governments (possibly because a lot of people have been going to universities in the West and learning about all these things like theories of public choice and principal agent) become suddenly aware of the fact that maybe their national oil companies for many years have been ripping them off. As a result of this, they started to look very closely at those national oil companies; yet, begin to see a process of reform and restructuring.

This suspicion, these moves to reform were greatly accelerated in 1998. Why? Because the pot of soup got smaller, and it suddenly became more noticeable if somebody was coming along and taking ladlefuls out of it.

What sort of reforms are we talking about ? We are talking about restructuring to improve transparency. We are talking about much greater budgetary control, the provision of bench market. How do you know if your national oil company is efficient or inefficient if you have nothing to compare it with? One of the motives behind getting foreign companies into many countries has been to provide this bench market. In other words, you suddenly have some basis of making a comparison. Privatization, well, maybe that is sometime down the road although I have to confess I am very suspicious that privatization actually solves anything or helps anything. Privatization, on its own, actually aggravates the situation. You need a condition if the privatization is to work.

What does all this mean? What it may mean is you will see a growing alliance between the producers' movements who are increasingly anxious to try to maximize their revenues and also the major private oil companies. And as the consequences of this, the national oil companies are slightly squeezed out of the picture. That matches a little bit of the ideas of Zaki Yamani in the late 1960s. the so called catholic marriage.

The idea in late 1960s was that the producer governments should link up with the major companies. With what purpose? Simply, to gang up on the independent companies who had once been deceived to be undermining the market. That sort of an outcome leads to what I call the volume game.

If you look at the international oil industry in over 30 years, low cost producers provide first and then, as you went more and more, you turn to the higher cost producers. But

the reality of the last 30 years has been the opposite. The industry has first gone to the high cost producers : To the North Sea, North of Alaska, and the low cost producers have in effect been the residuals.

What does the volume game mean? It basically means that those with the lost cost revenues start to assert themselves and decide that what they are going to do is to increase their production. The immediate consequence is going to be lower prices, but that is part of the strategy because the lower prices put the higher cost areas out of business. So, if this happens, you can forget about the North Sea, you can forget about offshore, deep offshore West Africa and Caspian as well.

Be clear what I am saying here. I am not talking about the volume game as a proactive strategy. I am not talking about somebody sitting in an oil ministry somewhere saying let's play this game, let's do it deliberately. Although this is what the Venezuelans did. This was under the light of philosophy behind that policy that they called "opening": Let's get the foreign companies up so that we can then position ourselves for when the battle comes, we are going to have lots of excess capacity to gain.

What are the consequences of this? well, for those of you who know the industry, I have just opened a huge can of worms.It has a lot of very interesting implications. For example, what it means is much greater dependence in world oil on the Big Six : Saudi Arabia, Kuwait, Abu Dhabi, Iran ,Iraq and Venezuela. And the share of these countries in the world oil supply is a volume game world starts to notice very dramatically.What would the response of consuming governments be to that? Would they feel comfortable with it? Would they start to introduce policy measures to try to mitigate it ? More interestingly, if in term of 15 years time these big six suddenly find themselves with 50-60% of the world oil market, might they suddenly look at each other and say: "We control the market; maybe we should get together and push prices up. We need to form an organization. What should we call it? Organization of ...; what was the one in the old days that we used to have?

The Text of the Speech of Professor Paul Stevens Addressed at I.I.E.S on 26 May 99 Professor Paul Stevens teaches Energy Economics at Dundee University, Britain .

manner of their going, would this generate some sort of supply shock or supply disruption.? And that is always a possibility. When I continue for the last 15 minutes to talk about the oil prices, I always have at the back of my mind this concern that you have; this political feedback loom that you can not ignore.

Let me assume that we are moving toward low price world. What are the implications of that? People talk about rent in oil prices and actually in terms of simple economies. There are two forms of rent, and the significance lies in where they come from . The first sort of rent exists in a competition market. If you have a fully competitive market, you still have the economic rent which is the difference between the supply curve and the price. To use its sort of technical jargon, it is what the economists call the producers' supply and demand curve. This space is the producers surplus so if you are at the lower end of the supply curve, you get lots of producers surplus .

The second sort of rent occurs if you restrict competition; you shape the supply curve as the result of restricting supply, you push the prices, you have a new situation and of course you will have this element of rent. What about the private oil companies? The private oil companies are likely to lose out. Fiscal regimes have become more progressive and so that sort of fluctuations that increase or decrease, super normal profits are absorbed by producer governments and less by the companies. In addition, if I am correct in my assertion, that market would become more efficient , that this sort of rent would gradually get driven out.

So, from the private companies' point of view they can look forward to less and less of the rent within super normal profits which means the only way they can survive is by capturing as much of this sort of rent as possible and much of the producers' surplus.

