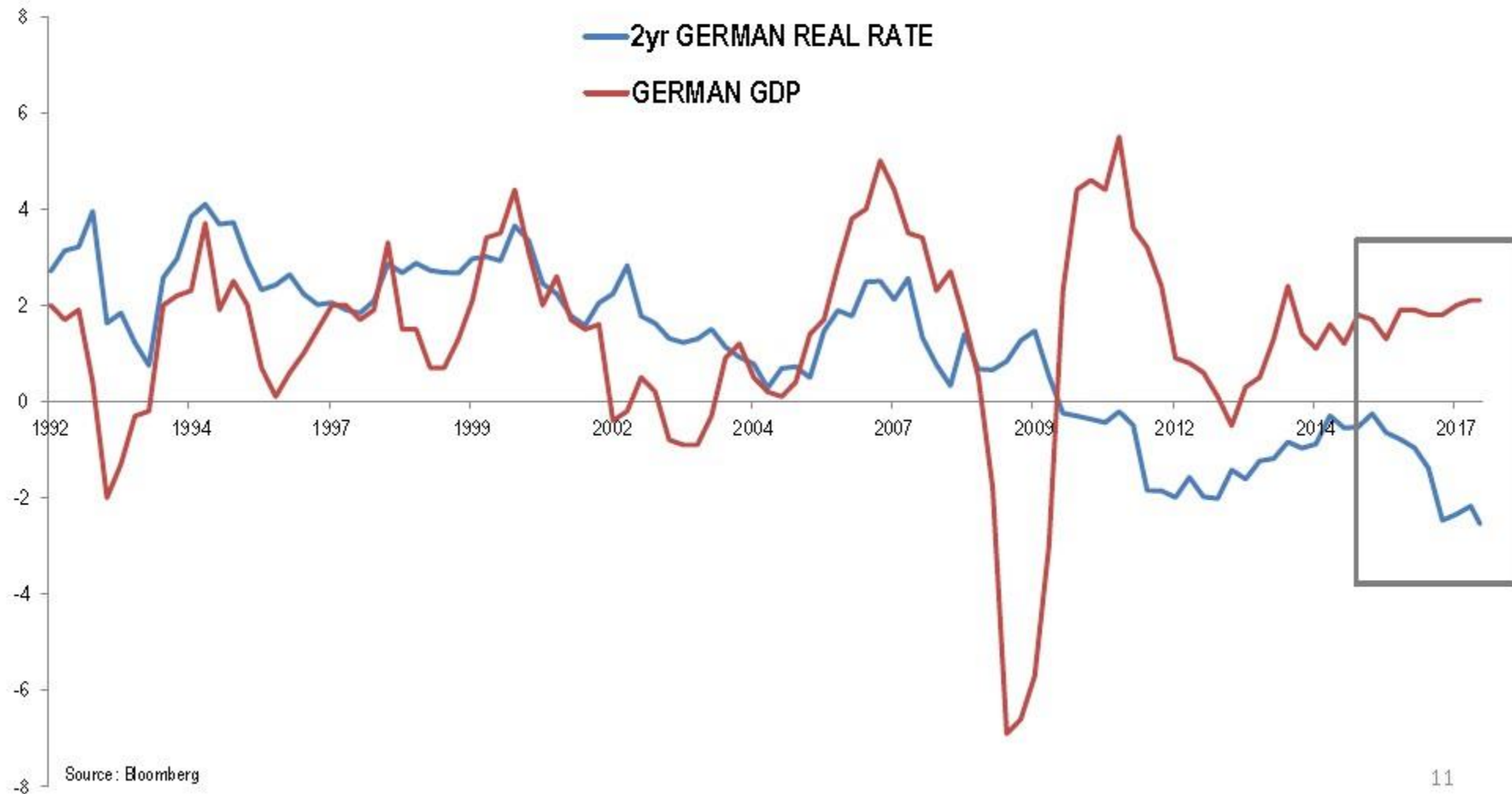


MEASURING THE BOND BUBBLE



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REAL RATES DIPPED FURTHER DOWN RECENTLY, CREATING THE MOST DISCONNECT TO GROWTH RATES IN NON-CRISIS MARKETS IN AGES



