



[START RECORDING]

FEMALE VOICE: This podcast has been prepared exclusively for institutional, wholesale, professional clients and qualified investors, only as defined by local laws and regulations. Please read other important information, which can be found on the link at the end of the podcast episode.

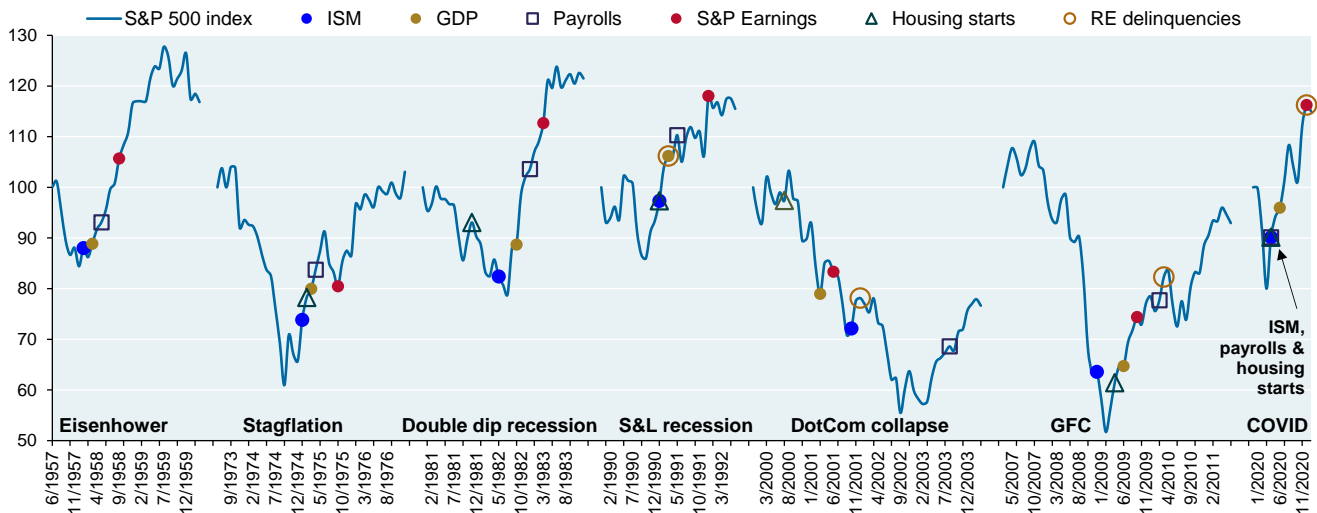
MR. MICHAEL CEMBALEST: Good morning and welcome to the 2023 Eye on the Market Outlook podcast. The Eye on the Market this year is called The End of the Affair, and it's about all of the things that have been driving financial markets over the last few years, and particular in 2020 and 2021 that are ending now. The cover itself is inspired by the kiosk scene from the movie The Third Man with Joseph Cotten and Orson Welles. If you haven't seen it, it's a great movie. My mother grew up a couple of blocks from where it was filmed.

And the posters on a kiosk refer to some of those catalysts which are ending, whether it's profitless innovation, quantitative easing, the notion of geopolitical change through trade, modern monetary theory, a rapid transition to renewables, some of the nonsense, Metaverse and Fintech narratives, which are falling apart, et cetera.

The big picture is that the largest combined monetary and fiscal experiment in the history of the United States is ending now. And in large part, because of that, there's a major growth slowdown coming ahead to the US and Europe. My advice is avoid the trap of becoming more bearish when we get corrections, because those are the kind of corrections that I think it would make sense to take advantage of when they occur. In the history of recessions, equities tend to bottom well before GDP, payrolls, earnings, housing, peak delinquencies in corporate debt and household credit, things like that. And of all the things to follow, the ISM survey tends to be the best indicator, coincident indicator when there's a bottom in equity. So we spend a lot of time looking at that.

When recessions occur, the ISM survey has been the best coincident indicator of a bottom in equities

S&P 500 indexed at 100 at start of each period, dots show when each indicator bottomed



Source: BEA, Census, NAR, Shiller, Bloomberg, S&P Dow Jones, JPMAM. 2022.