How do you produce producer surplus? How do you get it? You get it by being at low cost by being down the supply curve. That brings me then to the issue of oil company mergers. As we know, following the joint agreement between BP and Amoco in August of last year, you have seen a succession of mergers and we have not seen the end of the process. I am quite sure of mergers, a number of links between various companies.Why are they doing it? They are doing it allegedly to cut costs. In other words, to move themselves down to the lowest bit of the supply curve. How are they going to do that? Of course, they can carry out with technology improvements that we have seen to reduce duplication., all of these arguments all of which I am very skeptical about because in many cases the companies that have already cut these overheads to the low. Furthermore, cutting costs through technology is an exponential curve. It gets harder and harder to save fewer and fewer dollars.

And, objectively, the only easy way to cut cost is to get access to low cost geology. If you really want to cut costs, then go to somewhere that has got big field onshore with lower cost of production, easier access to ocean and all the rest of it.

That brings me then onto the other set of players: The national oil companies and how they fit into this picture of the low price world. We have private companies that will be fitting to become more efficient to lower cost, but they know, in their heart of hearts, the only real way to be effective is actually get access to low-cost geology.

What are the national oil companies? The national oil companies are almost ideal machines to capture the economic rent. National oil company management is in a unique position to take a very significant slice of these bits of rent to use for their own purposes. Be quite clear what I am talking about here. I am not talking about number of Swiss bank accounts although that sort of things go on in some countries. I am talking about some sort of things that economists have been developing over the last 20-30 years associated with economic theories of public choice. In other words, the management of the national oil company will absorb resources to simply make their lives easier and more pleasant. They cannot pay themselves more of course because they are in the public sector, but there are innumerable ways in which having a larger budget makes your life easier: Better promotion prospects, trips abroad, better offices, etc.

And the reason that this happens is two-fold. First of all, because there has been lots of rent to capture. If you are in a kitchen and you have a very big bowl of soup , if somebody comes along from time to time and takes a ladleful out, you do not notice. If, of course, the pot gets very small and somebody keeps taking the ladlefuls out, then you will begin to notice. Of course, this was the significance of 1998 because the pot suddenly did get smaller.

The second explanation concerns issues to do with principal agents analysis. The management of national oil companies are the only people who realistically know what is going on. The minister of oil may well know what is going on, but very often the ministry of oil is captured by the national oil companies (exchange of personnel between the two). So, in that sense, the agent becomes the oil ministry and the national oil company and the principal agent becomes the rest of the government, usually the ministry of finance because their interest is in trying to maximize the rent, trying to maximize revenue from oil.

