Bank Financial Group

TD Economics

Special Report

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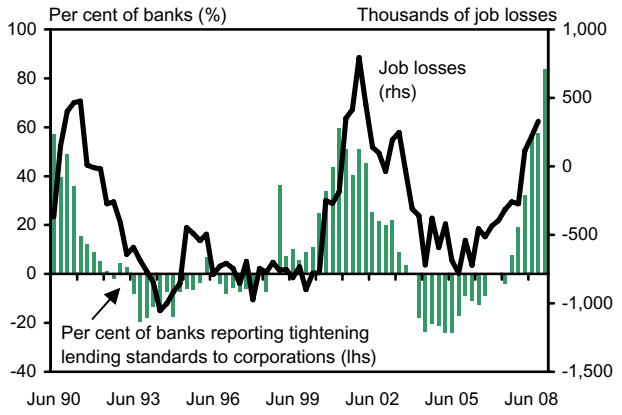
COULD DEFLATION DERAIL DE FED?

It remains uncertain as to when global credit markets will thaw. There is an ongoing risk that we remain at least six months away from the worst in U.S. job losses. And, the global economy is going through its most synchronized slowdown in over 50 years. All of these developments raise the concern that large output gaps will significantly dampen inflationary pressures in 2009. Moreover, the excess reserves banks have been accumulating suggest a deceleration in money growth in the U.S. is very possible, and indeed in several monetary aggregates this can already be seen. These dynamics also have varying similarities with the experience of the U.S. during the 1930's and Japan over the last decade. The other similarity is that in none of these cases was deflation widely expected ex ante. While deflation is not a definite for the U.S. in the near future, we do forecast a period of at least 6-9 months when inflation in the U.S. will remain below 1%. Given the risk management approach to monetary policy taken by the Fed, this is likely to weigh on their decision making given the well documented dangers of deflation (see box).

EMPLOYMENT SUFFERS WHEN BUSINESSES CAN'T BORROW



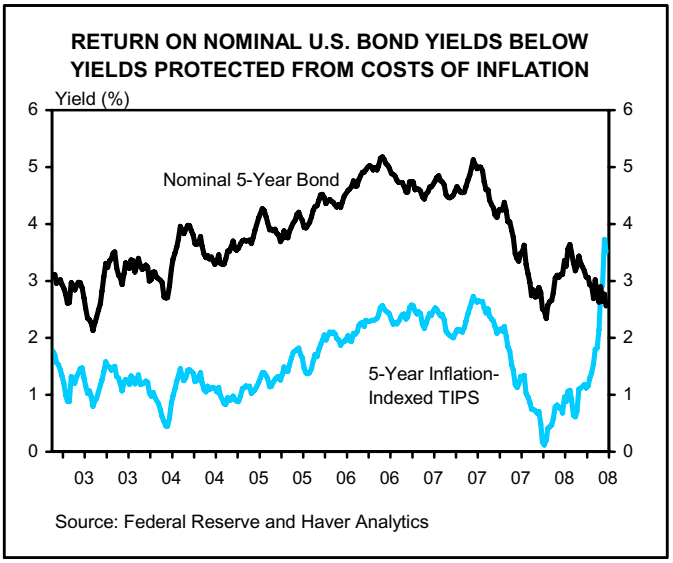
Source: Federal Reserve, Bureau of Labor Statistics, Haver