CHANGING MARKET STRUCTURE – MARKET FRAGILITY

**BE GREEDY WHEN
OTHERS ARE FEARFUL,
AND FEARFUL WHEN
OTHERS ARE GREEDY**

Warren Buffett

CHASING NARRATIVES

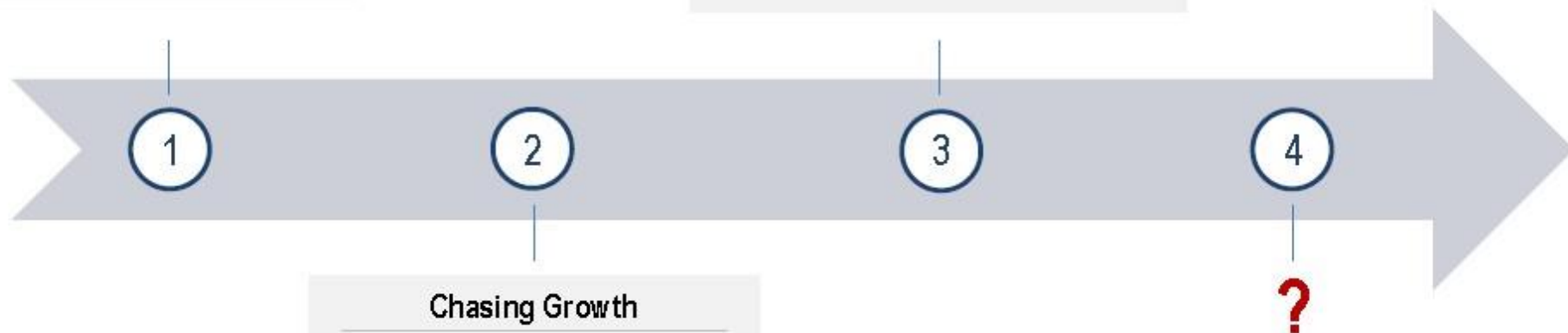
HOW NARRATIVES EVOLVE TO COVER FOR FAKE MARKETS

Chasing Yields

- > Financial repression and negative yields pushed investors into riskier assets
- > Equities still bought at whatever multiples of cyclically-adjusted earnings

Chasing Earnings

- > 'Trumpflation' gets downgraded, Soft Data collapse, flattening out on hard data, which never moved
- > Geopolitical red lines are drawn on concrete (not sand), and a nuclear war is threatened in North Korea
- > Focus moves to earnings, the one bit of information that came out well, the dominant data and the only one that matters



Chasing Growth

- > As of July last year, yields bottomed out and started rising
- > Following Trump elections, global equity and EM FX rallied in expectation of 'Trumpflation' and fast GDP recovery
- > Soft Data advance impressively to price in the recovery to come, invisible in Hard Data