Over the few years, producer

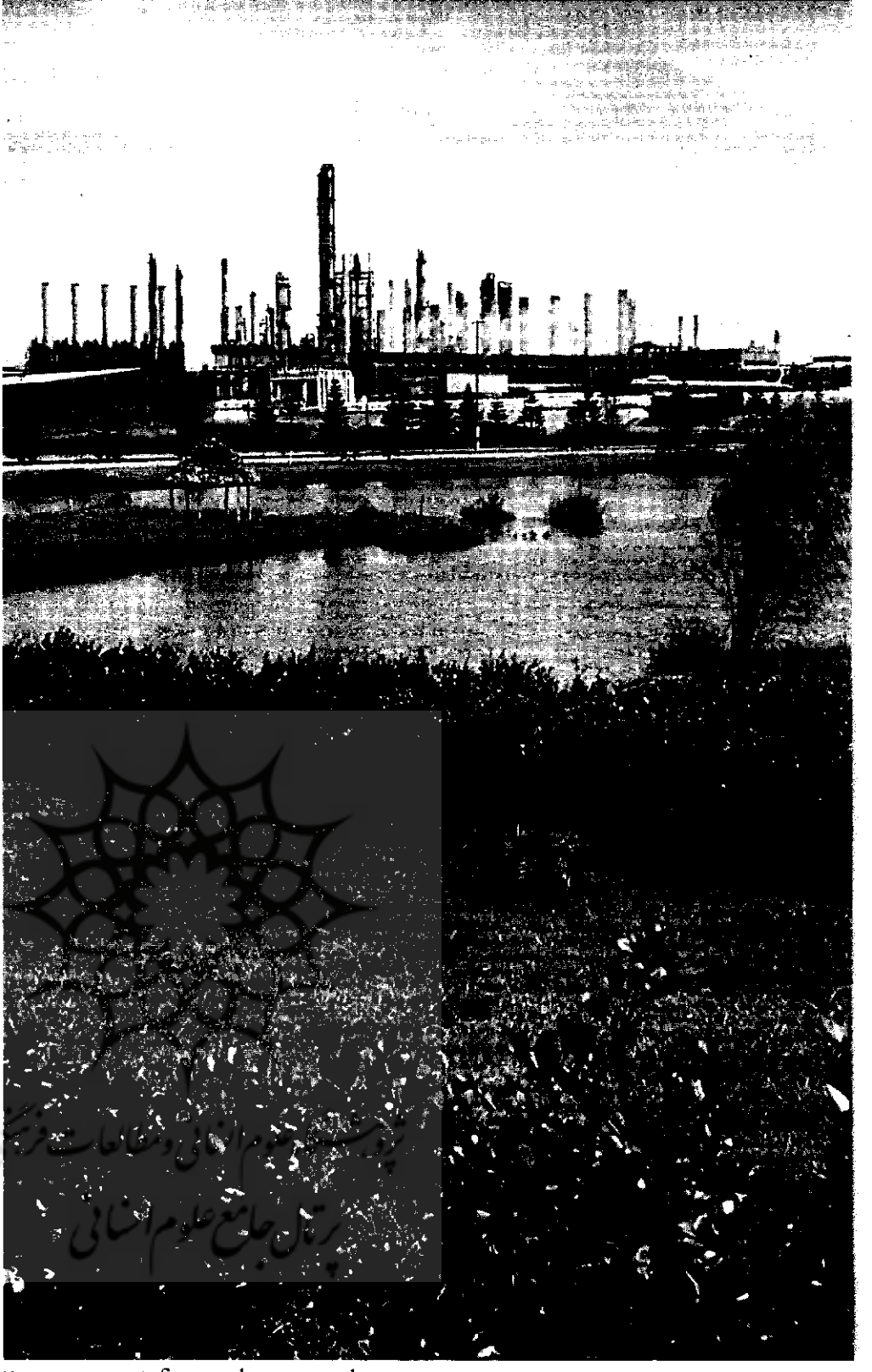
entry reduces the barriers of competition that would be powerful beforehand. The tax man got smarter, the tax man stopped the competition and played some of the games, not all of the games. In addition, you begin to see the growth of spot sales, more transactions, more buyers and seller. You also see the growth of paper markets.

The result of this is much greater market transparency.Then again large efficient market, and the result of this is that the major companies move completely away from operational vertical integration.

Today, in a company like BP, probably less than 20% of crude oil goes to their own refineries. The majority is simply sold out into the rest of the world. The same is true to other BP private companies, but I will come back to this point which is that the national oil companies that have gone downstream are still using operational vertical integration as the means of moving their oil around.

What is the significance of this for oil prices if you look at the experience of other commodity markets? Commodity markets went through those sorts of process ten, twenty, thirty years ago. When the market becomes more efficient, the consequences of that is it drives out the economic rent, it drives out the difference between the average cost of producing, whatever it is you are producing, and the average revenue of the prices and a good example of this you can see in the case of copper. The data in 1965 to 1997-98.

The red bar is the average net cost of producing copper and the black line is the price of copper. As you go through that period, something happens. You got a little windfall, a little spike in price and push the price back down towards the average cost. If the same thing is going to happen to oil, you have to ask the question : What is the average cost of producing oil globally? We can have a very good argument about this, but whatsoever the answer, it is going to be below $10/b. If it is not going to work like this, you have to put the argument forward to me why should oil be different from other commodities?



Maybe there are arguments that you could put forward. Maybe oil is a political and strategic commodity. Maybe that is the story. But you have to put forward a fairly convincing argument as to why oil should not follow the same sort of path as other commodities.

If I am correct and the tendency over a short and medium to long term is down with pressure on prices, then what are the consequences of that? Well, one consequence is what I call the political feedback loom. It is all very well to say that the prices are going to move down to sort of $10 or even below $10, but if that is true, you have to ask yourself the questions how many producer governments around the world can survive those sorts of oil prices? And if they can not survive in the

The difference in 1998 was that in addition to the increase in supply, you now had a problem on the demand side ...

last 15 years, really for two sets of reasons. Let me briefly talk you through this. It has really to do with the nature in which the industry operates.The key issue here concerns vertical integration:The relationship between crude production, refining, marketing and distribution. If each of the stages is owned by the same company, the state of affairs is described as vertical integration.

But I make a distinction between two sorts of vertical integrations. One is what I call financial vertical integration. This is when the head office owns the affiliates that produce, refine, market and distribute products and therefore controls the cash flow. The second sort of vertical integration is operational vertical integration and that is when your crude producing affiliate supplies its products to market and distribution affiliates.

Before 1979-80, that was the picture of the industry; all the major companies were financially vertical integration.

But if you are financially vertical integration , you don't have to be operationally vertical integration ; instead, you can use markets. Your crude producing affiliate simply sells the crude into the market ; the refinery affiliate buys its crude from the market and then sells its products into the market and your marketing and distribution affiliates can buy from the market.

