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JANET YELLEN'S INFLUENCE ON THE FEDERAL RESERVE: A LASTING LEGACY"

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Abstract: Janet Yellen, a prominent economist and policymaker, held key positions in the Federal Reserve System and various academic institutions, leaving an indelible mark on both realms. She made history as the first female Chair of the Board of Governors of the Federal Reserve System (FED) from 2014 to 2018, following her role as Vice Chair under Ben Bernanke. Yellen's extensive FED experience encompassed her tenure as President and CEO of the Federal Reserve Bank of San Francisco and her appointment as Governor of the Federal Reserve Board of Governors during President Bill Clinton's administration.
Yellen's academic journey traversed prestigious institutions, including Yale University and Brown University, where she earned her PhD and BA in Economics, respectively. Notably, her dissertation was supervised by future Nobel laureates James Tobin and Joseph Stiglitz. Her career intersected with Stiglitz once more when she succeeded him as Chair of President Clinton's Council of Economic Advisors.
This abstract offers a glimpse into Janet Yellen's illustrious career, emphasizing her significant contributions to the field of economics and her pivotal role in shaping economic policy during her tenure at the FED.
Keywords: Janet Yellen, Federal Reserve System, Economist, Monetary Policy, Academic Career

Janet Yellen served as the 15th Chair of the Board of Governors of the Federal Reserve System (FED), from 2014 to 2018. She was the first female ever to serve as FED Chair. Prior to her appointment as Chair by President Barack Obama, she served as Vice Chair of the FED under Ben Bernanke from 2010 to 2014. She rose to that position after serving as President and Chief Executive Officer of the Federal Reserve Bank of San Francisco from 2004 to 2010. Her experience at the FED includes also an appointment by President Bill Clinton as Governor of the Federal Reserve Board of Governors from 1994 to 1997, before she was appointed as Chair of President Clinton's
Council of Economic Advisors during the 1997-1999 period. At the same time, Yellen also served as the Chair of the Economic Policy Committee of the Organization for Economic Cooperation and Development (OECD).Furthermore, earlier on in her career, she served as an economist at the FED during the 1977-1978 period. When not working at the FED, Yellen held academic positions at prestigious institutions like the University of California at Berkeley (1980-1994), London School of Economics (1978-1980), and Harvard University (1971-1976).
Yellen studied at Ivy League institutions like Yale University, where she earned a PhD in Economics in 1971, and Brown University, where she earned a BAin Economics in 1967. While at Yale, she was fortunate to write her dissertation under the guidance of future Nobel laureates James Tobin (1981 prize) and Joseph Stiglitz (2001

prize). Interestingly, Yellen succeeded Stiglitz as Chair of President Clinton's Council of Economic Advisors in 1997, and Stiglitz shared the 2001 Nobel prize in economics with Yellen's husband (since 1978) George Akerlof. Janet Yellen's illustrious career as an economist, at least in terms of institutions involved and positions held, certainly reads like an economist's dream career. With the exception perhaps of Nobel laureates, few other economists can claim a more successful career in the field of economics. Yet, her legacy in the economics profession will be forever linked with her tenure at the FED, not only because of the leadership positions she held there, but also because of the length of her tenure and the tumultuous period she served at the FED.

In fact, at the end of her four-year term as FED Chair, Yellen enjoyed a level of professional and media adulation rarely associated with FED leaders or other government and agency technocrats. For instance, Jerome Powell (2018), Yellen's successor as FED Chair proclaimed that Yellen was the most qualified person ever to be named FED Chair! The Economic Policy Institute's Bivens and Haedtler (2017) wrote that throughout the Great Recession and its aftermath, Janet Yellen helped determine the Fed's response. While the gross domestic product fell 4.3% and the unemployment rate rose from 5% to 10% between December 2007 and October 2009, Yellen stayed focused on boosting economic growth and improving the labor market. As a result of her staunch support for extraordinary actions, like pushing for a Zero-Bound Federal Funds Rate (ZIRP), Quantitative Easing (QE), and Large Scale Asset Purchases (LSAP), the unemployment rate approached pre-recession levels. CNN's Donna Borak(2018) posited that Yellen proved to be a deliberate and careful leader as she helped steer the economy through a dangerous time. The Associated Press' Martin Crutsinger2018) asserted Yellen will be remembered because she broke social barriers. She was the first female FED Chair. She was a forceful advocate for an aggressive response to economic weakness during the Great Recession. She took bold actions. She used clear communication that FED policy would hinge on the latest economic data. She stressed the importance of increasing job growth to the greatest level possible. Moreover, Yellen proved herself an able economic forecaster. She often detected perils before others saw reason for alarm. Brookings Institution's Alice Rivlin (2018) praised Yellen for her difficult task to have to figure out how to normalize policy after the QE and LSAP era.

