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P R O C E E D I N G S

MS. DOWNS: Good afternoon. I'm Erica Downs and I'm a fellow in the John L. Thorton China Center here at Brookings. This afternoon we're going to discuss a terrific new book on one of my favorite subjects, China's oil security, by Øystein Tunsjø of the Norwegian Institute for Defence Studies. The book is called "Security and Profit in China's Energy Policy" and copies are for sale in the back of the room.

We are fortunate not only to have Øystein here with us today, but also Bud Cole, of National Defense University, and Bob Sutter, of George Washington University.

As those of you who follow energy developments in China know, it's been 20 years since China became a net importer of oil. Today, China is the world's second largest consumer of oil behind the United States, and according to the United States Energy Information Administration, China surpassed the United States to become the world's largest net importer of oil in September 2013, which makes Øystein's book very timely.

Over the past two decades, much has been written about the steps that the Chinese government and China's national oil companies have taken to enhance the security of China's oil supply. So, you may be wondering if you really need to read another book about China's approach to energy security. I'm here to tell you that the answer is yes because Øystein provides us with a new framework to understand how China is ensuring it's oil supplies against disruption through a series of initiatives at home and abroad and on land and at sea.

I'm now going to yield the floor to Øystein to tell us about his book and to Bob and to Bud to make some additional comments. And then we'll have plenty of time for Q&A. Thank you.

MR. TUNSJØ: Thank you, Erica. First, let me thank you and also Brookings for hosting this event and let me also thank the Norwegian embassy for helping out and co-organizing this event. And finally, let me thank my fellow panelists for finding time to attend this event.

It's a great honor for me to be here at the Brookings and to present my new book. As Erica mentioned in her introduction, over the last 20 years, China has gone from exporting oil to becoming the largest net oil importer in the world, and this is a remarkable development in just 20 years. And this book "Security and Profit in China's Energy Policy: Hedging Against Risk", looks at the strategies that China has developed to deal with its growing dependence on imported oil, which today is close to 60 percent of consumption.

And the core argument of the book is that China has developed the capacity to manage risks in the international petroleum market and that China has ensured against oil supply disruption through a number of hedging strategies.

And these hedging strategies reflect the government's concern about security of oil supply and the oil companies' search for profit or commercial interest, hence the title "Security and Profit".

These hedging strategies not only reflect what China has done to deal with disruption in the international petroleum market, but as I will point out later, also reflects broader national and foreign policy goals of the Chinese government.

I think the best way to sort of do this in about 15 minutes is to run you through the book, sort of, its structure, the core themes, and the arguments. And also, as Erica pointed to in her introduction, the first two chapters of the book basically seek to develop a new framework for looking at China's energy security policy, which is based on hedging. And I sort of developed this framework by looking at the existing literature, which mainly focuses on either that the Chinese government are pursuing sort of strategic and security objectives, or that China's energy security policy is shaped by the oil companies' search for profit or commercial interest.

My take on this is that what we're seeing is a mix of these two sort of developments and some, of course, have pointed to this earlier and describe it as sort of a comprehensive approach. And I try to go beyond semantics and just not replace comprehensive with hedging and try to actually point out what a hedging framework looks like when we are analyzing China's energy security policy. And I do this by drawing some inspiration from hedging and finance. If you're hedging your bets in the financial world, you are looking to make some profit but you also want to ensure your investments or you combine, for instance, longs with shorts and develop a portfolio, which leaves you reasonably better off in a down market because you've ensured your portfolio with short strategies.

And by drawing on this sort of thinking, I look at China's energy security policy and I basically conclude that China's energy security is about managing risk. And how do you go about managing risk? Well, hedging is one way of doing that. And then the rest of the book basically looks at what are these hedging strategies.

Before I sort of explain that, I think it's also important to clarify a few things, which is important to this hedging framework, and the first is that we need to distinguish between peacetime risks and wartime threat scenarios when we look at China's energy security policy.

So, wartime threat scenarios will be like -- a very unlikely scenario -- but a war between the United States and China where one can expect the U.S. Navy to blockade oil shipments going to China or arriving seaborne. In such a situation, there is little China can do about that, but the pipelines, which I will point to a bit later, is some form of insurance in that kind of scenario.

The book does not mainly look at wartime threat scenario because if you're faced with a threat, your strategic choice is not likely to hedge, but instead to try to eliminate the threat. So, the focus of the book is more on peacetime risk scenarios, and there can be peacetime risks related to the international energy market or to sudden price rise in the market or to oil supply disruption, and so forth.

And this is important to have in mind. So, the hedging strategies I talk about is basically related to peacetime risk scenarios.

And so, these hedging strategies are identified in four empirical chapters, which looks at the energy mix, the sources of supply, and the transportation roots. So, I start the third chapter by looking at China's domestic energy security policy, and here I identify three sort of hedging strategies. The first and most important is the Chinese government's reliance -- self-reliance strategy or self-sufficiency strategy.

In 2010, China became the world's largest energy consumer. Nonetheless, China is almost 90 percent self-sufficient when it comes to energy. Of course, this is because they have access to a lot of cheap coal, but it also reflects the government's emphasis on self-reliance and self-sufficiency. This is because of China's history and the experience during the embargoes in the 1950s and 1960s, the split with the Soviet Union in the 1960s, and so forth.

So, my argument is that the emphasis on self-sufficiency is an important short strategy in China's energy security policy. It is a more costly short strategy in environmental and also to some extent economic terms, but nonetheless, a strategy that the Chinese government has pursued.

The second hedging strategies that I emphasize in this chapter on the domestic aspects of China's energy security policy is this more traditional way of ensuring against crisis in the international petroleum market, which is to develop a strategic petroleum reserve. And I also point out that this can be viewed as an insurance or hedging strategy.

The third emphasis is on China's refinery capacity. This is, of course, the main driver behind the build up of China's refinery capacity has been the competition between the Chinese oil companies and the downstream sector. However, the fact that China has a large refinery capacity today provides insurance in a crisis where China has to import oil from various regions or countries in the world. So, they are better prepared for a crisis.

And then I move from sort of the domestic realm of China's energy policy to what they've been doing to search for a supply of oil. And basically here in this chapter I look at the oil companies going abroad and their investment in equity oil production overseas. And this equity oil production is largely sold locally or in the international petroleum market to boost oil companies' profits. However, again I argue that the equity overseas oil production can be shipped back to China in an emergency or crisis in the international petroleum market and that this, again, provides insurance.