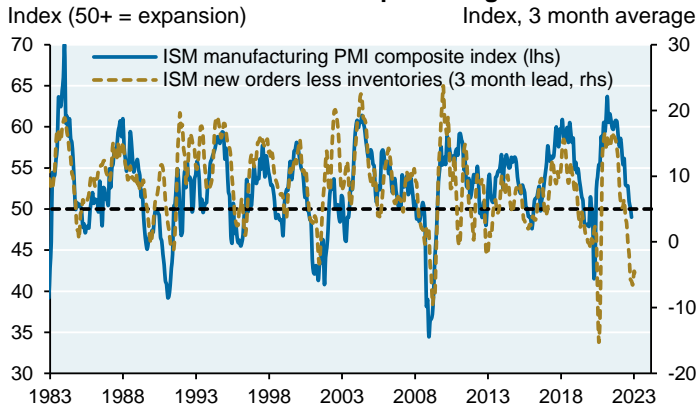
There are several sections in the Eye on the Market this year. We're going to take a look at the leading indicators and what equity markets are pricing in, inflation, which we think will cool enough in the US so the Fed can pause 5% or so in the spring, what's going on with globalization, stock picking, and Fed policy, the regulatory wave coming right for the Fintech and crypto world, where we see value in global fixed income now that financial oppression's finally ending after a decade, couldn't come soon enough for me, and then some closing thoughts on mRNA vaccines and the moon landing in 1969.

So there's lots of charts in here. I'm not going to discuss everything on this podcast. I'm just going to highlight some of the things that I think are the most important to look at. In the introduction, we have a couple of charts that show the models that we use to predict where the manufacturing surveys are going. So in other words, manufacturing surveys are a leading indicator. We're going to try to predict where the leading indicators themselves are going. And when we look at orders, inventories, and some of the other things that drive the manufacturing surveys, we think they're headed for mild recessionary territory sometime in the spring.

INVESTMENT PRODUCTS ARE: • NOT FDIC INSURED • NOT A DEPOSIT OR OTHER OBLIGATION OF, OR GUARANTEED BY, JPMORGAN CHASE BANK, N.A. OR ANY OF ITS AFFILIATES • SUBJECT TO INVESTMENT RISKS, INCLUDING POSSIBLE LOSS OF THE PRINCIPAL AMOUNT INVESTED

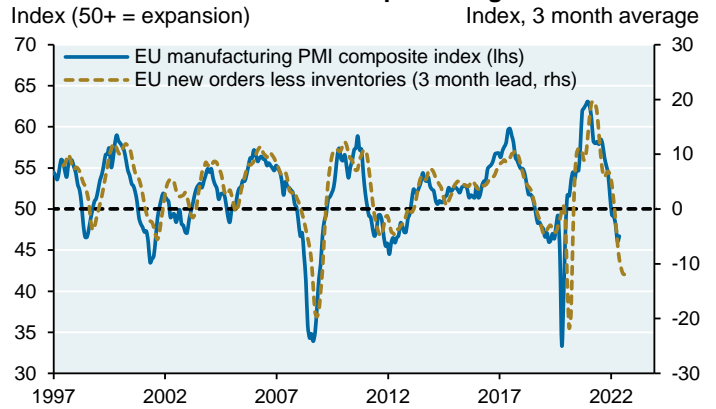


US new orders less inventories predicting ISM downturn



Source: Bloomberg, JPMAM. November 2022.

EU new orders less inventories predicting PMI downturn

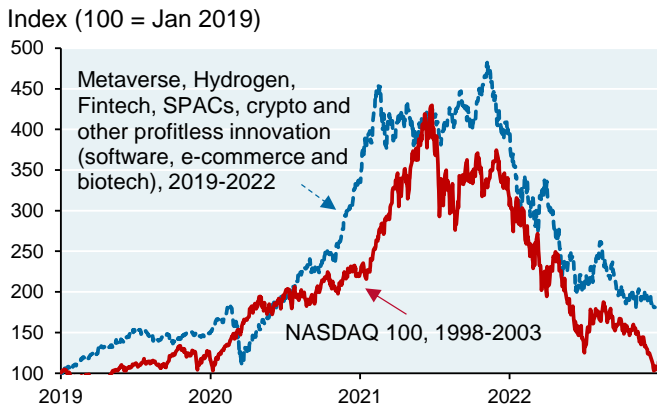


Source: Bloomberg, JPMAM. November 2022.

