

- Keith Pilbeam: Today I'm going to do the first of two lectures about monetary policy, and it's actually very important this because, what does the bank of England do is basically what its real power is setting, and listen carefully, short term interest rates. That's what it's really powerful at. I'm really looking at what we call conventional monetary policy with normal times, because we're not in normal times as I keep reminding everybody.
- Keith Pilbeam: 1694, Bank of England was formed. We never had interest rates below 2% in 300 plus years. My main point is you never want to argue with central banks about these things. They're always going to beat you, and I'll try to explain why today.
- Keith Pilbeam: What is the interest rate? Well, it's basically a sum of money that you've got to pay if you borrow money, you're expected to pay. Now, normally, interest rates are positive. So, if you lend me money, I'll pay you back more than you lent me, so we normally end up with a positive return. Interest rates are always of course very important. They're expressed per annum. It's very different than the return. So if I buy something, I might get ... I'll be showing the difference today, but that's a return. But that's very different than the rate of return. We call this the rate of interest, because it's per year.
- Keith Pilbeam: The next thing which both Amir and I will be spending a bit of time looking at, is the yield curve. This is the difference between short term interest rates and longer term interest rates. You can get these in the financial press and I'm sure we'll cover them in a bit more detail later in the course.
- Keith Pilbeam: Now what is money, because the interest rate this is something you pay. If I lend you £100, that's money, and that.
- Keith Pilbeam: Money of course is a short term liquid asset. It's probably the most liquid thing you can get. People are legally obliged to take money off you. What we understand today, we call it fiat money, it's basically intrinsically worthless. So if I got a £10 note, it's got the queen's picture on, and you can identify, it's got ... made of plastic these days, but that's money, and it's legal tender, and people have to accept it off you.
- Keith Pilbeam: So money is fundamental to the operation of the modern economy. Money is really important as we know it, it avoids all sorts of problems. And so, this way, central banks want to sell monetary policy. Because we've got to have confidence in this thing which we call the common medium of exchange that everyone sort of accepts both for borrowing, lending money deals, so it's really important monetary policy.
- Keith Pilbeam: A lot of people sit with a lot of money sitting in their accounts, real money, earning pathetic rates of interest. .1%, I don't know what I get at Natwest. And it's a pretty bad deal because it's not just that I'm only getting .1%, but I look at the inflation rate. And the inflation rate is 3%. So that £100 is going to grow up

£101 but the products are going up from £100 to £103. So I'm actually losing out sitting on money at the moment. It's not a good deal. I mean if I was getting 10% interest rates I'd be pretty happy with 3% inflation. But at the moment most people are seeing the value of their money holdings are actually declining.

Keith Pilbeam: Now markets can change as we know very rapidly. Not so much in interest rates. Mine is an exaggerated example. But imagine I do another three month treasury bill auction the next day, and some other people start bidding, but I get much higher bids. Something's happened in the market, and so people are actually prepared to bid a bit higher and take a lower return, rate of return, as you're gonna see.

Keith Pilbeam: When interest rates are very low, like they currently are, like 1%, people are very happy to hold money. Because they're not really losing too much by keeping it in the bank. But if you raised interest rates to 20%, I don't want to hold so much money in my wallet. That's for sure, because that's the opportunity cost. If interest rates go high, I'm missing out on 20%, now I'm gonna put more money into treasury bills or something else. I don't want to hold so much money.

Keith Pilbeam: So in economics, we'd say the money demand is inversely related to the rate of interest. Higher interest rates, people will hold less money. Lower interest rates they'll tend to hold more. Right? So if you get that idea at least, you don't need to be an expert on this. Now, the money supply, I've just pretend that's the notes and coins, and that's determined by the central bank. Notes and coins, you can put the paper in the machine, and they can print notes and coins with putting metal in the machine. That's one thing, the central bank.

Keith Pilbeam: So, I'm gonna pretend we got 12.37% here. Right? So, where you're gonna have equilibrium is where the supply of money equals the demand for money. That's where the interest rate's gonna be set in the market. The price of money is where the supply and demand are there. Now, this one is the quantity of treasury bills, and then that's the price of treasury bills. And that's gonna obviously be 97, I'm gonna pretend we're just dealing with three month treasury bills, keep it really simple. Because if that's 12.37 there, that's got to be 97 there. Got it? So once you get that idea, those two are actually ...

Keith Pilbeam: It's a bit like heads and tails of a coin. Once you know one, you know the other. All right? And what about the demand for treasury bills? Well, the demand for them is negatively sloped. Imagine if they were 90. I wanna buy them, because I'll get 10 over 90 times 400. I think that's 44%. Of course I wanna buy them. On the other hand, if they're 98, I'm not so keen to buy them because they're 8.16, remember. All right? So I'd rather buy them when their price is low.

Keith Pilbeam: So the demand for them goes up as the price goes down. Because basically a lower price means a higher yield. What about the supply of them? Well, if you offer me 96 for a treasury bill, I might sell it to you, but offering me 99 I'm more likely to sell it to you. Right? 'Cause you're offering me more money for

something, I'm more likely to sell it. So basically that's the equilibrium there to start with, before the central bank. Now, I'm the bank of England, all interest rates are high, 12.37, and I want to get those interest rates down.