And it can be shipped back on Chinese state-owned tankers, and this brings me to the next chapter looking at the transportation routes. So, the basic argument here is that the development of a state-owned tanker fleet in China is an important hedging strategy in a number of ways. It can be used to ship oil back to China on Chinese tankers or it can be used in a war exclusion zone, if there was a war in an oil-rich region, for instance, a conflict in the Middle East, the Chinese government can then instruct their state-owned tankers to enter this war exclusion zone and have the capacity to enter oil terminals and to pick up oil in this area and take a much higher risk than many other oil companies or tankers would think of.

And finally, this state-owned tanker fleet can be used in a situation where China's major oil suppliers are embargoed or sanctioned, such as we saw in 2012 when sanctions were increased against Iran and very few in the West could operate in Iran because the tankers could not be insured.

So, what the Chinese government did was to self-insure their tankers so that it can continue to operate in Iran. This not only provided security of supply, but the particular situation gave the Chinese oil companies a better hand when it comes to renegotiating contracts with the Iranians so they can actually get a better price on this oil trade.

And again, this illustrates how both profit and security is linked in China's energy security policy.

It is important to remember my distinction between wartime threats and peacetime risks when thinking of how you use a state-owned tanker fleet or overseas equity oil production. If there is a war between the U.S. and China, nothing of this will work, so this state-owned tanker fleet will be easy to identify, so a blockade of China's coast will be even easier to enforce. Hence, we have to think about -- and also the equity oil production that Chinese oil companies produce overseas cannot be shipped back to China in a wartime scenario.

So, basically all of this is for peacetime risk scenarios.

And then the final sort of empirical chapter in the book looks at the final transportation routes, which are the pipelines, and the core argument here is that the pipelines ensure against relying on loans or relying on the international petroleum market and sea-lanes of communications, which the Chinese do not control.

And sort of the core argument here is that the pipelines are safer during wartime threat scenarios but more insecure in peacetime risk scenarios. But for sea-lanes, it's the opposite. The sea-lanes are safer during peacetime risk scenarios and more insecure during wartime threat scenarios. And by combining pipelines and seaborne oil supplies, you are also hedging your bets. And again, this hedging strategy is a more costly strategy in terms of economics. It will be more cost-benefit analysis or more cost efficient to rely on seaborne oil supplies. It's cheaper, but again, the Chinese governments have been ensuring by developing cross-border pipelines.

It's important also to point out that the Myanmar-China pipeline is basically a transit pipeline. It doesn't work for this argument, so the pipelines I'm referring to is the pipeline between Russia and China and between Central Asia and China.

So, these are sort of the hedging strategies that I identify in the book. But it's also throughout all of these chapters an argument that what we are seeing is also more than energy security. There is more going on here. So, if you think of the pipelines, for instance, this is, of course, an insurance for the Chinese government in a wartime situation, but on the other hand, the pipelines provide much broader foreign policy goals of whether it's development, whether it's maintaining stability, whether it's promoting trade relations or diplomatic and strategic impasse into, for instance, Central Asia, or improving the strategic partnership with Russia.

If we think about the tankers and the buildup of a state-owned tanker fleet, it is not only for increasing China's ability to manage risks in the international petroleum market, it is very much also about sustaining development, sustaining a maritime economy, sustaining shipyards, keeping jobs, building infrastructure. If China wants to develop a large navy, it would make no sense to close down all their yards, although they are losing a lot of money. So, in a sense, the build up of a state-owned tanker fleet reflects much broader national and foreign policy goals than just energy security.

And sort of I end the book by trying to draw out some implications, and there are basically eight implications I point to. When it comes to sort of the global aspect, I see first stronger competition between Chinese oil companies and international oil companies. In Norway, chief executives of Statoil, a Norwegian oil companies, are just half jokingly saying that the Chinese are adding an extra zero to any bidding competition and thereby it sort of becomes impossible to compete.

Of course, this is an exaggeration, but the Chinese not only have the financial muscles, but they have support by the Chinese government so they have sweeteners when it comes to securing deals overseas, whether it's diplomatic support, arms deals, infrastructure projects, aid, and so forth. This is nothing new, but the Chinese oil companies are becoming competitive players in the international petroleum market.

The second sort of global implication is institutions. I'm not saying that the international energy agency is becoming directly anachronistic, but institutions have to adapt to a new world energy order where countries such as China and India are becoming major players. So, there will be implications for a number of energy institutions, both globally and regionally.

The third kind of implications I point to when it comes to the global aspect is that China, through it's overseas investments and its interest in energy deals, has developed a sort of global portfolio of interests and these interests need to be protected and preserved and announced. So, we see this, whether it's protecting Chinese citizens or workers overseas, or protecting Chinese investments. And, of course, this might challenge the sort of non-interference principle that the Chinese government has emphasized for a long time.

When it comes to the maritime realm, there are three implications I point to there as well. First, when it comes to the tanker market, there is, of course, growing competition there as well. There are a lot of tanker companies losing a lot of money over the last few years. Frontline, which is the biggest private-owned tanker company in the world, operates 47 very large crude carriers. Two years ago, they needed $30,000 per day in freight rates to break even. At that time, the rates were as low as $10,000, so they were losing $20,000 U.S. every day and operating 47 tankers, that is a lot of money.

And of course, this is not just because the Chinese are just developing more and more tankers that there is an over capacity in the market, but China and the state-owned tankers are part of this development and it needs to be watched carefully in the future.

China also by having a larger percentage of the world tanker fleet, it can both boost its commercial, but also strategic and diplomatic interests, which has implications. And the second implication I point to, sort of, when it comes to the maritime is this idea of a responsible stakeholder. And of course, China has interest in protecting sea-lanes of communications. They operated in the Gulf of Aden for a long time now, and we will probably see more of this.

At the same time, this is one the one hand contributing to the global commons and common interests, but on the other hand we know that the Chinese are using the freights that have operated in the Gulf of Aden in the South China Sea or the East China Sea and this is part of sort of the tension and conflict in that area.

So, there is a dilemma here of when we ask the Chinese to be responsible stakeholders, we also legitimize that they have a power projection capabilities to actually do something in the Middle East or in the Gulf of Aden or other places.

I also point to the Arctic. I basically say that the stakes are not high enough to warrant confrontation, that there has been a lot of speculation of China's role in the Arctic and so far I'm not seeing this as a sort of major development.

The last two implications are related to the continental aspect. I see big developments in China-Russia relations. There are some new energy deals being struck between Russia and China and the Russians have to look east for their export, whether it's both gas and oil, and also China is having a major presence in Central Asia. We're talking about sort of a new Silk Road going through Asia and energy interest is very much part of that picture.