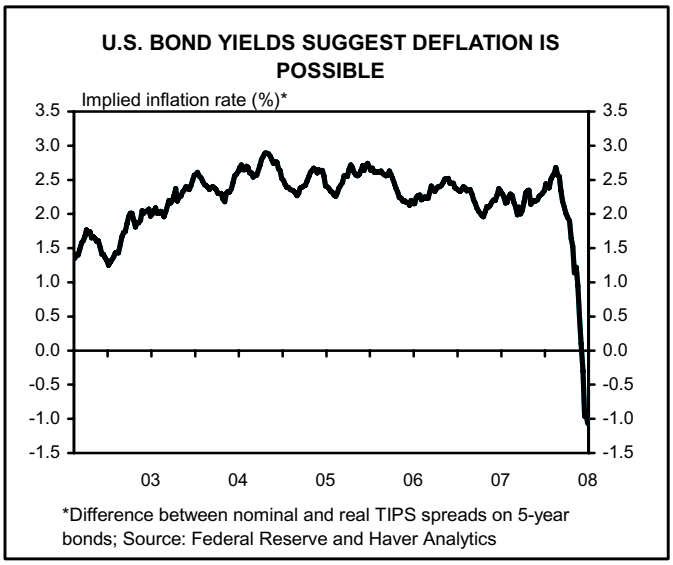
HIGHLIGHTS

- **Using history as a guide, credit conditions to date imply U.S. job losses could continue to accelerate late into 2009, with over a million job losses in a quarter, and core inflation could fall to near 0% by 2010.**
- **Even if this proves pessimistic, the risk of deflation will be given more weight by the Fed than the risk of inflation given the severe consequences of deflation on the economy.**
- **The Fed is not without policy options, including quantitative easing and asset purchases followed by Japan, as well as inflation targeting.**
- **In fact, the Federal Reserve appears to already be implementing a passive policy of quantitative arming, rather than actively pursuing quantitative easing.**
- **The Fed has added over $600bn to their arsenal in the last three months, nearly half of this in just the last two weeks.**
- **What has been missing, however, is any explicit confirmation from the Fed of what they are doing, and it is unclear what this lack of transparency gains the Fed.**

Can we get there from here?

To see that deflation is possible for the U.S., we look at two important relationships. The first is the connection between credit market tightness and job losses. Nearly 90% of U.S. banks reported tightening their commercial and industrial lending standards in the fourth quarter of 2008. This is well above the roughly half of banks report-



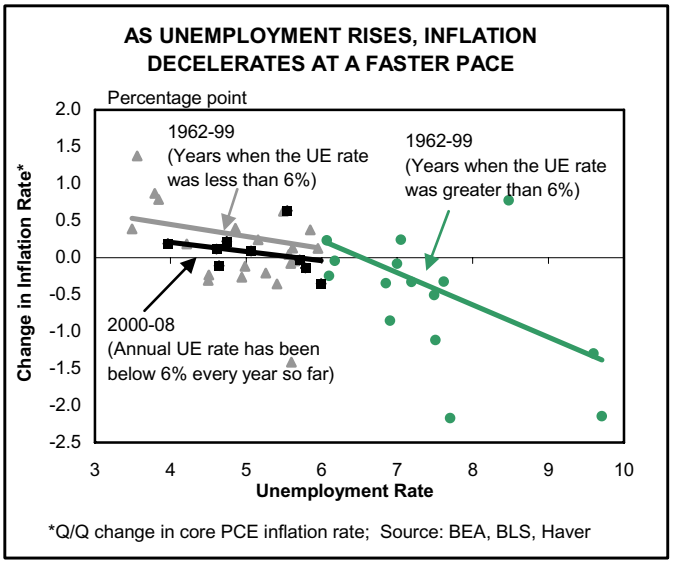


ing tightening during the last two recessions. Just as importantly, while this series only goes back to the early 1990s, there has historically been a 6-9 month lag between peaks in this series and peaks in job losses. If this holds this time around, even if credit markets improve dramatically very soon, job losses in the U.S. will still be accelerating into the second half of next year and could exceed one million per quarter.

The next relationship is what economists call the Phillips Curve. This measures the historical relationship between the unemployment rate and inflation. As slack builds into the labour market, wage costs decelerate and this tends to feed into consumer inflation. The scatter chart here shows the linear relationship between the level of unemployment and changes in core PCE inflation (the preferred inflation measure of the Fed). As the unemployment rate rises above 6%, there is a marked deceleration in core inflation. So far this decade, the annual average unemployment rate has never exceeded 6%. Using regressions to estimate what the above credit relationships imply for the unemployment rate – and assuming credit markets begin to dramatically improve at the start of 2009 – we find an estimate of an annual average unemployment rate of between 8.0-8.5% in both 2009 and 2010 (similar to our pessimistic scenario found at www.td.com/economics/qef/fcstrev_1008.pdf). The Phillips Curve implies this would lead core PCE inflation to fall by about one percentage point each of the next two years. Given core PCE inflation is likely to average 2.1% in 2008, this would imply core inflation in the U.S. of just 0.1% in 2010 on an average basis, meaning some quarters would almost definitely be negative. Deflation risks in the U.S. certainly appear real.

