

THE RISE OF CHINA ***AND ITS ENERGY IMPLICATIONS***



**China's Investment in Latin American Energy Resources:
Comparative Asian Perspectives**

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JAMES A. BAKER III INSTITUTE FOR PUBLIC POLICY
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CHINA'S INVESTMENT IN
LATIN AMERICAN ENERGY RESOURCES:
COMPARATIVE ASIAN PERSPECTIVES

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ABOUT THE STUDY

The Rise of China and Its Energy Implications is a major research initiative to investigate the implications of China's oil and natural gas policies and domestic energy market development on global energy markets. This study focuses on the influence of China's energy development on U.S. and Japanese energy security and global geopolitics. Utilizing geopolitical and economic modeling and scenario analysis, the study analyzes various possible outcomes for China's domestic energy production and its future import levels. The study considers how trends in China's energy use will influence U.S.-China relations and the level of involvement of the U.S. oil industry in China's domestic energy sector.

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ABOUT THE INSTITUTE OF ENERGY ECONOMICS, JAPAN

The Institute of Energy Economics, Japan (IEEJ), was established in June 1966 and specializes in research activities in the area of energy from the viewpoint of Japan's national economy in a bid to contribute to sound development of Japanese energy supply and consumption industries and to the improvement of domestic welfare by objectively analyzing energy problems and providing basic data, information and the reports necessary for policy formulation. With the diversification of social needs during the three and a half decades of its operation, IEEJ has expanded its scope of research activities to include such topics as environmental problems and international cooperation closely related to energy. The Energy Data and Modeling Center (EDMC), which merged with the IEEJ in July 1999, was established in October 1984 as an IEEJ-affiliated organization to carry out such tasks as the development of energy data bases, the building of various energy models, and the econometric analyses of energy.

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I. Introduction¹

Chinese investment in Latin American energy resources has stimulated a great deal of attention in both Latin America and the United States. While Chinese investment is significant for the region, it is by no means the main focus of China's foreign interests. Moreover, U.S. investments continue to significantly surpass Chinese assets in the region. Still, some Latin American governments are betting heavily on Chinese energy-related activity while others are not. In addition, China is not the only Asian country newly interested² in Latin American energy resources—India and South Korea are also investing in the region. There are differences among Chinese, Indian, and South Korean investment patterns in Latin American energy. The differences are important, and their implications for Latin American governments can be significant, depending on political dynamics internal to the Latin American country.

It is believed by Asian governments, their financial advisers, and the investment community that the 2007 financial crisis lowered the costs for energy assets and corporate shares, creating new opportunities to buy assets that will rise in value as economic recovery takes hold. Investors believe the economic growth in Asia will cause holdings in oil, gas, and mining assets in Africa, Latin America, and elsewhere to appreciate in value, and therefore these holdings are seen as a means to preserve and enhance government wealth. While early Asian national oil company (NOC) investment focused on large assets in the Middle East and the Caspian region in the 1990s, more recently, Asian NOCs have been diversifying their activities globally, increasing their interest in Latin America. Recent instability across the Middle East is demonstrating the rising risks of investing there, rendering the Americas as more attractive.

In this paper, I first review the geopolitics of China's energy strategy, comparing it with that of South Korea and India. In the second section, I examine Asian investments in specific Latin American countries, comparing and contrasting the approaches taken by the three Asian countries to access energy resources in the region. The third section analyzes the impact of Chinese, South Korean, and Indian energy investments on politics in each of the recipient nations, explaining why they are significant in some countries but not others.

II. Latin America in Asian Energy Strategies

China

China's foreign policy uses the "soft power" tools of trade—foreign investment, tourism, education, and economic aid, mainly in developing countries—to promote the perspective of a win-win relationship. In the area of energy, the 2007 White Paper on Energy proposes "cooperation for mutual benefit" and "intensifying mutually beneficial cooperation in energy exploration and utilization."³ This strategy well reflects recognition that energy security is not the only threat to China, and that if those traditional issues are not kept in mind, oil security strategies could be defeated through traditional conflict (use of military force and embargoes).⁴ It also recognizes that "soft power" might achieve what threats cannot, including steering many of the 12 Latin American countries that still recognize Taiwan's sovereignty to China's position.⁵ Not coincidentally, most of the states recognizing Taipei are Latin American.⁶

Early discussions of China's contemporary energy security strategy can be found in the tenth Five Year Plan (2001-2005), which emphasized the need for more efficient use of energy, diversification of the domestic energy matrix, and more importation of foreign oil and gas. With rising energy prices and increased competition for energy resources, China now places great importance on complementing direct purchases of oil and gas (as well as of other "strategic" minerals) with oil and gas under direct control of Chinese companies, thus stimulating greater investment in energy assets abroad.⁷ In addition, it is important to China for its national firms to be financially strong and globally competitive, since the NOCs are important employers and therefore their financial health is important to the overall Chinese economy, employment levels, and social safety net.⁸ For the Chinese NOCs more specifically, domestic revenues are expected to shrink in the coming years as more competition enters the sector and domestic resources become more depleted. Thus, Chinese NOCs are seeking foreign assets and opportunities to shore up balance sheets and book new reserves. CNOOC is under particular pressure to find reserve replacements from declining offshore fields, hence its recently aggressive acquisition campaign. Other elements in China's energy security strategy include strategic reserves, increased domestic production, and conservation.⁹

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Chinese energy diplomacy is quite adept at using the country's comparative advantages to secure resources. The government was initially content to purchase oil and gas from suppliers. But when its foreign exchange reserves boomed, the government became quite prolific in offering oil credit swaps for up to a decade—e.g., \$25 billion to Russia and \$20 billion for Venezuela. Nevertheless, China still seems to prefer equity participation by its companies and armed with government backing, Chinese NOCs offered bids that might not have been justified in the private sector given the level of profit expectation or political and economic risk.¹⁰ The result is that in 2009 and 2010, Chinese NOCs spent heavily on acquiring exploration and production (E&P) firms and stakes in oil and gas blocks around the world (see Table 1).

Table 1. Chinese Mergers and Acquisitions

* Chinese acquisitions overseas in the last decade totaled \$187 billion, accounting for 2.2 percent of the value of all cross-border mergers and acquisition (M&A) activity, as of figures available in January 2011.
* In 2009, Chinese outbound M&A reached \$42.6 billion, down 42 percent from the record \$73 billion reached in 2008 and, despite the drop in value, accounted for a record 7.5 percent of global cross border M&A.
* With \$42.6 billion spent abroad in 2009, Chinese companies rank third among the biggest foreign M&A investor nations after the United States and France—a sharp rise from 12th position over the last decade.
* The majority of Chinese M&A investments overseas are within the Asia Pacific region (53 percent for the decade, 52 percent in 2009). China was the top M&A investor in the region in 2009 (up from 3rd over the decade)
* China was the leading foreign M&A investor in 2009 in Hong Kong and the second-largest M&A investor in both Australia and Canada (up from 7th and 9th position over the decade).
* In 2009, China was the largest M&A investor abroad in energy and Ppwer and the second largest for materials.

Source: "Factbox: China M&A activity, Energy Deals and Brazil Investment," *Reuters*, Oct. 1, 2010.

