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RICARDO J. CABALLERO: OK. Let's start. So hello, everyone. Welcome to 1402, Introduction to Macroeconomics. And I won't teach today. So that's a good news. I will start on Wednesday. So what I want to do today is essentially tell you what macro is about, macroeconomics is about, and also the rules of the game.

So what a difference a single letter makes. Many of you must have taken 1401. In fact, some of you may be taking it concurrently, a lecture right before mine. And that's Microeconomics, 1401. This is macroeconomics. And it doesn't take a lot of imagination to realize that this course is about big things. We don't look at small things. That's what micro is about. Micro looks at a household, at a firm, at an industry. In macro we don't do that. We look at the whole economy.

We think about the US. We think about China. We don't think about an individual price. We think about inflation, so the rate of change of all prices. We don't think about whether a particular worker is employed or unemployed. We think of whether the rate of unemployment is very high or low, things of that kind.

When we look at two countries, we look at the exchange rate, which is the relative price of two currencies, not to individual goods in two different countries, but the whole currency and so on. So that's what macro is about.

Now, you could think that macro is nothing else than the sum of lots of micros. After all, that's what an economy is made of. A population, a whole population is made of lots of individuals that can be analyzed with the tools of 1401 and the sequence that follows 1401.

But that doesn't work. And there are parallels in physics about this and so on. The way you want to study sort of big bodies is different from the way you want to understand the movements of small elements. And that's the case in macro. In macro there's a big line of research that has to do with the micro foundations of macro economics. But even in that case, which is very close to micro, most of the action ended up happening in the non-micro part, in the interactions, in the equilibrium aspects of the system.

So it's a much more complicated object. And if you were to build it from the micro, it would be an incredibly complicated object. So one of the things we need to do in macroeconomics is take some shortcuts. That's what makes macro a lot of an art. It's not a science, per se. It's some sort of a science. It has the tools of a science. But it's a lot about shortcuts and tricks and so on to capture the essence of a problem that is very complex if you were to model it in all the gory details.

And in this course, we're going to exaggerate on that sense. We're not going to do anything complicated, I promise you that. Some occasionally conceptually things will be complicated. But the math will not be complicated. So we're going to keep things very, very simple. I want to communicate the essence of the big macroeconomic relationships.

This is not a PhD course. If you were to take a PhD course in macro, it would be a very mathy type course. In fact, most of the people that do apply in micro in our PhD program complain against macro because they find it too mathy and so on. But that's not going to be the case here. That's not what this course is about.

My goal-- so if this is a successful course, it's not that you come out being a researcher in macro out of this. Hopefully you'll have a career eventually and do all the next steps that you need to do that. But I want you to be able to do is to read something like this-- this is a *World Economic Outlook.* It's a publication that the IMF puts out every six months in which it tells you how it sees the world and where we're heading and so on.

No equations there. Lots of tables and stuff like that. I'd like you to be able to read that kind of document very clearly. I would like you to be able to read something in say, the *Wall Street Journal* and read even critically, sometimes disagreeing with what is in there-- *Financial Times, The Economist.* That's a goal of this course. It's not a lot more than that. It's just that.

If you do a summer internship in Wall Street and you work in a macro hedge fund or whatever, this is going to be a good course for that. I mean, this is what traders really know. They don't know a lot more than that. Many traders should know that. They don't.

But this does a level of knowledge. If it gets to be very complicated, I'm failing. That's not what I want to do here. The typical lecture-- again, this is not a lecture. The first lecture will be on Wednesday. The typical lecture-- and not in the first part of the course because you're not going to have the tools, the definitions and so on to do it. What I want to do is spend 5 to 10 minutes early on. Again, the first part of the course, we can do that because you don't have the knowledge to do that.

But as you start building tools, I want to be able to talk about current events, something that is happening out there that I find interesting or something I received that morning, the morning of the lecture, which I find interesting. And if I think you already have the tools to begin to understand it, I'm going to be repetitive. I'm going to come back two, three, four times to the same topic. Hopefully you'll be more advanced in your knowledge in the later stages and you'll be able to understand it more and more.