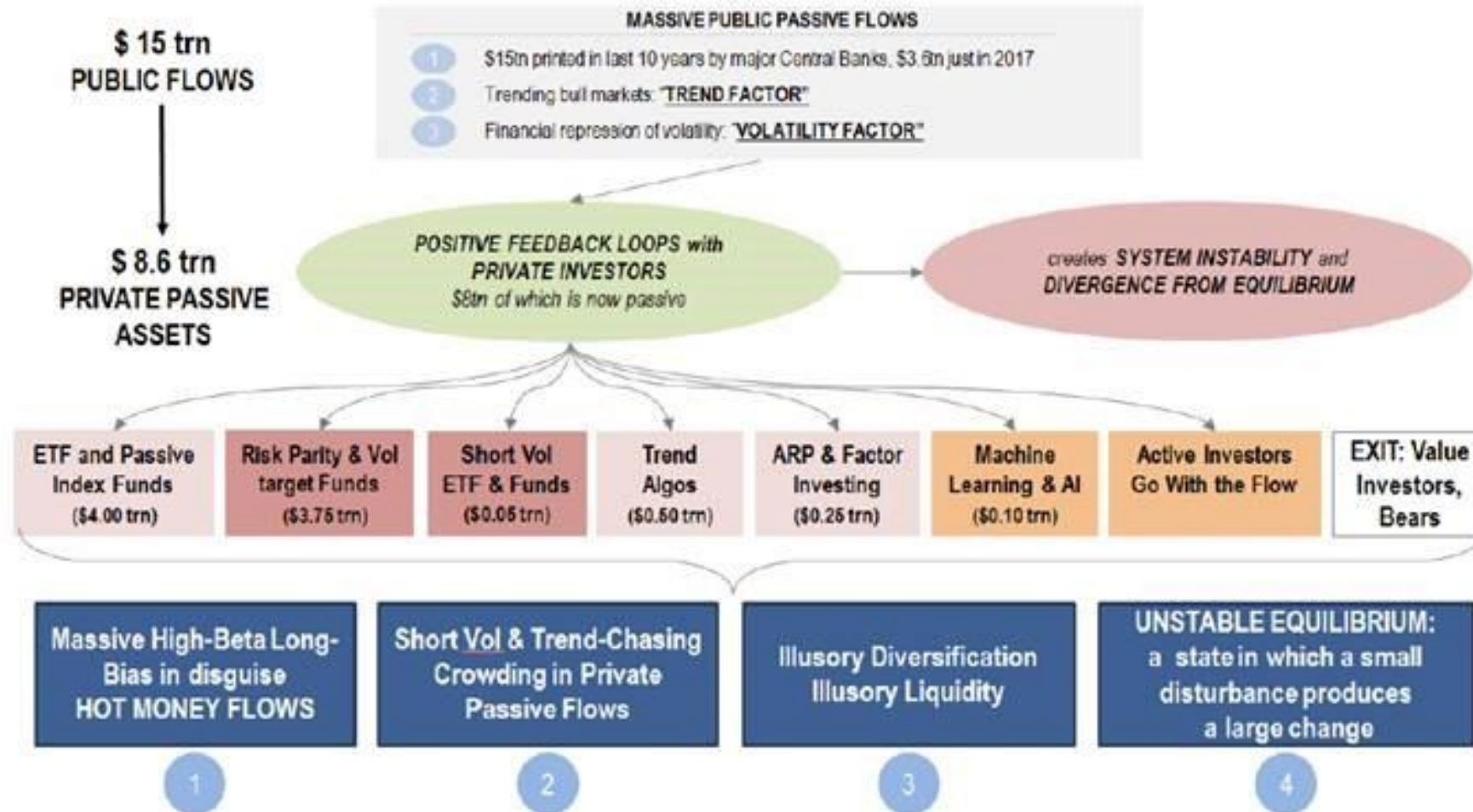
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WHAT WILL MARKETS CHASE NEXT, IF EARNINGS DO NOT HOLD?

- > Earnings may fade and a new narrative be needed
- > Since 2009, real profits growth was the slowest in 30 years, margins stand at a 70-year record levels on rates being at rock-bottom historical levels (and now rising)
- > There is an ageing working population, slow productivity and global political instability / populism

POSITIVE FEEDBACK LOOPS

CHANGING MARKET STRUCTURE: A REVIEW OF MARKET PLAYERS



Source: [Fasanara Presentations](#) | Market Fragility - How to Position for Twin Bubbles Bust, 16th October 2017. The slide is described in details in this [video recording](#).

SYSTEMIC RISK: FUNDS, NOT JUST BANKS

SIZE + CONCENTRATION = SYSTEMIC RISK

In recent years, there was a meteoric rise in:

- **CONCENTRATION OF RISKS ACROSS INVESTMENT STRATEGIES:** ca. **90%** of strategies today are TREND-linked or VOLATILITY-linked
- **CONCENTRATION OF RISKS ON FEW TOP PLAYERS:** top 8 AM shops account today for **\$22trn**, from \$8trn in 2006
- **SIZE OF 'PASSIVE' OR 'QUASI PASSIVE':** considering leverage and turnover, ca. **90%** of flows in equity today are passive



TIPPING THE BALANCE OF UNSTABLE EQUILIBRIUM



More generally, these are potential risk triggers popping Twin Bubbles:

1 LIQUIDITY TIDE PETERING OUT

The Global liquidity tide from Central Banks is soon to be past its peak. Flows work in reverse, for the first time in 10 years. First real crash test for momentum.

2 RATES RISING. It started raining. Over-indebtedness may have closed on to Minsky point.

3 (IL)LIQUIDITY EVENT. The liquidity in markets is deceptive and ephemeral, likely to dissipate as markets move lower.

4 VOLATILITY SPIKING. Volatility is like a balloon held underwater. Its rise may trigger a chain effect across major market players (Risk Parity funds, Short Vol ETFs, Low Vol ETF, momentum strategies, etc.)

