

Project 2.

I. Literature Review

After reviewing the provided literature, I don't believe that there is a significant risk to the company's current portfolios. The general sentiment within the financial community and the governing monetary bodies regarding policy is of patience and moderation. The Fed has transitioned its policy decisions regarding unemployment and inflation to a one-sided approach, guarding against shortfalls rather than deviations in general. "In other words, the new framework calls for policy to address employment when it falls short of its maximum level, whereas the previous framework called for policy to react when employment was judged to be too high as well as too low" (Brainard, Mike MicCracken Lecture). This means that a response to job growth like the one necessitating this memo would not be as severe as in the past, or to its inverse drop. The only situation in which the Fed will seek to curb employment is if inflation begins to rise significantly. Even in such a situation, the Fed themselves have reaffirmed their commitment to a gradual return to traditional monetary policy. "We understand that the way to do it is to communicate well in advance, to do predictable things, and to move gradually. And that's what we're going to do. We're going to be very transparent" (Fed Chair Powell). Even though interest rates have recently proven to be more robust to unemployment than previously thought, a rise of 300,000 in employment could bring an effect. Some current forecasts of job growth range from 60-100 thousand as average for the time being (FRBSF), so a growth up to 3 times that would definitely be considered a shock. Even if this is the case, there is little cause for alarm. Given the continued underachievement of the Fed's long-term inflation goal of 2%, increased or even high inflation may not be curbed. "As the Committee reiterated in today's policy statement, with inflation running persistently below 2 percent, we will aim to achieve inflation moderately above 2 percent for some time so that inflation averages 2 percent over time and longer-term inflation expectations remain well anchored at 2 percent" (Powell). Given this information, I doubt that the Fed will be taking significant action against job growth and interest rates within the near future. Any changes should be small in magnitude and signaled well in advance. The portfolios for the coming year should be safe from unforeseen policy actions.

II. Methodology

I used an ARMA model with 1 AR component and 1 MA component as the basis for my forecast of the PAYEMS data set, which tracks all nonfarm employees. The data series was transformed into its first difference to get the rise or fall in jobs from the previous month to the current. I chose this model for its simplicity and elimination of time dependency in the data series. Running @bjautofit with both the AIC and SBC as the determiner output lower-order models with AIC choosing a (1,2) model and SBC choosing a (1,1). The residuals from both of these recommended models looked similar, which is to be expected for nearly identical models; the lbq-test for time dependency on the residuals found no significant evidence of time dependency. For both models, the JB test found significant evidence to reject a normal distribution of the residuals; they had similar sample means (1,1: -.79 & 1,2: -.51) and standard errors (6.63 & 6.57). Both models are transitive and covariance-stationary, though the 1,1 model did have a slightly higher max root of .95 compared to .89. Due to the extreme similarity between the

models I chose the 1,1 because it was simpler and therefore would be less aggressive in trying to fit the data in sample which should lead to more accuracy when extrapolating to the population.

A dummy variable, *nopandemic*, had to be added to account for the peak disruption of the pandemic reflected in the data. The months from March to December 2020 had to be excluded from the regression; the size of the dip and subsequent rise messed with the data to the point where all previous recessions were considered insignificant. The regression runs from Jan of 1995 to Jan of 2021, excluding the peak pandemic months.

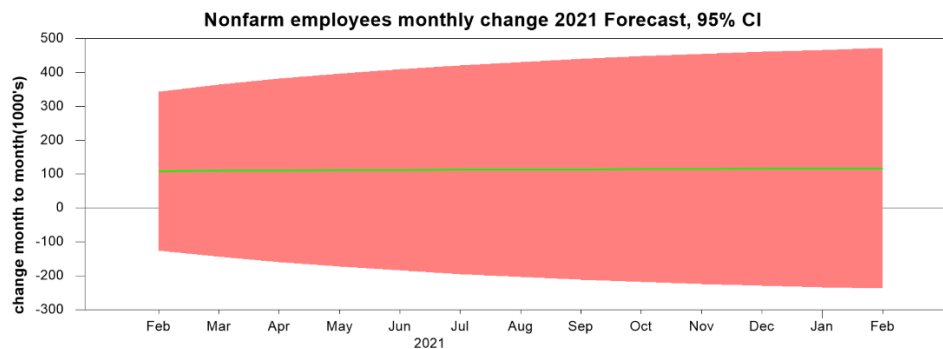
The forecast of PAYEMS runs 12 months from Feb of 2021 through Feb of 2020 and uses a 95% confidence interval. The probability that job growth exceeds 300,000 is calculated by taking the forecast of Feb 2021 μ and the standard error σ and calculating the Z-score and subtracting from 1 to get the area to the right of our Y: 300,000.

$$Z = \frac{Y - \mu}{\sigma}$$

$$P > 300,00 = 1 - Z$$

III. Results

The results of the forecast are much more moderate than the projection that fueled this memo. The average monthly change in jobs over the 12-month forecast period was 113.48 which translates to a growth of 113,485 new jobs which is only 38% of 300,000. I am confident in my results; the p-value returned only 0's, so the forecast presents significant results at all levels. When examining the graphs of the forecast and data previous to 2020, the pictures are very similar. Pretty much all the recent data excluding the pandemic dip and spike is within the confidence intervals of the forecast.





Based on the forecast, the chance that growth exceeds 300,000 in Feb 2021 was only .0555 or 5.55%. This makes sense given the closeness of my forecast to the range mentioned in the lit review in contrast to the recent report of 300,000 which is undoubtedly extreme by comparison.

IV. Conclusion

In conclusion, I doubt there will be much policy shift within the next year if job growth follows a trend similar to that of my forecast. As was mentioned by Chair Powell in his recent Q&A, large amounts of labor are still locked down by COVID restrictions. Until markets like hospitality, travel, and dining can reopen, labor cannot fully recover. So, while job growth may increase, policy still needs to remain loose to accommodate those who cannot participate or are not willing to participate under current circumstances. The more “hands off” approach of the Fed with low unemployment and invitation of inflation means that even if jobs climb rapidly, the Fed is likely to be patient in acting to raise long-term inflation numbers towards 2%, meaning the company’s portfolios should be safe for the remainder of 2021.