So, in conclusion, I think in many ways my panel here today brings together a lot of the issues in the book. Erica Downs is sort of the leading energy expert on China outside of China. She's written, you know, enormously on this for many years, but I think what this book tried to do is to develop a lot of that literature and publications by sort of building this hedging framework.

And in doing that, and in stimulating my thinking on that, Bob Sutter has written on hedging, has been sort of a pioneer going back to 2006, at least, looking at relations between Southeast Asian states, and that has also been an inspiration. And finally, Bud Cole, with his sea-lines and pipelines book from 2008 has also been a very sort of influential voice in getting me to think about how the Chinese are combining sea-lanes and pipelines and how this can be viewed as a hedging strategy.

So, I look very much forward to all of your comments. And thank you for your attention.

(Applause)

CAPTAIN COLE: I'd like to thank Erica and Brookings for inviting me here today, it's a great honor. As a U.S. government employee I also have to give a disclaimer and note that my views are my own and don't represent the National War College or any other agency of the U.S. government.

Øystein has really produced a book that I -- instead of hedging, which sounds kind of political science-y to me, I prefer coherence -- I think he's presented a very coherent, rational description and picture of what Beijing is trying to do to obtain energy security.

I'm a historian by training, so I went back to some really basic sources in scribbling out some remarks for today. First going to Alfred Thayer Mahan, the granddaddy of all maritime strategists, and Mahan's shorthand is to build a big navy, engage in massive maritime commerce to ensure the wealth of the nation, gain overseas possessions, and ensure the availability of foreign markets.

Now, I don't think China's going to be doing any colonizing, but certainly in the way they've been obtaining mineral rights around the world and expanding their global trading emphasis or efforts, I think Mahan is not perhaps too bad a fit.

I think that the key to all this, and what Øystein has noted as part of his hedging strategy that he attributes to Beijing, is energy security, and I think there's at least three aspects to that. First, and perhaps least important to China, is an affordable price of energy resources, and I say least important because of China's amazing economic advances over the last couple of decades, their willingness to act in a way that I've had

American energy experts describe as economically irrational to ensure the availability of those energy resources. Second, in addition to affordable pricing energy resources is simply the availability, and here we see the massive going out campaign of Chinese oil companies sponsored and assisted by the government in Beijing to ensure that they gain pride of place around the world. I saw today where, in the occasional contest between Angola and Saudi Arabia to produce the most energy imports for China, that Saudi Arabia has for many years retained its number one position in that respect, but nonetheless what we see is China increasingly going overseas.

As long ago as the mid-1990s, the Energy Information Administration, the EIA, was noting that on-shore energy reserves -- petroleum reserves in China were nearing the end of their useful life. Some of those reserves in Northeastern China, Dachang Field, and so forth, still are producing, but certainly not to a degree that would satisfy China's increasing energy needs.

Offshore resources are also being taken advantage of by China, of course, but even these are limited.

Øystein mentioned the importance -- the increasing importance of imported oil and I certainly agree with that, but with a very strong caveat that I think he also would agree to. And that is the importance of coal. When 70 percent or more of your daily -- of your nation's daily energy requirements are available on hand in indigenous coal supplies, it provides a very nice security blanket, especially when one considers the incredibly inefficient and wasteful way in which China has been taking advantage of its coal reserves to date.

I remember in the late 1990s that China began a couple of experiences at coalmines in Northeastern China with the assistance of some American companies to liquefy the coal at the mine mouth, which would simplify recovery, simplify transportation and usage at the endpoint. A few years after those plants were successfully established, Beijing ended them because they were very water-intensive, and in Northeastern China, particularly as the Olympics approached in 2008, and as we still see today, water is a more valuable resource in many areas than energy is in China, despite the increasing importance of energy.

So, as long as China's got those coal reserves, the ability to increase the efficiency of using those coal reserves, as I said, it provides a very nice security blanket when we attempt to take a strategic look at China's overseas and maritime efforts with respect to energy.

The third sort of aspect of energy security I'll point to in addition to price and availability is sort of the more traditional military security aspect of that. And here I think that, again, as Øystein points out in his book, China is not terribly concerned about that, and the best evidence of that, in addition to their emphasis on obtaining -- building Chinese flag tankers, is as they've established a strategic petroleum reserve, the first four reserves were above-ground tank farms in coastal areas of China, which, to me as a former navy guy, exhibits no concern about military security. They're simply not worried about it, and I would agree with that.

Nonetheless, I have to note that we do read occasionally, not as much as we did perhaps five or six years ago, about the so-called Malacca Dilemma, that is, Chinese analysts writing about the dangers of the U.S. cutting off the flow of oil through the Malacca Strait. Well, in fact, most supertankers can't go through the Malacca Strait because the safe draft is only 62 feet. Most go through one of the other Indonesian archipelagic passages, and in fact the whole idea of the United States being able to interfere at sea with the importation of Chinese energy or any other form of China's trade, is extremely thin for many reasons, number one, because of the paucity of U.S. Navy assets, number two, because of the vast distances that would have to be covered. You know, traveling from Shanghai, for instance, to Abandan, the Persian Gulf, is over 5,000 nautical miles. If you think about the difficulty that the allies had in World War I and World War II, just safeguarding merchant ship passages across a relatively narrow North Atlantic, trying to ensure the safety of a sea-lane of communication of over 5,000 nautical miles is very daunting to say the least, and frankly, probably impossible.

The second reason or maybe the third reason that it would be extremely difficult to execute a so-called Malacca Dilemma is the fungibility of petroleum trade. A Chinese tanker that would load oil in the Persian Gulf nominally destined for Shanghai may well have that load of oil sold two or three times on the international market before it ever gets to Shanghai, so it would be almost impossible, I think, physically, to carry out what some Chinese analysts have described as the Malacca Dilemma.

This is not to say, however, that China is not being prepared for the military aspects of energy security. Certainly, the Chinese navy is modernizing and expanding, although at a much more moderate rate, I would argue, than we often read about and certainly in American newspapers, and that was brought home to me this morning, particularly when I saw a picture of the ships from the U.S. Navy and the Japanese Maritime Self-Defense Force that have just finished an annual exercise in the Philippine Sea, and in that picture were two aircraft carriers, 19 Aegis armed combatants and a couple of oilers. They didn't show the submarines and the aircraft associated with it. In other words, in one exercise, the U.S. and Japanese navies have just finished two weeks of putting to sea more fire power than the entire Chinese navy.