Which is better, operational vertical integration or market? It has really to do with what economists call transactions costs: The cost of doing business and the level of transactions costs depends upon the efficiency of the market.

Supposing you have a small inefficient market. If you have a small and inefficient market, you will have very high transactions costs in these kind of markets. If you have high transactions affiliate transfer through market. Therefore, there is a relatively small number of market transactions or to use the technical jargon " arm's length transaction" between non-affiliates. Therefore, we have small inefficient market. It becomes a self-feeding cycle. The more inefficient the market, the more operational vertical integration .

That is only part of the story because if we look at the industry before 1979-80, there were other motives for being operational vertical integration; it helped to inhibit competition. If the industry was operational vertical integration, if you wanted to be an oil refiner, you had a problem because if you want to build a refinery, where are you going to get your crude from? So, that helped to inhibit competition.

There were lots of tax games to be played. You could use transfer pricing to make sure that you minimize your global tax bill. In 1950s and 1960s, most refineries in West Europe lost money. Why? Because simply the transfer pricing was used to make sure that the profitability went to the producing countries because people would rather pay the tax regimes of the producing countries than the West European because the tax regimes were easier. Also, in this period, you had a very few long-term contracts only on the basis of arms transactions and you had no commodity market. The result, very poor market transparency.

So, every thing combine together to encourage companies to be operational vertical integration. That process changed with the second oil shock of 79-80, and the nationalization of the 1970s because it meant that the operational vertical integration of the major companies was longer than a particular feasible option.

The result was that you suddenly start getting an increase in the number of arms' length transactions. The result of this is the markets start to become more efficient. As they become more efficient, transactions costs fall which encourages people to move away from operational vertical integration and again as the first part of the story, other factors were at work . For example, ease of

words, the recent price strength we have seen is that deviation outside a new set of bands of belief or is the oil price going back into the old bands of belief. I asked the question I don't have an answer. It is too early to tell; we have to wait and see. But clearly, that is a possibility. So, that is the first reason I am a little bit skeptical that the existing price strength may actually survive.

The second reason I have some problem which relates to excess capacity; current state of excess capacity in OPEC, assuming of course that everybody is fully complying with the March 23rd agreement. If they are, the excess capacity in OPEC is now above 20%, some 7mn b/d of OPEC capacity is actually closed in . That excess capacity is going to be around for a few years irrespective of what sort of assumptions you can make about demand on non-OPEC supply. The question is will the OPEC discipline be able to maintain to survive with that sort of excess capacity, bearing in mind the very severe damage done to the macro-economic side of many oil producers in 1998?

What is the mechanism out there that will actually help to endorse discipline. Or is OPEC going to simply slip back into the old ways? I heard in Washington three weeks ago the most delightful version ,and this is true, how this problem may be solved and that is the small oil producers in the US which have a very powerful lobby in Washington are preparing legislation to try to persuade congressmen to push it through and the legislation said that the US should impose sanctions on any OPEC members that violate quota!

Let me add a further short-term problem and here I come to young friends in New York who are going out and buying paper barrels. The problem with these individuals is that they do not understand the oil business; they know nothing about the oil business; they do not need to know because they are not interested at all. All they are interested in is what other oil traders are going to do, anticipating the average opinion of the average opinion.

The OPEC meeting in November of 1998, as it approached, there was a general expectation that there would be further cuts in production because clearly something had to be done if the oil price was going to be rescued.

Does that matter? Yes, it does. Let me give you two examples. We are now in the middle of the second quarter. Any oil man worth his salt knows that in the second quarter, stocks rise in particular in the northern hemisphere; gasoline stocks rise in anticipation of the driving season. We know that the US gasoline stocks are rising . We know that it does not mean the collapse of the OPEC agreement. We know that it does not mean non-compliance. We expect it; it is normal. The kids in New York do not. Two weeks ago, US gasoline stock figures came out and showed a sharp increase in stock. What happened? It knocked $1.5 nearly $2 off the price because the people that had been buying papers suddenly said we got it wrong. Maybe the price is going to go down. Maybe the OPEC agreement is not holding.

Another example. Those in the business know there will be some cheatig.There is bound to be some leakage on the March 23rd agreement, but we also know that is not necessarily important so long as that it is not excessive. People will turn a blind eye to it and the market will absorb it and that will have no great consequences. Again, do the financial market in New York know that ? And the answer is of course no, they don't. And how will they react ? When we start to get the first headline saying Venezuela not meeting cut or Nigeria producing slightly over quota. We had an example of this about four weeks ago. A deputy minister of oil from Venezuela stood up and reached journalists and said: "Well, Venezuela may've some problems in meeting the requirements of the 23rd agreement." When this piece of information got into New York, within half an hour, 75 cents went off the price! And the minister of oil in Venezuela then had to very quickly stand up and denounce his deputy saying he did not know what he was talking about! Of course Venezuela is going to meet the cuts.