Keith Pilbeam: So again, I have a meeting of the monetary policy committee. Now listen very carefully, you don't know that I want to cut interest rates. Right? You don't know that I'm about to do this, it's very important. Because you wouldn't be trading them at 97 if you knew what I was about to do, that's my point. Okay? So we have the meeting, and then somebody would come out of the meeting, and we'd say, "Oh, we want to cut interest rates to 8.16%." I'm exaggerating the example here. So what is the Bank of England then supposed to do? Listen carefully. It's very simple.

Keith Pilbeam: They start buying treasury bills. They can print money. I've got a bit of paper, I can put it in the machine and out come lots of nice notes. This makes me very powerful. And what do I do, is I start buying treasury bills off you. This is what we tell students, at least. I'm gonna change the story a bit later. And I start pushing up the price. Because if you increase demand for something, you're gonna push up its price. From 97 to 98. And what do I do? You see, in the secondary market I start buying these treasury bills, I start giving you money. Newly printed notes from the Bank of England.

Keith Pilbeam: So I'm intervening in the market, in a way. It's called an open market operation. So I start buying these treasury bills, giving you loads of pound notes instead, and of course with more money in the thing, the rate of interest comes down. And it comes down to 8.16 because remember 98 and 8.16, they're the same thing. Right? So basically the a central bank does is it intervenes in the money market. It starts buying these treasury bills, pushing up their prices, shoving out money so the money supply increases. Imagine I'll buy 10 billions worth of treasury bills to do this, I'm exaggerating, and the money supply might have been 50 billion, now it's gonna be 60 billion. Because I'm printing money.

Keith Pilbeam: That means new money's coming into circulation in the economy. And it all makes sense, you see. Then you get lower interest rates. What's gonna happen hopefully? Economic growth will pick up, inflation will pick up. Who knows? Investment. That's gonna take time. But the immediate effect is very clear.

Keith Pilbeam: Now, you don't want to argue with me. Remember I told you today the last thing you want to argue with me is over this, because I'm always gonna win. In fact, I can just print more money and push the price up to 99 if I want to. One over 99 times 400, do the calculation yourself. It's gonna be an even lower yield. Because I just print as much money as I want. And so I can buy as many treasury bills and push their price up to whatever I want.

Keith Pilbeam: So, central banks are very powerful. They wanna cut interest rates to virtually zero, they can. We can see that in the markets in the last few years. What's the opposite? We call it tighter monetary policy. In economics, we might say it's a

contractionary monetary policy. Tight monetary policy is how most people hear about that.

Keith Pilbeam: Now, what else can I do as a central bank? I can raise interest rates. How can I do that? Well, I can get bits of paper, put them into the machine, and turn out treasury bills. So this time I'm gonna start with interest rates very low. 8.61%, got the idea? And I'm gonna raise them, you see. And therefore you're trading these treasury bills at 98, because they're the same thing remember. 8.16 means those treasury bills are 98. Got the idea?

Keith Pilbeam: Now, what can we do? We can be in the meeting, you lot don't know I'm gonna do this, it's very important you haven't done this, otherwise you wouldn't be trading them at 98, okay? And I decide, "Ah, we need to raise interest rates." They don't need to be 8.16, we want them at 12.37. All right? I want to raise these interest rates to slow down the economy, inflation's picking up, something like this. You know, we can see the data, you can't yet see that, but I can, I'm the central bank, got some information or advantage.

Keith Pilbeam: So, what do I now do? I do what we call a contractionary market operation. What I do is we come out the meeting, we say we're raising interest rates from 8.16 to 12.37. How do we back that up? Very easy. I've got these treasury bills, I start selling them. Now, if you start selling something, guess what? You add to the supply. When you start buying something, you add to the demand, which is what I did previously. Now I'm adding to the supply of treasury bills. I'm gonna put the pressure down on the prices. 'Cause I can just ...

Keith Pilbeam: Will you buy them? Of course you're gonna buy them. Because if the price falls, you get a better yield. All right? So it's gonna be no trouble. If the price drops, the demand will go up, because you're getting that better yield. All right? Now, what happens is of course, is you're giving me money. You're buying my treasury bills at 97 of course, sell the treasury bills, take the money out the economy, and push up those short terms rates of interest. And of course, that means a fall in treasury bill prices.

Keith Pilbeam: So once you get this, you've basically covered the basics of monetary policy. And central banks, they've got this enormous power, simply because they can print as much money as they want. Or sell as many treasury bills as they want.

Keith Pilbeam: Now, having said that, markets react slightly differently than that. So if I was teaching my first years economics, that's basically what I tell them. But it's slight different than that. So, I just wanna conclude today by telling you what really happens in practice. We call this the announcement effect in economics.

