

CHRISTOPHER S. RUPKEY, CFA
MANAGING DIRECTOR
CHIEF FINANCIAL ECONOMIST
ECONOMIC RESEARCH OFFICE (NEW YORK)
(212) 782-5702
crupkey@us.mufg.jp

11 AUGUST 2017

MUFG | 1251 Avenue of the Americas
New York, New York 10020
A member of MUFG, a global financial group

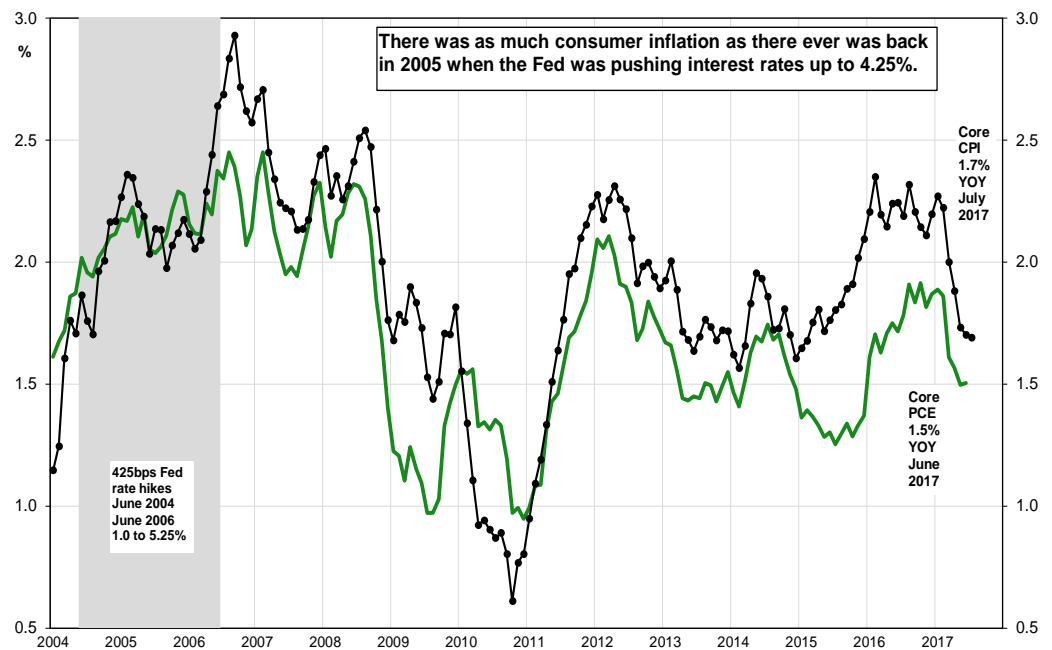
O INFLATION, INFLATION, WHEREFORE ART THOUGH INFLATION?

Inflation, wherefore art thou now? Before you say who cares, we thought we would take a look at inflation this week because some of the Fed members are concerned that inflation is too low. If it is too low then you can't really see it if it is that small. Right? Then it must not be of any consequence if it is that small and cannot be seen with the naked eye similar to the unobservable "natural rate of interest" that keeps the Fed from pushing interest rates to normal 3% levels until the end of 2019.

They are struggling. Their policy is. Why should we care that (core) consumer inflation is lower at 1.5% and not higher at the 2.0% target? Why should it halt the gradual pace of rate hikes to 3% normal?

Year-to-year inflation has turned down since the start of this year. We wouldn't jump to the conclusion that demand in the economy has suddenly weakened and the kettle is off the boil now for inflation pressures. Yellen's view we think remains the same: that inflation will pick up in the future given the economy has reached the pinnacle of economic

success: full employment labor market conditions (i.e. everyone is working). She mentioned in the June 13-14 Fed meeting press conference that the recent lower inflation readings were due to one-off factors like the prices of wireless phones and prescription drugs. There have been two more soft



0.1% monthly core CPI readings since then including this morning's July CPI report. Not sure what she makes of the recent four-month slowdown of core CPI inflation. Friday report for July was certainly nothing to write home about.