So, the fact that oil price had gone up, it does not necessarily signal that the crisis is over and we may well see the prices coming back down again. It is very uncertain; we will have to wait and see.

Let's assume I am wrong which is not an unusual state of affairs and that the price, as we move through the rest of the year, keeps going back up and maybe the people who say it is going to get to $20b by the end of the year are correct. So what? They have not changed a fundamental truth in the oil market and fundamental truth is very simple.

The oil market has become significantly more efficient in the

system , occasionally from reason, the excess capacity disappears. It is an interesting graph because of course if you put on track the oil prices, certain coincidences leap out at you.If you look at the first, second and third oil shocks, it seems to be not unreasonable that you call it a shock. The customers have been hurt if the producers are hurt, that also constitutes a shock as well. What is the significance of this? The significance is because of this excess capacity, someone somewhere in the industry has had to act as, what I call, market controller. In other words, somebody has had to come along and constrain this excess capacity because if the excess capacity comes to market, then you have a price war and price will go down to technically at the marginal cost of $5 a barrel.

That has not happened yet because somebody has come along and controlled the capacity.

In the 50s and 60s, it was the majors, the so-called seven sisters, through their joint control of Gulf oil production. In the 70s, we could have agreement about it, but in the 1980s and the 1990s, it would clearly be OPEC that has played this role. What is the significance of this? The significance is very simple. If you think in terms of oil demand in the short run, oil demand in the short run is very unresponsive because you are dealing with a fix stock of appliance and therefore the scope for altering oil consumption relates really to the capacity decision the extent of which you use the appliance stock. So, if you want to drag your memories back, the demand curve between a range of prices is pretty vertical. What is the range? We could have a debate about it, but I would suggest that it is about $8-10 a barrel at the lower range because if the prices go below that, gas is pushed out for oil. At the top range, it is somewhere between $25-$30 a barrel because if you go above that, then some countries simply can not afford to buy oil and would have to do without. But between those range of prices, demand is fairly inelastic and of course what the market controller has to do is to

say what is demand, we have to fix out production to meet that demand.

So, in effect, you have a vertical demand curve and you have a vertical quota line and the two go together. Now what that means is between $10-$30 a barrel, any price will do, any price will clear the market, to use the economists' jargon.

So, if the price is $14 a barrel or $25 a barrel, every body lives happily everafter. So, in those circumstances, you have to ask yourself the question what actually determines the price of oil? Why is it $14/b or $25/b ? And the answer behind this is quite simple; it is to do with the belief of the people buying and selling, predominantly the traders. It is the matter of traders' belief. What do the traders actually do? Here I quote a great economist John Meynard Keynse who was writing in the 1930s, trying to explain movements in prices in the financial markets. What he said was what the traders do is anticipate what the average opinion of the average opinion is likely to be.

In other words, if you want to be a smart oil trader, you do not need to know anything about oil at all; all you need to know about is other oil traders' and how are they going to respond to circumstances. It is my opinion that within that community of traders, there exists what I call " bands of belief". The best way of explaining this is through a rather silly example! And that is if you creep into an oil traders' bedroom at three o'clock in the morning and you get them by their throat and shake them awake and say what is the price of oil, they will go $16-$18 a barrel, if they are Brent traders. If they are WTI traders, they will have a different answer. And as they come around get awake, they will say: "No, Saddam invaded Kuwait three days ago, the prices are much higher." Or "there is an over supply, the prices is much lower.".

Once that sort of crisis has gone, the prices then revert back into these bands. As you can see from the diagram here, as you go through various periods, so you can see the price moves outside the band as things move disappears as the cause of the deviation goes away,the traders revert back to their normal view of the oil market and prices comes back within the bands.

Now, what is the significance of this? The significance is those sorts of bands of belief can suffer discontinuities. And you can see here that 1986 was a clear discontinuity. In other words, if you had crept into traders' bedroom in 1984 and shaken them awake and said what is the price of oil, they would have said $27-$30/b. The significance of 1986 was that those views had in fact changed. There was a discontinuity.

Now, there is a question in my mind which say we have now been outside those lower bands for the longest time since 1986. Is there a danger that we will have seen yet another discontinuity so that if you crept into traders' bedroom now at three o'clock in the morning and said what is the oil price, they would say $10-$14/b. In other

the whole agreement had quite a strong reality about it. Since then, until about two weeks ago market rewarded this and the price soared. It increased by a factor of around $6 a barrel. In fact, that actually slightly understates the increase in price as a s result of it.