Now whether there is a recession or not, from a technical perspective, is almost beside the point. Remember in 2001, the NBER wasn't even sure if there was a recession and the equity markets went down 40% anyway. Corporate profits is what we care more about 'cause of their impact on equity markets. Our models on corporate profits point to something like a 10 to 12, maybe 13% decline next year compared to this year. And so the first section gets into the question of the repricing that has taken, that has taken place so far.

And one of my favorite charts called Dumb and Dumber superimposes this cycle with Metaverse, hydrogen, Fintech, SPACs, crypto, and other profitless nonsense against the NASDAQ 100 from 1998 and 2003, and it fits pretty well so far. And I think that the vast majority of the repricing on some of these stocks has already taken place. Now to be clear, the equity market is no bargain. The price-to-earnings ratio is almost exactly on the long-term average of about 16 to 17 times next year's earnings. And most of the valuation indicators we look at are back to pre-COVID levels, but certainly not at the distressed levels of 2009 or even 2012. And for that reason, I do think we're going to have a correction of some kind in the spring as the reality of the growth slowdown and the earnings slowdown gets closer.

Dumb and Dumber



Source: Bloomberg, JPMAM. December 27, 2022.

S&P 500 price to earnings ratio



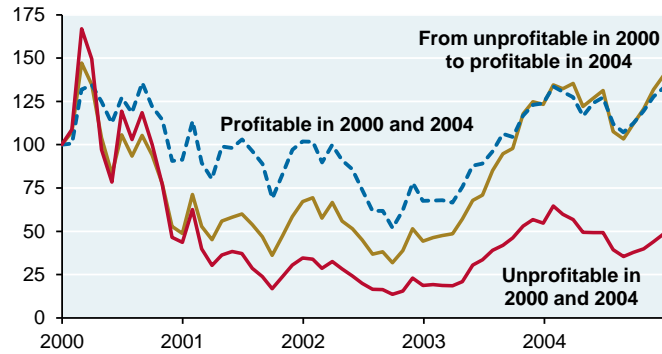
Source: Bloomberg, JPMAM. December 27, 2022.

That said, we're much closer to the end than the beginning of some of these repricings. Peloton's now priced at one-time sales. A couple of years ago it was priced at 19 times sales. And once you've got a bunch of these stocks trading at these distressed levels, I think the right question to ask is what will it take for some of them to become profitable? And so we look back at the dot-com cycle, and there are some charts in here that show that a good number of these unprofitable companies last time became profitable by 2004 and their stocks performed pretty well. So the opportunities for stock pickers to kind of sift through the wreckage of all these profitless companies and identify the ones that have a chance to make some money is worth doing.



The survivors: some companies will figure it out

Index of equal weighted large cap tech stock returns (100 = Jan 2000)

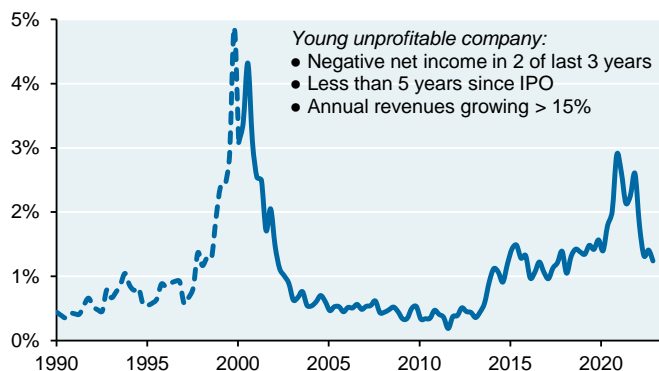


Source: Factset, JPMAM. 2022. Profitability measured as positive or negative net income in Q1 2000 and Q4 2004. Stocks with market cap > \$400mm.