So, I think that while the Chinese navy is modernizing, that it is not a particular danger, certainly not to the U.S. or to allied interests in the near term, despite some of the reports that we can read.

The bigger question, I suppose, when we look at the military and the economic aspects of China's energy situation, of how China is striving to obtain a satisfactory degree of energy security, is how they evaluate the situation. I can stand up here and say the Malacca Dilemma doesn't exist, but if that is a perception that does hold sway in Beijing, then it is something that could be very effective as we observe China's economy continue to grow, their energy demands continuing to increase, and the global effects of both those facets becoming apparent. In other words, at what point and to what degree will Beijing choose to use its modernizing navy, military means, as an instrument of statecraft?

We currently see China's declaration of an air defense identification zone in East China Sea, which is certainly gaining more headlines each day than it quite possibly deserves, being in my mind, more of a political statement than a military step, but I think overall in observing military developments in China, particularly as they pertain to China's naval growth and modernization, and China's ability to exert national power at sea, we have to remember, at least in my mind, that the first thing President Xi Jinping thinks about when he wakes up in the morning is probably not the Diaoyutai or Taiwan, even, but rather how many incidents of social instability have occurred in China in the last 24 hours.

In other words, when evaluating China's search for energy security, I think we need to maintain a proper perspective and I think that's what Øystein TusjØ does to a remarkable degree in this very remarkable book. I'd be the first -- I have to confess that I have a blurb on the cover of the book. It's not something I do lightly and I believe that it's an important book and one that really can help us learn about China's national security objectives and about the increasingly important role that China's playing in the world today. Thank you.

(Applause)

MR. SUTTER: Well, thanks very much. It's a great pleasure to be part of this prestigious panel. I really am honored to be here.

I really enjoyed this book very much. It's a very systematic treatment, very insightful, and I really find it very persuasive, so I really commend it to you.

There is an underground among the scholarly community, we all look at other peoples' works in draft and people don't know about it, and so all I can say is that underground exists and I'm part of it, so I had a chance to look at this book early and it was -- it's developed well and it's an excellent book.

But I would -- what I would talk about here today, through, and I've been asked to talk about, is sort of the energy and Chinese foreign relations and China's orientation in foreign affairs and how this book fits into that framework. And I think Professor Cole has given us some caution on getting too excited about China and what they're doing in this regard and how the book that we're dealing with today also underlines, in a sophisticated way, China's approach. And I'm asked to look at the issue of hedging and how the Chinese leadership looks at hedging.

Basically the central leaders seem to be avoiding extremes. They employ various avenues in a pragmatic way, meeting the interests that Professor Cole laid out, and all of this meshes very well with actually a project we're doing at the Seaver Center at the George Washington University.

I've been with George Washington now about two and a half years and it's really an exciting place. I'm pretty old to get excited, but it is an exciting place and what you find here is they're doing these projects on looking at debates in Asia among Asian elites and they've done a book already on foreign policy debates, and the second book is a book on energy debates, and I had to do that in conjunction with a Chinese professor, and the two of us looked at these Chinese energy debates and what we found is something that meshes very nicely with the comments that have been made here.

The key points that came up in this regard that relate to what we're talking about today is that there are some extreme opinions in China. Many people -- we sort of label these nationalists, nationalists in China. They're sometimes alarmist and they do have some influence, and public opinion in China seems to reflect a lot of these kinds of views, particularly when you get involved with sovereignty and security issues like the East China Sea and the South China Sea and resources in that area.

But they seem to be -- in the area that we're talking about today, they seem to be offset to some degree by people that you could call globalists, people that say, well, energy vulnerability is natural, everybody has it to one degree or another.

There's been no episode where China has been blocked from getting energy in 40 years, nothing. Nothing's happened in the world that's done this to China. China has a long record of working with countries abroad and companies and others that's cooperative with those countries. It's very integrated, gets lots of benefit from this, and will continue along those lines. China needs the international community for technology, to be more efficient in the use of energy, for climate change issues, environmental protection, and so forth.

And so, what you find is that there's this debate and the decision makers tend to look at cost and benefits in this situation. They seek economical supply, they seek greater efficiency in use, they're aware of environmental problems that China faces, and they hedge in a variety of ways. They make a variety of decisions in moving forward.

Now, Øystein very wisely mentioned wartime contingencies and how it's hard to deal with those, and the point he mentions of how China does prepare for this are very useful and the heavy reliance on coal, as Professor -- as was also illustrated by Bud's remarks. The peacetime concerns, though, are underlined by the fact there has been no blockage from China, that there is close cooperation internationally, that there is working with various foreign firms to get good deals, to get technology, and for the benefit of China and the benefit of the foreign counterpart.

There's greater emphasis on environmental concerns, on efficiency of use, as well as on supply. So, this is an important element that's relatively new. And to underline Bud's remarks, there's little sense of crisis and there's little perceived need for a major overhaul in the way they make decisions on energy issues.

Erica has written extensively on this issue, the idea of, well, they should have a -- they should be more organized to deal with their energy security problem, this type of thing. Well, they're not, and there's really no big call for this in China. And part of the reason is, it seems to work. It's maybe not pretty, but it seems to work.

And so, what you find is that within that framework, with state-owned enterprises having a lot of influence and government agencies of various sorts pulling in various directions, the leadership seems to be able to work methodically to deal with shortcomings and contingencies to hedge against negative developments that might transpire.

So, what this means for Chinese foreign policy, it seems to me, is that there are many areas of cooperation in this area with the United States and others. The nationalists do have an influence and this is a problem when you're dealing with sovereignty issues, like for example in the South China Sea and the East China Sea -- rigidity will prevail there.

But realistically, it's hard to offset the problems that China faces in securing these sea-lines of communication and they don't seem that concerned about it.

They will continue this pattern of hedging that Øystein talks about, pursuing various avenues for China's security and advantage. Many of these will involve closer international interaction including with the United States.

To reiterate, there's no major sense of crisis. This longstanding diffused governance pattern is likely to persist, and I think over all it's relative -- it's easier for the United States to deal with China in this kind of atmosphere than it would be if there was a sense of crisis and a sense of defensiveness as China dealt with its energy security issue.

So, I know I've calmed you all down, so I'll stop there. Thank you.