The typical lecture will have 5 to 10 minutes in which we'll talk about some facts, something that is going on. For example, a picture like this. This I received this morning. I think this came from Goldman, I think, Goldman Sachs. Yes.

And what you have in that picture-- again, don't worry about details today-- is you have two lines. One of them is a measure of wages, wage growth, compensation to workers. And another one is a measure of inflation. Again, all those definitions will come in the next lecture on inflation. So it's the rate at which-- you must have heard about inflation. It's something, prices are rising.

And what that picture shows you is that these two series are very highly correlated. So when wage growth is high, inflation tends to be high. And that's a big issue on these days. There's a lot of concern about this stuff. So let me try to explain a little bit what is a concern on these days. Again, if you don't understand anything, doesn't matter. If you don't understand anything I'm saying right now in the last lecture, then it matters. But now it doesn't matter. I'm just trying to give you a flavor of the kind of things we'll be talking about.

That picture there, again, a variable that will define in the next lecture, not now, shows you the unemployment rate. You don't need any specific definition to know that to feel, at least get a sense, that, well, if unemployment is high, workers aren't very happy. It's not a good thing to have lots of unemployment.

And what that series shows you the shaded areas are recessions in the US. What that series shows you is that typically in recessions, unemployment goes up. So that's one of the features. One of the main features of a recession is that unemployment is high.

This episode here, it's called the Great Recession-- as a parallel for the Great Depression. The US had the Great Depression in the '30s. This is the Great Recession, the biggest sort of recession outside of the Great Depression in the US. And it's also known as the Global Financial Crisis because this was a recession all around the world.

And what you can see is that unemployment went very high. That's a very feature, a telltale sign of a big recession. And then it took a long time. This was in recovering. COVID was a massive shock to the labor market So not surprisingly, unemployment, the unemployment rate spike there. But then it also recover, a lot faster than it recovered from that.

And today we have unemployment rates that are at historically low levels. And that's a big issue. The rate of unemployment in the US is at historically low levels-- way below what is normal. Forget recessions, obviously way below what is it happens in recessions, but even way below what is normal, what happens during normal times.

Closely related to that is wage growth. I have just one measure of wages there, is a series of wage that is particularly-- what I'm about to say is particularly sharp, which is the wages of in the accommodation and food service sectors. So wages have been rising very steadily and very fast recently everywhere, particularly in sectors like this, where we have some problems which we call labor supply. But I'll get back to that.

So those are two facts. We have unemployment at extremely low levels and we have wage growth at a very fast pace. Now, that sounds wonderful, no? I mean, what else do you want, an economy which is few people unemployed and wages are growing a lot. I mean, if this was micro, this would be fantastic.

OK, look the guy is employed and he's getting a high wage. This is great. Well, not so fast for macro. Not so fast because I already showed you in the first picture that I showed you, [INAUDIBLE] there is a connection between wage growth and inflation. And that's what we're experiencing. The normal level of inflation for an economy like the US is around 2%. That's normal. That's what central banks target in an economy like the US in the Euro area.

Japan has been dreaming with 2%, but hasn't been able for decades to get it. Although now they are. But they weren't, for a couple of decades, to get to 2%. But that's about-- and we will discuss later in the course why 2% is about right for economies of the size of the US and so on.

Obviously in recessions, these things can go low. And that's why in the COVID recessions inflation went to zero, essentially. But then it began to pick up. And it's now at levels, which are unheard of in the US since the '80s. So depending on the particular measure you use of inflation, it's around 6.5% to 8%. That's a level of inflation we have, which is way, way above what is considered a normal or reasonable target for the central banks for inflation. So that's a problem.

We have had some good news recently in that inflation clearly peaked already-- again, definition of inflation, formal definition of inflation happens in the next lecture. But it already peaked. And it's declining. But it's still a very, very high levels. And that's a problem. That's a big macroeconomic problem.

And one of the things we want to understand in this course is, well, what to do about it. How do you deal with that? What do central banks need to do in order to deal with that? Now, I've been talking about the US. But this is not specific to the US. This episode this recovery from COVID is incredibly common across different regions of the world. I mean, you see it everywhere with a few exceptions. And I'm going to talk about one major exception in a minute.