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China's strategy for energy security makes Latin America an attractive area for its NOCs, though as Table 2 indicates, the region is not a major supplier of oil for China. In none of these countries is China only interested in oil and gas; instead it pursues investments in other minerals and has huge trade in agricultural commodities plus construction projects by Chinese companies. From 1993-2003, China's trade with the region increased sixfold to \$50 billion; in 2004, Latin America was the recipient of 49 percent of total Chinese foreign investment.¹¹

Table 2. Sources of Chinese Oil Imports, 2010 (in million metric tons)

Middle East	118.4
Africa	43.7
Europe and Eurasia	33.3
Asia Pacific	28.8
South & Central America	24.1

Source: *BP Statistical Review of World Energy*, "Major Trade Movements 2010," June 2011, 18
bp.com/statisticalreview

Three factors set the context under which there is little conflict about the role of equity oil and gas or oil for debt swaps in China. China needs vast quantities of oil and gas, and the country has huge foreign reserves (2.85 trillion in the fourth quarter of 2010¹²). The China Development Bank (CDB) and the Export and Import Bank of China (EIB) provide credit on preferential terms for enterprises to "go global."¹³ The policy in the short term has been a clear success and, in turn, has increased Chinese pride and confidence to do more.¹⁴ China's NOCs have also been successful in raising cheap capital through the issuance of corporate bonds, which have the advantage of providing cheaper finance than bank loans because of their lower interest rates, and longer maturities. Bond issuances totaled \$35.9 billion in 2009 and were over \$30 billion by late 2010, according to firm DealLogic. CNPC/PetroChina has been the top bond issuer since 2008 at over \$35 billion in capital raised through bonds. Sinopec was second at over \$7 billion.¹⁵

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The institutional structure within which Chinese oil companies operate is just over a decade old. In 1998, the market reforms the Chinese Communist Party had begun implementing in the national economy in the early 1980s affected the structure of the energy sector when it was re-organized by forcing upstream China National Petroleum Corporation (CNPC) and downstream China Petroleum & Chemical Corporation (Sinopec) to exchange assets, thereby creating by fiat two vertically integrated companies to compete on oil and gas. Chinese National Offshore Oil Company (CNOOC) was created a year later specifically to work together with foreign companies in the development of the country's offshore resources. In a further move to make the companies operate more effectively, as well as to raise capital, all three companies were partially privatized and their stocks listed on major exchanges—CNPC and Sinopec in 2000 and CNOOC in 2001.¹⁶

Although a number of state-owned companies operate abroad (others include Sinochem's International E&P Company, Norinco's Zhenhua Oil Company, and CITIC Energy), it is CNPC, CNOOC, and Sinopec that mainly drive and implement China's overseas energy strategy. Their different origins produced varying strengths and weaknesses for each NOC, and thus different approaches abroad. CNPC was the first to venture out, despite opposition from a government that wanted to focus on development of national resources, because it could not meet domestic demand from its Chinese fields. It went first to Peru in 1992, then Sudan and Kazakhstan in 1994. In general, CNPC has focused more on acquiring development contracts for fields, Sinopec on projects that include refineries, and CNOOC on mergers and acquisitions.¹⁷ Over time, with experience and due to their phenomenal growth, the NOC strategies will inevitably become more similar, at least in the absence of major failures that might make one go back to its organizational roots. The future may also see increased competition among cash rich and energy starved Chinese firms that could stimulate even greater Chinese acquisitions abroad, such as Sinochem's purchase in 2010 of Occidental Petroleum Corporation's operations in Argentina for \$2.45 billion.¹⁸

South Korea

After the 1973 oil shock, South Korea looked overseas to develop energy resources. But with the collapse of oil prices and a financial crisis in the late 1990s, government support of these efforts

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was minimal and 54 overseas projects were abandoned between 1998 and 2002.¹⁹ As oil prices have become more volatile in recent years, such projects are now back on the agenda. Energy security policies promote a greater focus on information technology (IT) industries to drive the economy, the pursuit of alternative sources of energy that are less import dependent, and increasing energy efficiency. In addition, the acquisition of equity oil and gas abroad has become a goal, with the aim to increase the country's level of energy self-sufficiency, and has required the development of a South Korean energy diplomatic strategy.

Starting in 2003, energy diplomacy focused on creating and supporting a variety of Asia-specific cooperation agreements.²⁰ By 2006, energy policy had begun to build on five pillars: the diversification of energy sources; diversification of suppliers; development of strategic oil reserves; conservation and efficiency; and development of resources abroad.²¹ A new government in 2008 put more emphasis on the need to increase equity oil and gas reserves as well as production. South Korea has become more aggressive in its international acquisitions, giving teeth to its aspirations in 2007 by increasing official government support and adding additional funds to the pocketbook of South Korea's NOCs through South Korea's National Pension Service (NPS). NPS officials stated that the pension service sees overseas investments as a means to achieve higher returns than available through the holding of government bonds and other financial instruments. NPS has pledged to invest \$21.5 billion in energy projects in the coming decade as part of its global investment drive. NPS funds were shared by Korea National Oil Corporation (KNOC), Korea Gas, and Korea Resources Corporation.²²

Overseas, direct South Korean investment jumped 84.7 percent year-over-year in the first nine months of 2010, from \$13.42 billion to \$24.79 billion. This increase was significantly affected by the almost 250% year-over-year increase (to \$8.27 billion) in mineral- and energy-related investments. Latin American destinations stood out with 120.5 percent increases, compared with 80 percent for Asian countries (albeit on a markedly smaller base).²³

The government set ambitious targets for South Korean companies: increase the proportion of oil production abroad as a percentage of total imports from 3.7 percent in 2005 to 15 percent in 2013; and of LNG from 5.8 percent in 2005 to 30 percent in 2013.²⁴ In particular, the national oil

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company, Korea National Oil Company, is to increase oil production from less than 100,000 barrels per day (b/d) in 2009 to 150,000 b/d in 2010, and a total of 300,000 b/d by 2012. The company moved quickly into deals in Africa (Congo and Nigeria) that turned out poorly, and one in the Kurdish region of Iraq that is quite complicated given the autonomy controversies there.²⁵ In the Fourth Overseas Energy Development Plan in 2011, the Ministry of Knowledge Economy stressed the importance of mergers and acquisitions as a means of acquiring overseas assets. The ministry also noted that the Korean government would expand the country's natural gas activities to include upstream operations such as the exploration, production, and purchase of gas fields as well as signing unspecified new LNG contracts in 2011, which it had not done since 2007. As a result of these efforts, the ministry claimed the country would increase its self-sufficiency ratio (which includes equity oil and gas in imports) by 30 percent in 2011, from 10 percent to 13 percent of total oil and gas imports.²⁶ KNOC's stated target is to grow from 7.4 percent self-sufficiency in 2009 to 40 percent self-sufficiency by 2030. To this end, KNOC has become an active player in the global M&A game.²⁷

In this search for overseas assets, Latin America's burgeoning energy sector can look very attractive, particularly given the region's need for infrastructure development, which allows South Korea to supplement energy investments with one of its international strengths, engineering and construction know-how.²⁸ While the future potential of energy investments in the region was not even considered in a report written by a researcher from the Korean Ministry of Finance and Economy in 1997—only Peru had these investments²⁹—by 2009 South Korean companies were participating in 19 Latin American oil projects and another 15 projects in resource development.³⁰

But the tie to Latin America is not to be simply one of exporting capital and skills while importing energy and other natural resources. In the area of alternative energy, South Korea wants to tap into Brazil's experience as a world leader in biofuels.³¹ South Korea is eyeing a greater market presence in Latin America's information technology and industrial plant construction sectors, since the region is growing despite the global recession that has slowed South Korean growth. From 2005-2009, South Korean exports to the region grew by an annual average rate of 30 percent.³² In 2008, Latin America provided South Korea with its highest trade

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surplus,³³ and if increasing energy imports are not to turn that favorable position around, South Korean exports will have to increase.

