Transcript of Harvard College's College Fed Challenge Finals Presentation
November 27, 2019

CLAIRE: Hi, my name is Claire.

RAMIZ: My name is Ramiz.

CARISSA: I am Carissa.

LAURA: I'm Laura.

ALICIA: And I'm Alicia.

ANTULIO BOMFIM: Good morning and welcome. I am Antulio Bomfim and I am a Senior Advisor here at the Board in the Division of Monetary Affairs.

THOMAS LUBICK: Good morning. My name is Thomas Lubik. I'm Senior Advisor to the President at Richmond Fed.

TOM KLITGAARD: And I'm Tom Klitgaard from the New York Fed.

LAURA: Members of the FOMC, during this staff presentation, we will first provide a broad overview of current economic conditions. Next, we propose that the FOMC maintain its target range for the fed funds rate at 1.5 percent to 1.75 percent at its upcoming December meeting. Finally, we discuss the organic growth of the balance sheet secular trends and inequality.

CARISSA: Overall, broad indicators suggest moderate growth in the American economy. Real GDP grew by 1.9 percent in quarter three and 2 percent in quarter two of 2019. Household spending remained strong at 2.9 percent while business investment and exports remained weak. Other secular trends, such as slowing global growth and trade uncertainty, will continue to weigh on these factors moving forward; growth is nonetheless expected to remain above long run FOMC estimates of 1.9 percent through 2022.

CLAIRE: Moderate growth has been accompanied by a strong labor market. The current unemployment rate is at 3.6 percent which is below median FOMC estimates of the natural rate of unemployment at 4.6 percent. The U6 to U3 spread is at 3.4 percent, which is close to pre-crisis levels. Total non-farm payroll employment rose by 128,000 in October and we have seen similar increases in the past few months.

RAMIZ: Despite the signs of strength inflation continues to undershoot the 2 percent symmetric inflation target. Headline PCE stands at 1.4 percent while core inflation stands at 1.8 percent. Wages grew at 3 percent on an annualized basis which is nearing pre-crisis levels.

ALICIA: There are two main takeaways from this overview. First, broad indicators signal moderate economic growth and second, low business investment, inflation and exports reflect market uncertainty.

CARISSA: Given this economic context, we first propose that the FOMC maintain the target range for the federal funds rate of 1-1/2 to 1-3/4 percent at this upcoming December meeting. There are four main reasons why we advocate for a rate hold. Tightness in the labor market, monetary policy lags, financial risks and the limited ammunition of monetary policy.

ALICIA: First we address the effects of previous monetary policy on our decision to hold interest rates today. Monetary policy is known to have long and variable lags. For example, a 100 basis point increase in interest rates takes on average 22 months to fully affect prices in the United States as illustrated by Roma and Roma in 2004. Thus we expect to see the effects of previous rate cuts to continue to flow through the real economy in the upcoming year.

RAMIZ: Second, strong labor market indicators suggest that the economy does not need further easing, lower employment, stable labor force participation rates and rising wages all signal tightness in the labor market. The October jobs report corroborates these findings and leave us to believe that labor market will continue to be strong in the future. Hornstein et al in 2018 also finds that the labor force participation rate in the United States is nearing its long term trend as determined by the demographic composition of the United States, signaling that we are at or near full employment.

ALICIA: Some have argued that slow wage growth indicates hidden slack in the labor market. However, we believe that this is due to compositional changes in the labor market rather than unaccounted growth. Daly et al 2016 find that because higher wage baby boomers have been retiring and giving way to lower wage workers, there's downward bias on cross sectional estimates of wage growth, like those used by the BLS. On the other hand, longitudinal metrics of wage growth like that from the Atlanta Fed, find that wage growth is at 3.7 percent which is high given recently low productivity.

CARISSA: Third, excess monetary stimulus could introduce financial imbalances. We first clarify that we do not see evidence of any immediate asset bubbles and leverage at financial firms remains low as supervision and regulation ensure stability at key institutions. Household borrowing also remains at modest levels.

LAURA: Business and household credit to GDP ratios indicate that overall business debt is historically high, with the most rapid increases coming from riskier firms with higher leverage and lower cash holdings. Moody's Loan Covenant quality indicator suggests that the overall strictness of loan covenants is at its weakest level since that index began in 2012.