I first started writing about the YUCs and the MUCs, which refer to these young unprofitable companies, early in 2020, when their valuations went bananas. The charts in the outlook here show the extent to which these things have repriced. And again, we're not back to 2000, 2010 levels; we're somewhere around two-thirds of the way, or maybe even 75% of the way repriced on some of this profitless innovation stuff.

The YUCs: Young Unprofitable Companies

% of equity market capitalization



Source: Factset, JPMAM. December 27, 2022.

The MUCs: Megavalued (P/E >50x) or Unprofitable Companies, % of total US market capitalization

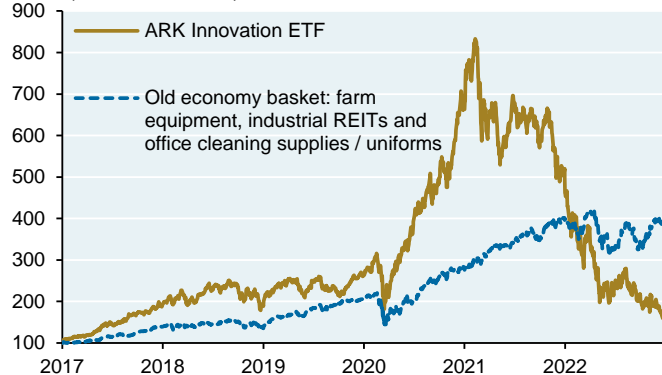


Source: Factset, JPMAM. December 27, 2022.

In any case, take a look at this first section. We've got some other charts in here that show some other trends we expect to continue, physical, the equity markets of physical assets outperforming digital assets, traditional energy outpacing renewable energy, traditional banks outpacing Fintech and things like that.

The Tortoise and the Hare

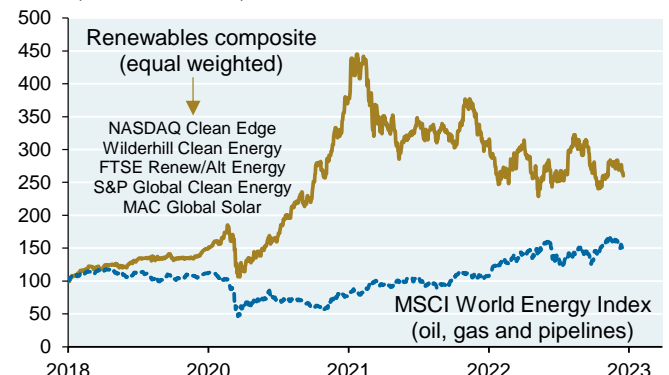
Index (100 = Dec 2016)



Source: Bloomberg, JPMAM. December 27, 2022.

"Reports of my death were greatly exaggerated"

Index (100 = Dec 2018)



Source: Bloomberg, JPMAM. December 27, 2022.

The second chapter, the second topic in the outlook gets into this question of the Fed and what it's going to be able to do. We expect inflation pressures to subside and allow the Fed to pause at 5% and see where things go from there, and we also expect the ten-year Treasury to remain below 4% next year. Inflation expectations have already declined to something around 2.25% percent, so that's moving in the Fed's direction. And so we think that the Fed's going to be able to take their foot off the pedal sometime in the spring, once they get to 5%.

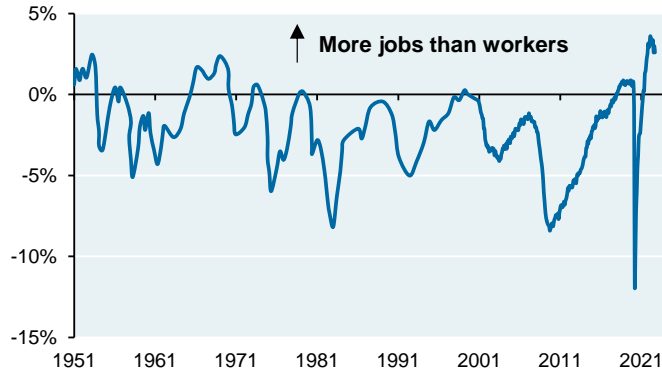


Now the challenge is clearly on the wage front. What makes this cycle different than all the other cycles we've had in the past is in the past, you've had changes in supply and demand of goods and services, but you never had some kind of strained secular reduction in the labor supply. This time around we had COVID, excess retirement, part of which was driven by COVID, and a collapse in immigration, which is now only starting to change. So the tightness of the labor markets is really remarkable.