The Ministry of Knowledge Economy (until 2008 it was named the Ministry of Commerce, Industry and Energy), develops the country's industrial and energy policy, and as noted, it is quite ambitious on energy security. The Ministry of Strategy and Finance sets spending guidelines for state-owned enterprises, including the national oil company, and it has been reluctant to spend on major overseas acquisitions.³⁴ Another potential source of finance, the country's \$37 billion sovereign wealth fund (Korea Investment Corporation), established in 2005, had taken a very traditional investment strategy of focusing on bonds and equities, but in 2011 expects to partner with other state funds to make "three to four strategic investments" in areas including natural resources and clean technology.³⁵

The country has one national oil company, the Korea National Oil Corporation, founded in 1979 as Korea Petroleum Development Corporation. It ranks 95th among oil producers and its technological and operational capabilities are generally considered to be far below those of its international competitors.³⁶ It is well aware of its limitations in competing with major international oil companies (IOCs) and NOCs, yet understands that it must acquire overseas assets in accordance with the country's energy security strategy.³⁷ In that vein, the NOC produced a report in 2009, *Potential for Oil Development in South America and Its Recent Trend*, articulating that "South Korean companies seeking to invest in energy resources in South America should look for investment opportunities in countries that are more open to foreign investment like Brazil, Peru, and Colombia ... companies should have different investment strategies in different Latin American countries because some—such as Venezuela, Bolivia, and Ecuador—restrict foreign investment due to nationalist sentiment. Companies should also team up with one another in resource development as more and more oil and gas development projects are requiring higher investments."³⁸

The other major South Korean company involved in oil and gas exploration and production is the privately owned SK Energy.³⁹ The company is involved in 38 oil and natural gas projects in 17 countries and in 2010 produced 71,000 barrels of oil equivalent (boe) a day.⁴⁰ It is the only

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private South Korean country with oil and gas E&P in more than one Latin American country. Another South Korean firm, Golden Oil Corporation, has a single Latin American venture in which it holds a 100 percent interest in three blocks it acquired in the Magdalena and Llanos basins in 2008.⁴¹ LG International Corporation has upstream oil and gas projects in Asia and the Middle East. In 2010 it entered a three-year partnership with a Latin American firm (GeoPark Holdings Ltd.) to acquire and develop projects in the region.⁴² In the 1990s, Daewoo Group had been involved in Peru, but it was dismantled in 1999 and its successor Daewoo International Corporation inherited the asset, its only one in Latin America.⁴³

Numerous and internationally competitive South Korean shipbuilding, engineering, and construction firms are involved in projects throughout Latin America, and their participation can be a plus in a package deal South Korean energy firms could put together in collaboration with their government.

India

Continued economic growth and international standing require an active Indian presence in oil and gas markets abroad. Prior to the liberalization of Indian economic policy in the 1990s, Indian private and public companies were not active investors in oil and gas outside of the country. But since 2000 there has been a significant increase in Indian participation abroad, with 24 projects in 12 countries between 2000 and 2005;⁴⁴ in 2011, India's primary national oil company, Oil and Gas Corporation, Limited's (ONGC's) wholly owned subsidiary for overseas operations, Videsh Limited (OVL), accounted for 33 projects in 14 countries.⁴⁵

The international relations of India's energy represents a complex interaction among the Ministry of External Affairs (MEA), Ministry of Petroleum and Natural Gas, four partially privatized national oil companies (NOCs), and two major private companies. Combined with limited national resources (5.8 billion bbl P1 oil, 38.65 billion cubic meters [bcm] P1 gas) this context brings two major goals into play, energy security and international influence. Energy security is pursued by 1) attracting capital and technology to develop national resources—including a domestic ethanol industry drawing on Brazil's experience,⁴⁶ 2) the diversification of foreign sources of hydrocarbons—but not at the expense of developing assets at home,⁴⁷ and 3) the

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development of foreign relationships that can guarantee supply even when domestic and international crises might call contractual obligations into question⁴⁸—but not at the expense of relations with key players the United States and China. International influence is believed to be enhanced through 1) energy diplomacy, meaning that the Indian government, NOCs, and private actors not only tap into natural resources but also cooperate with the host country in addressing the development needs of resource rich countries, and 2) a demonstration that Indian companies, public and private, are internationally competitive.⁴⁹

Like many countries, India finds that the geopolitics of its energy policy are complicated by its overall relationship with the great power, the United States, and the rising great power, China. India needs to maintain excellent relations with both countries, given its national security needs and intention of being recognized as a rising power itself. In the case of the United States, this means moving only cautiously on oil and gas projects with Iran, Venezuela, and Cuba.⁵⁰ In regard to China, which is also aggressively pursuing international oil and gas assets, it means finding a way to compete for assets without engendering tension in the bilateral relationship. Because China has significantly greater foreign exchange reserves and has developed a sovereign wealth fund to support its NOCs efforts to link purchase of assets with broader development aid, Indian companies generally lose out in direct competition. In 2006 the two governments signed an agreement to seek cooperative ventures on foreign assets; despite some joint ventures, including in Colombia, however, they continue to compete and in 2010 India decided to develop its own sovereign wealth fund as a means of supporting Indian NOCs abroad.⁵¹

The Petroleum Ministry has significant influence over decisions by the NOCs through its requirement that exploration and production plans be approved by the ministry and that the companies supply state-owned refineries at subsidized prices (at least until mid-2010). The ministry attempts to use a soft touch, particularly with the major exploration and production NOC, Oil and Natural Gas Corporation (ONGC), because it doesn't want to hinder the companies' ability to find oil and attract capital to the sector.⁵² In December 2005, the government modified the process by which Empowered Committees of Secretaries (ECS) approved the overseas proposals of India's NOCs in order to speed up a process seen by many analysts as an obstacle to acquiring foreign assets. Yet the tension between the ministry and the

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increasingly more wealthy and powerful NOCs can be seen in the decision of the ministry in May 2010 to require that all decisions and minutes from NOC board meetings be reviewed by the junior oil minister.⁵³

The companies are aware of their own limitations and seek to partner with private international oil companies and other NOCs, including those of their major rival, China, to gain experience and technology in projects abroad that are transferable to the needs at home, such as deepwater E&P. At least until the freeing up of domestic prices in mid-2010, investing abroad rather than at home was more profitable for ONGC,⁵⁴ and perhaps for the other NOCs and private companies.