RAMIZ: The distribution of non-financial investment grade bonds is also deteriorated, the share of bonds with a triple B or equivalent rising noticeably. This could be problematic if economic conditions deteriorate, leading these bonds to be downgraded. All in all, all these financial indicators they used to believe that market participants may be chasing for yield in a low rate environment. A phenomena which would be exacerbated if rates were to be cut.

LAURA: The final reason to hold rates is to preserve the limited ammunition of monetary policy given the tight labor market and moderate growth we do not believe that cutting rates is necessary to maintain a strong economy. Further, research suggests that the marginal rate cut is less effective when it is preceded by several recent rate cuts. This implies that by holding rates today, the Fed can preserve its limited power to ease in the future, which is particularly important in this secular environment.

ALICIA: McKay and Wieland 2019 find that expansionary monetary policy is one-third less effective when preceded by four quarters of rate cuts. This is because households have already pulled forward their consumption of durable goods, which consist of 61 percent of the consumption response to expansionary monetary policy. That leaves fewer marginal households to then increase their consumption of durable goods in response to future rate cuts.

CLAIRE: In addition, given the large amount of household debt in the United States, several authors have used the mortgage refinancing channel to document the limited ammunition of monetary policy. For example, Berger et al 2018 finds that monetary policy is less effective if previous interest rates were low because households will have already refinanced their fixed rate mortgages and have no incentive to do so again. Thus we advocate holding rather than cutting rates today to preserve the efficacy of future rate cuts in this low rate environment.

CARISSA: Next, we address the main concerns with holding rates, namely low inflation and low business investment. First, annual inflation has consistently undershot the Fed's 2 percent symmetric objective, sparking concerns over unanchored inflation expectations. The 10 year tip spread currently stands at 1.63 percent.

LAURA: According to George in 2019, this is primarily due to secular trends such as automation, globalization, and slower growth in college tuition. However, we think that inflation will pick up in the coming months in particular cyclical inflation is strong and we think it'll keep rising. Zaman in 2019 decomposes the PCE index into 154 sub-components and categorizes them based on their historical correlation with broader U.S. growth. He finds that the cyclical contribution to core PCE inflation has been at or above the 2002 to 2007 average since late 2018. We expect that a tight labor market, strong wage growth and the continued flow through of previous rate cuts to the economy will translate into higher inflation going forward.

ALICIA: Evidence also suggests that acyclical inflation will rise in the coming months. Alexander 2018 forecasts that healthcare inflation in particular will pick up and we believe that the role off of ACA mandated payment growth cuts that end in 2019 will contribute to this rise. In October of this year, healthcare inflation was at 4.3 percent year-over-year, which is above mid 2000s averages of 3.5 percent. Mahiti and Shapiro 2017 continued to find that if healthcare prices remained at mid-2000s levels, we should expect to see stable 2 percent inflation in the long run. On that, we believe that core PCE will rise as acyclical and cyclical components of inflation pick up.

LAURA: Proponents of a rate cut also cite business investment, which declined 14 percent year-over-year in the last quarter in its steepest decline since 2015. However, as Caldera et al in 2019 highlight, factors such as rising trade uncertainty likely explain much of this decline. While cutting rates would marginally improve credit conditions it may not substantially increase demand for investment since it cannot overcome this uncertainty. Further, since growth remains moderate, we don't think that cutting rates is necessary to maintain a strong economy.

CARISSA: To summarize, maintaining rates allows the previous rate cuts to materialize in the real economy. Adjust for the tightness in the labor market, ensures moderate growth moving forward, provides financial stability and preserves the limited ammunition of monetary policy to address an economic downturn.

CLAIRE: Next, we want to address the Fed's recent decision to organically grow the balance sheet. Given the recent volatility in repo markets, we fully support the FOMC's decision to increase the level of reserves above saturation and continue using the IOER framework. However, we emphasize that this decision should be implemented using one- to two-year treasuries instead of T-bills for additional financial stability benefits.

RAMIZ: Indeed. Increasing the reserve supply could improve financial stability by providing market participants with safe short term assets and reducing the incentives from risky private sector maturity transformation. According to Stien et al 2016 a high demand for short term and money-like assets creates a money premium, which incentivizes private intermediaries to fill the void by issuing their own short term bills. However, these short term bills are more prone to fire sales and increase systemic risk, both of which Bernanke 2016 said were two key reasons for the 2008 financial crisis.