Core CPI Inflation monthly and year-on-year changes					
2017	% chg	YOY	2016	% chg	YOY
Dec			Dec	0.2	2.1
Nov			Nov	0.2	1.7
Oct			Oct	0.1	1.6
Sep			Sep	0.1	1.5
Aug			Aug	0.3	1.1
Jul	0.1	1.7	Jul	0.1	0.8
Jun	0.1	1.6	Jun	0.1	1.0
May	0.1	1.9	May	0.2	1.0
Apr	0.1	2.2	Apr	0.2	1.1
Mar	-0.1	2.4	Mar	0.1	0.9
Feb	0.2	2.7	Feb	0.2	1.0
Jan	0.3	2.5	Jan	0.3	1.4

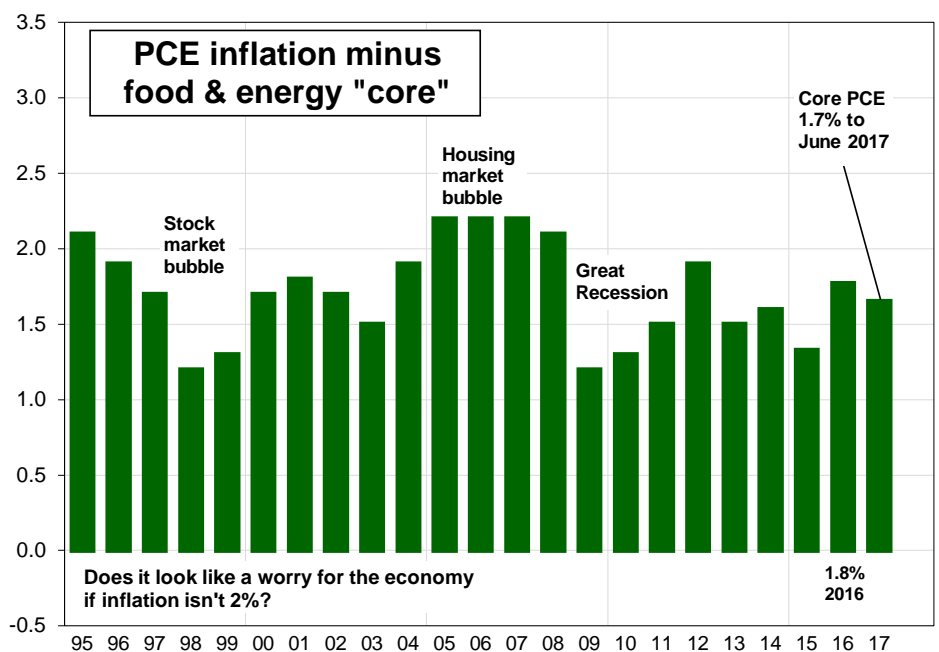
The theory is an economy at full employment with its limited resources will over time produce more inflation. You don't have to keep your ears to the rails on this, just know that somewhere, sometime the inflation train will be coming down the line once the economy reaches the finish line of full employment. Unlike the natural rate of interest theory (Wicksell 1898) this is one economic theory we agree with. Inflation will eventually move up over time. In any event, low inflation isn't a reason to stop

the gradual pace of rate hikes because rate hikes do not slow the economy unless they are higher than 3% normal levels. No one's punch bowl is being taken away, drink up, at least until the end of 2019 according to the Fed's median interest rate forecast. And be sure to write and tell us if a 2.5 or 2.75 or 3.0% Fed funds rate is going to make you cut back on your borrowing. We doubt it will.

People ask why inflation is so low. We don't understand a lot about inflation or perhaps have forgotten inflation's history over the last twenty years, when looking at PCE inflation that the Fed likes to target. A strong economy in the late 90s didn't push up inflation; something not easily explainable.

Why is inflation low now? Well, core PCE inflation was 1.9% at the end of last year in December and is down to 1.5% in June 2017. Not all that much, but what prices are going the wrong way?