5 GEOPOLITICS / POLITICS. From populism in developed countries (Germany, Catalonia, Italy, Brexit, Trump latest cases in point) to confrontations in North Korea / Middle East (end of Pax Americana)

EU JUNK BONDS YIELD LESS THAN US TREASURIES



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- European High-Yield bonds are currently trading at a lower yield than the US 10year Treasury.
- This convergence started in mid-2016 and continued throughout 2017.

EU HIGH YIELD INDEX VS US GENERIC 10YR YIELD



Source: Bloomberg

CASH ALLOCATION LOWEST IN OVER A DECADE



MERRIL LYNCH'S CLIENTS ALLOCATION TO CASH AS A % OF AUM

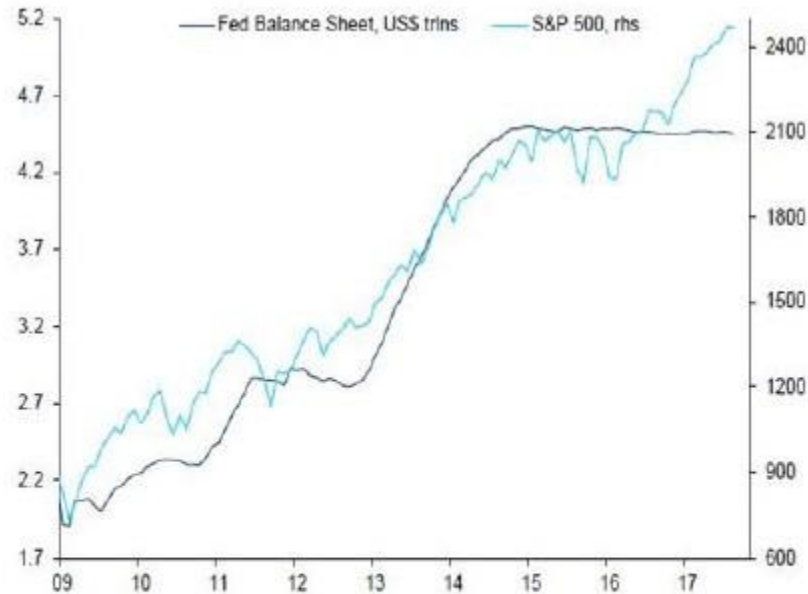


Source: BofaAML Global Investment Strategy, BAC Data

S&P vs FED & BUYBACKS

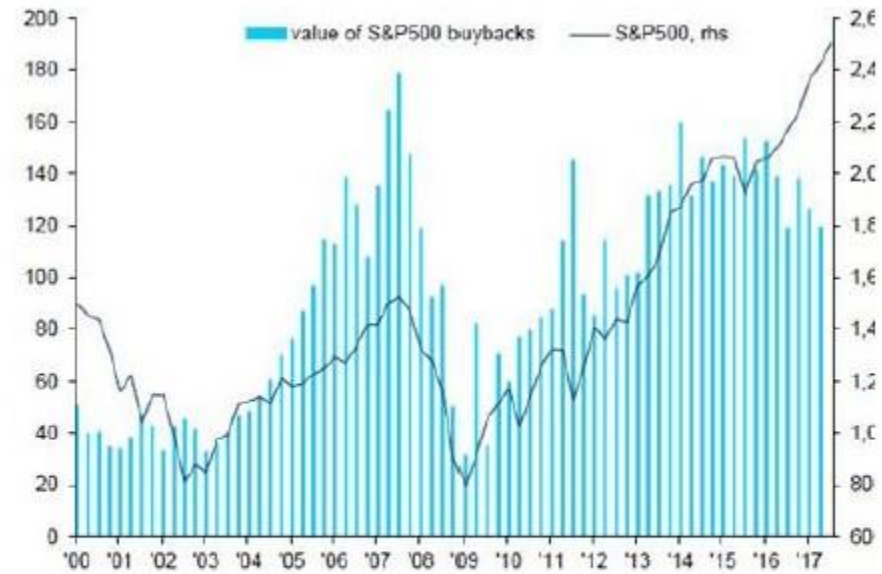
- Equity indexes are running ahead of themselves when compared to key drivers of performance over the past decade
- The disconnect is visible, explained by make-believe economic narratives (tax plans, fiscal spending, yield chasing), and brought the stock market to multiples of earnings never seen before in financial history – see 'Peak PEG' multiples

FED BALANCE SHEET vs S&P



Source: Standard & Poor's Financial Services LLC.