ALICIA: Short term T-bills are also safe liquid money like assets, exchanging T-bills reserves does not substantially improve market liquidity. Thus we advocate that the Fed buy treasuries under a one to two year range rather than short term T-bills. In addition, these securities are not subject to the same money premium as short term T-bills, which preserves the financial stability benefits of a large balance sheet. However, we do not advocate the Fed buy very long term securities to differentiate organic growth from quantitative easing.

CARISSA: Next, we address secular trends we see in the real economy. First, recent evidence suggests a downward shift in R-star, the natural rate of interest. Laubach and Williams 2019 estimate a current R-star of around 0.8 percent.

CLAIRE: Now R-star could be due to excess savings coupled with lagging aggregate demand. For example, Gagnon et al 2016 states that increased savings rates could be due to demographic changes, for example, a longer life expectancy and aging population. In addition, demand may have decreased as inequality has risen and wealth has become more concentrated among those with less marginal propensities to consume.

RAMIZ: Higher capital efficiency and lower productivity growth may also explain the decline in private investment today. A short term explanation for lower R-stars provided by Lance in 2017 argues that in a climate of higher uncertainty, there's an increasing and corresponding – an increase in the demand for safe assets, which subsequently decreases the real rates of return.

LAURA: One major implication of a declining R-star and lower growth is more frequent encounters with the zero lower bound. Most FOMC members project that the long run fed funds rate will be around 2.5 percent, which is consistent with recent estimates of R-star and indicates that the Fed's ability to ease going forward may be limited.

CLAIRE: Chung et al 2019 estimate that there's a 20 to 50 percent chance of the zero lower bound binding in the next decade due to secularly low interest rates, limiting the Fed to unconventional monetary policy. Some economists argue that unconventional monetary policy, for example, forward guidance or quantitative easing could be sufficient at the zero lower bound. Stock et all 2019 estimates that quantitative easing ultimately lowered the unemployment rate by one percentage point and help boost inflation during the recovery.

RAMIZ: Beyond quantitative easing and forward guidance, other alternative monetary policy tools such as price level targeting or average inflation targeting have been proposed to circumvent the constraints imposed by the zero lower bound. Another prominent framework is that we increase the inflation target to 3 percent. I believe Stock and Write 2019 document that in a counterfactual world where we were endowed at a 3 percent inflation target prior to the 2008 recession and this would have been equivalent to a 2 percent target, plus all of the quantitative easing and forward guidance that was conducted during that period.

ALICIA: However, we do not advocate the Fed switch to a 3 percent inflation target at the upcoming December meeting due to transition costs and credibility concerns. Notably, Russell 2018 remarks that as the Fed has not recently achieved the 2 percent inflation target, increasing this target today would only further on incur inflation expectations and decrease the Fed's credibility, undermining the purpose of a higher inflation target.

CARISSA: We urge the FOMC to continue seeking additional research in line with its recent June conference on monetary policy strategy, tools and communication. Although time constraints prevent us from addressing each of the alternative monetary policy frameworks proposed, we're open to questions on any of them following our presentation. We also acknowledge the heightened role for fiscal policy which is beyond the Fed's dual mandate, to affect secular trends affecting conventional monetary policy moving forward.

RAMIZ: Lastly, we'd like to address inequality. While inequality is primarily driven by secular trends, research suggests that business cycles also affect it. According to Erickson et al 2019, while the long economic expansion and tight labor market have benefited those with less education and lower incomes, significant disparities remain. For example, geographic inequality has increased over the past few years, as we've seen the economic outcomes between urban and rural areas conversion. More recently, we've also seen GDP growth be higher in those states which depend on professional and technical services and weaker in those which primarily depend on wholesale trade.

ALICIA: Second, new research suggests that inequality also affects monetary policy transmission. Auclert 2019 finds that expansionary monetary policy is most effective if the winners of this policy are those with higher marginal propensities to consume. People with high MPCs are usually also those of lower income as they are more liquidity constraint. This line of research implies that understanding inequality may be critical to implementing the Fed's dual mandate.

CLAIRE: In addition, research suggests that monetary policy has disproportionate effects across different socioeconomic groups. For example, Coibion et al 2017 finds that unanticipated rate hikes disproportionately hurt debtors who tend to have lower incomes. In contrast, Ostry et al 2019 finds that on a 100 basis point unanticipated rate cut would lower the Gini coefficient by 1.25 in the short term and 2.25 in the medium term. Thus we encourage the FOMC to continue seeking research into inequality and monetary policy.

