Lecture 12 - Forward and Futures Markets

**Chapter 1. Forwards vs. Futures Contracts; Speculation in Derivative Markets**

**Teacher: Good afternoon, students.**

***Students:****Good afternoon, teacher.*

**Teacher: Take your seats, please. I’m glad to see you today. How are you?**

***Students:****We are fine, thanks. And you?*

**Teacher:  I’m OK too. Thank you.**

**Who is present at a lecture today? (опрос посещения)**

**Today out task is the Derivative securities. Types of future and option contracts in the Stock market. So, let's start.**

**Professor:**  Well, today I want to talk about what, to me, is a very interesting topic, and that is futures markets. Not very interesting to most people. Most people have no idea what they are. But I think that, well, futures markets, what we're really talking about is--

There are different ways of viewing it. Futures markets for things like agricultural commodities, or interest rates, or financial securities, are markets about the future. They're markets that, in some sense, predict the future. And future matters, right? We live a life. We have a long horizon. I said before, I think that your planning horizon must be at least a century, because you'll probably live that long anyway, with modern medicine. And you care about other people, too.

So, the beauty of futures markets is that we have prices for the future. We talked already about forward markets. We talked about forward interest rates. And that is related to what we're talking about. Forwards and futures are similar concepts. Futures is the more precise concept, or the more developed concept. And I'll explain the difference between forwards and futures. But just in a nutshell, futures markets are organized markets, like the stock market, that trade standardized contracts, representing things that will happen at future dates. And because they're standardized, they're worldwide. Everybody looks at them and uses them. Whereas forward markets are more specialized markets that, typically, are not as easy to interpret or as clear.

So, futures markets are, in some sense, more fundamental and important.

First, I want to put just a couple of definitions up. Futures, that's what we're going to talk about most in this lecture, and it has a special meaning in finance. And I was contrasting that to forwards. But both of these together are derivatives. And that means that the price in these markets derives from a price in some other market. There's a primary or underlying market, which has its own price. And then there's a derivative market that has a futures price or a forward price.

I guess I'm speaking in kind of abstract terms. Well, let me just start--I want to give you an example, and we'll see better what I'm talking about.

But let me just first comment just on this word, derivatives. To people in finance, derivatives are an exciting development of financial markets. We start out with a simple market and we develop derivative markets, that add more detail and information than was in the underlying or primary market. That's exciting. I find it exciting. However--I don't know how often you hear this word, derivatives--it's become a four-letter word. It's become an ugly word.

Why is that? I think it's, because people blame the current financial crisis on derivatives, whether rightly or wrongly. And it's because, I think, there's a public anger about derivatives that is largely due to misunderstanding. I mentioned before that I think that finance tends to attract sociopaths. I mentioned that, I defined that for you. People who want to manipulate, and fool, and deceive people. But I don't think the financial community is particularly populated by sociopaths. You might think so, reading some accounts. But I think, it's not true. And I think, it's not true, because the financial community knows about this problem and ejects such people. They get caught. And you can't make a career in finance if you're a sociopath.

So, if you think you have this problem, that you have sociopathic tendencies, I would advise you not to go into finance, because you will get caught and ejected. So, save yourself the trouble. Don't go into finance. Pick some field where you can't hurt anybody. And that would be a smart thing to do, if you have such a problem.

So, I think we need to regulate derivatives markets, and that's what I'm talking about. And we need self-regulation of the markets themselves, but we need government regulation as well. But there's nothing evil about derivatives. And in fact, derivatives are fundamental to the way I think a modern economy works.

So, I had you read an article-- --by Charles Conant, who wrote a book in 1904 called *Wall Street and the Country*. And you should have read that by how. He starts out by saying, it's just amazing, how public opinion thinks that speculation is evil. And they don't understand that speculation is just business. I mean business decisions involve guesses about the future. And so, when you have well-developed markets, these guesses become market prices. And so, the prices go into the calculations that everyone makes. And the calculations are just done better.

Living in the financial capital of the USA, most people think that speculating in grain creates problems. But wait a minute, what is speculation in grain? That means holding it off, expecting higher prices later, right? Isn't that what you have to do if you are managing a grain market?