India has four NOCs, all of them partially privatized and engaged in overseas activities. In 2010 the major Indian E&P company, the NOC ONGC, produced 79 percent of India's crude oil and 54 percent of its natural gas production. The Indian government owns 74 percent of its shares, although in 2011 ONGC expects to sell another 5 percent stake to raise \$3 billion for its subsidiary ONGC Videsh Limited's (OVL) foreign investments.⁵⁵ ONGC is an integrated company, with refining, chemicals, petrochemicals, retail oil, LNG facilities, and power plants utilizing natural gas and wind.⁵⁶ The NOC entered Latin America in 2006, and partners with other firms, including other Indian NOCs, in Colombia, Brazil, Venezuela, and Cuba; of these ventures, only those in Colombia and Brazil are currently producing. ONGC has been considering assets in Peru and Ecuador, where it lost out earlier to Chinese competition.⁵⁷

Another NOC, the Indian Oil Company Ltd (IOCL), is the country's largest commercial enterprise, with operations spanning across the hydrocarbon value chain and diversifying into alternative energy projects. The government of India owns some 90 percent of the company's shares. It participates in a variety of joint ventures abroad, but has so far limited its search for new energy business to Asia and Africa.⁵⁸ Oil India Ltd is a partially privatized NOC, with the government holding 78.43 percent of shares. Its overseas activities are mainly in Africa, and the Middle East and its first Latin American assets were contracted on May 12, 2010—a 3.5 percent interest in Venezuela's Carabobo 1.⁵⁹ There are current expectations that it will be increasing its portfolio in Australia and Latin America in 2011.⁶⁰

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Bharat Petroleum Corporation Limited (BPCL) became an integrated company in 2003 with its move upstream in India. In 2006 the wholly owned subsidiary, Bharat PetroResources Limited (BPRL), was created to provide the company with an E&P presence; as of 2010 it had participating interests in 26 blocks, of which 17 were abroad. Its only Latin American interests are in Brazil, where it partnered with a private Indian company, Videocon Industries Limited (VIL), to purchase 10 deepwater exploration blocks from EnCana Corporation of Canada. A discovery in the Campos basin has been reported.⁶¹

Two private Indian firms stand out in regard to international asset acquisition. Reliance Industries operates the world's biggest oil refining complex on India's West Coast, but it has begun moving upstream. The strategy had been to avoid the more risky exploration deals and instead buy into oil and gas fields already in production,⁶² but in this competitive climate Reliance made the leap and joined in two exploration blocks in Colombia.⁶³ Essar Oil, a member of the Essar Group, is a fully integrated private oil and gas company. The company seeks to become a more important player in the international exploration and production business, though it currently has no Latin American assets.⁶⁴

III. Asian Investments: Where and What

Venezuela

China's presence in Venezuela's oil sector significantly predates the assumption of the presidency by Hugo Chavez in 1999 and should conclusively demonstrate China's primary focus on oil, not politics. In 1985 China signed a five-year agreement to cooperate on oil exploration. CNPC established its Americas division in Venezuela in 1997,⁶⁵ an excellent choice at that time given that the country held the most reserves of any Latin American country and the positive international reputation of its NOC, PDVSA. CNPC secured its first two operating rights in the Orinoco heavy oil fields in 1998.⁶⁶

CNPC operates two oil fields in Venezuela, the Caracoles oilfield in El Tigre, state of Anzoategui (Orinoco zone), with 257 square kilometers; and the Intercampo oil field in Ciudad Ojeda, state of Zulia (Maracaibo Lake). In August 2006 the Venezuelan government changed the

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operation of these oilfields to a joint venture with PDVSA, with CNPC's share reduced to 25 percent.⁶⁷

In 2007 the Venezuelan and Chinese governments agreed that CNPC and PDVSA would set up mixed companies. One of these, Petrozuamo S.A., would develop oil field test drillings, another would develop the Junin 4 Block's oil production, and a third would be in charge of the extension of the MPE3 Block, production from which would go to the Chinese market. A new company would be constituted for well maintenance, and another for crude oil sea transport, critical to the Chinese supply. Chino Venezolana de Taladros, S.A., resulted from an agreement between PDVSA and the Chinese Company of Technology and Oil Development. All of these CNPC-PDVSA mixed companies included a 40 percent share to the Chinese and 60 percent to the Venezuelan company, with the reverse proportion in China. Future plans include construction of three refineries in China with a capacity of 800,000 b/d. Other components of the agreement included CNPC participation in the gas sector to contribute to the Venezuelan domestic supply, as well as in assessing petrochemical projects.⁶⁸ CNPC and PDVSA created the Sino-Venezolana JV for an offshore oil block expected to produce 400,000 b/d by 2011.⁶⁹

The year 2009 brought more agreements. Junin Block 8 is set to be developed by a Sinopec-PDVSA JV, and its Cabruta refinery will be a CNPC-PDVSA project. CNOOC agreed to help the Venezuelan government with the quantification and reserve certification research of the Orinoco Oil Belt's Bovaca 3 Block,⁷⁰ and its development.⁷¹ The Junin 4 project began to take life in 2010. CNPC will pay a \$900 million "signing bonus" to access the oil produced by the JV.⁷² The budget was set at over \$16 billion, \$10.3 billion on production and \$6 billion for an upgrader. Production is expected to begin with 50,000 b/d in 2012, reaching 400,000 b/d by 2016.⁷³ In May 2006, PDVSA signed a \$1.3 billion agreement with China State Shipbuilding Corporation and China Shipbuilding Industry Corporation signed a \$ 1.3 billion deal with PDVAS for 18 oil tankers to transport more oil to Asia.⁷⁴

Chinese involvement in Venezuela's oil sector is also indirect. In September 2008, the two countries signed agreements essentially bartering Chinese military equipment for Venezuela's oil.⁷⁵ In 2010, an oil credit swap provided Venezuela with \$20 billion from China Development

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Bank for (CDB) energy, agriculture, railroad, and housing projects. The fund, intended to finance oil production facilities, railroads, and other projects, has largely been depleted.⁷⁶ This appears to be a loan that China reports was roughly half in U.S. dollars and half in Chinese yuan, and that would be repaid with “no less than 200,000 b/d of crude in 2010, no less than 250,000 b/d in 2011, and no less than 300,000 b/d in 2012,”⁷⁷ though Venezuelan Oil Minister Ramírez had previously declared that it would be repaid over 10 years at 100,000 b/d of crude per annum.⁷⁸ China had previously granted a \$12 billion bilateral investment fund. The loan seems to have been packaged with development of the details for the CNPC-PDVSA JV for Junin 4. From 2008 to 2011, the CDB provided \$8 billion of the \$12 billion total in the Fondo Pesado Chino-Venezuela fund and \$4.5 billion in loan guarantees for PDVSA in its joint refinery project in Brazil.⁷⁹

The relationship has been very good for China, with oil exports climbing more than 60 percent to an average 247,000 b/d in the January-August 2010 period over the prior year's first eight months.⁸⁰ In April 2010, oil minister Ramirez claimed that Venezuela was exporting as much as 460,000 b/d of oil to China. However, this figure is quite different from industry estimates, including estimates that Chinese refineries can only process up to 200,000 b/d of Venezuela's heavy crude, and only after blending it with lighter grades. Some of the discrepancy may be due to CNPC's diversion of Venezuelan crude to Singapore, where its affiliate PetroChina has a large storage, refining, and trading presence.⁸¹

OVL led the way for India's NOCs to acquire assets in Venezuela, creating a consortium of OVL (11 percent stake), IOCL (3.5 percent), Oil India Limited (OIL) (3.5 percent), and Repsol YPF and Petronas, each with 11 percent, bringing total foreign participation in the bid to 40 percent, the maximum allowed by Venezuela. When OVL began considering these Venezuelan blocks, the intent had been to create an all-Indian bid for the 40 percent share being offered. But Reliance pulled out of the package, perhaps because of the many delays generated by the Venezuelans.⁸² A controlling 60 percent interest is held by PDVSA's subsidiary, CVP.