LAURA: In conclusion, we advocate that the FOMC maintain its target range for the Fed funds rate at 1.5 to 1.75 percent. We also advocate that the FOMC continue the organic growth of its balance sheet but purchase one- to two-year treasuries instead of short term T-bills. These two proposals ultimately address concerns about below target inflation, limited monetary ammunition and financial stability.

ANTULIO BOMFIM: Thank you. We'll start with a few broader questions and then we'll have a conversation with you about – digging deeper into some of the issues that you brought up. As you know, and you've mentioned this actually, the Federal Reserve has been conducting a review of its monetary policy strategy, tools and communication practices. So as part of this review the system has held several forums called Fed Listens across the country and which have included listening to communities' leaders' perspectives on how monetary policy decisions affect their constituencies. So with that in mind – or before the first question, could you discuss how, if at all, the FOMC's monetary policy decisions over the past decade have affected the distribution of income or wealth in the United States?

CARISSA: Absolutely. So there are three ways that we think of inequality affecting monetary policy as we addressed in our presentation. So I'm going to directly go towards your question about over the past decade, how has the Federal Reserve's decisions ultimately affected inequality on a broader scale? So first of all, we emphasize that a large part of income inequality rising has been due to secular trends, which is beyond monetary policy. However, at the same time, there are notable things to consider when we're thinking about the business cycle and how inequality ranges throughout it. So as we mentioned in our presentation, during the long expansion following the post crisis, we saw for the longest time that wage growth remained at those who were in the top income groups instead of the lower income groups. Now as we move more and further along the line of the expansion, we've seen increasingly that the lowest income workers are having higher wage growths, which says just the idea that the long expansion is flowing through to those groups as well.

RAMIZ: Another important point to note is that one of the transmission channels for monetary policy is a wealth effect, when interest rates are going down, you typically expect asset prices to rise with more discount rates. So if you look at the large scale asset purchases conducted by the Federal Reserve all throughout the post-crisis period, those primarily benefited people who were asset holders and that is one of the significant distributional effects that we think is relevant.

TOM KLITGAARD: So they're at cross purposes? You're saying this is increasing wage income inequality and you're saying a long recovery reduces income inequality?

LAURA: So there are definitely different channels by which monetary policy affects inequality. A lot of it depends on how people get their income, whether that's holding assets and the asset values rising benefits them or whether they depend on labor income or transfer income. As Carissa mentioned, the long expansion has helped raise wage growth among people who have lower education or lower income but additionally, lower unemployment rates just tend to benefit people who are less likely to be working most of the time because you're getting the marginal people who are not usually working in the labor force. So the long expansion particularly with the tight labor market has really helped people at the bottom for that reason and this is consistent with just more general research about the empirical effects of expansionary, contractionary monetary policy. As we showed in our slides, we have recent research from Auclert in 2019 and Coibion in 2017, that finds contractionary policy on balance, increases inequality, and expansionary policy can most often benefits those with lower incomes and is actually also amplified by the fact that it benefits people with higher marginal propensities to consume.

TOM KLITGAARD: Right. But, again, if you own a house, you're upper income, housing prices are done very well plus recovery and most equity is held by wealthy people. So on that who do you think won in terms – not won, but how do you think inequality was affected by monetary policy?

CARISSA: Yeah, so one of the things I think you're touching upon which is really important, is how monetary policy ultimately transmits to the communities. As you mentioned, with housing prices, that's a great note earning and like income – how income is earned by different parts of the population is different. So for example, low income workers, primarily relying on transfer income, middle income workers rely more on labor income whereas the top income group tends to rely more on financial income. And so since tools, for example, like quantitative easing ultimately helped those within the top quartile a little bit more. That's a way that we think that it could have implemented things. As we've mentioned in our presentation though, inequality and monetary policy is something that we urge the FOMC to continue seeking research on, there's a lot of research right now. But we want to see more and more of it to get a broader understanding of what's going on and we definitely encourage things like the Fed Listen events which we think is awesome.