VALUE OF S&P500 BUYBACKS vs S&P



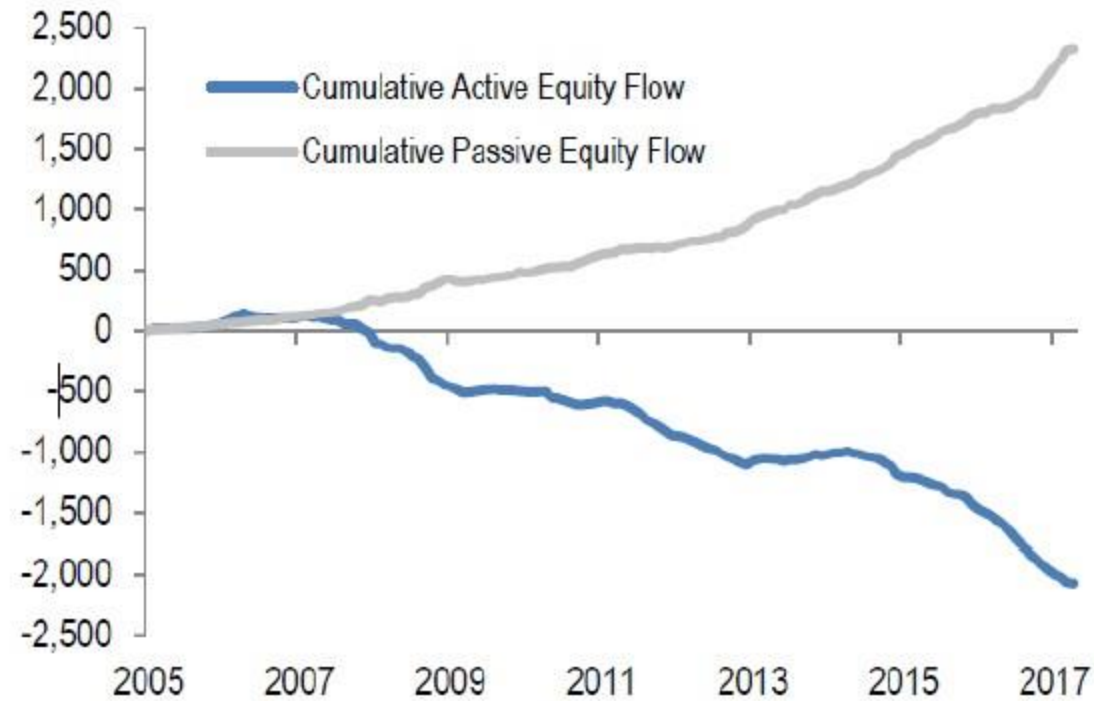
Source: LCD, an offering of S&P Global Market Intelligence

THE RISE OF PASSIVE INVESTORS



GLOBAL ETF AUM (\$bn) & AUM GROWTH BY REGION

CUMULATIVE FLOWS INTO PASSIVE AND ACTIVE EQUITY ETFs AND MUTUAL FUND (\$BN)