There was a strong view certainly two weeks ago that this was the signal that the crisis was all over. About four weeks ago, I attended the annual conference in London of Zaki Yamani's think-tank; the Center for Global Energy meetings,and at that meeting, most of the financial community and analysts in the financial community were saying the crisis is all over; we do not have to worry any more .The prices are now going to rise gradually and inevitably towards $20 per barrel by the end of the year, and next year,it is going to go even higher.

The real oil men were saying we do not believe that because if you look at the market, what has fundamentally changed? And the answer of course was nothing had changed.

The cuts were to be introduced in the first half of April 99 although my sources are telling me that the Saudis had actually begun to cut by mid-March, but given the normal time lag, it was going to be at least four to six weeks before these cuts would find their way into the market.

And, therefore, if nothing has changed, why have the prices gone up by some $6 a barrel? The answer is very simple. A group of youngsters in New York, or otherwise known as the fund managers whose job it is to place money to make money, had discovered a wonderful new game. And the game goes like this : If you think the prices are going to go up, you go out and buy paper barrels, and, of course, if you do enough of that, the price of paper barrels goes up. And so you think I got that right and I think that the price might go up some more, so you go out and buy some more paper barrels, and the price goes up. On that basis, the prices went up by a factor of $6 a barrel.

I have two questions. The first question is: Is the financial community correct? Is it all over and 1998 will be simply a distant memory as part of another bit of the cycle or is there a possibility that the sort of factors that pushed prices $6 a barrels up in a short term could equally well bring them down $6 a barrel in a short period of time ?

That is the first question I need to ask. I also, within that question, need to address the topic of my lecture. I have just told you a story about my version of what happened, but I have not still explained why these fluctuations, so I try, to some extent, to do that.

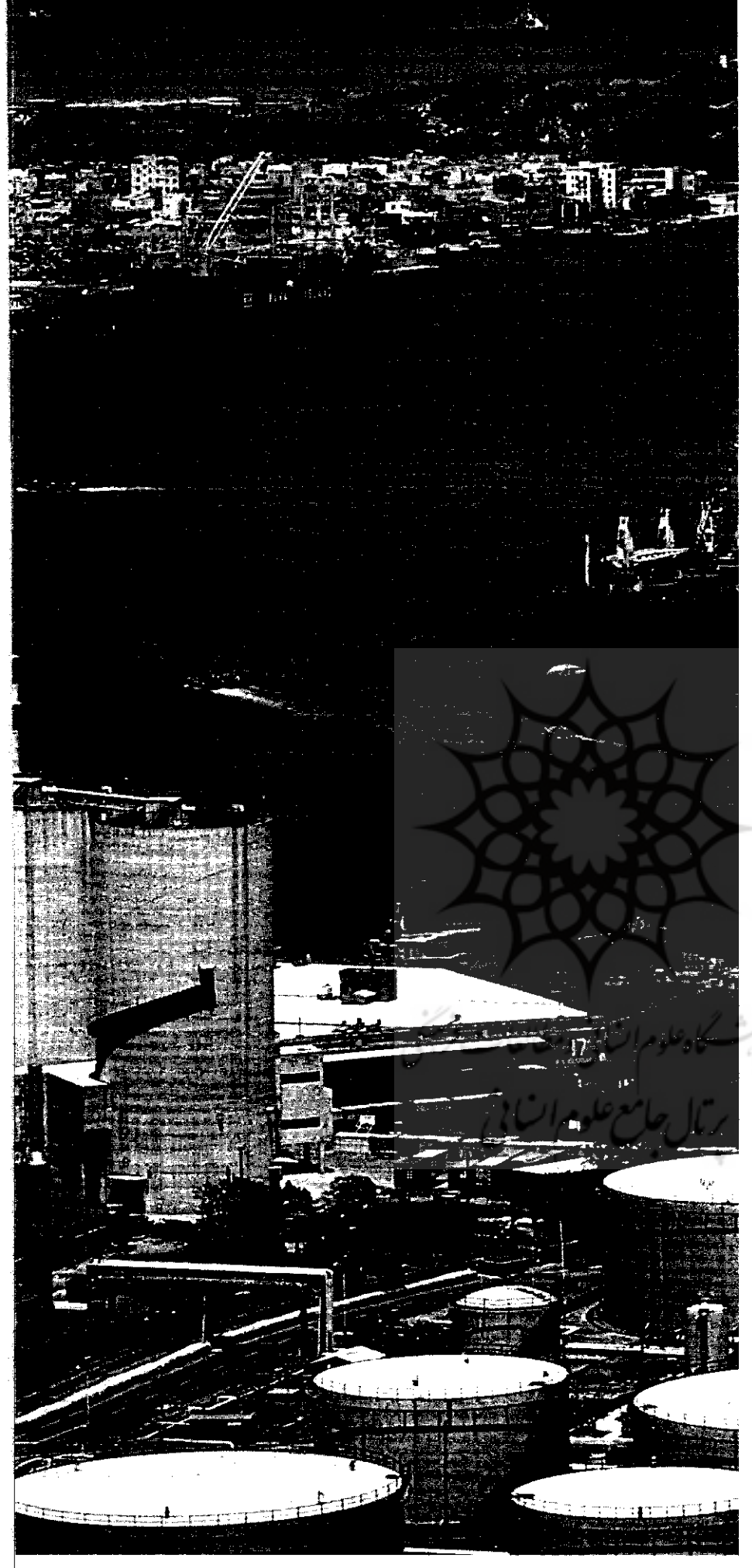
The second question that I have is even if this higher price does hold, as we move into the future, will we again see downward pressure on prices and my answer to that to anticipate the answer is: Yes, we will. If that is the case, so what are the implications of this for the industry?