Why is inflation falling down, falling down, should it matter?	Percent % changes	
	Dec 2015	Dec 2016
	Dec 2016	Jun 2017
Core PCE inflation YOY	1.9	1.5
Communication	-1.7	-4.7
Financial services	5.7	1.5
Prescription drugs	6.3	0.4
Other durables, jewelry, books	2.1	0.2
Household maintenance	3.1	-0.3
Health care	1.4	0.6
Gasoline	8.9	-9.5



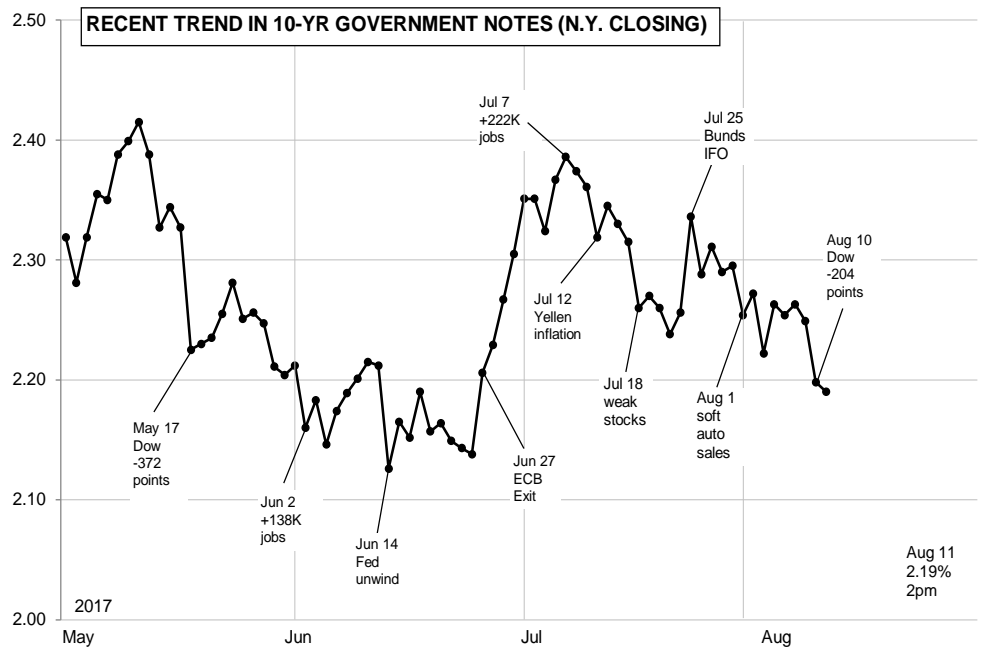
Communication prices (cell phones) are down more this year than last. Financial services inflation which believe it or not have a 9% weight in all the non-food, non-energy purchases we make are weaker than last year's

5.7% rise. (These rose 1.5% in the first half of 2017 which have to be doubled to make it comparable to 2016.) Other inflation weakness was found in prescription drugs, other durables like watches and educational books, and Household maintenance. Nothing looks too weak here; could bounce back. We threw in health care and gasoline at the bottom of the table as these were two major factors behind inflation a decade ago during the housing bubble economy years.

MARKETS OUTLOOK

	30-Jun 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019
30-Yr Treasury	2.83	3.10	3.20	3.40	3.60	3.70	3.80	4.00	4.10	4.10	4.10
10-Yr Note	2.30	2.50	2.70	3.00	3.20	3.40	3.50	3.70	3.80	3.90	3.90
5-Yr Note	1.89	2.10	2.40	2.70	3.00	3.20	3.30	3.50	3.60	3.70	3.70
2-Yr Note	1.38	1.60	1.85	2.10	2.40	2.60	2.85	3.10	3.35	3.35	3.60
3-month Libor	1.30	1.65	1.90	2.20	2.45	2.70	2.95	3.20	3.45	3.35	3.70
Fed Funds Rate	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.25	3.50
2s/10s spread	92	90	85	90	80	80	65	60	45	55	30
Libor/funds spd	5	15	15	20	20	20	20	20	20	10	20

The Treasury quarterly refunding auctions came and went. The robots bought all the \$62 billion of 3-years, 10-years, 30-years sold Tuesday, Wednesday, Thursday. Nothing, but nothing pushes yields higher anymore. Stock market weakness brought bond yields down a little. Stocks sold off of course on the President's tweets that North Korea would see fire and fury if they did not cease and desist from their provocative



nuclear missile program and launches. 10-yr yields were 2.28% around 3 o'clock in the afternoon Tuesday when Trump warned North Korea in a tweet not to threaten the U.S. or its allies.