1. Examining the Evidence

While there is a tendency in the media to exaggerate successes and failures, painting public figures as heroes and villains, the reality is often less glorious than media depictions. There is no doubt Yellen broke social barriers being the first female FED Chair, and the first Democrat FED Chair since Paul Volker (1979-1987) more than three three decades ago. Yellen will also be remembered for her efforts to bring more diversity to the FED and make its work force more representative of the general public. There are however, issues with some of the other media accolades attributed to her.

For instance, the "deliberate leader who took bold actions" accolade may seem inconsistent when examined throughout Yellen's long tenure at the FED. For instance, there is no evidence she took any action as a FED Governor (1994-1997) and Chair of the Council of Economic Advisors (1997-1999) to stop the technology sector bubble from inflating to catastrophic levels until its burst in 2002. A few years later, once again she did not take any action to limit the housing bubble from inflating to dangerous levels for the economy. This time she was serving as the President and CEO of the Federal Reserve Bank of San Francisco (2004-2010), supervising the

district where the greatest violator of bad mortgage loans, Countrywide Financial, was operating. In 2005, Yellen predicted the housing bubble would feel like a bump in the road but the economy would likely be able to absorb the shock. This does not bode well either with the accolade of being an "able forecaster who detects perils before others see reasons for alarm." In a 2010 testimony at the Financial Crisis Inquiry Commission, Yellen referring to the housing bubble said she had not explored the possibility of her San Francisco FED Bank acting unilaterally and instead waited for Washington to act. This does not bode well with the accolade of "taking bold actions." A few more years down the road, another bank from the twelfth FED district of San Francisco, Wells Fargo, was found to have fraudulently opened five million customer accounts between 2013 and 2017. This time Yellen was serving as Vice Chair and then Chair of the FED, the ultimate banking industry regulator. Thus, here are three incidents from Yellen's tenure at different leadership positions at the FED, where there was total regulatory failure of the US financial system. It seems impossible for anyone to walk away from all three failures claiming no responsibility for them, while they occurred during one's watch.

Moreover, the same accolade of a "deliberate and bold leader" may not be supported from Yellen's monetary policy actions either. For instance, Yellen is credited with supporting the Zero Interest Rate (ZIRP) and Quantitative Easing (QE) policies. ZIRP was intending on lowering short-term interest rates to boost lending and economic activity. QE was intending on lowering long-term interest rates through asset purchases, and was implemented as an additional boost to lending because the short-term rates had reached the zero bound and the economy was still in recession. Yet, both policies were initiated and implemented while Ben Bernanke was the FED Chair. In fact, the Federal Funds rate was reduced from 5% (July 2007) to 0% (December 2008), long before Yellen became a Vice Chair in 2010. As for the three rounds of Quantitative Easing implemented: QE-1 added $1.75 trillion to the FED balance sheet (started March 2009), QE-2 added $0.60 trillion (started November 2010), and QE-3 added $1.05 trillion (between September 2012 and October 2014).

So the FED balance sheet increased from $0.9 trillion to $4.5 trillion before Yellen was sworn as FED Chair on October 2014. The reality is that during her tenure as Chair, Yellen simply rolled over maturing assets acquired during the Bernanke QE rounds. Clearly, this is far less of a bold action than Bernanke's quadrupling of the FED balance sheet during his tenure as Chair. While we have established Yellen did not really implement any bold actions, merely supported them, at least she was focused on "boosting economic growth and improving the labor market" as another of the accolades goes. However, looking at Table-1, which lists the growth rate of gross domestic product (GDP) following recent recessions in the US, one can easily see that the US economy did not seem to have benefited from Yellen's focus on growth. The US economy experienced merely one-third to one-half the growth after the Great Recession and until Yellen's last full year at the FED (2007-2017), compared to the growth rates following previous recessions.

