Oil and Gas Supply Security Policy in China and Japan

Iva Brkic

Methodology and Approach

The thesis develops methodology upon energy security concept in which core is country's ability to secure sufficient supplies of oil and gas, since for every country constant supply of strategic resources such as oil and gas is vital for countries' security and economic development.

The oil and gas supply security policy conceptual framework develops a number of criteria extracted from the frameworks of a number of scholars who in their research mostly dealt with the concept of energy security and specifics of oil and gas supply security policy. In order to overcome possible disruptions that might suddenly occur and thus challenge ceaseless supplies of oil and gas, a country may invest in a number of strategies to enhance county's oil and gas supply security. Those strategies include: i) domestic production, ii) imports, iii) overseas production, iv) securing strategic petroleum reserves, and v) expansion of refining capacity.

Since political, economic and social factors differ from country to country, every country has different priorities in approaching the formation and implementation of oil and gas supply security policies. The methodology developed helps us to assess similarities and differences between oil and gas supply security policies in China and Japan.

Main Facts

Firstly, both China and Japan's domestic production levels cannot satisfy their economies' needs. The differences are observed in the structure of their oil and gas sectors. While in Japan market mechanisms steer energy sector, in China, on the contrary, the stability of energy sector is regulated, and state-ownership dominates China's oil and gas industry.

Secondly, two countries have different approaches towards diversification of oil and gas imports. China as a relative latecomer to international oil and gas global energy markets focuses on diversification of oil and gas suppliers and routes by which oil and gas is traded. In Japan's tactics we observe a geostategic approach that stresses the importance of long-term strategic relationship with key energy exporters. In Japan, by contrast, market approach led and decentralized decision-making resulted in relatively modest geographic diversification of oil and gas production relative to China.

Thirdly, in both China and Japan the state subsidizes overseas activities of their domestic oil and gas companies. Interestingly countries target different regions for their investments. Chinese NOCs implement geostategic approach oriented towards 'emerging' energy exporters. Japanese oil and gas companies, due to price and availability concerns are reluctant to enter new 'risky' countries. This resulted in Japan's lower level of diversification of overseas production relative to China.

Fourthly, both countries emphasize the relevance of domestic SPSR. Japan, as an OECD country, holds already developed and well-functioning SPSR system. The SPSR levels are known, transparent and proportionately divided between the state and private sector, which implies that the country advocates increasing interdependence in terms of globalization calling for increasing mutual trust and cooperation. In China, on the contrary, the construction of domestic SPSR system is still an ongoing project. China's SPSRs are exclusively state-held and capacity levels are not reported. This further indicates an increasing political impediment in the region and rising focus on country's energy independence.

Lastly, with regard to expansion of refining capacity we observe a number of differences in two countries. In China, refining actors are state-owned, while in Japan they are privately-owned. Also, while in China the prices for petroleum products are regulated, whereas in Japan, they are fully liberalized. Furthermore, in China the refining margin is highly concentrated, whereas, in Japan it is decentralized and divided among a number of small and medium-sized refineries.

Results

The analysis in this thesis discusses the importance of oil and gas supply security as a factor influencing both economic and political realities in China and Japan. China and Japan are two largest Asian economies with different economic systems and thus different approaches to oil and gas supply security policymaking. The analysis in this thesis has proven that the nature of decision-making structure shapes differences and similarities in oil and gas supply security policy between China and Japan.

State of the Art

Review of existing literature on energy security shows that a number of scholars have identified various strategies to enhance county's oil and gas supply security. Both qualitative (Yergin 1988, Xu 2006, Lai 2007, Vivoda 2009, Meidan et al. 2009, Andrews-Speed et al. 2002, Christie 2009) and quantitative studies (Neff 1997, Gupta 2008, Cohen et al. 2011, Jansen et al. 2004, Kruyt et al. 2009) on energy security policy suggest that oil and gas supply security policy could be understood as an insurance measure taken against potential risks that might occur in the oil and gas supply channel. A number of indicators have been proposed in the existing literature. However, no consensus on set of indicators has been agreed on. Moreover, from the available literature we could note that previous scholarly work on energy security policy have not discussed recent dynamics in oil and gas markets in East Asia.

Criteria for Classifying Oil and Gas Supply Security Policy

- Ownership (stateownership vs. private ownership)
- Total revenues (imported vs. domestic)
- Market penetration of domestic oil and gas production
- Ratio of oil imports imported by the energy sector
- Geographical diversification of oil supply
- Foreign policy towards oil and gas exporters
- Security of energy sector

Indicators that support Criteria for Classifying Oil and Gas Supply Security Policy

- Ownership (stateownership vs. private ownership)
- Total revenues (imported vs. domestic)
- Market penetration of domestic oil and gas production
- Ratio of oil imports imported by the energy sector
- Geographical diversification of oil supply
- Foreign policy towards oil and gas exporters
- Security of energy sector

Domestic Production as a Strategy Behind Oil and Gas Supply Security Policy

- Output (state-owned vs. privatized)
- Oil production (imported vs. domestic)
- Market penetration of domestic oil production
- Ratio of oil imports imported by the energy sector
- Geographical diversification of oil supply
- Foreign policy towards oil and gas exporters