The Indian-led consortium won 25-year licenses (with a potential 15-year extension) for developing Carabobo-1-Norte and Carabobo-1-Centra heavy oil blocks in May 2010. The

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projects entail development of heavy oil production facilities and upgrading facilities and associated infrastructure. Production is expected to be around 400,000 b/d of extra heavy oil, and half of that will be upgraded into light crude oil.⁸³ OVL also owns a 40 percent stake in the San Cristobal oilfield, which produces 40,000 b/d. Through July 31, 2010, OVL invested \$191.3 million and \$55.6 million in the San Cristobal and Carabobo-1 Projects, respectively, representing 40 percent and 11 percent stakes. At their peak production, these projects are likely to yield per annum equity oil of 2.5 million metric tons from Carabobo-1 and .89 million metric tons of oil from San Cristobal.⁸⁴

As of July 2010, KNOC listed one investment in Venezuela. The Onado Field in Maturin is approximately 160 square kilometers. KNOC first acquired a 12 percent interest in the project in 1997, but the ownership structure was modified in 1998, 2002, and 2006, leaving the NOC with a 5.64 percent interest. Partners include PDVSA's subsidiary CVP (60 percent), CGC (26.004 percent), and Petroecuador (8.356 percent). Production of crude oil and natural gas is approximately 4,000 barrels of oil equivalent per day.⁸⁵

Until very recently, Venezuela had not encouraged projects to develop its vast non-associated natural gas resources. But as a result of a mission by South Korean officials through South America in August 2009, Korea Gas Corporation agreed to develop a memorandum of understanding with PDVSA to jointly explore and develop natural gas projects.⁸⁶

Brazil

Brazil stands out in Latin America for the solvency and advancement of its NOC, a factor that has attracted the Chinese and led to several contracts between the Chinese NOCs and Petrobras, making Brazil China's largest trading partner in the region. In May 2004, the inauguration of Petrobras' representative office in China provided the occasion for Petrobras to sign a strategic agreement of cooperation with Sinopec. Mutual exploration projects in offshore projects in the East China Sea and Brazilian waters have been included in that cooperation. When Chinese President Hu Jintao visited Brazil in 2004, he brought with him nearly \$1 billion worth of investment contracts for Brazil's ports, railways, mining, and energy sectors. A memorandum of understanding with CNPC followed in February 2005 aimed at developing joint business

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between Petrobras and Chinese NOCs. This cooperation occurs across the integrated activities of the oil sector, including refining, pipeline building, and the prospecting and production of oil resources, both onshore and offshore, in Brazil, China, and other places in the world.

In 2006, Sinopec and Petrobras agreed to cooperate on the \$240 million Cabiunas-Vitoria (Gascav) natural gas pipeline that will help complete the 1,200 kilometer (km) Gasene network to connect the northeastern and southeastern sections of Brazil. This was completed in 2007 and commenced operations in February 2008.⁸⁷ The project is expected to facilitate the future export of gas to China.⁸⁸

Brazil became a focus for Chinese acquisitions in 2010. In May of that year, Statoil sold 40 percent of its full stake in the Peregrino offshore oil field to the Sinochem Group for \$3 billion.⁸⁹ In October 2010, Sinopec paid \$7.1 billion for 40 percent of Repsol-YPF's Brazilian unit.⁹⁰

Other Chinese actions of note include the \$10 billion oil credit swap between China Development Bank and Petrobras in late 2009. Under the agreement, Petrobras will supply Unipeac Asia (a subsidiary company of Sinopec) with 150,000 b/d the first year and 200,000 b/d for the following nine years. In alternative energy, Brazil's development of bioethanol has led to scientific exchanges with China. A recent memorandum of understanding between Petrobras and Petrochina seeks to assess the technical and economic feasibility of developing joint projects to export ethanol from Brazil to China.⁹¹

The first entry of ONGC's OVL in Latin America came in April 2006 in Brazil with a 15 percent stake in BC-10. The BC-10 license was originally signed in 1998, with Shell holding a 35 percent interest and partners Petrobras and ExxonMobil with 35 percent and 30 percent interests, respectively. When Exxon invited select companies to make offers for its 35 percent stake in BC-10, OVL was the winner. Though agreements were signed in January 2006, the consortium partners, Shell and Petrobras, pre-empted the transaction, forcing Exxon to terminate the SPSA with OVL. OVL was later able to persuade Petrobras to waive its preemption rights to allow OVL to acquire a 15 percent participating interest in the block. Shareholdings thus stand at Shell, 50 percent; Petrobras, 35 percent; and OVL, 15 percent. The high-level development concept

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includes a floating production, storage and offloading (FPSO) vessel and subsea systems.⁹² Block BC-10 is estimated to hold recoverable reserves of 400 million barrels of heavy crude and commenced production in July 2009.⁹³

In Brazil's ninth bidding round in 2007, ONGC gained a 100 percent stake in Block BM-S-73 in the Santos Basin. In January 2011, ONGC was able to swap a 43.5 percent stake in BM-S-73 for a similar share of BM-S-74 in the same basin. Under the agreement, ONGC Campos Ltda ceded a 43.5 percent stake in the BM-S-73 block to Petrobras and 13 percent to Ecopetrol, and continued as the operator with a 43.5 percent stake. Block BM-S-74 has the same division of stakes.⁹⁴ In 2008, OVL purchased 100 percent of the offshore BM-ES-42 block in Espiritu Santo, and had invested \$25 million by March 31, 2011; it also has a 25-75 split with Petrobras in the offshore BM-BAR-1 and BM-SEAL-4 blocks in which it had invested \$59 million and \$3 million, respectively, as of March 31, 2011.⁹⁵

Korean interests are also active in Brazil. In July 2007, SK Energy partnered with Devon Energy to produce oil in Brazil, marking the first time Petrobras was not involved in a Brazilian oil production project. SK Energy held a 30 percent stake.⁹⁶ Later that year, SK purchased a 30 percent stake from Devon in another block off Brazil's northeast coast, BAR-3.⁹⁷

At the end of 2010, SK sold its stakes in the Polvo field (40 percent), and the Wahoo (20 percent) and Itaipu (26.67 percent) discoveries to Maersk Oil for \$2.4 billion in cash. The offshore blocks are located in Brazil's Campos basin; the Wahoo produces 10,000 b/d and the others are not expected to produce until 2017 or 2018. SK planned to use the proceeds to invest in oil fields much farther along the exploration stage and by acquiring oil developers in promising places like Vietnam, Peru, and Colombia.⁹⁸ Brazilian regulators still need to approve the sale.