(Applause)

MS. DOWNS: Before I open up the floor to questions, I'd like to start by asking one of my own, I guess directed primarily towards Øystein, but I also welcome comments from Bud and Bob if they want to join in, and this deals with an issue that I've been thinking a lot about lately, which is, how is China's -- how are China's efforts to enhance its oil security likely to change in light of the shale energy revolution that's occurred here in the United States?

You know, as some of you may know, there are projections out there done by the International Energy Agency and other organizations that show over the next 20 years, U.S. oil imports from the

Persian Gulf are expected to fall dramatically to about 100,000 barrels per day according to some projections that the International Energy Agency did last year, whereas on the other hand, China's imports from the Persian Gulf region are expected to increase, and again, the same International Energy Agency statistics showed China's oil imports from the region at about six to seven million barrels per day in 2035.

And so that's certainly spurred a lot of questions about what China might do to ensure the free flow of oil from this region, you know, especially if the United States isn't as engaged -- I'm not an expert on U.S. policy in the region. There's certainly been a lot of debates about whether U.S. declining oil imports from the Persian Gulf is going to affect U.S. posture in the region, but certainly it's raised the issue of, you know, if China can't count -- and other major importers from the region, such as India and Japan and South Korea, can't count on the United States to deter the primary threat to the free flow of oil at the moment, which is the closure of the Strait of Hormuz by Iran, you know, what might China and some of these other countries do?

I realize this is a really difficult question to answer. This is one of the reasons I'm throwing it out here, but I wanted to know, based on Øystein's work on hedging, you know, if you have any comments, and I also welcome comments from Bud and Bob as well.

MR. TUNSJØ: Thank you, Erica. Of course it's a difficult question because there's a lot of speculation going on about the issue. As of today, and for the foreseeable future, China will have no power projection capability to sort of secure sea-lanes, which I think Bud pointed out, even the U.S. Navy will have difficulties in doing from the Middle East to East Asia. And so the Chinese approach has to be differently and it's difficult to see what exactly they can do if there was a conflict in the Middle East or an uprising in, for instance, Saudi Arabia, anything that will sort of create turmoil in the international petroleum market.

So, I would say that they will continue to rely on the hedging strategies that they already have developed, but they will also continue to free ride on sort of U.S. security concerns even though the United States is developing shale gas, and conventional oil sand, fracking, all of this, we should remember that the U.S. has not been dependent on the Middle East oil for a very long time.

So, the percentage of oil coming to the U.S. from the Middle East has been quite low for a very long time. So, the United States will continue to be involved in the Middle East because of affordability and the price of oil. So, I think that the -- not too much will change in sort of the short-term. And the long-term is very difficult to predict.

The sort of energy revolution going on in the U.S. may not last forever. It can only maybe last for another 10 or 15 years. On the other hand, the Chinese may experience some form of shale gas revolution themselves. The reserves are large, they are much more difficult to extract, there is a lack of technology, but all of this can change. The Chinese lack the infrastructure, of course, there is a lack of water in Sinchan where a lot of the reserves are.

So, yes, there are challenges, but I think they might be overcome. And my final point on this will probably be that the development in North America has sort of shifted Russia's position. Russia has been in sort of denial over this for many years, but I think that recently we're seeing that the Russians are actually accepting that it's not going to be much LNG export to North America. The European market is not very large -- well, there isn't large opportunities to expand there, so the LNG and the petroleum reserves have to be shifted eastward, and I think that is also, for the Chinese, a good thing. If they can actually have pipelines from Russia instead of relying on the Middle East, that's one way of ensuring against this situation.

CAPTAIN COLE: I think that the U.S. and the Middle East question is probably more politically oriented than it is energy oriented right now, but if in fact the U.S. becomes energy independent -- and I think I even saw one forecast that the U.S. would become the world's largest energy exporter in conjunction with Canada by 2030 or 2040 -- that would indicate to me that China would shift its market to North America as it's already been trying to do, which I think would have a calming influence on any international political situation, certainly on relationships between the United States and China. I think that would be one major change in China's direction.

But as Øystein mentioned, the natural gas reserves in Siberia are huge, but in addition, there's the gas fields around Sakhalin Island that are only now really beginning to be tapped, and this would certainly furnish a new supply for Japan if Japan were to shift its infrastructure a bit, as well as possibly for China.

So, I think from an energy availability perspective that we might see a shift on China's part from the Middle East to North America and perhaps to the fields around Sakhalin, but let me hasten to add that it's so dangerous to try to make long-range predictions here. Maybe somebody will figure out how to recover methyl hydrates from beneath the seabed in an economic fashion, or perhaps those two guys out in Berkeley will invent cold fusion in their garage.

Linear projections are always a little bit difficult.

As far as the Gulf of Aden and the Indian Ocean and the Persian Gulf, that whole area from a military perspective, I think, is rather promising in the sense that any Chinese efforts in that area to go it alone would face not only U.S. naval presence, but also possible Indian objections. It's -- frankly, the Western Indian Ocean is not an area particularly ripe for Chinese naval expansion despite what our Indian navy friends like so much to discuss.

MR. SUTTER: I had just one snapshot in this. In our discussions with Beijing on our energy debates project at the beginning of this year, it was a very wide-ranging audience participants, experts, and government officials and so forth, and there was a sense of -- enhanced, I think, this sense of security in China as far as supplies were concerned, that the U.S. developments showed that they be more energy to have, and so the competition for energy would be seen as somewhat less, and so it had that effect.

MS. DOWNS: Thank you. I'm now going to open up the floor to questions. For those of you who have them, if you could please state your name and your institutional affiliation before you ask your question that would be great. Thank you.

The gentleman over here.

MR. SANG: James Sang. For Øystein, could you have written a similar book about the U.S. between 1975 and 1990?

MR. TUNSJØ: That's a difficult question because I'm not an expert on U.S. policy in that period. Sort of the -- what I note in my book is that to hedge against risk or developing hedging strategies to manage risk is probably something many countries can do, but every country has a very different historical background, the resource situation is very different, and China and the United States are just very, very different positions when it comes to geography, when it comes to natural resources, when it comes to government and the government's relationship with the energy companies. So, I just -- I find it difficult to really answer your question. It just seems like something I would need to think more about.

MS. RAFFEL: I'm Helen Raffel with Resources of the Future. Ten years ago I taught environmental science at Sichuan University in Chengdu and Dr. Sutter mentioned environmental problems, global warming, and as I understand it, China, although it's still a very small fraction of total energy in China, is working on wind and solar and I'm wondering over the next decade or two whether they won't become phenomenally good at that. Does the author -- have you looked at wind and solar or only oil?