And we've got some charts in here that look at the tightness of the labor force in terms of job-fill rates, how much, what premium people get to switch jobs rather than remain, job openings relative to the workforce, things like that. And so far there have been some big layoffs in tech and home building, and that's about it. Wage growth, though, is finally rolling over, as you'd expect it would. We're in the midst of the fastest Fed hiking cycle on record, not the largest number of basis points, but the fastest. So wages are starting to roll over.

Largest worker shortage in the post-war era

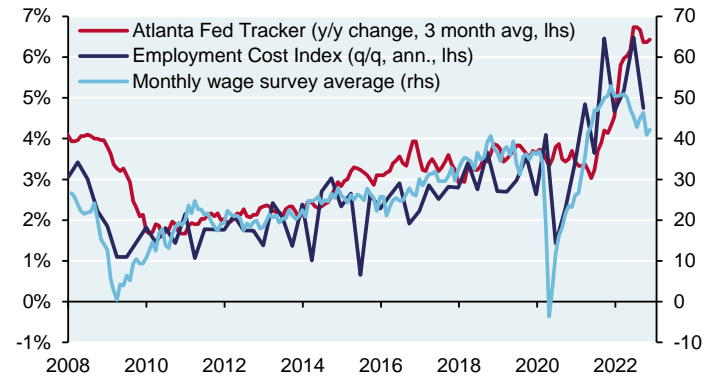
Job openings plus employment as % of labor force



Source: BLS, JPMAM. October 2022.

Wage growth measures

Percent



Source: Bloomberg, BLS, NFIB, regional Federal Reserves. November 2022.

And here's where I think the good news comes in for the Fed. The supply chains are cooling a lot, used car prices are down 20%, and obviously you have a lot more to fall. Inventories of new cars, my wife and I went someplace and we were shopping for a car, and the lot was practically empty. People were skateboarding in it. So used, sorry, new car inventories rose around 80% by December, compared with a year earlier. They're still way below the 2019 levels. But new car inventories are finally going up again.

And the big picture in the short term is housing. And that's where we really think that the Fed's going to get some relief next year. Housing is the largest component to core inflation. On a reported basis, housing inflation is extremely high right now. I think according to the CPI report, rents are rising at something like 8 to 9% a year. But the official data in the CPI captures a lot of stuff that's been going on over the last 18 to 24 months. And the more recent data is showing 3, 4% increases in rents way down from where they were just a few months ago.

So on a more timely basis, real estate is slowing, and of course it is. We have a chart in here showing mortgage costs as a percentage of household income going back to the late '40s. Other than a few moments in 1979, there haven't been too many levels like where they are now. So the increase in mortgage rates is really kind of really hammering the housing markets, and we have a chart in here that shows that housing activity measured by existing home sales has fallen as fast and as much as it did during the double-dip recession in the early 1980s. So housing is getting crushed and the Fed is going to take notice, and has already indicated, of course, that they're aware of what's going on. And so I think that's one of the reasons we think that the Fed's going to be able to pause at 5%.

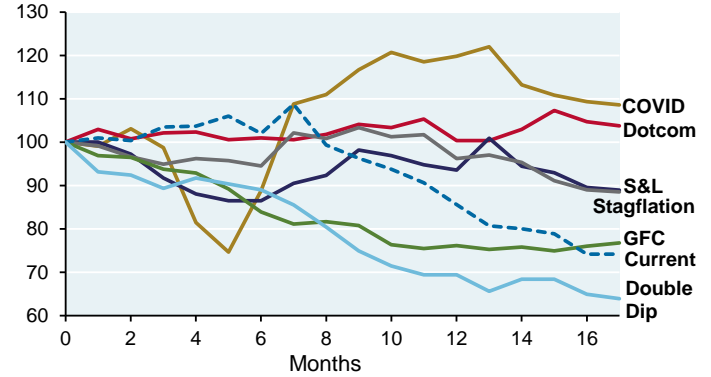


Annual mortgage cost as a percentage of household income, Percent



Source: Census, Shiller, Freddie Mac, Bloomberg, JPMAM. November 2022.