But it's widespread. It's a widespread phenomenon that we had high unemployment. Then we had sort of very high-- well, I haven't told you that part yet. But then we had sort of low inflation. Then inflation picked up enormously. And now we're all worried about these very high levels of inflation.

In fact, if you look at what happened between the Great Recession and the COVID recession, it was pretty normal to have 70% to 80% of the economies in the world having inflation levels at or below 2%. So that's a norm. If they throw you into a country, they drop you into a country, the normal thing would be well, it's about 2%. That's a level of inflation.

Obviously, if I dropped you in Argentina, you're going to find a much bigger number, you know, 10,000%. But the bulk of the countries were around 2% or so. Today you don't find any country with inflation below 2%. Not even Japan, for years we're in deflation and trying to get sort of above zero. That's all they wanted. Not even in Japan you have inflation below 2% today.

So this thing I showed you. And for more or less the same reasons, it's happening everywhere. Not exactly the same factors. It's the same episode, for example, with differences depending on the structure of the economy or in additional shocks.

In Europe, for example they had very high inflation. But the problem is not-- the origin of the problem, the bulk of the problem is the same as in the US. But at the margin they are different. In Europe, the big driver of inflation, the big recent driver of inflation, is unlike the US, which is aggregate demand, a concept you'll understand later. It's essentially the war in Ukraine. That has increased the price of energy and the price of energy has led to lots of inflation.

So there are different reasons. But all of them are sort of different reasons that you add on top of what is a common story, which is that we overheated coming out of the COVID episode and now we're struggling with that.

Now, the main tool-- and we're going to talk a lot about in this course-- the main tool that central banks have to deal with inflation is the interest rate. So for reasons you'll understand later, although you may have intuition about some of those now, obviously when the central bank lowers the interest rates, then that helps the economy to expand. And when it increases interest rate, then it does the opposite.

Rising Interest rate makes mortgages more expensive, make everything more expensive so people tend to consume less. Firms tend to invest less and so on because it's more expensive to invest, to borrow, to do something. And there you see it. I mean, this was the level of the interest rate in the US before COVID. When COVID came, boom. They brought it all the way down. It happens that you can not bring the interest rate a lot lower than zero. That's the reason it stayed close to zero. We're going to talk about that later on.

But then eventually they realized that we're behind the curve. Inflation had picked up a lot and the central banks were behind the curve. So they began to hike rates in a hurry. And that's what we have been experiencing for the last year or so, very fast increase in the interest rate.

Now, this is, of course, about macroeconomics. But I happen to do a lot of research between macro and finance. So I'm going to put a little bit more of a component of finance into-- I think I'm going to do most of that in the last third of the course. But monetary policy has lots of implications for finance, for equity, values, for the stock market, and stuff like that.

So what you see here, this line here, is the SPX 500. It's the main index of equity in the US of shares. There are several indices-- NASDAQ, S&P, Dow, and so on. This is the main index, the most comprehensive, the one that takes the largest companies, and so on and so forth.

And what you can see what happens here is that when COVID happened, the surprise that we had, really a pandemia, then the stock market crash, declined like 30% or something like that at the time. That's interesting facets.

I mean, that's one characteristic of equity that I like a lot. Other risky assets, as well, but they anticipate what happens. What happened there is the stock market, the shareholders, realized that something big was-- negative and big-- was happening in front of us. So it was time to sell. And so the equity market collapsed.

What happens next is even more interesting for a macro economist, which is this big boom here. There's an enormous boom. The economy here still was at levels of activity below what it had before COVID. But the stock market, the value in the stock market had way exceeded the level we had before the pandemic.

And the main driver of that, I've shown that in some papers, the main driver of that is not-- I mean people tell lots of stories of Amazon and so on, Tesla, bla, blah, blah. If you look at the aggregate, the main reason for that rise was monetary policy.

You can explain all that increase in the equity value in the US of the index-- not the individual shares, of the index-- by the effect of interest rates. So monetary policy plays a big role. If you care about finance, well, it plays a huge role in the value of assets. When monetary policy is very loose, that tends to increase the value of assets.