MR. TUNSJØ: There is a sort of a small discussion on wind and solar, but wind and solar -- although China is one of the leading countries in the world in investing in alternative energy, it's only -- this is less than 1 percent of the Chinese energy mix and it's hard to see that this is going to change rapidly in sort of the next 10, 20 years.

I think we will see more of nuclear power, I think we will see more of gas in the energy mix, but to what extent solar and wind power will -- I'm a bit skeptical so far at least.

MR. WEINBERGER: My name is John Weinberger. I wanted to ask Øystein about equity oil and whether that's, you know -- how important that is for oil security. It seems to me that that's a business strategy driven by the national oil companies going abroad to increase their profits and revenues, and it's hard to see exactly how investments in various -- you know, Venezuelan -- in various countries really produce oil that's going to be consumed in China.

MR. TUNSJØ: Well, as I mentioned in my introduction, most of the overseas equity oil production is sold locally or in the international petroleum market. But my argument is that in a crisis, much of this oil can be shipped back home to China if there is a tight oil market, and also in combination with pipelines, for instance. It's not that it's -- it's not going to insulate China from any crisis, but the whole point about hedging is that you are reasonably better off than others in a particular crisis.

So, relatively, China can be better off in a crisis by having -- well, today it's about 10 percent of their oil imports come through pipelines. They have maybe roughly 1.5 million barrels per day produced in equity oil. This sort of means that China, in a crisis, in a conflict in the Middle East, conflict between the U.S. and Iran or between Israel and Iran or between Iran and Saudi Arabia -- there will be a tight oil market and this will be sort of assurances in such a crisis. And it just means that China can manage the crisis better. It doesn't mean that China will not be affected by the crisis.

QUESTIONER: Hi, I'm Tom from China Daily. You mentioned that Russia is heading east in terms of exporting oil and gas, and as far as I know, China and Russia are undergoing negotiations about oil and gas cooperation, and the talks seem not to be going very smoothly because the two sides are bargaining about the price -- Russia asks for more price and China wants a lower price.

So, what do you foresee the Sino-Russian relationship in terms of the oil and gas cooperation? Thanks.

MR. TUNSJØ: No, you're absolutely right. The sort of -- after the new deals that were announced after the G-20 meeting in St. Petersburg in August and also now in the fall, largely related to oil deals between the Rosneft and the CNPC, huge deals, there are also MOU on a gas pipeline.

Of course, this has been discussed for a very long time and the main remaining issue is largely price. I'm quite optimistic about that because, as I alluded to earlier, the Russians are stuck in the sense that they were hoping to develop Shtokman and export LNG to North America. That market is gone. In Europe they have already more or less a monopoly when it comes to pipelines from the East. So, it's difficult to see the Russians exporting their gas anywhere else than to East Asia. And I also think that they will, because of the changes in North America, because of the changes in the LNG market, the prices are coming down, I think they will have to accept a lower price in order to develop a long-term, sustainable cooperation on energy with sort of the major consumer in the world, which is China.

Of course they will hedge their bets as well and develop the markets in Japan and South Korea, but I do think that we will see some form of agreement in a few years or even earlier. There was a lot of negativity about an oil pipeline, and once the Russians were sort of strapped for cash after the financial crisis, they really needed the Chinese investments. And I think the Chinese, their economy, detracted last quarter. They have difficulties, and I think not only do they need the market that China provides, but they also need the investments, and I think this is enough big incentives to strike a deal.

MS. DOWNS: And I'll just jump in here and say that I'm with Øystein on this one, that my personal view is that the unconventional energy revolution here in the United States and its global reverberations really has strengthened China's hands in negotiating with the Russians. And so, I'm much more optimistic about this project than I have been in the past.

QUESTIONER: Hi, Øystein. I enjoyed your discussion. I look forward to reading your book. My name is Ed Lezine and I'm curious, you mentioned the China hedging strategy and particularly the aspect of acquisitions. Is there any methodology behind where Chinese SOEs are acquiring assets? And what's the track record as to how they are managing them and operating them after the acquisition, whether it be, let's say, like Adex in Africa or the Ecuadorian X assets or other places in the world?

MR. TUNSJØ: It's a good question and I think actually Erica knows more about this than I do. I just will say generally that the Chinese oil companies and the overseas acquisitions and investments are very much low-hanging fruits to begin with and they had to work in sort of areas where there were opportunities.

The international petroleum market is a very, very competitive place to be and the Chinese oil companies were latecomers and therefore not only was it difficult to find good projects, but they lacked the experience from joint ventures, they lacked the technology and so forth.

But talking to a number of international oil companies, my experience is that the Chinese are being seen as very much developing and their project management skills have become much better, their technology has improved, and they are sort of looking to compete in the more lucrative projects.

I just learned a few days ago that CNOOC, the Chinese Offshore Oil Companies now struck a deal with the Norwegian Statoil to explore up in the North Atlantic within the Icelandic economic zone.

But I think maybe Erica should jump in here because I think she looked at this more closely than I did.

MS. DOWNS: Yeah, I mean, I guess just a couple of quick points. One sort of big change in the geographic focus of the Chinese oil companies in recent years has been North America. The United States and Canada have emerged as one of the most important destinations for Chinese oil companies. A lot of that has to do with the availability of unconventional assets for investment, but the amount of money that they've been putting into North America is quite striking, you know, that there have been -- various organizations have done calculations. I think *The Wall Street Journal* had an article in October this year, you know, showing that the Chinese companies have put more money in North

America than any other region of the world since 2008. And so that's a big change because, again, as Øystein mentioned, when the companies started going overseas, there was a sense that they were sort of disadvantaged by being late to international mergers and acquisitions, and so, you know, they spent a lot of time sort of going to places and buying assets that a lot of the major international players didn't want, and so we heard a lot about CNPC in Sudan and, you know, the big three Chinese oil companies in Iran, you know, and those aren't big focal points for them any more. So, that's one point.

I guess the second point, again related to the unconventional energy revolution here in the United States, is that it's really changed the game for Chinese national oil companies in terms of buying stuff overseas and that's because a lot of the major international oil companies are optimizing their portfolios, they're selling off non-core assets overseas to take that money to invest in the United States. And so right now, the world oil market, it's really a buyers' market, and so we see Chinese oil companies sort of buying a lot of stuff that a lot of the major players are selling and, you know, one interesting example would be in Kazakhstan where CNPC or China National Petroleum Corporation recently acquired ConocoPhillips stake in the consortium developing the Kashagan Oil Field, which is a huge project, it's also a very expensive one, and this is interesting because ten years ago two other Chinese oil companies, Cynopac and CNOOC tried to buy BG's stake in Kashagan and they were preempted.