Housing activity decline mirrors GFC and Double Dip recession so far, Existing home sales, Index = 100



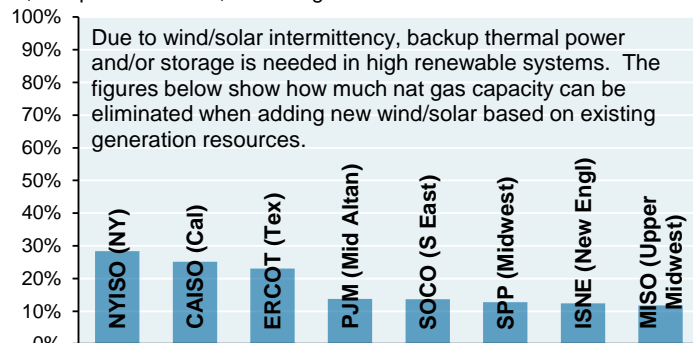
Source: National Association of Realtors, JPMAM. 2022.

And one of the things that the Fed does is, in addition to looking at where the funds rate is, they compute something called a proxy funds rate that measures not just where the fund’s rate is, but the impact of all their other policies, like the unwinding of quantitative easing and shrinking their balance sheet and all that kind of stuff. And at the same time that it looks like the Fed funds rate, let’s say, is 4%, this proxy funds rate is around 6.5%, and that’s the highest gap between the two since the Fed started doing this around 20 years ago. And so it’s another way of understanding that financial conditions are actually tighter than just what the funds rate on its own would indicate, and which is why we think that the Fed’s going to be able to take a breather.

There’s a few charts in here on the long run related to the replication of supply chains and in particularly the energy transition, all of which we think are clearly inflationary. And if you really want to understand what’s going on in the energy transition, take a look at this one chart that we have in here that shows that when you add wind and solar power, you really can’t decommission that much natural gas capacity, ‘cause you still need backup thermal capacity.

How much natural gas capacity can be reduced per MW of new wind and solar power?

%, computed for 2021, assuming new wind and solar = 10% of demand



Source: EIA data, JPMAM computations. 2022.

There are some wild stories all over the country during this cold spell that have made it quite clear, particularly as people start electrifying transportation and home heating, that you definitely need backup thermal power for times when wind and solar generation plummets, and we are nowhere near a world where utility-scale battery storage can fill the gap. Most of that stuff lasts for four hours, maybe six, not several days or a couple of weeks.

So it’s inflationary, this energy transition, because you essentially have to build out all this wind and solar power. On top of that, you have to build and maintain backup thermal capacity as well. So we have some charts in here. We’ll go into more detail in the energy paper, which should come out sometime in May. But between the thermal power, the additional grid investment associated with wind and solar, which tend to be located far from where people live, and then replicating these Chinese supply chains for all the raw materials and intermediate goods, it’s going to be inflationary in the long run.

We also discuss in here Europe, if you’re interested, they’ve got a peculiar problem related to the fact that all electricity producers get paid the marginal cost. And so when natural gas prices go up, everybody gets paid the marginal rate that the gas-powered electricity producers are paid. And obviously that doesn’t make sense because



you're generating massive windfall profits for electricity producers based on hydro, nuclear, and other renewables. And so they're trying to sort that out and may be able to shield the population from half the price shock, but the other half is still pretty big, which is why we think that Europe's going to have a tough time next year.

We have a section on globalization. I think people spend too much time arguing on the semantics here. We try to get into the big picture, which is globalization has three main components, exports trade, foreign/direct investment, and portfolio flows in public companies and in debt. And all of these have fallen from where they were a few years ago, but are nowhere near kind of a de-globalized world.

So globalization is definitely in retreat, but it's not collapsing. What's collapsing specifically is this European and US conceit that you can change other countries through trade, through a policy of constructive engagement. That's really what has collapsed, whether it's, so now you see the European financial and energy embargo on Russia.