FEDERAL RESERVE POLICY

The Fed meets September 19-20 to consider its monetary policy. A rate hike doesn't seem very likely. The Fed inflation mongers are talking like they won't vote to hike rates in December if inflation does not pick up. Let's see core PCE inflation is 1.5% and core CPI inflation is 1.7%, and the Fed is somehow trying to convey to the public that this "low inflation" is unacceptable and that business and economic conditions are not fully healed or something worse: stagnation and weak demand are causing the drop in inflation. Another reason not to return rates to normal pre-recession levels. Been so long we forgot when the recession ended.

Selected Fed assets and liabilities					Sep 10 2008**
Fed H.4.1 statistical release billions, Wednesday data	9-Aug	2-Aug	26-Jul	19-Jul	pre-LEH
Factors adding reserves					
U.S. Treasury securities	2465.221	2465.195	2465.170	2465.145	479.782
Federal agency debt securities	8.097	8.097	8.097	8.097	0.000
Mortgage-backed securities	1769.029	1769.026	1768.999	1779.394	0.000
Primary credit (Discount Window)	0.001	0.003	0.013	0.051	23.455
Term auction credit (TAF auctions)	0.000	0.000	0.000	0.000	150.000
Asset-backed TALF	0.000	0.000	0.000	0.000	0.000
Maiden Lane (Bear)	1.710	1.710	1.710	1.710	29.287
Maiden Lane II (AIG)	0.000	0.000	0.000	0.000	0.000
Maiden Lane III (AIG)	0.000	0.000	0.000	0.000	0.000
Central bank liquidity swaps	0.036	0.035	0.085	0.041	62.000
Federal Reserve Assets	4515.8	4513.4	4512.0	4523.6	961.7
3-month Libor %	1.31	1.31	1.31	1.31	2.82
Factors draining reserves					
Currency in circulation	1567.095	1565.431	1561.976	1561.884	834.477
Term Deposit Facility	0.000	0.000	0.000	0.000	0.000
Reverse repurchases w/others	103.950	119.334	103.311	144.731	0.000
Reserve Balances (Net Liquidity)	2336.315	2291.576	2293.616	2250.646	24.964
Treasuries within 15 days	18.655	18.655	11.794	11.794	14.955
Treasuries 16 to 90 days	22.845	22.845	32.799	32.799	31.549
Treasuries 91 days to 1 year	298.287	298.286	276.684	276.684	69.272
Treasuries over 1-yr to 5 years	1129.964	1129.960	1152.633	1152.629	170.807
Treasuries over 5-yrs to 10 years	361.534	361.528	357.353	357.347	91.863
Treasuries over 10-years	633.937	633.921	633.907	633.892	101.337

**September 10, 2008 is pre-Lehman bankruptcy of 9-15-08

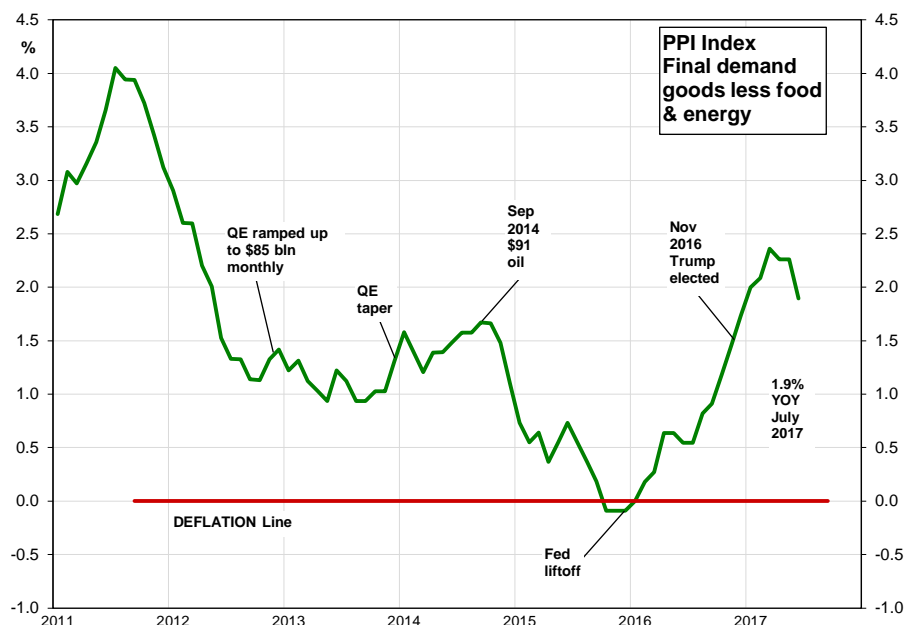
At least it looks like the balance sheet unwind announcement will be made in the press statement released after the meeting at 2pm EDT on September 20. We still don't know what this means for interest rates. But you wouldn't think the unwind of \$360 billion Treasuries per year (once the program phases in after a year's time) that will add to the budget deficit the Treasury needs to finance, you wouldn't think the extra supply coming would be consistent with a rallying bond market. But the bond market hasn't been itself this year. The bond market thinks-never been less true.