Cuba

In 2005, CNOOC acquired a 30 percent share from Repsol-YPF in several oil and gas blocks in Cuba. CNOOC's subsidiary, GSDC, discovered oil and gas flows in the COJIMAR-100 well in November 2007; the well is located 12 kilometers from Havana. These flows have an estimated

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daily yield greater than 400 metric tons. Until now, neither oil nor gas was expected in the 1,510 meter deep K2cp-m layer where this well is producing.⁹⁹ Sinopec signed an agreement in 2005 with Cuba's NOC Cubapetroleo (Cupet) to jointly produce oil.¹⁰⁰ In November 2010, CNPC won the contract to expand a refinery jointly owned by Cupet and PDVSA; the deal could be worth \$6 billion and include petrochemical and LNG facilities.¹⁰¹

One of ONGC Videsh Ltd's early moves in Latin America was in Cuba. Repsol-YPF had a 70 percent stake in deepwater exploration Blocks N-25, 26, 27, 28, 29 and N-36, with Norsk Hydro of Norway holding the remaining 30 percent. OVL acquired a 30 percent participating interest from Repsol-YPF, which remained the operator. The blocks are in Cuba's Exclusive Economic Zone (EEZ) and, after the only exploratory well drilled was successful in 2004, were estimated to potentially hold between 4–20 billion barrels of hydrocarbons. The consortium was gathering 3-D seismic data on 3000 sq km and selective drilling.¹⁰² By 2009, Petrobras, Petronas, PDVSA, and PetroVietnam were also exploring in the area, with Ecopetrol joining in.¹⁰³ In 2009, OVL purchased 100 percent of N-34 and N-35, in which they have invested \$43 million as of March 31, 2011.¹⁰⁴ No one has yet produced oil from Cuba's offshore, but in 2011 the consortium including ONGC is bringing a Chinese built rig to commence exploratory drilling.¹⁰⁵ South Korea has been absent from Cuba.

Ecuador

China has been active in Ecuador since before the assumption of power by the resource nationalist administration of Rafael Correa in 2007, again demonstrating China's interest in resources more than politics. In August 2003, CNPC bought shares of the Lumbaqui Oil Company in oil Block 15 in the Amazon. Andes Petroleum, a Chinese company with 55 percent ownership by CNPC and 45 percent by Sinopec, bought exploitation rights to Block 11 in 2003. In 2004, another wholly owned subsidiary of the two Chinese NOCs, PetroOriental, won the right to operate Block 14. In 2006, four exploration wells and six appraisal wells were drilled.¹⁰⁶ In late 2005, Andes Petroleum purchased the oil fields and oil and gas pipeline assets of the Canadian company EnCana for \$1.42 billion. Proven reserves of these fields are estimated at 143 million barrels.¹⁰⁷ Petroecuador, the Ecuadorian NOC, Sinopec, Petrobras, and the Chilean NOC

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Enap are engaged in an alliance to increase production from the Ishpingo-Tambococha-Tiputuni (ITT) oilfield; the Amazonian project has estimated oil reserves of 1 billion barrels.¹⁰⁸

In 2010, Andes Petroleum and PetroOriental reached agreements with the Correa government on turning its contracts into service contracts as required by new national legislation, thus avoiding the seizure of their contracts. Andes agreed as well to invest \$424 million to expand production and increase exploration at its fields, and to increase output to 5,000 b/d in Ecuador. PetroOriental's new contract also increased the size of its blocks.¹⁰⁹

China has also been willing to offer oil credit swaps to Ecuador through a variety of mechanisms. In 2009, Petroecuador and PetroChina signed a two-year crude-oil supply contract that provided Ecuador with a \$1 billion advance payment with an interest rate of 7.25 percent. In August 2010, the China Development Bank provided a \$1 billion loan in two tranches, one for \$800 million and another for \$200 million. The loan carries a fixed interest rate of 6 percent per year for a four-year term with an additional six-month grace period. Though the Ecuadorian government denied a link to oil, Dow Jones Newswires' review of minutes of the meetings between the Ecuadorian Finance Ministry and CBD officials confirms that Petroecuador will pay PetroChina 36,000 b/d of Oriente and Napo crude or fuel oil.¹¹⁰

ONGC tried to buy assets in Ecuador in 2005, but lost out to Chinese rivals. Nevertheless, Indian companies have Ecuador on their radar screen as they look to increase their international presence. Beginning in 2008, South Korean companies won a number of contracts in construction projects for an oil refinery upgrade, wind power plants, and a gas pipeline. The only South Korean E&P investment was by Canada Grande. The company had a contract for a small field and when it refused to accept Ecuador's unilateral revision of all profit sharing contracts into flat fee service contracts in 2010, its assets—as well as those of Petrobras, CNPC, and EDC—were taken over.¹¹¹

Peru

Peru was the first initiative in Latin America for Chinese NOCs in 1993. The Block 6/7 Project in the Talara Oilfield was the first overseas oilfield development project operated by CNPC.

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CNPC investment, along with that of its subsidiaries, has grown steadily since that initial investment. In July 2003, CNPC took a 45 percent stake in partnership with Pluspetrol on Block 1-AB/8. Improved production management increased recovery speed despite technical problems that limited this block's production. In December 2005, CNPC signed two new exploitation contracts with Petroperu for Blocks 111 and 113, with an approximate surface of 15,200 km² in the southwest of Peru. Preliminary preparation for the exploration in the two blocks began in 2009.¹¹²

India and China have collaborated in Peru. CNPC joined India's Reliance Industries and Pluspetrol to gain exploration rights for gas in Block 155 in the southern highland department of Puno, next to the Bolivian border. The consortium offered a royalty rate of 24.58 percent.¹¹³

Peru was the first focus of South Korean interest in the energy sector. The first international effort of Daewoo's Energy Division was oil exploration in Mining Zone 8 in Peru in 1996;¹¹⁴ SK Energy was apparently involved in that effort as well.¹¹⁵ Today that E&P license is shared among Koreans KNOG and SK as well as Argentina's Pluspetrol subsidiary Norte.¹¹⁶ In 1998, Korea Petroleum Development Corp. (20 percent), Hyundai Corporation (10 percent), and Barrett (70 percent) drilled four successful wells in Lot 67 near the border with Ecuador.¹¹⁷ In 2009, a total of nine South Korean companies, chief among them SK, had \$800 million in Peruvian projects.¹¹⁸

SK Energy is expected to begin 2D and 3D seismic acquisition and the drilling of 10 exploratory wells and 10 confirmation wells on offshore Block Z-46 in 2011 at a cost of \$483 million. The offshore block consists of 1.14 million hectares in the Trujillo basin. Repsol previously drilled two successful wells on the block. SK sold a 40 percent working interest in this block to Gulf United Energy in November 2010.¹¹⁹

SK is also active in Peruvian gas. Upstream at Camisea, SK holds an 18 percent stake, with partners Hunt Oil (36 percent), Pluspetrol (26 percent), Tecpetrol (10 percent), and Sonatrach (10 percent).¹²⁰ The consortium behind the LNG gas liquefaction plant, which was inaugurated in 2010, consists of Hunt Oil (50 percent), Repsol YPF (20 percent), SK Energy (20 percent), and

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Marubeni (10 percent). “The terminal has a nominal capacity of 4.45Mt/y with a daily natural gas supply equivalent of 625Mf3 (17.7Mm3)” and a 15-year contract to supply Mexico’s state-owned CFE at Manzanillo. The export project also includes a marine loading terminal and a 34-inch, 408km pipeline.¹²¹

KNOC’s website lists the following assets in Peru as of May 2010: Block 115 is in the Andes Mountains. Pluspetrol had 100 percent of the block but in July 2007, KNOC purchased a 30 percent share, with Pluspetrol remaining the operator. The current exploration phase plans for a 2D seismic survey. KNOC undertook a 20 percent of equity interest in Block 8 by partnering with Pluspetrol to bid in 1995. The block consists of four equity holders—three Korean parties (KNOC, 20 percent; Daewoo, 11.7 percent; SK-8.3, percent) and Pluspetrol (operator), an Argentina-based company that has a 60 percent share. The crude oil produced in this block is sold to refineries on the West Coast and inland by the North Peru pipeline, and to refineries in the east by barge.