What is a Fed to do?

The overwhelming consensus among central bankers on how to deal with deflation is to do everything to avoid it in the first place. Any potential inflation caused will be much less of a cost than getting stuck in deflation and having to fight your way out. In the end, it comes down to sheer scale. The Fed can print as much money as is needed to buy as many bonds as needed to lower interest rates to a desired level. If that isn't enough to cause inflation, even if the banks are still in disarray, the Fed in theory could start printing cash and buy other assets (homes, equities, etc) and even physical goods (sofas, cars, etc) until the



The dangers of deflation

Future inflation means there's a cost to cash, so firms want to lend and investors want to invest. Deflation, however, means cash earns a risk free rate of return. One dollar today will be worth more next year because the prices of things you can buy have fallen. Literally faced with free money for doing nothing, the incentive to take risks, like lend or invest, is dampened, and these new habits can become entrenched in the economy. Moreover, deflation complicates monetary policy. The real interest rate – the nominal interest rate minus inflation – is what governs the speed of the economy. When economic growth and inflation slow, the real interest rate would rise and slow the economy further if the Fed didn't lower interest rates. This can render monetary policy impotent.

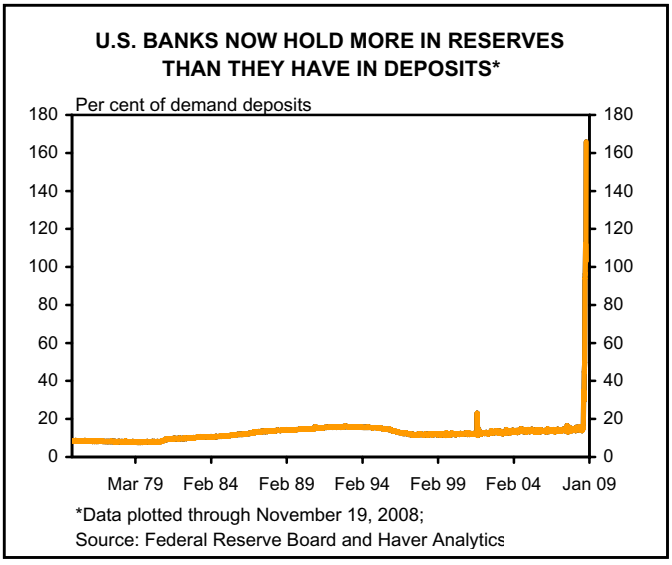
If monetary policy is not yet at the zero bound, deflation is not yet a problem. Lower nominal rates can energize the economy. But in the worst case scenario of a liquidity trap, once interest rates are at zero, more deflation means rising real rates, which means a slower pace of economic growth, and more deflation, and even slower growth, ad infinitum. So in the case of deflation, the Fed would try to drive interest rates as low as possible, but even zero nominal rates could prove ineffective.

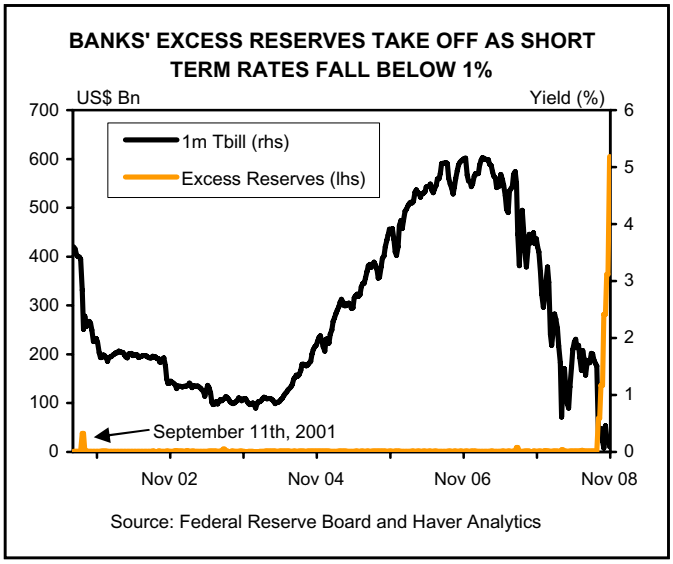
In financial markets, demand for nominal assets, like T-bills, increases as deflation means real assets lose value over time while nominal assets now appreciate in value over time. At the same time, bond supply tends to fall as the deflationary disincentives raise the cost of borrowing. So in deflation, the low nominal interest rate environment and credit destruction become a self-reinforcing cycle. Moreover, in a deflationary episode, the positive return to cash over time would mean deposit accounts would be seen almost as safety deposits boxes are now – a place to hold items like jewellery whose value will rise over time without the need for interest.