And I also think that the unconventional revolution in the U.S. is creating opportunities for Chinese companies in places like the Canadian oil sands and the Brazilian offshore, you know, when the Brazilians had their offshore auction recently, a lot of the media coverage mentioned how companies like Exxon Mobil and Chevron were sitting on the sidelines and, you know, while you can't rerun history, I suspect that, you know, had we not had the oil and gas boom here in the United States, some of those countries might actually have wanted to get some of the pre-sell blocks in Brazil.

And then I think that -- I guess the last point is that I think the companies, sort of where the companies are investing overseas, you know, depends in large part sort of on the strategy of the companies and if you look at China National Petroleum Corporation, they're dominant in Central Asia, they're dominant in Iraq, and you know I expect them to continue to build up their portfolios in that area.

In fact, just last -- I think it was a week or two ago, we heard that CNPC is going to buy stake in Exxon Mobil's West Qurna project in Iraq, which is sort of going to further consolidate their position there. So, those are just a couple of thoughts.

MR. FINN: John Finn, State Department, retired. My question is for Professor Cole, but I welcome anybody else's comments as well.

Professor, you mentioned that Chinese leaders probably sleep well knowing they have the security blanket of coal in the event of a serious energy shortfall, but also that when they wake up in the morning the first thing on their minds is social instability. And it seems that in recent years, a significant source of that social instability has been coal and the choking pollution in China's cities.

How are they addressing that dilemma?

CAPTAIN COLE: Well, I think we can find plenty of evidence that they're concerned about it and the trick is overcoming the old saw about the mountains are high and the emperor is far away, is trying to get the provinces to carry out the laws and regulations that the central government is trying to impose to clean up the environment.

But the coal industry is ripe for improvement just in terms of washing the coal and mining higher quality coal, coal that's more expensive to get at, but does pay dividends with less environmentally degrading effects.

But you're absolutely right, the coal mining accidents and the corruption and the pollution are all matters of increasing concern. And I think we may be just now at the threshold of what the central government is going to do. What the government in Japan did back in, I think it was the ‘50s when there was that terrible lead poisoning incident in the schools, finally got the government in Tokyo to cross that threshold to imposing environmental conditions. I think we're about to see that in China.

MS. DOWNS: I also wonder if Øystein's sort of distinction between wartime and peacetime is a useful way to look at your question in that it seems to me that for the Chinese leadership, you know, they might sleep well at night knowing they have all this coal because it's there. It might be reassuring for a wartime scenario, but absent a wartime scenario, that's when you might see a focus on the concerns about environmental degradation, you know, air pollution, resulting protests. I don't know if that makes sense to you.

MR. TUNSJØ: I think I'd just make one comment on this. Of course, the energy mix with 70 percent coal provides security and the Germans did this during the Second World War. You can make synthetic oil out of coal, so of course this matters, but I think the Chinese government should think about, in terms of security, that they actually have enough oil to wage war. China produces 4.1 million barrels, roughly, per day and as I surprisingly learned in 2004, the U.S., while waging war in Afghanistan and Iraq and maintaining military operations all over the world, used 395,000 barrels per day. So, China produces ten times more oil than the U.S. needs to wage two wars and maintain it's global military presence.

So, even if you take away coal, it seems like the Chinese have enough oil to wage war or at least to manage in a wartime scenario. So, there can be room for the Chinese government to actually do something about the coal and the environmental damages and I think that's what we're seeing. I mean, they're trying to do a lot when it comes to clean energy and move in this direction, but since coal is so cheap and so available, it's really, really difficult to move ahead.

QUESTIONER: My question is to Mr. Øystein. What are the main similarities and differences of Chinese energy security policies in LNG imports when compared to oil production, overseas equity production? And I have another question about Turkmenistan. What is your interpretation on the recent natural gas pipeline agreements between Turkmenistan and Afghanistan, Pakistan, and India from Chinese energy security perspective? What about the peacetime risks of that agreement for China? Thank you.

MR. TUNSJØ: Thank you. My sort of immediate comment to that is that the oil market is extremely flexible and I think Bud pointed this out when it comes to the shipment of oil going from the Middle East to East Asia can change hands a dozen times during that journey.

So, it means that the international petroleum market is very flexible. LNG is more -- is a slightly different market. It's different also when it comes to pricing and we don't have a global LNG market today, it is very much regional based. I think we'll be moving in that direction to see more of a global LNG market, and if we do, then the LNG and gas can provide similar types of insurance as oil can, but as of today, there are important differences in these two markets and that provides also different hedges or opportunities to hedge.

MS. DOWNS: Ann Marie?

MS. BRADY: Hi. Ann Marie Brady from the Wilson Center. Øystein, I'm interested and intrigued by your dismissal of China's interests in Arctic oil, so could you talk a little bit more about that? You said, and I paraphrase, that the stakes are so small and the risk of conflict so low. Why would you say that?

MR. TUNSJØ: No, I think anybody -- you know, the Antarctic very well. The Arctic is very different because it's sea underneath the ice. So, in many ways, the whole polar seas covered more or less by the (inaudible) and the law of the sea, and most of the coastal states have accepted their respective EECs and their continental shelves. There isn't that many major disputes, at least not any disputes that would warrant conflict or war.

And I see it as highly unlikely that the Chinese will in any way project military power into the Arctic to fight for or to secure sea-lanes -- I just don't see it happening. I see that as a very alarmist scenario, which is very unlikely.

What the Chinese will be doing in the Arctic is what they have been doing so far. First of all, they have been relying on the scientific development. They are in the Arctic in Svalbard and Spitsbergen at the research station there to sort of get firsthand knowledge about the environmental developments in the Arctic. That is understandable because changes in the Arctic will have implications for China environmentally.

Second, I see only business as usual. I referred to this new deal between the CNOOC and the Statoil when it comes to Iceland and joint venture in exploration there, and I see the Chinese oil companies acting as any international oil companies operating in this area. And when it comes to the sea-lanes, of course the Chinese will show an interest, but the sea-lanes are hyped in a number of ways. There will be a long time until they will be commercially viable.

Currently, there is too much ice, there is too much floating ice, there is need for icebreakers. That you will need for a very long time. Any shipping companies have to really look closely at the cost/benefit analysis of operating this northern passage route because of higher insurance costs, because of costs with icebreakers, because you need double hull ships that are strengthened because of the floating ice.