So, let me turn to my first question. Is the oil price crisis of 98 finished ? Is it over?

Let me suggest two reasons why it is not over and in the process try to give you some explanation as to why you have this fluctuations.The starting point for the analysis is the fact that the oil industry normally has suffered form excess capacity to produce crude oil for most of the time. The diagram shows the situation from 1950 up until April of this year. I do know that OPEC was formed in 1960 and not 1950. So, of course, what I am measuring here is the excess production capacity in the OPEC members. As you can see , for most of the time you have excess capacity in the

huge! I have been playing around in this business for over 30 years, and I have never seen stock numbers like it. If the numbers are to be believed, every bit of storage throughout the world was absolutely full. And the evidence suggests that that was the case.
The result of this was that prices collapsed. And you see from here. This is the sort of price trend that you guessed before the Jakarta meeting and the consequence of Jakarta meeting is the price goes down and down until it is hitting around $10-$11 a barrel.
There is a series of attempts to rescue the situation. The process begins with a series of meetings between Saudi Arabia,Venzuela and Mexico which, of course, in itself is interesting because Mexico is not an OPEC member as we all know, and this resulted in a series of cuts agreed in May,98.
The market failed to respond sympathetically to the cuts and the price kept falling. So, again in June, there was a second attempt to cut yet further. Still, the market failed to respond and the prices kept on falling. A large part of the reason for this was skepticism as to whether the agreement would actually be met or not.
The OPEC meeting in November of 1998, as it approached, there was a general expectation that there would be further cuts in production because clearly something had to be done if the oil price was going to be rescued.
At the meeting, there were discussions about cuts and every body said yes, we also cut production except for one group and that was the Saudis, and they said we are not going to talk about cutting production while other people are still not meeting the cut we agreed in May and June. In other words, while there is cheating, we will not contemplate further cuts because if we do so, we will be going back into the swing role that we so hated during the early 1980s. In other words, we will end up absorbing other peoples' cheating. The result was that the November meeting failed to announce any cuts and the market punished that decision by allowing the price to go down even further.

At the point of the story, I would suggest that OPEC, while literally it was on the brink of collapse, there was a severe damage that while market control system which I am going to talk about it would suddenly disappear.
Then, at the beginning of March 99, the Saudis decided they would have to do something that in a sense sacrifice their position in terms of oil policy. There are a number of explanations as to why this is so. My personal opinion is that the explanation lies in the fact that Crown Price Abdullah who, by this stage, had sort of taken over control, was being advised on oil matter by Prince Saud who is the foreign minister,and, in a sense, Saudi oil policy simply became a subset of Saudi foreign policy.
Saudi foreign policy said we need to improve rapprochement with certain countries and in particular Iran, and if this means that in the process we have to sacrifice some of our positions on the oil side, so be it; that is the price that we feel as if we were paying.
But whatever the motivations behind it, there were again series of meetings in Holland which produced the so-called Hague Accord, and the Hague Accord was ratified on the 23rd of March by the rest of OPEC.
These cuts were announced in a very professional workman-like manner. There was no hint of bickering behind the scenes; people came into the room and said this is what we have to do, and they did it.
The main sticking point which was the problem of the Iranian cuts that whether it should be from 3.9 or 3.6, this would be accommodated. The Saudis had gone round all the rest of OPEC and said if we can absorb this problem, will you agree, and they all said yes. When every body else had agreed, they went to Iranian and said we can accommodate this, will you agree? And the deal was done.
In addition, of course, Venezuela had a new President and he had a sort of saying I am an old-fashioned sort of person with oil; we are going to cut production in order to push prices high. So,



unexpected? Let me remind you that in November 97, every body was expecting a military action against Iraq. There was yet another crisis as Saddam was playing his usual sort of games and the view was that the American would attack Iraq. So, in a sense, it was a complete surprise when Iraqi oil started to come on the market in January. And do not forget it was coming on in significant volumes. We are not talking about a few barrels here, we are talking about a million plus barrels a day arising fairly speedily as we move through 1998.