Source: J.P. Morgan Quantitative and Derivatives Strategy, EPFR Global

VOLATILITY INDEX BOND + EQUITY: NEW ALL-TIME LOWS



MOVE + VIX, REBASED, LOGARITHMIC SCALE

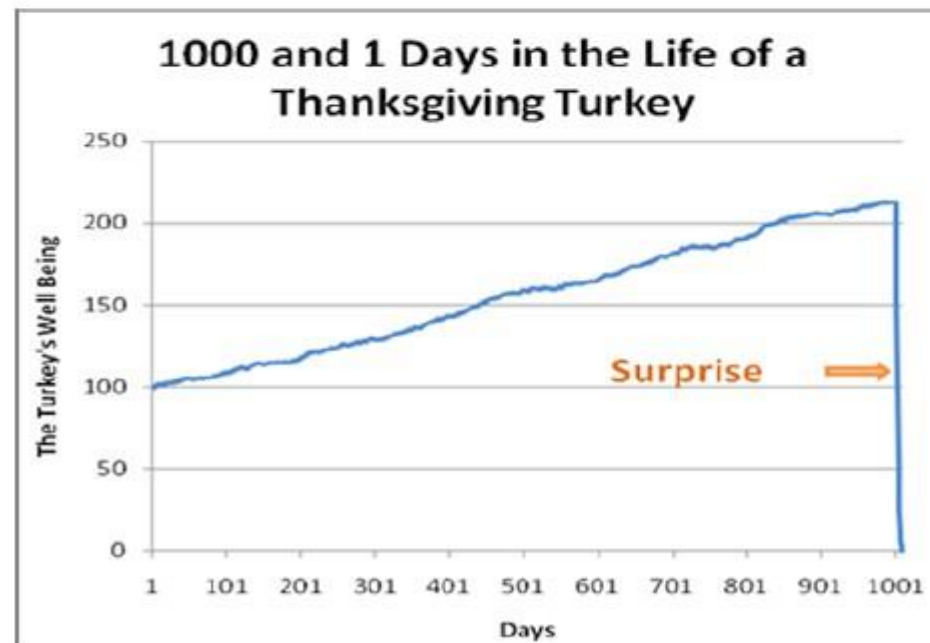


THE TRAP OF SHORT VOL ETFs

HOW CLOSE CAN YOU GET TO A WIPEOUT RISK WITHOUT DAMAGES?

- There is a potential value trap right in today's most fashionable investment products, which risks deflating fast: Short Vol Exchange-Traded Notes and, more broadly, volatility-driven investment vehicles.
- Small moves in volatility are now enough to trigger wipe-out event on some of the short Vol ETFs
- Our Analysis shows that **IF VIX GOES FROM 9.30 TO 20** in absolute values (it was approx. 40 as recently as Aug2015), and stays there for 8 / 10 days, **VIX-BASED ETPs MAY STAND TO LOSE ANYWHERE FROM 50% TO 70%**. For further moves, short positions on long-vol ETF can then lose up to 700% of capital. Losses are higher in case of backwardation of the term structure of the VIX (i.e. front contracts trading higher than back contracts), or the longer VIX stays elevated, or clearly the higher it goes.
- Additional risks arise as '**LIQUIDITY GATES**' and '**TERMINATION EVENTS**'

This could well be a real-life modern example of the famous Bertrand Russell analogy: as they get fed day in day out, chickens start inducting that life is good and humans are kind and caring beings - until the one day when they suddenly get slaughtered



THE TRAP OF SHORT VOL ETFs

REGRESSION ANALYSIS AND FORMULAIC ANALYSIS OF MAJOR VOLATILITY-LINKED ETNs: Losses can compound fast for moves in VIX which are both relatively small and frequent in history. According to both an historical and a formulaic analysis, VIX at 20 implies losses up to ~280% across instruments, depending on the shape of the term structure (contango vs backwardation) and how long a period the drift and shape are sustained for.

REGRESSION ANALYSIS

	VIX % change	VIX level (vs today's spot 9.60)	Contango / Backwardation in %	XIV	SVXY	VXX (short position)	UVXY (short position)
Scenario 1	50	14.4	10%	-20.0%	-20.1%	-21.9%	-50.4%
Scenario 2	50	14.4	0%	-28.1%	-28.0%	-34.0%	-79.8%
Scenario 3	50	14.4	-10%	-35.4%	-35.2%	-47.2%	-114.6%
Scenario 4	50	14.4	-20%	-42.0%	-41.7%	-61.7%	-155.4%
Scenario 5	100	19.2	10%	-36.1%	-36.2%	-50.9%	-128.0%
Scenario 6	100	19.2	0%	-42.6%	-42.6%	-65.7%	-171.3%
Scenario 7	100	19.2	-10%	-48.6%	-48.4%	-81.80%	-222.0%
Scenario 8	100	19.2	-20%	-53.9%	-53.7%	-99.4%	-281.4%
Scenario 9	200	28.8	10%	-42.4%	-54.2%	-103.3%	-302.6%
Scenario 10	200	28.8	0%	-58.8%	-58.9%	-122.8%	-375.7%
Scenario 11	200	28.8	-10%	-63.2%	-63.1%	-144.0%	-460.9%
Scenario 12	200	28.8	-20%	-67.1%	-67.0%	-167.1%	-560.1%

	XIV*	SVXY*	VXX*	UVXY*
Adj R-squared	0.85	0.86	0.87	0.87
beta - VIX*	-0.2881**	-0.2900**	0.2886**	0.5764**
beta - VX front contract*	0.1013**	0.1019**	-0.0961**	-0.1854**
beta - VX second contract*	-0.5478**	-0.5481**	0.5413**	1.0725**
beta - Contango/Backwardation	0.0748**	0.0730**	-0.0690**	-0.1323**

*Endogenous and Exogenous variables are intended in returns

**Statistically significant

*** From a simple multi-linear regressive analysis the losses these products could incur may be larger than what shown in the table. The beta coefficients are weakened by a great number of central observation. As shown above, fat tails and leptokurtosis apply to this distribution.