THOMAS LUBICK: Let me just briefly follow up on one point that you raised earlier, you said that secular trends are outside of the purview of monetary policy. However, one can see a recession, as the one we experienced in the great recession that we had is that the rate of business formation has declined considerably and that there's a whole generation of entrants into the labor market, fresh college graduates with very unfortunate employment outcomes at first. So I was wondering to what extent these effects may be long lasting and whether monetary policy actually can alleviate?

LAURA: Yes. So, as Ramiz mentioned a lot of the increased inequality is secular but you're absolutely right that cyclical patterns do have long term effects. A perfect example was during the recession, there was lower business investment and it is likely that we suffer from lower productivity growth as a result. Another example, as you mentioned, is lower business formation and also just like lower incomes and asset values and just the general de-leveraging in the response to the 2008 financial crisis meant that today a lot of college graduates defer buying houses for a long time or have decreased measures of job stability or bargaining power when they enter the labor force. So we do think that these downturns can have lasting trends beyond just a cyclical downturn and thus monetary policy by limiting the downturns and keeping the economy at steady state can alleviate those effects.

ALICIA: Yeah so kind of similarly, there's also been recent research that shows that people do not recover from unemployment spells very well. So once somebody is unemployed unexpectedly, their incomes almost never recover through the rest of their life cycle. So yet again, this is a cyclical effect that then turns into a longer term secular effect, an expansionary monetary policy, hopefully is able to kind of get rid of the initial cyclical effect in this case.

CLAIRE: Yeah, so just like to quickly follow on – the labor market has seen a lot of like demographic and structural changes. So for example, if we look at the manufacturing sector, for example, a lot of the high paying jobs have been translated into low paying jobs. And that's just another secular trend. Also, there was some argument during the recession that wages were exhibiting downward nominal rigidity, so which could potentially explain why we're seeing little wage growth on even so long post 2008.

THOMAS LUBICK: And while we are on topic of labor markets and wage growth, let me also follow this up with a somewhat broader question. So the U.S. labor market has been extremely strong for the past several years and the unemployment rate is now at its 50 year low. So how would you explain the behavior of inflation over the past several years in light of this labor market experience, particularly relative to the FOMC's inflation objective?

CLAIRE: Yeah, for sure. So the traditional way that economists generally think about the relationship between inflation and unemployment is a Phillips Curve and what the Phillips Curve tells us is that there is generally an inverse relationship between employment and inflation. So generally, if you have very low unemployment then this should translate into wage inflation which should eventually translate into price inflation. However, as you mentioned, the unemployment rate is currently at 3.6 percent. We think that the labor market is incredibly tight. And the question is just why are we not seeing this translate necessarily through to practice inflation? So, to just give some empirical estimates of the Phillips Curve right now, Stock et al 2019 mentions that data up to 2000 just estimates an incredibly flat Phillips Curve. And the reason we see maybe a breakdown in this relationship is mostly due to structural changes and secular factors.

Alicia: Yeah, so one of those secular factors to address the first mechanism that Claire mentioned, which is why low unemployment isn't translating to wage growth and we'll later address wage growth and inflation as well is due to a lot of different kind of compositional changes in the labor market. So first as we mentioned in our presentation is as Daly et al 2016 finds that higher wage baby boomers have been retiring, lower wage workers have been coming in and that creates downward bias on wage growth because we're losing all of these high wage workers. In addition, union membership is at all-time lows with the BLS estimating that only 11.4 percent of the population is in a union and that means that as Summers points out in 2017, there's very low bargaining power and that then also pushes down on wage growth. The last reason why – a secondary reason why we might see low unemployment not translating to wage growth, is because as Auclert mentions in 2019, there's been a large concentration of wealth into a few large firms. These firms both have monopsony power and lower labor shares of income, which means that these firms are not creating the same kind of wage growth as we may have seen pre-crisis.

CARISSA: I'll address the second aspect of the linkage, which is that we usually think of wage growth as translating into higher price inflation. So usually, we think a tight labor market leads to higher wage growth, which leads to higher inflation. But there are secular trends that are affecting inflation, which puts it at a lower level in the long run. So as we mentioned in our presentation, George 2019 emphasizes secular trends such as automation and globalization as keeping inflation at a lower long run level moving forward. However, when we look at this long expansion, there are also other secular trends that are particularly affecting it. Mahiti and Shapiro 2017, decompose the core PCE index into acyclical and cyclical inflation and find that one of the primary causes of lower inflation, throughout this long expansion is lower acyclical inflation, particularly in healthcare prices. Although we expect healthcare prices to rise and think that this would sufficiently support inflation in the next year or so, we still see these long run trends such as automation and globalization affecting secular inflation in the long run.