OTHER ECONOMIC NEWS THIS WEEK

Tightest labor market in a generation yet the specter of deflation haunts us

Breaking economy news. PPI inflation and weekly jobless claims. Sounds like a scary movie, and might be a touch dramatic, but the fact remains PPI fell 0.1% in July where an increase of 0.1% had been anticipated. Today's inflation report at the producer level provides evidence the economy is cooling down not heating up. Don't tell the inflation hobgoblins of little minds at the Fed or they really won't want to raise interest rates a third time this year. But you promised... It's conditional and not a pledge because the future is uncertain and we don't know what we might need to do next.

Meanwhile, the labor market remains at the tightest conditions in a generation or two. Weekly jobless claims were 244K in the August 5 week showing businesses are not letting anyone go because it has never been more true that workers are irreplaceable. Economists have always been irreplaceable, and now it is true for everyone else. Tightness means almost every last citizen who wants to work can get to work, pick up a paycheck and spend it to keep money circulating and make the economy grow. Seriously, the Trump economics team can start to walk the public back on its promises to bring back jobs, jobs, jobs. There are no more people around for companies to employ. It's the supply of labor that's the problem, so by all means cut the million or so immigrants coming in each year for nearly two decades now, make sure you cut the numbers coming in by half.



Okay, let's look a little closer at PPI beyond the one-tenth "deflation" decline in the headline figure this month. We used to focus on PPI commodity prices before they bolted on some final demand services prices. Washington doesn't have much of a budget for stats and yet they tried this change to PPI. Within the report is final demand goods prices less food and energy and indeed the same slowdown in the

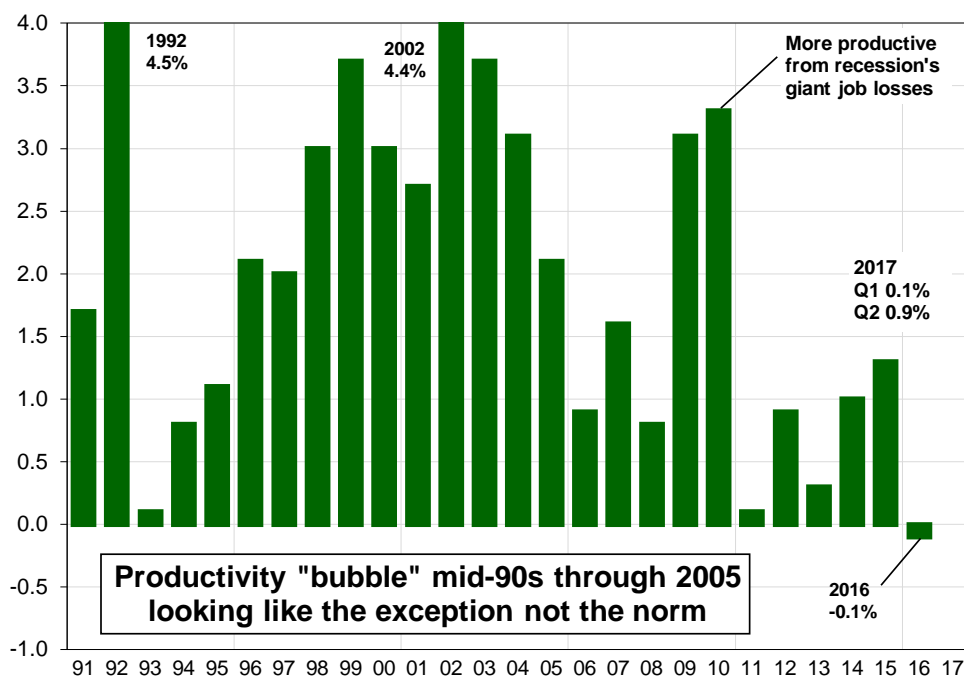
inflation picture emerges. 0.4% Jan, 0.2% Feb, 0.4% Mar, and 0.2% Apr, and then the slowdown mirroring the same pattern as found in consumer inflation. Modest 0.1% gains in May and June, and now a 0.1% drop in these core final demand goods prices as reported today for the month of July. Does not bode well for more inflation in tomorrow's CPI inflation report.