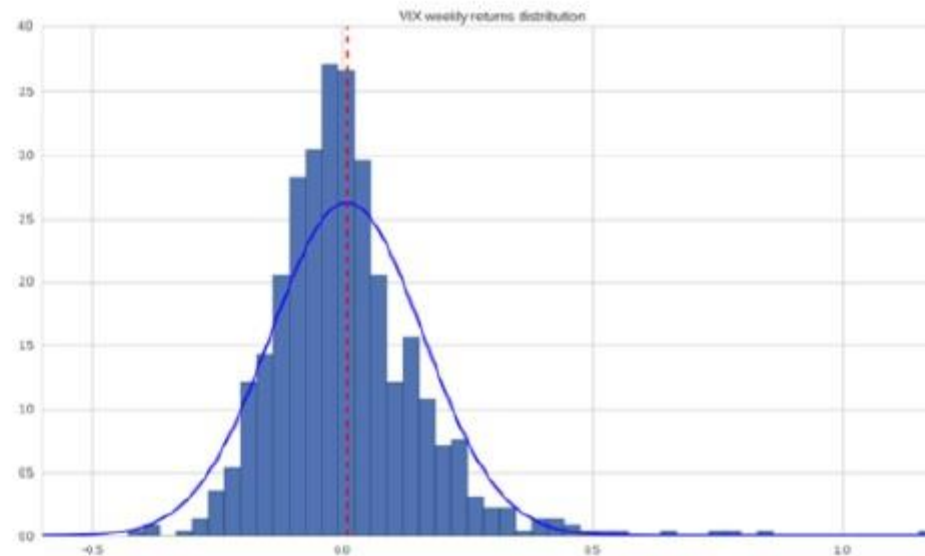
FORMULAIC ANALYSIS

	VIX % change	XIV	SVXY	VXX (short position)	UVXY (short position)
Scenario 1	50	-31.7%	-31.7%	-42.1%	-96.8%
Scenario 2	100	-49.9%	-49.9%	-90.6%	-249.2%
Scenario 3	200	-68.5%	-68.5%	-186.6%	-655.6%

Source: Fasanara Capital

THE TRAP OF SHORT VOL ETFs

FAT TAIL OF VIX DISTRIBUTION: Extreme returns on VIX are more frequent than a normal distribution would project, as confirmed by the Shapiro-Wilk reject the null hypothesis of normality. A cursory look at the shape of the returns distribution of VIX shows high Leptokurtosis. This is reflected in the frequency with which VIX has doubled up, in a window of just two weeks, 6 times in the last 9 years.



VIX Returns	Mean	Standard Dev	Skew	Kurtosis	Shapiro-Wilk p-value
<i>Daily</i>	0,239%	7,273%	1,335	6,848	0,000
<i>Weekly</i>	0,96%	15,17%	1,75	8,38	0,000
<i>Monthly</i>	1,93%	22,73%	1,86	7,21	0,000

Source: Fasanara Capital

THE TRAP OF SHORT VOL ETFs

CASE STUDY AUGUST 2011: (XIV) VELOCITY SHARES DAILY INVERSE VIX SHORT-TERM ETN

XIV lost almost 75% of its value when the VIX rose from 18 to 45 during the month