Imports as a Strategy Behind Oil and Gas Supply Security Policy

- Ratio of oil imports imported by the energy sector
- Geographical diversification of oil supply
- Foreign policy towards oil and gas exporters

Overseas Production as a Strategy Behind Oil and Gas Supply Security Policy

- Output (state-owned vs. privatized)
- Oil production (imported vs. domestic)
- Market penetration of domestic oil production
- Ratio of oil imports imported by the energy sector
- Geographical diversification of oil supply
- Foreign policy towards oil and gas exporters

Overseas Production as a Strategy Behind Oil and Gas Supply Security Policy

- Output (state-owned vs. privatized)
- Oil production (imported vs. domestic)
- Market penetration of domestic oil production
- Ratio of oil imports imported by the energy sector
- Geographical diversification of oil supply
- Foreign policy towards oil and gas exporters

Storing Strategic Reserves as a Strategy Behind Oil and Gas Supply Security Policy

- Output (state-owned vs. privatized)
- Oil production (imported vs. domestic)
- Market penetration of domestic oil production
- Ratio of oil imports imported by the energy sector
- Geographical diversification of oil supply
- Foreign policy towards oil and gas exporters

Expanding Refining Capacity as a Strategy Behind Oil and Gas Supply Security Policy

- Output (state-owned vs. privatized)
- Oil production (imported vs. domestic)
- Market penetration of domestic oil production
- Ratio of oil imports imported by the energy sector
- Geographical diversification of oil supply
- Foreign policy towards oil and gas exporters

The thesis develops methodology upon energy security concept in which core is country's ability to secure sufficient supplies of oil and gas, since for every country constant supply of strategic resources such as oil and gas is vital for countries' security and economic development.

Main Facts

Firstly, both China and Japan's domestic production levels cannot satisfy their economies' needs. The differences are observed in the structure of their oil and gas sectors. While in Japan market mechanisms steer energy sector, in China, on the contrary, the stability of energy sector is regulated, and state-ownership dominates China's oil and gas industry.

Secondly, two countries have different approaches towards diversification of oil and gas imports. China as a relative latecomer to international oil and gas global energy markets focuses on diversification of oil and gas suppliers and routes by which oil and gas is traded. In Japan's tactics we observe a geostategic approach that stresses the importance of long-term strategic relationship with key energy exporters. In Japan, by contrast, market approach led and decentralized decision-making resulted in relatively modest geographic diversification of oil and gas production relative to China.

Thirdly, in both China and Japan the state subsidizes overseas activities of their domestic oil and gas companies. Interestingly countries target different regions for their investments. Chinese NOCs implement geostategic approach oriented towards 'emerging' energy exporters. Japanese oil and gas companies, due to price and availability concerns are reluctant to enter new 'risky' countries. This resulted in Japan's lower level of diversification of overseas production relative to China.

Fourthly, both countries emphasize the relevance of domestic SPSR. Japan, as an OECD country, holds already developed and well-functioning SPSR system. The SPSR levels are known, transparent and proportionately divided between the state and private sector, which implies that the country advocates increasing interdependence in terms of globalization calling for increasing mutual trust and cooperation. In China, on the contrary, the construction of domestic SPSR system is still an ongoing project. China's SPSRs are exclusively state-held and capacity levels are not reported. This further indicates an increasing political impediment in the region and rising focus on country's energy independence.

Lastly, with regard to expansion of refining capacity we observe a number of differences in two countries. In China, refining actors are state-owned, while in Japan they are privately-owned. Also, while in China the prices for petroleum products are regulated, whereas in Japan, they are fully liberalized. Furthermore, in China the refining margin is highly concentrated, whereas, in Japan it is decentralized and divided among a number of small and medium-sized refineries.

Results

The analysis in this thesis discusses the importance of oil and gas supply security as a factor influencing both economic and political realities in China and Japan. China and Japan are two largest Asian economies with different economic systems and thus different approaches to oil and gas supply security policymaking. The analysis in this thesis has proven that the nature of decision-making structure shapes differences and similarities in oil and gas supply security policy between China and Japan.

We conclude that policymaking behind China's oil and gas supply security is based on centralized decision-making. This can be observed in the nature of country's strategies towards domestic production, imports, overseas oil and gas production, securing SPRs and expanding domestic refining sector. In Japan, on the contrary, deregulation policies and market forces are imbedded in its oil and gas industry. Therefore, in contrast to China where we observe centralized decision-making, in Japan, the decision-making structure is decentralized. Such an approach is also to be seen in strategy that country takes while enhancing its domestic oil and gas supply security.

Thus, on the example of such an important policy goal as oil and gas supply security, we see how the nature of decision-making (centralized/decentralized) shapes the strategies and end outcomes responsible for achieving the goal of higher oil and gas supply security.

References

All references can be found in the full version of the MA thesis available at http://othes.univie.ac.at/

About the Author

Iva Brkic holds a Bachelor degree in Economics from the Vienna University of Economics and Business Administration. This thesis is part of the MA Program on East Asian Economy and Society at the University of Vienna. Contact information: brkic_iva@yahoo.com