In February 2009, KNOC and Ecopetrol acquired Petro-Tech Peruana S.A. from Offshore International Group, Inc. and renamed it Savia Peru. The two companies share equally in their stake at \$450 million each and KNOC reserves the right to appoint the chief executive officer. The purchase is the first time that KNOC has acquired an entire oil producing company. The company controls three-fourths of Peru’s offshore oil blocks, including one operational field and 10 under development, and ranks fifth in terms of oil and gas produced. Block Z-2B in the Talara Basin produces 20,000 barrels of crude and gas per day, while those under development could have 689 million barrels of crude.¹²² The company may require \$2.25 billion in investments over the next 10 years to reach its full potential.¹²³ The collaboration with Ecopetrol will offer KNOC the ability to learn from a company that ranks 38th among the world's oil producers and open the door to joint projects in Colombia. It will also allow KNOC to tap the know-how of the 3,000 employees of Petro-Tech on operating oil fields and managing logistics.¹²⁴

Bolivia

Bolivia has the second-largest conventional natural gas reserves in South America, but is relatively poor in oil resources, has no coastal access, and no direct pipeline to ports in

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neighboring countries. As a result, China, India, and South Korea have had little interest in Bolivia's oil and gas sector, though South Korea has been interested in the country's lithium potential.¹²⁵ In December 2004, Bolivian state-owned YPF and Sinopec's subsidiary Shengli Oilfield International Oil Exploit signed a broad agreement encompassing eight projects spanning the exploration, exploitation, transportation, refining, and residential connections phases.¹²⁶ In 2009, China provided Bolivia with a \$60 million loan to buy two rigs for natural gas exploration and to expand the domestic natural gas distribution network.¹²⁷

Colombia

China has been slow to get involved in Colombia, despite that country's successes in discovering oil in the past decade and desire to attract Chinese investment. Colombia wants Chinese investment in oil and gas, and the Minister of Mines and Energy met with CNPC, Sinopec, and Sinochem during a November 2009 trip to China.¹²⁸ Sinopec, in collaboration with the Indian NOC ONGC, acquired Omimex in September 2006.¹²⁹ Sinochem bid for fields in the June 2010 round, but Colombia suspended the awards in the fall and as of October 2011, results have not been finalized.¹³⁰ In December 2010, Sinopec made what it called "a rather small deal," buying two companies from Hupecol LLC and interests in four oil and gas blocks—Dorotea, Cabiona, Leona, and Las Garzas.¹³¹

India and China have cooperated well in Colombia. ONGC and Sinopec formed the Mansarovar Energy Colombia joint venture, which purchased the Teca field from U.S.-based Ominex Resources for \$850 million in 2006. Mansarovar explores, develops, and transports heavy crude utilizing cyclic steam stimulation (CSS) of the Velasquez Fields, the Nare Association, and the Teca Field. In 2011, the JV had a 24 percent share of heavy crude in Colombia.¹³² ONGC has interests in five exploration blocks, three of them offshore, which plays to the company's strengths since half of its production in India is from the Mumbai High offshore platform.¹³³ OVL was awarded CPO-5 Block in the Llanos Basin in the heavy oil round of 2008; it has farmed out to Canadian independent Petrodorado a 30 percent interest in the block.¹³⁴

Reliance has two exploration areas in Colombia; in conjunction with the Colombian NOC Ecopetrol they will explore deepwater blocks.¹³⁵

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Before 2008 there were no South Korean companies involved in Colombia oil and gas, but by 2009, the Colombian Ministry of Mines & Energy recorded that nine oil fields were being developed by them.¹³⁶

The KNOC website lists three assets in Colombia as of May 2010.

Table 3. KNOC Assets in Colombia as of May 2010

Block	Contract	Acreage (km ²)	Working Interest	Operator	Production 2008(bopd)	Phase
CPE-7	TEA	12,317 km ²	30%	Pluspetrol	N/A	Exploration
CPO-2	E&P	701.54 km ²	30%	Pluspetrol	N/A	Exploration
CPO-3	E&P	647.19 km ²	30%	Pluspetrol	N/A	Exploration

Source: KNOC (<http://www.knoc.co.kr/ENG/main.jsp>)

The CPE-7 Block in the Llanos basin of Colombia was won by a consortium of KNOC, CNPC, and Pluspetrol in the 2007 round, with the award in 2008. The current exploration phase consists of 2D seismic acquisition.

Blocks CPO-2 and CPO-3 are also in the Llanos basin, but in the western portion where commercial oil is already being produced. KNOC joined with Pluspetrol to win these two blocks in the 2008 round. Two-dimensional seismic surveys have been finished and the consortium is preparing for exploration drilling.¹³⁷

SK Energy won the contract for CPO 4 Block of 345,452 net acres on December 18, 2008. The block is in the western Llanos Basin, surrounded by producing fields. In October 2009, 25 percent of the contract was farmed out to Houston American Energy, and in August 2010, the U.S. company received an additional 12.5 percent interest in the contract. In return, SK Energy recouped 25 percent of the seismic costs it had spent to date as well as 12.5 percent of development costs. “The Phase 1 Work Program consists of reprocessing approx. 400 kms of existing 2D seismic data, the acquisition, processing, and interpretation of a 2D seismic program containing approx. 620 kms of data and the drilling of two exploration wells. The Phase 1 Work

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Program is estimated to be completed by June 17, 2012. Houston American's costs for the entire Phase 1 Work Program are estimated to total approx. \$15,000,000 over the next three years."¹³⁸ In November 2010, SK sold a 12.5 percent working interest to Gulf United Energy after having completed 3D seismic interpretation that identified multiple structures. Gulf United expects to begin drilling in the first half of 2011.¹³⁹

SK Energy, in conjunction with Pacific Rubiales and Canacol Energy, appeared to have won a number of blocks in the June 2010 auction, but irregularities in the awarding of bids have led to the postponement of awards to date.¹⁴⁰ Golden Oil Corporation acquired a 100 percent interest in three blocks totaling 1,320 sq km in the Magdalena and Llanos basins in the 2008 round. The company has six years to explore the blocks and, if successful, could develop them for 24 years.¹⁴¹

Mexico

The Chinese have been less visible in Mexico than in South America, most likely due to Mexico's legal restrictions on foreign participation in the oil sector. Nevertheless, CNPC, through its affiliate Great Wall Drilling Company (GWDC), contracts to Pemex. In April 2007, a new contract allowed CNPC to operate two Pemex drilling towers near Villahermosa, Tabasco. Pemex congratulated GWDC on its record of nonstop operation without significant interruption; Pemex signed an extension agreement with GWDC to continue working in the south of Mexico through the end of 2009.¹⁴² India and South Korea appear to be absent in the oil and gas sector.