And that's one of the mechanisms the central banks use to expand aggregate demand when they want to expand aggregate demand. They want people to feel-- you are in a recession, you want people to feel richer so they spend more and so on and so forth.

What happened here? This decline, you can also explain it fully with the hike in interest rate. Remember, I showed you that the interest rate began to rise very rapidly here. Well, last year the equity market in the US and most major equity markets around the world declined by 20% or more. You can explain all that decline simply by increasing the interest rate.

So that's another thing we need to understand is why is it that the interest-- why is the interest rate matter so much for something like equity? So when a value assets, and when I see what is the effect of the interest rate, and then we're going to think about, well, why would the central bank worry or not worry about these things, and so on and so forth.

But the truth is that financial markets and the central banks interact all the time. I mean, if you are into Wall Street type thing, you are going to be watching every day, every time that the monetary minutes. The minutes of the central banks are released, you're going to be watching because it has a big implication for the value of your equity.

Actually, something very interesting of this nature happened last week. On Friday, last Friday, there was a release of payroll numbers. So it's an employment index, employment numbers. And people expected the payroll to increase, so to add nonfarm payroll-- we'll talk about these things later-- by about 190,000 workers.

At 8:30-- well and this, you're seeing here, is the behavior of the same index I showed you before, but the futures, so things you can trade before the market actually opens. The market in the US opens at 9:30 AM. But you can trade futures since Asia times.

Anyway, so this is the path. It's all very quiet, tranquil. Everyone is waiting the release of this news at 8:30 AM. At 8:30 AM, great news for the labor market. The actual change in the payroll was not 190k. It was over a 500,000k. So enormous addition of jobs to the economy.

And look what happens to the equity market. Boom. It imploded immediately. So this is wonderful news now for the economy-- lots of jobs. The equity market imploded as a result of that. Why do you think that happened? I've already given you a little bit of the ingredients for why, for an answer in the previous slides?

The reason I'm showing you this is because in 15 minutes, it summarizes all that I was talking about in the previous 30 minutes. Why do you think that happened? This is wonderful news. Why the stock market should crash like 2% from top to bottom as a result of that?

AUDIENCE: There's a lot more labor because that gives a lot more supply of that thing, and thus, it decreases price because of high supply.

RICARDO J. CABALLERO: No, but-- OK, that's an interesting explanation. It's not the one I have in mind. The explanation says, look, that means firms hire lots of people. So the price, that means they're going to be lots of supply of whatever goods they're producing. The price of those goods is going to decline. And that's going to be bad for profits. That's a story you had in mind.

Maybe there's some of that. But I'm willing to bet that it's not the main thing. So the only clue I give you is that I already talk about these things five minutes ago.

AUDIENCE: Employment is very closely related to inflation rates. [INAUDIBLE] up to 0.81. So this could be a result of expectations of continued high inflation rates.

RICARDO J. CABALLERO: OK, you're very close. One step more. Yes. That means that--

AUDIENCE: [INAUDIBLE]

RICARDO J. CABALLERO: OK, there you are. So what happens? The shareholders wouldn't have done anything if they thought that the Fed would not be able to see this data. But they know that the Fed also sees this data and say, whoa, these guys are going to be worried because the economy is going to keep overheating. They're going to have to hike interest rates even more in order to cool down this economy.

I already showed you that what happens in the labor market is very connected to what happens with inflation. The central bank knows that. And now we get this big surprise that means they're not really being able to-- they're not being successful at really slowing down one of the main drivers of inflation.

And so financial markets are very forward looking. They say, whoa, this is coming. This only means that financial markets were betting that the Fed was going to begin to cut interest rates in four months more or so.

And if you look at what the forwards did there, what the market-- you can extract what the market thinks. Right after this, it got immediately pushed out to the end of the year. So it's precise. It's the anticipation that the central bank will have to do something. And so I thought it was very interesting for that point of view.

Recessions-- well, look. And these are all very good news. But everyone knows that the Fed needs to cool off the economy. So despite the fact that we're getting good news now, people expect, the majority of people expect a recession in the US for this year. I'm not going to explain this bar graph here.