Net, net, another twist of the screw tighter for this labor market but inflation is not able to gain a foothold in this economy. The pot is on the stove boiling but no inflation steam is coming out which seems to defy the laws of nature and physics for this economy. The Fed can continue with its gradual pace of rate hikes but it will be cautious as the economy is showing no sign of overheating. Stay tuned. Story developing. The economy is better than you think, but inflation is not better than you think. Bet on it (if you can figure out how. Call your salesperson.)

Productivity shows the economy ain't what she used to be

Breaking economy news. Productivity front and center. Fed officials are fascinated with productivity thinking it shows the economy's long run potential for growth. You can either look at the mishmash of labor force stats plus "productivity" (where it sounds like worker slaves are not rowing the boats fast enough), or you can look at GDP components like consumer spending, business investment and exports and the rest. Seems like looking at the GDP components leads to the greater understanding of the economy and where we are in the business cycle. Anyway...

Taking their world view then, not much potential for more than 2% GDP with productivity rising 0.9% in the second quarter. Not enough innovation or new ideas and products out there to spark spending on the part of consumers and businesses that helps lift the economy out of this slow-patch decade. Maybe we should be thankful that productivity is back to nearly 1%. With revisions productivity was 1.3% in 2015 and actually fell 0.1% in 2016. Ouch.



Wages? Sick and tired of your stagnant wages where the top 100 list of CEO compensation staggers under the weight of billions and billions of dollars? There's an app for that in today's productivity report. Hourly compensation rose 1.6% in the second quarter (calm down, it's annualized) after jumping 5.5%

in the first quarter of 2017 so you can see how volatile this series is. Upon revision compensation was 3.2% in 2015 and 0.9% in 2016. Ouch for 2016, making less than stinkin' inflation.

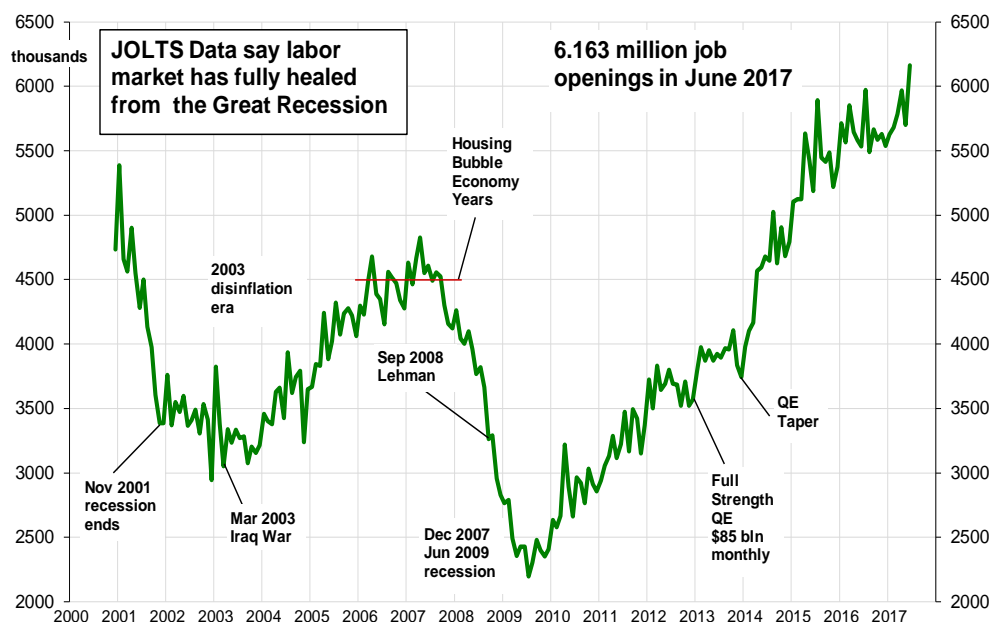
Net, net, the economy is aging and the growth rate for this eight-year expansion may have maxed out unless all the King's horses and all the King's men on Trump's economics team can get some of its tax reforms, tax cuts, and untangled regulatory reforms through a moribund Congress. There is little sign in the productivity rise of 0.9% today that the economy's growth potential is much beyond 2%. The good news is that above trend growth is not really needed now that the economy has reached the pinnacle of full employment where everyone who lost their job in the recession and financial crisis is back working again. The economy is better than you think. Bet on it.