Now, think of it this way--and I'm coming now to agricultural futures. In the simplest world, there's one harvest of wheat every year, OK? And that harvest comes in a certain time of the year, every year. Once a year. And it has to be held in storage over the year, right? Because people don't eat it all at once. You eat it over the whole year. So, somebody is storing grain. This is a fundamental problem, OK? That's a business. So, you have to know that somewhere there's some warehouse holding the grain that you will be consuming in six months time. And that warehouse is run by some professionals who do that.

If they think prices are higher later, they'll keep it longer in the warehouse. And what does that do? That evens out the price. It doesn't make it worse. If they think there's going to be a shortage of grain, they hold it back now and the price of grain goes up. And so, everyone starts consuming a little less because of the higher price, and it smoothes things out and it works better. And this is elementary economics, but it's not understood, I think, by most people.

**Chapter 2. The First Futures Market and the Role of Standardization**

And the futures markets are just sophisticated markets that help that process. So, I'm going to start with agricultural futures in talking about this. And I want to start also with a very homely--it's not homely--it's a very elementary example, because it's the first futures market. So, where do you think futures markets started? You would think, it started in New York, or Chicago, or London, or Paris. It actually started in Japan in a place called Dojima, which is in the city of Osaka. And they started in the 1600s.

So, let's go back. If we can go back to the year 1673, in Osaka in Japan. Japan was heavily dependent on rice, OK? And the rice farmers would farm all over Japan, but there was a rice market in Dojima, which was the national rice market. And I have data here. According to a study, there were 91 rice warehouses in Dojima in 1673. That's a long time ago, isn't it? So, it was a big storage place for rice, and they were storing it all year. And people would come, people who were merchants for rice, and they would come to Dojima and they would sign contracts to get rice. I live in some town 20 miles from here; I'm a rice merchant. I need a regular supply of rice from your warehouse. Can you supply it to me? And the guy would give you a terms, and that would be a forward contract, OK?

And this is what was happening before the futures market. Forward contracts precede futures contracts. So, do you see what it is? You're a rice merchant. You make a deal. You sign a contract that I will pay you so much in currency at every month, and you'll give me so much rice. And you'll deliver it here, and I'll take it, and I'll sell it in my town. Problems developed in the forward market that led to the development of a futures market. And the problem is, one of the problems is that there's counterparty risk. You are a rice merchant. You make a deal with a warehouse. That's one person dealing with one person, right? What if one of the guys reneges on the deal?

So, for example, what if the price of rice falls? Then you, the merchant, will say, I'm not going to go back and buy according to this contract, because it's cheaper now, right? I'll buy it somewhere else. So, I just don't show up, and then the warehouse is saying, what happened to our contract? And you're nowhere to be found, OK? Or if it goes the other way, if rice goes up, the warehouse might renege. They'd say, we signed this contract but there's something wrong with it, and we're not going to honor it. So, it messes up. It is also possible that one of the two counterparties is just a sociopath or something, or is an alcoholic, or something is wrong. So, the market doesn't work well.

So, what they invented in Japan was the first true futures market. And the market worked like this. There was a trading floor in Dojima, and rice traders would come there, and there were certain hours of the day, when you would trade contracts for future delivery. But they were standardized contracts, mediated by the exchange, so that there would be no problem with the contract. And then every day, there would be a trading time, and you could buy and sell contracts for future delivery.

Moreover, they enforced trading hours. And this is something that's kind of an interesting invention. They didn't have--I guess they didn't have clocks. I don't know what they had. But they had a certain time, when trading would stop, and they wanted to stop all the trading at the same time. They didn't want people dribbling out. They wanted it to be a good market. So, they would light a fuse, and it would be a bright light in the middle of the trading floor. And you'd see the fuse burning down, and when it burned out, all trading stopped. So, they had trading hours. Moreover, they had a problem that some of the traders wouldn't stop trading. So, this is something that they did in Dojima, they had men called watermen, who came out with buckets of water. And they would throw the buckets of water on anyone who was still trading. So that worked. It stopped trading.

They also had hand signals. This was big. This is big time. You were trading rice for all of Japan. And you may think the 16- or 1700s are long ago, but a lot of rice was traded and it got really noisy and difficult. They found that it was so many people trading on the floor, that you couldn't hear anyone talk. And there'd be shouting and noisy, and so, they devised a system of hand signals. And the Dojima hand signals were, I don't know exactly, but something like this. If your hand was out, you put your hand out, that means sell. You put your hand this way, it meant buy. And if you put three fingers up, it means selling three contracts. That kind of thing. I don't know the whole system, but that's where it started. That whole concept was copied all over the world in subsequent centuries.