Keith Pilbeam: So, what I'm gonna do is I'm gonna start with the interest rates up there, 12.37%. You're happy with 97 'cause you think I'm not gonna change interest rates. Imagine I'm the central bank and I wanna cut interest rates. We've decided to cut. You know, we had the meeting, nine people vote, six vote for a

cut to 8.16. So what do I do? This is very important. It's called the announcement effect. Is everyone's waiting to hear the decision.

Keith Pilbeam: Now, obviously you lot didn't think I was gonna change interest rates. You're all trapped and trading at 97. Out comes the Bank of England's statement, "Bank of England has decided to cut interest rates from 12.37 to 8.16%." Now, this is really interesting what's gonna happen. You lot are gonna be wrong-footed. You're gonna think, "Why am I trading treasury bills at 97, because the Bank of England wants them to be at 98." All right? 'Cause they want tint rates to be 8.16, got it?

Keith Pilbeam: You've been wrong-footed. Now, if you're quick enough, imagine you're a computer algorithm ready to pounce, you're gonna start buying treasury bills as quickly as you can. You're gonna try and buy treasury bills as fast as you can on that announcement. Why? Because you know that they're not gonna stay at 97, they're going to 98. There'll be a lot of buying of treasury bills, but it won't be the Bank of England buying them. It'll be basically the market will start buying them. And people will stop selling them by the way, at 97. You won't be keen to sell it at 97 if you realize you're going to get 98 in three seconds time.

Keith Pilbeam: If I want to buy something, I want to get out of money. Basically, people will have money balances and they'll be using these money balances to try and buy the treasury bills. In other words, the money demand will fall. Notice what's happening in my diagram, is the money supply is actually staying the same. All right? Because people will shift out of money to buy the treasury bills. But that means that your money goes into his pocket, but it's still in circulation. So what happens is basically the market will do what the central bank wants, without the central bank actually having to do that open market operation that I explained earlier.

Keith Pilbeam: Because notice my money supply doesn't change here, so the interest rates go up just because I've announced they're gonna go up. That's why we call it the announcement effect. So, the thing is, the central bank probably doesn't have to do anything, but imagine you lot were naughty. Imagine you just pushed the price up to 97.50. And I'm the Bank of England, and I'm going, "Well, 97.50? That's not where I want them." Because $2.50 \text{ over } 97.50 \text{ times } 400$ will give you around 10 point something percent.

Keith Pilbeam: So, now if you didn't do it, I will start buying them. All right? I will start printing money and I will start buying them if necessary. But since you know I'm gonna do that anyway, you might as well keep buying them at 97.50 yourself, 'cause you know they're going to 98. So central banks are very powerful, and just even saying I want higher interest rates is normally enough.

Keith Pilbeam: What about if I wanted to raise interest rates? And you lot didn't know about it? You're going, "Ah, that central bank's gonna do nothing. Let's keep trading treasury bills at 98." 8.16% yield. We're having the meeting, you lot are going, "Ah, they're not gonna change interest rates. Nothing's gonna happen." So

you're happily trading these things amongst each other at 98 with a yield of 8.16. I then come out the meeting, 'cause you think I'm gonna say, "Interest rates stay at 8.16." All right? That's what you think I'm gonna say, but we say, "Oh, no. Bank of England, we voted to raise interest rates to 12.37."

Keith Pilbeam: All right? Now you lot are gonna start panicking. Why are you gonna start panicking? Because you know that statement means something. It means treasury bills shouldn't be 98, they should be 97. Agreed? You've worked it out. You know that 12.37 means 97 for the treasury bills. So guess what? You don't wanna hold treasury bills, you wanna sell them as quickly as you can. If you were a computer algorithm and you had treasury bills, you'd want to sell them straight away. Why hold something at 98, and it's gonna be 97 in three seconds time? All right? 'Cause that's what the central bank's told you where interest rates will be.

Keith Pilbeam: So there will be a lot of selling of treasury bills, but listen. Not by the Bank of England. You lot will start selling them. All right? You'll all start selling them because you know they're not work 98. The Bank of England, it's like God has spoken, and told you where the prices should be. So there will be a lot of selling, an awful lot of selling, very quickly. And of course if you're selling something, what are you doing? You're trying to raise money. Basically your demand for money is going up. You're trying to sell them at ... I mean, you've been wrong-footed. You'd like to sell it at 97.80, 97.60, 97.40. It's better than selling it at 97, isn't it?

Keith Pilbeam: So basically you now want to hold more money and less treasury bills. You see? So you're selling the treasury bills because you want more money. And that's why the interest rate goes up. Notice the money supply doesn't change. You see, central banks just by saying I want that, I normally get it.

Keith Pilbeam: Now, if you didn't sell enough, say you pushed the price down from 98 to 97.50? You're not doing what I want. Then, I'm the central bank, don't worry, ill start selling treasury bills. Ill start taking money out the economy, and I'll promise you it'll get to 12.37. But you know I'm gonna do it anyway. You know you can't win the battle. And who would want to buy them at 97.50 anyway? When you know they're going to 97. So, 99.9% of the time the central bank does nothing other than make the announcement.