Moon shot for job openings, get your new job today

Breaking economy news. The Jolts data show employers are begging for workers to come aboard and help them produce and sell their goods and services. Come on in! 6.163 million job openings in June are a new record high in this data that have been available since the end of the year 2000. Consumer surveys are finding jobs are plentiful and it's true. The official unemployment rate in the U.S. is 4.3% and totals 6.981 million people, and joblessness could be brought down to almost zero if the jobless Americans could be connected to employers seeking help. 94.657 million people not in the labor force? No there "shouldn't be a law against it," it's not that bad out there in the country, the total is sharply reduced by the finding that just 5.420 million of those tens of millions not in the labor force currently want a job. Well, there's 6.163 million openings, what are you waiting for? The truth is many of the 5.420 million wanting work are not really available to work right now.

What about you quitters out there? Your boss doesn't know you aren't trying hard enough probably. Well, Fed Chair Yellen thinks quitters are a good thing for the economy. If you are confident enough to quit your job that must mean economic times are pretty darn good. Well in June the total level of quits was 3.134 million, more than any month in 2007 prior to the recession. Quitting time and the living is easy this summer for many of us.

Net, net, job openings surged in June to record levels which gives lie to the argument that the economy is somehow faltering after finishing its eighth year of forward progress since the recession. The recent soft patch for car sales and retail sales at shops and malls is a red herring for the outlook.



What is increasingly true however is that companies are running out of workers to hire to do the job or even train to do the work, and this is a ticking time bomb for economic growth and shows how misguided the current administration is to close the door to immigration. There is not enough labor to allow the economy to continue to grow at its current rate. Hitting the wall of full employment is something that the U.S. economy has rarely faced in business cycles, but labor shortages will certainly be a headwind for growth within the next couple of years.

Trump officials have their heads in the sand if they think they can create more jobs, jobs, jobs for this economy. There are 6.163 million jobs out there already that are going begging. The reality is President Trump inherited the strongest labor market of any president in history. Spectacular, the best ever! Really.

Federal Reserve officials can continue to raise interest rates to normal levels as this economy has moved beyond normal and is going even deeper into the full employment zone. Today's Jolts data bring a September meeting balance sheet unwind announcement a little closer to reality. The market has not fully priced in a rate hike in December, but maybe they should reconsider. An economy at full employment eventually sends off the sparks of inflation. The Fed has no justification for keeping rates down here at less than normal levels. The economy is stronger than Fed officials think. Bet on it.

Analyst Certification

The views expressed in this report accurately reflect the personal views of **Christopher S. Rupkey**, the primary analyst responsible for this report, about the subject securities or issuers referred to herein, and no part of such analyst's compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed herein.