The result was a significant over-supply in the market with the result that the price began to fall as we moved into 1998. There was nothing particularly new in that. The oil market had seen this sort of over-supply before. We had seen it in 86, 89, 92. But on each of those occasions, the increased supply had lowered price, but there had been something of a positive demand response. In other words, demand did not quite come to the rescue, but certainly helped the situation.

The difference in 1998 of course was that in addition to the increase in supply, you now had a problem on the demand side. And the problem on the demand side was pre- immanently caused by the economic crisis in East Asia and its contingent plus the fact that the northern hemisphere had an extremely mild winter allegedly due to the courtesy of El-Ninno. I say allegedly; I have a deeper suspicion of climatologists than I do of the economic forecasters, but that is another story.

The result of this was that the expected growth in demand failed to materialize. Whether demand in 1998 was actually flat or had it failed we are not so sure about because the data keep getting revised. I think the interesting data for this will be early June when the BP statistical review of world energy comes out because they usually accurately describe what is going on. It will be interesting to see if demand actually did fall in 98. But whether it fell or it was flat, the consequence was that as we moved through 1998, you get a huge stock over hand. And I mean

AN ANALYSIS OF FLUCTUATIONS IN OIL PRICES

Professor PAUL STEVENS

The sub-issue which is more important and that is to ask did the oil price crisis of 1998 reflect simply another bend in the general cycle that we are used to or did it, in some way, signal the start of a new era? In other words, did it reflect some sort of fundamental change in the industry which is what I actually believe. And if that is the case, what are the likely implications? What are the issues that it raises?

Let me begin by reminding you of (my version of) what happened. The story begins in September 1993 and it begins at an OPEC meeting in which the quota for OPEC was settled a little over 25mn b/d. Subsequent to that meeting, oil demand continued to increase; non-OPEC supply also continued to increase. But demand was increasing faster that non-OPEC supply, and the result of this was that the call or demand for OPEC oil was increasing as we moved through the 1990s, and indeed, by 1997, the demand for OPEC oil had increased by about 3mn b/d.

The problem was how was that increase in demand for OPEC oil divided? Very simply, it was divided on the basis of cheating. Three countries kept the quota: Saudi Arabia, Kuwait and Abu Dhabi. A number of countries kept the quota because simply they could not produce any more; they had effectively reached their sustainable capacity. But a number of countries, most notably Venezuela, absorbed the excess 3mn b/d by simply ignoring the OPEC quota and producing as much as they could.

By the summer of 1997, the attitude within Saudi Arabia was that this state of affairs could not be allowed to continue. The logic of it was that if they did nothing, then as the call on OPEC increased, they would lose out in terms of volume and the increased volume would go to the people who were ignoring the OPEC quota?

So, a plan was developed in the summer of 1997 in anticipation of the OPEC meeting in Jakarta which was due to take place in November 1997 to negotiate an increase in quotas. The problem facing the Saudis was how were they going to convince the rest of OPEC to re-negotiate quotas.

The logic went something like this: They said all we have to do is we have to convince the rest of OPEC that the world oil market can take an increase in OPEC production because it is the Saudi belief that over the last three or four years, the oil demand figures that have been coming out of the OPEC Secretariat and the International Energy Agency have been significantly understated. And I have to say that this is a view I have some sympathy with. I think that for a period the demand numbers were understating the level of oil demand.

So, they said what we will do in order to convince the rest of OPEC that it is a good idea to re-negotiate quotas, is that in October, we will cheat; we will produce above out quota so that we can go to the meeting in Jakarta and say we can increase the quota and we do not have to worry about its impact on the oil market. And so, in October, Saudi Arabia went above its quota to 8mn b/d and produced significantly about that level.

The market did not respond negatively, and so, when they went to Jakarta, it was fairly easy to convince other members of OPEC that it was time to re-negotiate the quotas. It was a fairly short meeting, and they ended up re-negotiating a figure of a little over 27mn b/d.

Thereafter, it all started to go wrong. We can debate whether it was bad luck or bad management, but the result was it went wrong. What exactly happened? On the supply side, OPEC, by the time of the Jakarta meeting, was already over producing on the new quota. In other words, OPEC had already, in a sense, reached its own production levels and its was producing over 28mn b/d.

Added to that was a very important factor and that was re-emergence of Iraq into the oil market as a result of humanitarian oil. This happened in January 98 and was completely unexpected. Why was it