Fed held so much, that scarcity drove prices to rise. It is this idea that gave Ben Bernanke his "Helicopter Ben" moniker for suggesting deflation is not a concern because the Fed could just toss cash from a helicopter to drive inflation. In practice, however, that threshold in a deflationary environment appears to be too far to reach, so the below policy options are more likely.

Quantitative Easing (QE)

In order to lower interest rates, the Fed usually buys bonds from the market, thereby injecting cash into the economy. But, there are more bonds in the economy than it takes to bring the policy rate down to zero, and, like pouring water into an already overflowing bucket, nothing precludes them from continuing when interest rates hit zero. In fact, the BoJ during their bout with deflation (see box) increased their purchases in steps, ultimately holding 6-7 times the required reserves needed to keep the policy rate at zero. This is not so crazy, as before the Fed began targeting the price of bank reserves (the overnight rate) in 1980s, they would target the quantity of reserves or some other measure of the quantity of money. Hence, when interest rates hit the zero bound, "quantitative" easing becomes necessary. Generally, reserve levels are rather er-





The Japanese experience

When thinking about central bank rates as low as 50bps or even lower, the obvious comparison that comes to mind is Japan. ZIRP effectively began there in 1999, while QE was implemented in 2001, along with a promise to leave rates at zero until deflation was gone. QE was then ended in March 2006 while ZIRP ended four months later.

QE in Japan, broadly defined, included (i) open market operations to increase the balance of current bank accounts held at the BoJ above the normal required reserve levels, (ii) a tripling in purchases of long term government bonds, (iii) purchases of stocks, ABS, and commercial paper to boost prices, and (iv) unsterilized intervention to cause the yen to depreciate (unsterilized means inflationary as the BoJ printed yen, bought USD assets, but did not issue bonds to suck that cash back out of the domestic money supply).

There is no unambiguous support that QE itself led to money growth and changed inflation expectations in Japan. Cash in the economy (M1) certainly grew as the BoJ printed more, but banks did not lend it out so broader measures of money in the economy remained steady. Indeed, in spite of nearly doubling the cash in the economy, the price level barely budged. Long term bond purchases did seem to have some marginal economic impact. Also, an increase in excess reserves equivalent to double the amount needed to maintain ZIRP (equivalent to 10 trillion yen or 2% of GDP) led to less than a 5bps reduction in investment grade corporate debt yields, less than a 20bps reduction in 3-year government bond yields (JGB) and 20-50bps reduction in 5-year JBGs. However, much of this impact on government yields is attributed to the BoJ's guarantee to maintain ZIRP until core inflation returned.

Moreover, large credit risks of borrowers and impaired balance sheets of lenders meant cash was not lent out. That is what took such a long time to correct in Japan and that is why deflation proved so entrenched in the face of exceptional liquidity injections. In fact, it was not until late 1998 that Japan passed a $500bn bailout package similar to the U.S. TARP, and Japanese banks were still writing off nonperforming loans more than a decade after problems first arose.

The trend appreciation of the yen for almost 15 years was one factor in driving deflation in Japan – a factor the U.S. does not face. There is also evidence that the BoJ's delay in reducing interest rates is what brought on deflation. Some estimates suggest that deflation at the end of the 1990s could have been avoided had rates been lowered by two percentage points any time in the first half of the decade. Some estimates for where U.S. interest rates should be now (Taylor rule approximations) suggest rates are much too low relative to inflation expectations. While we do not forecast the U.S. will see protracted deflation, we suggest caution in taking this one indicator as proof positive the U.S. will avoid deflation. Similar estimates for Japan showed the exact same thing even though ex post, we know rates were still too high. The problem was that markets, then as now, were not expecting deflation so the estimate itself was flawed.

ratic and hard to target (as the Fed found from 1979-1982 when they changed interest rates to more directly target nonborrowed reserves), but drastic times call for drastic measures.