Table-1 Real GDP Growth Rate during Recent Economic Expansions

Period of GDP Expansion	GDP Growth Rate
1981 – 1990	3.5%
1990 – 2001	3.3%
2001 – 2007	2.4%

2007 – 2017	1.2%

Source: U.S. Bureau of Economic Analysis

Table-2 supports the finding above by showing that the monetary stimulus from the three rounds of QE, between March 2009 and October 2014, did not result in private fixed investment. In fact, real net private fixed investment declined during the 2008-2017 period. Private fixed investment includes business investment in plant, equipment, technology, and residential construction. It is a key ingredient of economic growth and rising living standards. Taking into account inflation (real) and depreciation (net) the capital stock of the economy declined during this period. The same result is evident when looking only at real net business equipment (fixed investment excluding residential construction). Yet, it is this kind of interest rate-sensitive investments that Yellen's supported policies were supposed to promote, but apparently did not.

Table-2 Real Net Productive Assets Growth Rate

Period	Annual Growth Rate of Real Net Private Fixed Investment	Annual Growth Rate of Real Net Business Equipment
1988-2007	5.5%	13.6%
2008-2017	-3.2%	-1.3%

Source: U.S. Bureau of Economic Analysis

One could reasonably argue perhaps that the monetary stimulus was transmitted to the household sector through cheap loans. The data however do not support this hypothesis. Table-3 shows that while household income increased by 2.8% annually during the 2008-2017 period, household debt increased only by 0.6% annually during the same period. In fact, the household debt-to-income ratio declined from more than 200% before the Great Recession to 185% by the end of 2017 (Yellen's last full year as FED Chair). In other words, during a period of extraordinary monetary measures, easy money and cheap credit, US households managed to deleverage! While this is not a bad development for the financial stability of households, it does not say much about the effectiveness of Yellen's monetary policies for either business investment or household spending.

Table-3 U.S. Household Annual Income and Credit Growth Rates

Period	Annual Household Wage and Salary Growth Rate	Annual Household Credit Growth Rate	Household Debt-to-Income Ratio
1988-2007	5.3%	8.5%	124% to 224%
2008-2017	2.8%	0.6%	224% to 185%

Source: U.S. Bureau of Economic Analysis

The monetary stimulus however, seems to have found its way into corporate balance sheets as new debt. According to the Federal Reserve Bank of St. Louis (FRED economic data), US nonfinancial corporate debt securities increased from $3.36 trillion at the end of 2007 to $6.153 trillion at the end of 2017.

This represents a 6.24% annual growth rate of corporate debt for a decade, which was not invested in productive assets, as indicated by the data at Table-2. The new debt was used mainly for stock repurchases and dividend distributions, which averaged between $300 billion and $400 billion per year during the same period. Meadway (2015) found that in the US the most obvious impact of the extraordinary accommodating monetary policies has been on share prices. In 2014 alone, US corporations borrowed one trillion dollars of cheap loans to buy back their own shares, even though US corporate investment was at an all-time low. While this may have helped the US stock market stage a miraculous recovery from the depths of the financial crisis (2007-2009), it has also increased the risk of financial instability, as corporate balance sheets are now loaded with almost twice the debt they carried during the financial crisis. Furthermore, the impact of such outcomes on wealth inequality should not be underestimated. Current shareholders tend to be older and wealthier investors, while younger and poorer workers aspire to be future shareholders, who accumulate assets for retirement and wealth creation. Higher share prices do not help them, but they do help the top one percent of shareholders, who own thirty five percent of all US shares.

Not everyone seems to be concerned with wealth inequality. For instance, Clayes and Leandro (2015) argue that the mandate of the Central Bank is price stability (and in the case of the FED full employment too), therefore issues of wealth inequality are addressed more effectively through fiscal policy measures. Moreover, accommodating monetary policies benefit mostly the lower income people, thus reducing income inequality. According to their rationale, easy credit and lower interest rates benefit lower income people more because they spend a proportionally larger share of their income servicing their debts. Furthermore, by promoting inflation, output, and employment, such policies benefit the lower income people the most, because for them wages are the primary source of income. These arguments seem to be straight out of Yellen's playbook. As a FED Governor she had argued in a Federal Open Market Committee meeting (1995), that letting inflation rise could be a wise and humane policy if it increases output and employment.