But these are forecasts. These are professional forecasters. And more than half of them-- so the median of them thinks that there is a 65% probability that there is a recession in the US this year. And we're going to talk a lot about this and probably we're going to be getting news about this while we're taking the course. So this is going to be a picture that we're going to discuss extensively.

And the reason for the recession is nothing else than-- The reason you ask this forecast, why do you think we may have a recession? Well, because the Fed is trying to fight inflation. It's going to keep hiking interest rates. And at some point, it may break something. And that's the reason. But all these things you are going to be able to understand very clearly through models.

The last thing I want to say before telling you a little bit the rules of the game is that I said before that the story I told you about the US is more or less what is happening all around. I was in Chile a month ago. I'm Chilean. And they have the same story. They start hiking interest rates a little earlier because they had more inflation than the US. But they're going through the same cycle.

There's one big economy, the second largest economy in the world, that has not been part of this, which is China. China was very aggressive in the COVID policy, so zero COVID policy. So they really slowed down their economy. That's a consequence. They didn't want to do that. But as a result of a very strict COVID policy, they essentially shut down big parts of the economy for a long time.

That, by the way, had big impact in the rest of the world, through the network of production, the chains of production and stuff like that. That was inflationary in itself. That part is dissipating.

But for their own economy, for the domestic economy, that really slowed down China, an economy that grew typically at 5 and 1/2 to 6%, a lot higher 15 years ago. We're going to try to understand why later on. But last year, I don't know, it was 3% or less. Numbers in China were difficult to figure it out. They're not equally transparent to other numbers.

But in any event, it's very clear that China slowed down a lot. And that policy recently changed. The zero-COVID policy changed. And so there is great expectation that now there is going to be a big boom in China because they are lagging behind. I mean, in the US when COVID began to dissipate, we got a huge boost to growth. And that's part of the reason we got all this inflation is because we had lots of growth coming out of the recession that happened in COVID.

And more or less the same is expected in China. And one of the big reasons behind those big bounce backs is when people are desperate. They want to spend on something. They want to go to restaurants and cinemas and stuff like that. And the other one is they have the means to do it because they couldn't spend on anything for a while. And so they can travel and stuff like that.

So people expect-- and this is a very large economy that suddenly sort of wakes up. No, that's a big thing for China. But it's also a big thing for the world. What happens in China doesn't stay in China. It's a big giant. So it moves.

And for some countries it's very, very important. And this picture here shows you what is the impact on different regions of the world on the growth rate and different regions of the world of an increase by 1% in the rate of growth of China. Obviously all the neighbors benefit a lot. But Latin America benefits even more.

Why is that? Well, because Latin America produces lots of commodities and China consumes lots of commodities when it's building and stuff like that. And so that's the reason big impact on Latin America. So this is a piece of good news for the world in the sense that activity will go up.

But it's good news on average. But it may be too much of a good thing, as well. Why? Because many economists are going through what we described before. They're trying to bring down inflation. They don't want more demand. They want less for now because we're going to understand that connection later on how demand connects to inflation. But you want less. And now you're going to get this impulse from China, which is going to fuel more inflation.

It's OK for China because they don't have an inflation problem. But it may be a problem for many of the countries that are trying to undo the inflationary consequences of the previous expansion, the expansion that followed COVID.

OK, anyways. But this is the kind of things we're going to be talking about. I said the course is not going to be mathy, but it's going to be all about models. The next lecture is the most boring lecture of the course I tell you in advance because it's definitions. I need to go through the definitions. At least I get bored.

But the rest, there's always little models but it's simple models. OK, but the models are going to try to explain the kind of things I discussed today. So that's what this course is about. Ideally, if we're successful, you're going to be able to read something like the *World Economic Outlook,* which will have lots of pictures like this. And you're going to be able to write a little equation very simple on the side to try to understand what is going on there, and to catch the mistakes, as well.

OK, WEO has less mistakes than the *Wall Street Journal,* but you will catch mistakes, you'll see, you'll be proud of those.