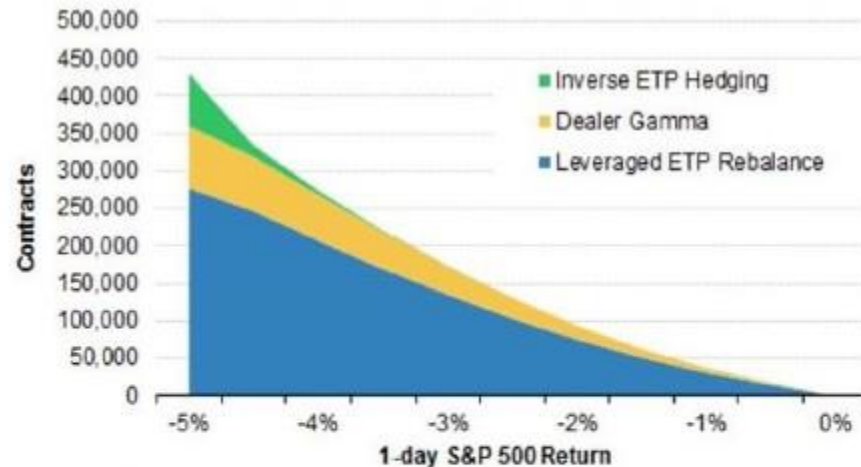
Source: Bloomberg, Fasanara Capital

REBALANCING ON VIX IS CONVEX



- Morgan Stanley QDS notes that VIX hit a new closing low last week. The risk is compounded by the significant amount of short gamma exposure in the VIX market – over 400,000 VIX futures would likely need to be bought if the SPX falls 5% in one day, nearly double what it was in July.
- As VIX rises, hedgers will need to buy VIX more than proportionally for rebalancing purposes

VIX FUTURES TO BE BOUGHT AS THE S&P 500 DECLINES



VIX FUTURES TO BUY / 1 POINT INCREASE IN VIX FUTURES FROM LEVERED ETP REBALANCING



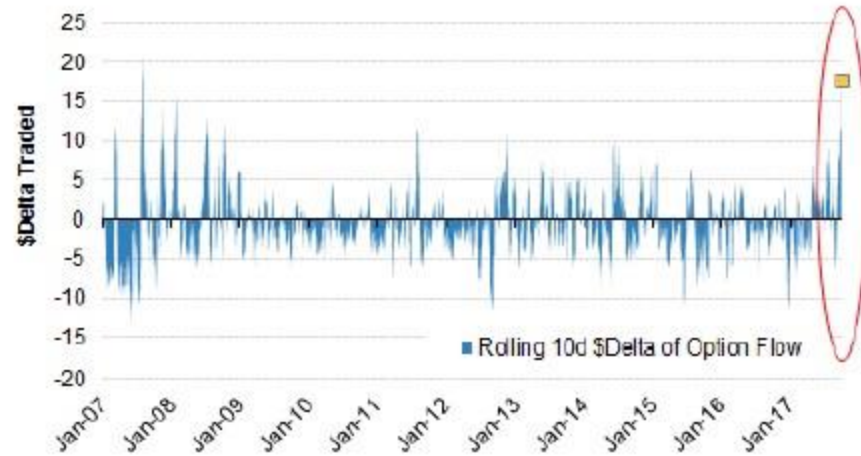
Source: Morgan Stanley QDS. SALES & TRADING COMMENTARY (This is not a product of MS Research)

REBALANCING ON VIX IS CONVEX

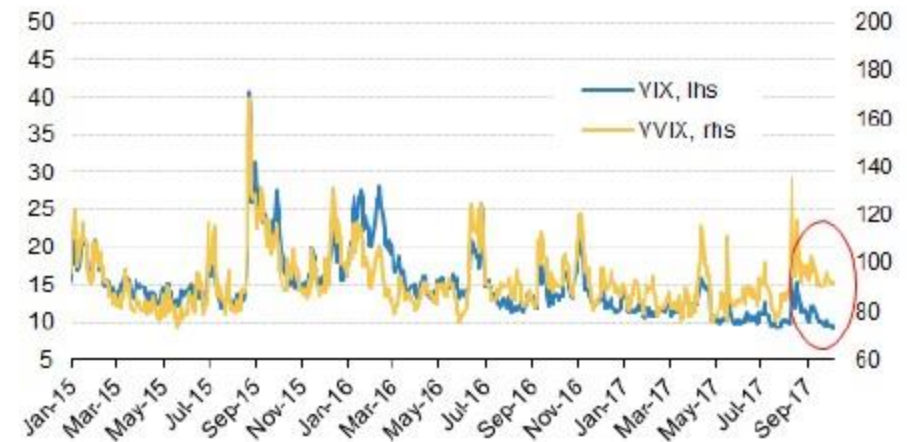


- Morgan Stanley QDS also estimates that investors in SPX options bought more delta in the last two weeks than at any point since at least 2007. In other words, investors are now finally buying into the rally via upside calls.
- However, Vol of Vol has disconnected from the VIX, remaining a bit less complacent

ESTIMATED SPX OPTION FLOW



VOL OF VOL IS NOT AS COMPLACENT



Source: Morgan Stanley QDS. SALES & TRADING COMMENTARY (This is not a product of MS Research)