Since Table-1 already dismissed the notion there was any great increase in output during the post crisis decade, perhaps Yellen's magnum opus (major accomplishment) during her tenure at the FED was her pursue of full employment. Indeed the unemployment rate (U-3) dropped from 10% during October of 2009 to 4.1% during February of 2018, the month Yellen's term as FED chair expired. While this seems like an impressive achievement, the way the unemployment rate is calculated leaves a lot to be desired. For instance, during February of 2018 the Bureau of Labor Statistics (BLS) reports almost 162 million people as the "labor force" (employed and unemployed), only 6 million people as "unemployed", while about 46 million people are classified as "discouraged workers", who for some reason they either do not want a jobor have stopped looking for one. This hardly seems like a full employment situation. Furthermore, since the BLS counts as "employed" anyone working just an hour per week, perhaps a better way to examine the employment situation is to look at the BLS data for work hours supplied during the year. Using Yellen's last full year as the FED chair, there were 255 billion work hours supplied in the US economy during 2017. Yet a labor force of 162 million people working full time (2,000 hours per year) would have supplied almost 324 billion work hours. This indicates a true measure of unemployment of almost 21.3% (69 billion missing hours divided by 324 possible billion hours). This indicates

not only the US economy was far from full employment when Yellen left the FED, but is also more consistent with the low GDP growth data from Table-1 and the household deleveraging data from Table-3.

2. Unwinding QE and LSAP

Eventually, all Quantitative Easing (QE) programs will have to turn to Quantitative Tightening (QT), and all Large Scale Asset Purchase (LSAP) programs will have to be unwound or the FED will become the de facto owner of the majority of debt securities in the US. Maturing bonds in the FED portfolio will not be renewed, the artificial demand for bonds will subside, bond prices will decline and nominal yields will increase. The cost for borrowers to rollover debts will increase and loan defaults and bank stress tests may become a pressing matter again. It is hard to figure out the cost of unwinding all these programs, even if such a fit was to be executed flawlessly, because no central bank has ever done it before. The last of Yellen's accolades was that "she had the difficult task to figure out how to normalize policy after the QE and LSAP era." Well, she did not normalize monetary policy. While Bernanke, presumably with Yellen's support, reduced the Federal Funds rate from 5.25% (July 2007) to 0% (December 2008), Yellen moved very slowly attempting to reverse this policy. She became FED chair on February 2014 and waited 22 months to raise rates to the 0.25%-0.50% range (December 2015). A year later there was a second rate increase to the 0.50%-0.75% range (December 2016).

Finally, there were three rate increases in 2017 taking the federal funds rate to the 1.25%-1.50% range (March, June, and December 2017). Furthermore, for most of her term as FED chair she rolled over the maturing bonds in the FED balance sheet. Yellen left the FED with the Federal Funds rate far below the 5.25% mark and the FED balance sheet more than four times its size before the QE and LSAP programs were initiated. Her actions do not bode well with the rhetoric of leaving the economy close to full employment. Either the economy was not close to full employment or she could not risk normalizing the monetary policy or both. On February 2018, when Yellen's term as FED chair expired, New York FED president William Dudley said he thought it was unlikely for the Fed balance sheet to shrink below $2.9 trillion from its current $4.5 trillion level. Maybe this is the most important point of the Yellen legacy. The problem with advocating and/or implementing unprecedented monetary schemes leaves the FED (and other central banks) in a place with no roadmap on how to get back to normal. Reversing trillions of dollarsworth of bond purchases risks throwing the economy into a financial crisis, which was the reason for implementing such policies to begin with.

3. Conclusion

Janet Yellen had a marvelous career as an economist, with positions at prestigious academic institutions, leadership positions in government and the Federal Reserve System. It is her long tenure at the FED which will determine her legacy as a prominent US economist. Not only she served as a FED economist, governor, bank president, vice chair, and chair, but also served before, during, and after the financial crisis of 2007-2009. During her tenure at the FED she advocated for extremely accommodating monetary policies like QE, ZIRP, and LSAP in an effort to promote more lending, output, and employment. The evidence suggests the policies she supported had little effect on output, employment, business investment, and consumer spending. She was also an ineffective regulator of the banking system with three financial crises occurring during her tenure at the FED. Most importantly perhaps for her legacy, her term as chair ended without unwinding the unprecedented policies she

advocated for. She left the onerous task of reversing the QE and LSAP programs to her successors, whose success or failure at achieving a soft landing for the economy will largely determine her legacy as a FED chair and as an economist.

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