So, what is it that happened? And the other thing is, what were the contracts that you bought and sold? The problem with the forward market is that the contracts are all different. One guy made a contract with one guy, and he said, I want my delivery here. And I don't like this kind of rice. I want this kind. And better make sure that there's not a single insect in it, or I'm going to reject the whole thing. But that's all different.

So, you don't know what--these contracts, you don't even know what the price of rice is. If someone said, I paid so much to get rice in the--but you have to say, well, under what circumstances? And what kind of rice? And where? And what are the terms for possible failure? You know, there's so many terms in the contract, so you don't even know what the price of rice is.

But at the futures market, they standardized the contract. So, it may not be exactly what you want, but it's standardized. So, you deliver rice--I don't know all the details of Dojima, but I'm talking about futures markets, as they evolve. In a modern futures market, agricultural futures market, you deliver your--the contract is to deliver some commodity like rice at a specified future date, at a specified future warehouse, which would be run by the exchange.

And there's inspectors at the warehouse who are expert on grain. And they verify, because they know rice. They know it really well. And they know that some rice has bugs in it. They know how to find out. They have a standard. Of course, there can always be some bugs in it, but they have a standard and they have a way of measuring, and they get it right.

And so, all those contracts are exactly the same. And so, they become the price. It turns out, funny thing, the futures market almost becomes the real market, because they're all standardized. The futures price--You know where it's delivered. You know what's delivered, exactly. The futures market becomes the market, in a sense. The fact that it's in the future is, in effect, a help, because since it's a comfortable time in the future, it's well defined. Whereas the spot market--the spot market is the market for rice, or whatever it is, today as it's traded, OK? The spot market is inscrutable. It's hard to understand.

So, let's think about a farmer today, who grows rice, or wheat, or soybeans, or something. If you drive through farming countries, listen to the radio, regularly they'll give prices. Soybeans, wheat, rice, et cetera. Why do they give that? Because farmers care. They're raising this stuff. It's their whole livelihood, whether they make a profit or not, depends on it. What prices do they quote? They quote the futures prices, even though they're in the future. But they quote them, because they mean something and they're standardized. So, that's why the futures market becomes the central market.

I want to just say something about future--Japan started the futures markets in the 1600s, and they were the world leader in rice futures until 1939. And then, at World War II, the Japanese government shut the futures market down. And to this day since, there is no rice futures market in Japan. Believe it or not. The inventors, they're talking now of starting it up again. Where do they trade rice futures? Well, it’s the USA is the main market, even though you don't think of the U.S. as a market for rice. But the point is, that markets have to be centralized. And that people want the centralized market, and if it happens to be in Chicago, so be it. So, it becomes a huge international rice market.

**Chapter 3. Rice Futures and Contango vs. Backwardation**

And so, I looked up--this is called Rough Rice Futures. So, what we have is different delivery months. And then, there's other delivery months, and then there's next year. It goes out about a year, different delivery dates. And this is cents per 100 weight. 100 weight is 100 pounds of rice. And since this is USA, we mean 100 U.S. pounds of rice. But anyone in the world can figure this out and trade in this market. And it's in dollars, because it's what we're trading in the USA. So, someone in Japan, who wants to trade in the futures market, has to come to the USA, change their yen into dollars, and do this.

This is the market, essentially, right now. But you see, it's a futures market, because it's giving prices of rice at dates in the future, OK? These prices way out here, next year, are not so reliable, because there's not much trade. The trade tends to dominate at the front months. Is that clear, what this means? It's going up. And it's going up pretty fast, isn't it? From about less than 13 cents to 15 cents.

What this means is that, in effect, the market is expecting huge increases in the price of rice, all right? So, that's interesting. Anyone who's doing business in rice looks at this and says, look, there's price increases anticipated. Now, I just want to talk about the world at this point in history, and try to interpret this curve right. You must have heard that there is a food shortage in the world developing. And it's a source of crisis. It's developing in the Middle East.

One reason why that's been given for the revolutions that have happened in the Middle East are, that people are hungry. There's dissatisfaction when the price of food goes up. A lot of people are living much more at the margin than you'd imagine. So, this increase in rice prices matters a lot.