And then you're seeing a really broadening US trade and capital war against China, which is, if people thought Biden was going to soften up on this based on what Trump had done with the tariffs, they got it backwards because the Biden administration has totally doubled down. First of all, they've increased the number of entities on the restricted list for purposes of exporting certain semiconductor equipment and IP from 50 in 2018 to 500. That's the number of entities, including China's flagship memory producer and other companies. These entities are subject to something called the US Foreign Direct Product Rule, which means the US will try to enforce its export restrictions on non-US companies from reselling US equipment or IP to China, and China's share of US imports is declining. New OECD direct investment into China is falling. The number of US investigations into Chinese FDI into the United States are picking up.

And then recently the Secretary of Commerce, Raimondo, talked about restrictions on outbound investment, so not just restrictions on Chinese investment in the US, new restrictions on US investment into China. And as an example, Raimondo mentioned the fact that in the Chips Bill, if you get any money at all from the Chips Bill, you can't invest any money, whether it's that money or any other money, in advanced technology facilities in China for ten years.

And we have some quotes in here from Jake Sullivan, who's the US National Security Advisor on the end of constructive engagement and how they view China and the fence that they're trying to build. And these have pretty big implications for investors, one example of which is have you looked at what's happened recently to the prices of certain semiconductors stocks. They have plummeted in the wake of some of these export restrictions. So we have some information on here on that, which you can look at.

The interesting thing about the semiconductors, though, is as desperate as both China and the US are to disconnect themselves from Taiwan, it's going to be really hard to do. And we go into some of the details here. But semiconductors, particularly the advanced ones, are the Fabergé eggs of industrial products. They are incredibly costly to make. The facilities that make them are like Fabergé eggs in terms of how fine-tuned they have to be, and they're very hard to build in other places.

So TSMC has begun the process of building one of its factories in Arizona, right. Everybody's made a big deal out of this. Well, guess what? They've now mentioned that they're having much higher operating costs, they don't have trained personnel, they're having construction snags, all of which may result in US chips being produced 50% higher than the same exact chip in Taiwan. And they're going to have real-time supply and operational connections required to Taiwan, so this isn't really a milestone in semiconductor independence if you think about it that way. A cynic would say that they agreed to produce chips at lower margins in the US simply to boost US support for Taiwan itself, which is a reasonable thing to do given everything else that's going on.

And then China, people were shocked at European reliance on Russia for around 25% of its energy before the invasion of Ukraine. China is 70% reliant on Taiwan for semiconductors. So that dwarfs the European reliance on Russian energy. And China really hasn't made a lot of progress on its domestic semiconductor production goals, little baby steps here and there.

We have some information here on some of the specifics of how these semiconductor facilities operate. They have to be 10,000 times cleaner than a hospital surgical room. The process of extreme ultraviolet photolithography is incredibly complicated. There are hundreds of steps involved, some of them repeated. They need exotic chemicals,



gases, rare metals, materials, et cetera. So try as they might, the US and Russia are going, the US and China are going to be more dependent than they'd like to be for many years to come on Taiwan.

Okay, so I'm going to wrap it up quickly. We have, the last couple of sections look at active managers that most of whom did, struggled during the period of financial repression because financial repression by central banks collapsed risk premium, and it kind of voids the benefit of being a value-oriented manager in either fixed income or equities. And as we move to a period of less financial repression and a return to positive real interest rates, I think the stock-picking prospects are going to pick up.

We have a section in here on the regulatory wave coming to Fintech. There was a really important report from the Treasury in November, it was 128 pages, and it called for new oversight and enforcement of issues on the Fintech front, regulatory arbitrage, data privacy, risk controls, pricing transparency, fraud, predatory pricing, et cetera. These are some of the things Jamie has been writing about in his annual shareholder letter for years.

And then we of course get into some of the crypto and unraveling which is leading to a regulatory wave as well. The Maltese Falcoin paper we wrote last February really I did a good job, in my view, of identifying all the risks involved, because all the things that have happened since then were things that we mentioned in that paper at the time.