The Federal Reserve has already begun gearing up for this eventuality and seems to be following a policy of quantitative arming (QA) to prepare for this eventuality. In mid-September, the Fed began paying interest on reserves. At first, this interest rate was set below the fed funds rate, but it is now set at the fed funds rate of 1.00%. Meanwhile, the return on T bills and other short-term debt that banks might invest in when managing their money has fallen below 0.50%. As a result, banks are eschewing money management and parking not just the required 10% of deposits they must hold as required reserves with the Fed, but as of November 19th, were holding nearly 200% in reserves.

The Fed's TAF operations have been swapping cash for financial assets to get liquidity into the banking system. They had been sterilizing these injections however, meaning for every dollar they injected, they issued a bond to take that dollar out of the economy to ensure the money supply was unchanged and did not fuel inflation. As of mid-September, they were no longer fully sterilizing this money and in this last month, this has been expanded dramatically. This is the cash that is now showing up as excess reserves and has led the effective fed funds rate to trade well below the targeted 1.00% level.

Interpreting this situation is not clear, in some part because the Fed has yet to communicate what it is they are

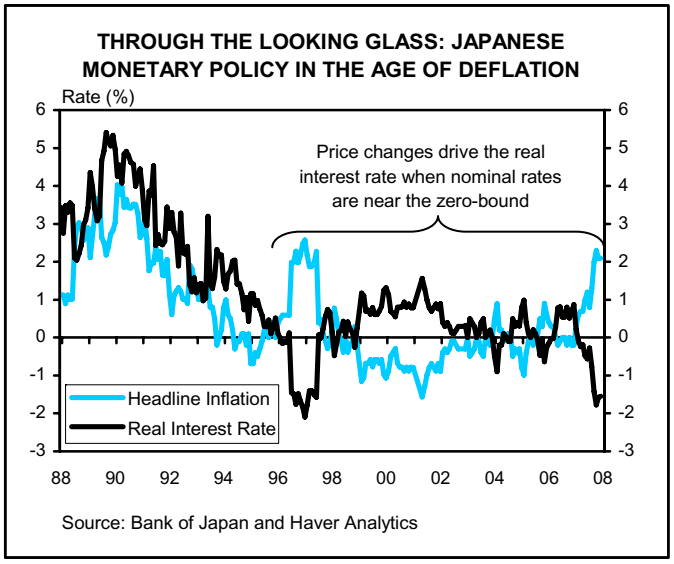
doing. By increasing the cash going into bank reserves, this increases so called high-powered money, meaning this money tends to have large multiplier effects in the economy as this cash is lent several times over. So the Fed has increased the ability of banks to significantly increase lending, though under the current circumstances, banks' balance sheets are still constraining their ability to do so. How long does the Fed plan to allow these reserves to accumulate? We assume the answer is until banks start lending again, but we don't know. Surely banks would be more willing to lend this money out if the Fed clearly communicated their intention to maintain this policy for some period of time. Another by-product of the Fed not sterilizing these cash injections is they have increased their balance sheet by over $600bn over the last three months – almost $300bn of this in just the last two weeks. As a result the Fed could increase the bang for their buck were they to decide to lend these excess reserves parked at the Fed back out into the financial system. Do they plan to do this, what do they plan to buy, and how big of a balance sheet would they like? Again, we don't know, and we don't know what the Fed gains following this policy knowing full well that we don't know. There are times when there is nothing to be gained by transparency, but it is unclear what the Fed is achieving by being opaque on this matter.