The information herein is provided for information purposes only, and is not to be used or considered as an offer or the solicitation of an offer to sell or to buy or subscribe for securities or other financial instruments. Neither this nor any other communication prepared by The Bank of Tokyo-Mitsubishi UFJ, Ltd. (collectively with its various offices and affiliates, "BTMU") or should be construed as investment advice, a recommendation to enter into a particular transaction or pursue a particular strategy, or any statement as to the likelihood that a particular transaction or strategy will be effective in light of your business objectives or operations. Before entering into any particular transaction, you are advised to obtain such independent financial, legal, accounting and other advice as may be appropriate under the circumstances. In any event, any decision to enter into a transaction will be yours alone, not based on information prepared or provided by BTMU. BTMU hereby disclaims any responsibility to you concerning the characterization or identification of terms, conditions, and legal or accounting or other issues or risks that may arise in connection with any particular transaction or business strategy. While BTMU believes that any relevant factual statements herein and any assumptions on which information herein are based, are in each case accurate, BTMU makes no representation or warranty regarding such accuracy and shall not be responsible for any inaccuracy in such statements or assumptions. Note that BTMU may have issued, and may in the future issue, other reports that are inconsistent with or that reach conclusions different from the information set forth herein. Such other reports, if any, reflect the different assumptions, views and/or analytical methods of the analysts who prepared them, and BTMU is under no obligation to ensure that such other reports are brought to your attention.

Copyright 2017 MUFG All Rights Reserved

The articles and opinions in this publication are for general information only, are subject to change, and are not intended to provide specific investment, legal, tax or other advice or recommendations. The information contained herein reflects the thoughts and opinions of the noted authors only, and such information does not necessarily reflect the thoughts and opinions of MUFG or its management team. We are not offering or soliciting any transaction based on this information. We suggest that you consult your attorney, accountant or tax or financial advisor with regard to your situation. Although information has been obtained from sources we believe to be reliable, neither the authors nor MUFG guarantee its accuracy, and such information may be incomplete or condensed. Neither the authors nor MUFG shall be liable for any typographical errors or incorrect data obtained from reliable sources or factual information.

About MUFG Americas Holdings Corporation

Headquartered in New York, MUFG Americas Holdings Corporation is a financial holding company and bank holding company with total assets of \$148.1 billion at December 31, 2016. Its main subsidiaries are MUFG Union Bank, N.A. and MUFG Securities Americas Inc. MUFG Union Bank, N.A. provides an array of financial services to individuals, small businesses, middle-market companies, and major corporations. As of December 31, 2016, MUFG Union Bank, N.A. operated 365 branches, comprised primarily of retail banking branches in the West Coast states, along with commercial branches in Texas, Illinois, New York and Georgia, as well as two international offices. MUFG Securities Americas Inc. is a registered securities broker-dealer which engages in capital markets origination transactions, private placements, collateralized financings, securities borrowing and lending transactions, and domestic and foreign debt and equities securities transactions. MUFG Americas Holdings Corporation is owned by The Bank of Tokyo-Mitsubishi UFJ, Ltd. and Mitsubishi UFJ Financial Group, Inc., one of the world's leading financial groups. The Bank of Tokyo-Mitsubishi UFJ, Ltd. is a wholly owned subsidiary of Mitsubishi UFJ Financial Group, Inc. Visit <http://www.unionbank.com/> or <http://www.mufgamericas.com/> for more information.

About MUFG (Mitsubishi UFJ Financial Group, Inc.)

MUFG (Mitsubishi UFJ Financial Group, Inc.) is one of the world's leading financial groups, with total assets of approximately \$2.6 trillion (USD) as of December 31, 2016. Headquartered in Tokyo and with approximately 350 years of history, MUFG is a global network with more than 2,200 offices in nearly 50 countries. The Group has more than 140,000 employees and about 300 entities, offering services including commercial banking, trust banking, securities, credit cards, consumer finance, asset management, and leasing. The Group's operating companies include Bank of Tokyo-Mitsubishi UFJ, Mitsubishi UFJ Trust and Banking Corporation (Japan's leading trust bank), and Mitsubishi UFJ Securities Holdings Co., Ltd., one of Japan's largest securities firms.

Through close partnerships among our operating companies, the Group aims to "be the world's most trusted financial group," flexibly responding to all of the financial needs of our customers, serving society, and fostering shared and sustainable growth for a better world. MUFG's shares trade on the Tokyo, Nagoya, and New York (MTU) stock exchanges. Visit www.mufg.jp/english/index.html.