The Arctic can basically not provide punctuality, and punctuality is a business model for a number of key sort of container companies like the Danish Maersk. Their whole business model is that they deliver the goods to their customer at a particular day at a particular time. The Arctic route cannot provide that and it doesn't really seem like they will do that in sort of the foreseeable future.

So, yes, there will be increased development and activity. The Russians will, of course, try to develop the route, but I really don't see much sort of -- as I said, there is -- the stakes are not high enough to warrant confrontation and what we're seeing with the Chinese, they've basically become observatory -- permanent observatories of the Arctic Council and by becoming observers, they have signed on the Arctic Council's principles of observing the coastal states' serenity over the EEC and the continental shelves, and so forth.

So, there isn't that much room to disagree on the law of the sea in this area either.

QUESTIONER: Ping Su from SAIS. My question is that how do you think Chinese investment in Arctic oil and gas? It's reported that the exploitation of Arctic oil and gas is very expensive. The price is higher than market price. Will it be affected by the unconventional energy or do you think this kind of investment is promising? Thank you.

MR. TUNSJØ: As a Norwegian I should say that it's very promising. But I don't really know -- I haven't looked at the sort of cost/benefit analysis for these kind of investments.

Yes, the Arctic is a very difficult area to operate in because of the hostile environment and also especially with the ice, which is not just floating, but all the equipment you have to get rid of the ice, and it's really, really hard to operate in the area, but I was very surprised to learn about this new deal and it seems like the Chinese think that they can make profits here.

So, I expect the Chinese to invest in the Arctic as they invest in the rest of the world where there are opportunities.

MS. DOWNS: Gentleman in the back.

QUESTIONER: Thank you. Wen Shen from People's Daily. This question for both Øystein and Erica. What do you see the operation between U.S. and China on clean energy? Thank you.

MS. DOWNS: I was going to say, both of us work primarily on oil and gas.

MR. TUNSJØ: If you think of nuclear as clean, then I think there are some opportunities, at least. The Chinese are very keen on continuing to develop nuclear power and I think this is important. It is a shift also for the Chinese away from relying on coal, but also it creates less pressure on the international petroleum market if the Chinese can actually develop more nuclear power.

So, I think in that area, there can be some opportunities. When it comes to the alternative energy, there might also be opportunities for investments, but the solar panel, it's been a sort of sensitive issue because of the allegations about subsidy and so forth.

But as I mentioned before, the Chinese are investing heavily in alternative energy, wind power, solar, although solar is mostly exported, but there is, of course, an opportunity here as well.

MS. DOWNS: And if you look at natural gas as a cleaner fuel than coal or oil, there's certainly a lot of interest in the United States, in Washington, D.C. in having China increase the share of natural gas in its energy mix and having China develop its shale gas resources which, you know, on paper are considerable.

And so I think that's another promising area for cooperation and certainly there have been a lot of, you know, delegations from China that have come to the United States, you know, to learn about the shale energy revolution here, to find out what extent it's something that China can import and, you know, also to sort of learn a lot about the regulation and the development of the market here.

Right here.

MR. KHAN: Thank you. My name is Sher Khan from Catholic University. I had a question about -- Øystein, you mentioned earlier the -- you didn't use this word but it sounded like mercantilist aspect of China's oil trade in the state-owned vertical nature of the companies, and I had noticed late this summer that President Xi Jinping had visited Central and South America and within the same week Nicaragua had announced that they wanted to build a competing canal to the Panama Canal and it was supposed to be funded by a Chinese-based company. And who knows if that would ever happen, but I couldn't help but think that there might be some state-owned aspect to these developments, and I just wanted to hear your comment on that.

MR. TUNSJØ: Again, I think Erica, she's working on a book project on China, Inc., so she will probably have a lot to fill in here, but again, I do think there -- I wouldn't call it maybe mercantilistic, but that the Chinese government, of course, promote their state-owned enterprises overseas should not be a surprise. Most countries have sort of been involved in that over the last decades.

So, I think that this is part of the competition and of course it's not easy to compete with the Chinese government, although they are not directly involved in any bids and so forth. As you point to, it does help having the diplomatic support or securing broader trade agreements or arms export or infrastructure development and aid and so forth.

So, of course this is an advantage for the Chinese oil companies, but whether we can say -- I wouldn't call it a mercantilistic strategy though because a lot of the overseas investments in oil production is basically also providing to a more developed oil market. They are bringing more oil into the market through a number of these deals and not shipping it directly or locking it up and shipping it back to China, which then would be more a mercantilistic strategy.

MS. DOWNS: I think there are a lot of intriguing things about that deal. I mean, if you had asked me before it was announced, you know, who in China is most likely to get involved in this project, I would have said, oh, it's going to be one of the construction companies that is controlled by the central government. But that wasn't the case here. It was a private company. I want to say it was a telecommunications company. I mean, it was a company whose core business area had nothing to do with construction.

And so I think that sort of raised a lot of questions, you know, at the time, about who is this individual, you know, do they have the capacity to carry this out, are they going to be able to sort of bring the financing, to sort of bring the companies, and so that's the one thing -- I haven't looked at this in a while, but I remember when the deal was announced, that was the one thing that stood out to me, just that the player wasn't at all who I would have expected it to be if you had asked me to guess who it was.

Right now it's about 5:30, so I'm going to take -- which was our stop time -- so, I'm going to take one more question before we call it a day if anyone has one. Over here.

QUESTIONER: Jamie Enrocca. I have just a quick question on the use of the UN. I don't know if your analysis has taken into consideration its increased use with regard to the oil trade and I was wondering if your analysis has looked at that and whether that's a hedging strategy and what your prospects are for the potential petro-UN in the future. Thank you.

MR. TUNSJØ: Well, I think it was just the other day there was a report coming out that China, basically over the last 20 months or something, has been moved from roughly 2 percent to 8 percent of trade -

- world trade or deals in RMB. The U.S. dollar is still 80 percent, but they've sort of become the second most important currency surpassing the Euro.

I don't know if this report is correct, but at least there are some interesting developments here. I don't know to what extent this -- the fact that more and more deals will be made in RMB will provide some sort of hedge or insurance in a crisis.

Potentially, it could, but I really have to think more about it and I think we just, very recently now, are seeing the kind of movement on that, which -- yeah, I will have to say that I would like to see the RMB becoming even more prominent in these deals before it can actually have a major impact.

MS. DOWNS: Okay. Thank you, everyone, for coming.

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