ANTULIO BOMFIM: So, coming back to your policy recommendation and given what you just said, so a tight labor market, but inflation below target, why not continue using pause? Right, that's your recommendation in terms of federal funds, the setting of the federal funds rate? So I guess another way of saying this, I mean, when you look at your outlook for inflation and for the labor market, where do you see the risks? What is it that tells you where we should stop now?

CLAIRE: Yeah, for sure. So I think we recognize the relatively weak, direct relationship between unemployment and inflation right now. But we think that we need to think about our advocacy in terms of this framework. So a lot of people cite reasons for slack in the labor market, potentially due to historical reasons. So if you compare this number right now, to what we saw in history then indeed there is some indication of labor market slack. But we think that like, if you compare the current labor market situation with the current demographic changes that are happening in the economy, this is some evidence to suggest that the labor market is in fact tight and we hope that this will eventually translate into inflation.

LAURA: So we mentioned several reasons why we don't think that we should continue cutting in our proposal. Basically, the secular environment means that rates will have to be lower to achieve the same levels of inflation as we did before but there are costs to keeping rates lower and lower. And we mentioned several of them. One is potential financial instability concerns, given some measures of financial risks that look moderate. But although we don't think that there will be an immediate crisis, and the other is we basically have a limited number of rate cuts that we can use left and when we think growth is moderate, the labor market is strong right now. We think in this new secular environment, we should not keep our expectations too high. Things might get worse in the future and we only have a limited number of rate cuts to use and thus we should use them when they are most effective and research indicates that is not after you have just cut several times and it's probably not needed to moderate business investment because growth is fine and the labor market is strong.

RAMIZ: So essentially as kind of to summarize our answer is that we've seen kind of wage inflation pick up and essentially for a series of other reasons, like financial stability and other reasons, we think that on that when you look at this as kind of a holistic assessment of the economy, holding rates is probably the best way to go.

CARISSA: And to address the last part of your question, where you're talking about downside risks if I'm correct, we see that there are two main downside risks to holding rates, which are low inflation and low business investment. As we address in our presentation, we do think it is of concern if inflation expectations become unanchored. However, as we see cyclical inflation likely rising at the rate cuts transmit to the economy with a lag, wage inflation begins to pick up and as we see acyclical inflation rising with healthcare prices rising, we think that inflation will likely rise in the coming year. We've addressed the low business investment concerns in our presentation.

ANTULIO BOMFIM: Suppose you're wrong, we are all wrong sometimes and as economists, we are often having to face a situation like this. So suppose you're wrong and then the economy does weaken more than you expect and the FOMC ends up cutting rates, all the way to near zero. First question for you would be the following, what do you do now? I mean, you mentioned a few options, but I want to bring up one option that you did not mention and get your take on this, which is negative interest rates. What would be the cost and the benefits of cutting rates into negative territory if we face the situation that we just described?

RAMIZ: So that's a great point and I think the main reason that, I just want to start us off by, has mentioned the reason we haven't presented it in our presentation is just because we think there's a series of downsides and also some that fits the negative interest rates. But the primary thing to recognize is that even if you could bring rates to a slightly negative level, that gives you a little bit more room to kind of use interest rate policies to stimulate economy, because only, rates can only go so negative before people horde cash and not pay that in liquid.

ALICIA: Yeah so just to kind of cover first maybe the benefits of negative interest rates, of course, it allows the Fed more room to ease during recession and we've seen this kind of play on different countries a little bit in Germany and Japan. Alta Vio 2019 finds that even though people, individuals want to hold cash, large institutional investors like pension funds usually don't have the capacity to hold that kind of cash so they will keep their deposits in banks, which allows banks, especially those with strong balance sheets, to kind of pass off these negative interest rates and allow them to transmit in an expansionary way to the economy.

LAURA: One particular downside though of negative interest rates is that it hurts the firms that can't necessarily borrow at negative interest rates because they're most vulnerable to people not lending at those rates or pulling their money out. So for us, that's banks, banks borrow a lot from depositors who have the lowest cost of pulling their cash out and thus we don't think they'll get very negative.

ANTULIO BOMFIM: Thank you very much.

LAURA: Thank you.

[Applause]