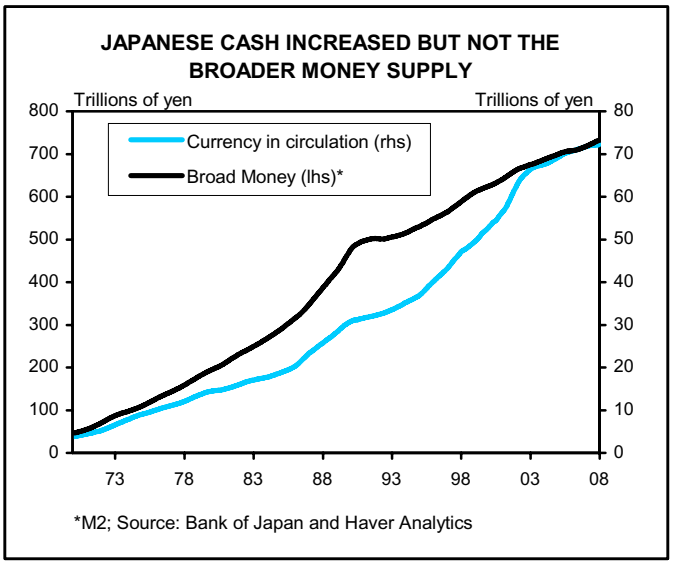
Broad asset purchases

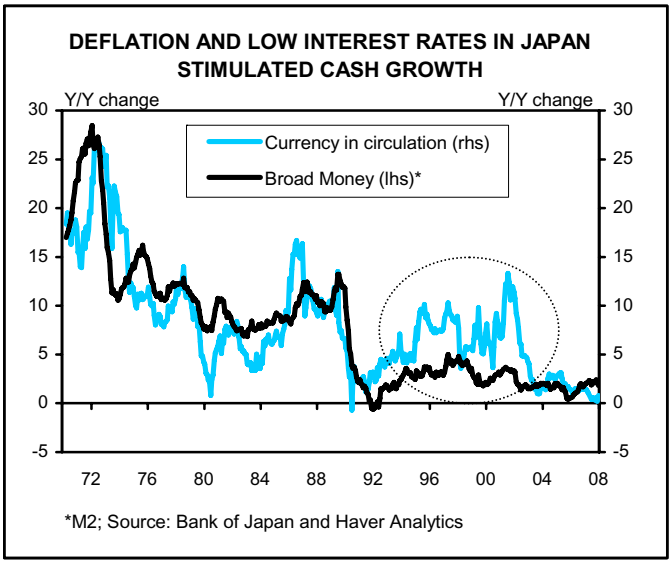
Another option faced with deflation is the direct purchase of private sector assets such as corporate bonds and/or equities. The Fed and Treasury have already been doing this now in support of the credit channel. In these circumstances, though, the idea would be akin to Japanese purchases during their decade of deflation. The goal would be to ensure positive rates of return and once again try to ensure expectations for these positive returns in the future. Rather than measuring success by sufficiently lowering credit spreads, success would then be measured by sufficiently increasing asset prices.

Inflation targeting

Chairman Bernanke suggested in 2003 that Japan could have benefited from moving not just to an explicit inflation targeting framework, but price level targeting. This would entail pre-specifying a future path for prices to get the economy out of deflation. The important difference is that an inflation target resets each year, while a price level target is cumulative. Each year of deflation implies a higher







level of inflation the central bank will try to engineer to get the price level back to target. So inflation expectations will continue to rise until they offset deflation expectations and the economy would see a period of higher than average inflation in the early recovery phase. Bernanke credits these "reflationary" periods with successfully rescuing the US and Japan from deflation in the 1930s. As long as the central bank's promise is credible, the expectations component of price level targeting is fundamental to laying the groundwork for avoiding or escaping deflation.

Tax cash and deposits

Since in theory, the problem with deflation is that the implicit tax on holding cash has disappeared, government authorities could replace this with an explicit tax on cash or deposits. This seems doubtful as there are numerous problems with implementing this in practice. How does one tax cash sitting in wallets or under mattresses? And if you just tax that cash held in banks where it can be measured, you will only drive more cash out of the formal banking system and under mattresses.

Conclusion

The Fed knows it must act early and decisively to stem the risk of deflation. Indeed, it appears they are already well on their way. There are numerous differences between the current problems and the experiences of Japan and the U.S. during the Great Depression that led to deflation (the current episode has seen a lower level of wealth destruction, a faster response by the Fed, massive fiscal stimulus, and a unified global easing, just to name a few). However, the similarities are still worrying, and deflation was not widely expected then just as it is not widely expected now. Moreover, the failed responses to those crises were not followed because policy makers were sado-masochistic, but because it was the best response suggested by the theories and facts of the day. The same can be said now. The likely responses outlined here represent the accumulated wisdom of past mistakes. However, there is an important difference between not repeating the mistakes of the past and designing a response based on past success. This latter support is something sorely lacking in the rare world of deflation fighting. But the Fed will throw everything at the risk, including the kitchen sink and a fleet of helicopters if they think it will do any good, to ensure deflation is avoided.

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