So, it's very interesting that it's showing this steep increase in the price of rice. But the first thing you want to think of as a financier is how much is this going up? Buy rice today and sell it on the futures market. This is a good time to sell it. I'll sell it in 2017. And that's my futures profit. I can lock in this price today, because that's what the futures market does. The contract is a contract to deliver rice as of that future date, and this would be in Chicago, OK? And so, I could make a profit.

This is a very professional market with real expertise. You talk to the rice traders or the wheat traders; they know what they're doing. Believe me, they know what they're doing. We're looking at this for the first time. People who trade this all their lives. And if you ask, why is it? Look how much it's going up, this is a big profit opportunity. They'll tell you, why it isn't. Why it isn't such an opportunity as you think. There must be some reason, why I can't make huge money by trading in rice, because otherwise other people would do it. This is such a liquid market, open to everybody in the world. So, somebody's going to take advantage of this.

You understand, this is futures prices quoted as of a single date, for various horizons in the future. Don't get confused by it. This is not a plot through time. This is now. This is what's quoted now. And so, when you have an **upward slope in futures curve** like that, we call that **contango**. And that is what we usually see, maybe not upward sloping so much as this. The opposite is called backwardation, if futures prices are declining through time. That happens, and I'll show you that in a minute. But it's not happening in rice. So, not happening now in rice.

It must be that there's something that prevents you from just making a killing by buying rice, selling it on the futures market. Do you understand, this is riskless? If I sign a contract to sell rice in Chicago on the futures market, that is riskless [addition: only if I own the underlying commodity]. And so, why don't I just do that? I think that there must be some, in some level, there must be some storage cost problem. In order to actually do this, you'd have to buy the rice and store it for six months. And I'm thinking, that must explain it. It must be that at this point in time, storage costs are, in some sense, too high for this to be a real profit opportunity.

So, this is what happens now in the real world. There are people who store rice. There has to be, right? I think, rice comes in more than one harvest, because there's different kinds, but there's no more than a few harvests in the year. And some of them are bigger than others. And so, it's got to be stored. And this really, really matters, because if it's not stored, some people are going to starve to death. So, it really matters.

And you have professional warehouse operators, who--they sure do know what this curve says. And they're thinking, right now, I'm sure lots of people looked at this curve yesterday, and they thought, look at that contango, wow. I'm going to see if I can get some other warehouse. Can I get another one? There's an empty building on the south side of Chicago, maybe I can fill it up with rice. And so, I have to look up, and I have to get inspections, and sanity checks--sanitation checks. And think about insurance. And they're thinking about that. But, you know, they find out that it's not going to work, and they're trying. This generates, when you have a lot of contango in the market, it generates enthusiastic efforts by smart people to try to store more rice. And you see, what that's doing. It's helping prevent a famine.

And this goes back to--I know, I'm putting it in dramatic terms--but this goes back to Adam Smith, who in his *Wealth of Nations* in 1776, has a famous passage, which I can't quote exactly, but it was something to the effect that, you know, there's a lot of people who express benevolent impulses. They give to charity. They go to church regularly, and they talk about 'love thy neighbor.' But they're not doing a single thing to prevent the next famine. They're not thinking about it. The people who are really effective are these quiet guys dealing in the markets. And they see a contango, and they see something coming. And so, they get in the business of storing. And it's purely out of self interest. So, the famous quote that is quoted a million times from Adam Smith is, these people operating in their own self interest seem to be more important in promoting human welfare than all the benevolent people combined. I'm quoting him roughly. Well, there has to be an element of truth to that.

You know, people who do these storages of grains do not get much respect. And at dinner conversations, nobody cares what they do. They're really good at what they do, and they know this market. And, you know, they're not saints, either, right? They're speculators. They're trying to make a profit.

**В заключение:**

Фондовые рынки по всему миру, в том числе в самих США, отреагировали на избрание Трампа **падением основных индексов и дешевеющим долларом**.
Первыми на предварительные итоги голосования согласно которым новым президентом США должен стать кандидат от республиканцев Дональд Трамп, отреагировали рынки — в среду на прошлой неделе (9 ноября 2016 года) **зафиксировано падение фьючерсов на фондовые индексы США**.

По мнению казахстанских финансовых аналитиков после победы Трампа на выборах в США  прогнозируется укрепление доллара и, соответственно, падение цен на нефть. Что, как показывает опыт, нередко приводит к повышению стоимости бензина на отечественном рынке ГСМ.

**What questions on a lecture subject are?**

Какие есть вопросы по теме лекции?