I do have a page here on J.P. Morgan, 'cause a client said to me recently hey, you know, what about J.P. Morgan's involvement within crypto? Jamie described crypto as Pet Rocks in an interview in December, but you guys have made major crypto investments. Like what's the deal; isn't that contradictory? And there's a page in here that explains that he basically has it wrong. J.P. Morgan has done a bunch of stuff on the blockchain, but very little in terms of crypto. And blockchain technology, simply put, is designed to improve efficiency and reduce cost in the execution of trading, processing, and custody of existing securities. That's all it is. It doesn't involve any token speculation or anything like that. It is simply a cost reduction exercise using digital ledgers.

And by the way, there are a lot of applications where the blockchain doesn't save any time or any money at all. Take a look at the write-off the Australian Stock Exchange just had to take after a seven-year failed project to convert their back office to blockchain. Then there's crypto, which is owning, trading, and investing and lending in all these speculative tokens. J.P. Morgan does not do that. Anyway, there's a page in here on that.

And then we've got a section on the kind of fixed-income options that look interesting at the beginning of 2023 given our economic outlook. Some of the stuff we like would be munis, sovereign bond yields in Europe, China, and Mexico, mortgage risk, asset-backed papers. Some floating-rate instruments look very interesting, like investment-grade floating-rate notes, commercial paper, some preferreds.

And we would stay away from anything related to high-yield, leverage loans, which are certainly not pricing in any, much of a slowdown. And then we have a discussion here on the temptation to load up on Brazil bonds, but there are, given their yields, domestically of around 13%, but there are some things we have to find out about the new Lula administration before doing so.

Okay, the last page is called Just the Vax and Nothing but the Vax. Over the last three years, I did a lot of work on COVID. I never wrote anything to any of our clients on the costs and benefits associated with some complicated policies, whether it was lockdowns, testing social distancing, schools, masks, mandated government vaccines.

Like I don't have informed opinions on that stuff, because to have an informed opinion on those, you have to make an assessment of the benefits of those policies and the cost of those policies having to do with employment, small business creation, birth rates, household formation, medical treatment for non-COVID diseases, mental health. And a lot of those things take the benefit of hindsight to figure out.

I do have a view on the continued efficacy of mRNA vaccines. We talk about some new data coming from the CDC that looks just in September to November of this year. The vaccines are still, the new bivalent vaccines are 75 to 85% effective with respect to the risk of hospitalization. And so they really still, particularly for people over the age of 65, so very important to pay attention to this data. And while most people in the country, maybe 90, 95% completed the original vaccine series, only 35% or so of those over 65 got the new booster.

So people don't want to take it, that's fine, but I think it's strange that Florida's governor is now recommending that the vaccine manufacturers get investigated for fraud and conspiracy and held accountable for false statements.



Florida, by the age of its population, is the oldest in the United States, behind Maine. And so undermining confidence in mRNA vaccines right now seems like a really odd position to take.

All I can say is I remember as a kid that I watched the moon landing in 1969. I was seven years old, but still around one in ten or two in ten Americans don't believe the moon landing was real. People do surveys every year, and somewhere between one and two and ten Americans believe that it was faked. So I'm not surprised to learn that a large number of people just don't believe or trust the CDC data, but I do and I have vaccinated myself accordingly. So that's the end of the outlook podcast. We're having a webcast in a couple of days; feel free to dial in. I hope to see many of you in person this year, bye.

FEMALE VOICE: Michael Cembalest's Eye on the Market offers a unique perspective on the economy, current events, markets, and investment portfolios, and is a production of J.P. Morgan Asset and Wealth Management. Michael Cembalest is the Chairman of Market and Investment Strategy for J.P. Morgan Asset Management and is one of our most renowned and provocative speakers. For more information, please subscribe to the Eye on the Market by contacting your J.P. Morgan representative. If you'd like to hear more, please explore episodes on iTunes or on our website.

This podcast is intended for informational purposes only and is a communication on behalf of J.P. Morgan Institutional Investments Incorporated. Views may not be suitable for all investors and are not intended as personal investment advice or a solicitation or recommendation. Outlooks and past performance are never guarantees of future results. This is not investment research. Please read other important information, which can be found at www.JPMorgan.com/disclaimer-EOTM.

[END RECORDING]