Costa Rica

In an October 2007 visit to the PRC, Costa Rico's then-president, Oscar Arias, signed an agreement with CNPC to build a refinery in Costa Rica. Mexico's then-president, Vicente Fox, had launched the idea within the framework of the Puebla Panama Plan, but because of Pemex's decreasing oil imports and changing political conditions, Mexico was unable to complete the plan. The 25-year deal between CNPC and Recope (Refinadora Costarricense de Petróleo) has two components. The initial joint venture is focused on modernizing and expanding the Moin refinery, more than doubling its annual oil refining capability from the current 1.2 million metric tons to 3 million metric tons, improving product quality and reducing pollution. The second

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agreement includes feasibility studies for a new refinery with a proposed annual crude processing capability of 10 million metric tons.¹⁴³

Argentina

Early in 2010, CNOOC announced that it would invest \$3.1 billion for a 50 percent stake in a joint venture with Argentina's Bidas Energy Holdings Ltd., which will hold the other 50 percent stake. The joint venture Bidas Corporation will be headquartered in the British Virgin Islands and will focus on oil and gas exploration; it has assets in Argentina, Bolivia, and Chile. This partnership will increase CNOOC's proven global reserves by 318 million barrels of crude. Independent analysts in Beijing note that Bidas Corporation owns 40 percent of Pan American Energy LLC, with British Petroleum (BP) holding the other 60 percent. At the end of 2009, Bidas Corporation had proven reserves of 636 million barrels of petroleum and an average production of 92,000 b/d.¹⁴⁴

Bidas Corporation's next step was to augment their 40 percent stake by buying out BP's 60 percent stake, giving them 100 percent ownership of Pan American Energy LLC, Argentina's second-largest producer of oil and gas. Excluded from this \$7.06 billion cash deal, however, are operating assets in Bolivia that remained with Pan American Energy E&P Bolivia Limited. "Under the terms of the agreement, Bidas Corporation is required to pay BP a cash deposit of \$3.53 billion with the balance of the proceeds due on completion of the sale. \$1.41 billion of this deposit is due to be paid on December 3, 2010, with the balance of \$2.12 billion to be paid by Bidas Corporation on December 28, 2010," BP said.¹⁴⁵

Sinopec bought Occidental Petroleum's Argentine oil and natural gas assets for \$2.45 billion in December 2010. These include 23 production and exploration concessions in Santa Cruz, Mendoza, and Chubut provinces, with gross proven reserves plus probable reserves of 393 million barrels of oil equivalent. Gross production was more than 51,000 barrels of oil equivalent per day in 2009. The concessions were due to expire in 2017, but it isn't clear whether the Chinese were able to negotiate an extension by Argentina before purchasing them.¹⁴⁶ According to one analyst, China "controls 50 percent of Argentina's largest oil field, Cerro Dragon, and all the oil and gas reserves in the far southern Argentine province of Santa Cruz over the next 40

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years.”¹⁴⁷ Again, India and South Korea appear absent from this Latin American country's oil and gas sector.

This review of new Asian investments in the Latin American energy sector reveals some interesting and important differences in where they choose to invest. China has the most capital to invest and is willing to make risky investments or outbid others for Latin American assets, so it is the major Asian player in the region's energy sector. China has used project-specific investments and oil credit swaps to take major positions in Venezuela, Brazil, Argentina, and Ecuador. India and South Korea, on the other hand, have less money with which to pursue energy resources and thus have a lower exposure in the region and are more selective in their investment decisions, preferring the more investment-friendly Colombia and Peru (particularly South Korea). Interestingly, South Korean firms appear to have had shorter time horizons for their Brazilian investments, which were entered into in 2007 just as interest in Brazil's oil and gas potential was building, and then offered for sale in 2010 in order to move to friendlier investment climates. South Korean firms also took a more conservative approach to risk in Venezuela, showing a willingness to significantly reduce their investments in Venezuela as conditions for investors worsened, even as the Chinese dramatically expanded their role in that South American country's oil and gas sector. Korean firms have largely stayed away from E&P investments in Ecuador, opting for contracts that are more difficult for a government to forcibly renegotiate (oil refinery upgrade, wind power plants, and a gas pipeline).

IV. The View from Latin America

Latin America needs capital and technology to develop its hydrocarbon resources. Historically, the region's primary economic partner has been the United States, but the United States has a well-earned reputation for exercising a heavy diplomatic hand in the region and for attaching strings to economic assistance and investment. Lingering recession in the United States has combined with Latin America's desire to diversity its political relations away from dependency on the United States to create an opportunity for global economic players. At the same time, fast-growing nations in Asia seeking to develop energy resources to stoke expanding economies are eager to craft “package deals” that address Latin American development, and

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incidentally, political interests. The resulting diversification of major political relations reduces Latin America's dependency on the United States and can facilitate the consolidation of governments whose interests rival that of the United States. In addition, these new sources of investment capital and loan funds can increase a country's influence regionally within Latin America, as well as globally, by increasing the resources upon which a government can draw for its foreign policy.

This diversification of sources of capital has occurred despite the decision by major energy producing countries in Latin America to move toward more strident resource nationalism and policies that significantly increase their resource rent appropriation. Venezuela, Ecuador, and Bolivia immediately come to mind, but even Brazil has moved toward greater resource nationalism regarding its pre-salt hydrocarbon basins. Argentina uses domestic pricing mechanisms to appropriate rents in favor of domestic consumers. Though Colombia and Peru have not emphasized resource nationalism and provide attractive environments for private and foreign investors, they are still relatively small players in the energy sector and thus attract fewer investments.

China is undeterred by resource nationalism because of its own nationalist views on natural resources and its voracious appetite for energy. Combined with its general policy of non-interference in the domestic affairs of others, these factors make China an especially attractive source of capital for Latin American countries. Chinese companies are also the best positioned among Asian competitors to deal with the uncertainties raised by resource nationalism. China's oil majors can afford to take longer-term bets than some of their Western peers, thanks to state support at home and access to cheap credit. China's available capital is so much greater than that of others such as India and South Korea that it readily crafts huge package deals combining development aid and government loans with energy contracts. Consequently, as this paper has demonstrated, India and South Korea are both less active and more selective in their energy investments in the region.

There may, however, be an important down side to Chinese investment for some Latin American governments. During the neoliberal era of the 1990s, the region de-emphasized the importance of

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industrialization for national development, deciding to follow their international comparative advantage in natural resources and agriculture. Today a number of Latin American countries are rediscovering the importance of industrialization and services for value-added and employment, and the need to establish stronger links between their extractive industries and the rest of the economy. A major question is, therefore, whether China as the largest new investor in the region and overwhelmingly focused on importing raw materials and agricultural products, is subverting Latin American development strategies.¹⁴⁸

The relationship between China and specific Latin American governments is affected by both the benefits (investments and loans) and the costs (potential subversion of national development strategies). We can expect the tenor of relations between China and the Latin American countries in which it has energy sector investments to vary according to two criteria: national development strategy and the government's dependence on nontransparent sources of revenue. The point is not that China will oppose Latin American efforts to increase their rents in the energy sector; China recognizes rent distribution as a national decision over how national natural resources are made available to foreigners, and armed with low-cost finance and less pressure for short-term, commercial profitability, Chinese NOCs have been able demonstrate flexibility to Latin American partners. For example, given its interests in accessing those resources, Chinese NOCs did not complain when Venezuela and Ecuador forced contract revisions in the oil sector or Brazil created a new investment regime for the pre-salt hydrocarbon basins. China does invest in Latin America outside of the energy sector, but one can deduce from China's behavior that it sees its broader contribution to national development in foreign countries as something that either should be negotiated on a specific investment in the industrial and service sectors or undertaken by a government that has been provided with a general loan by China.

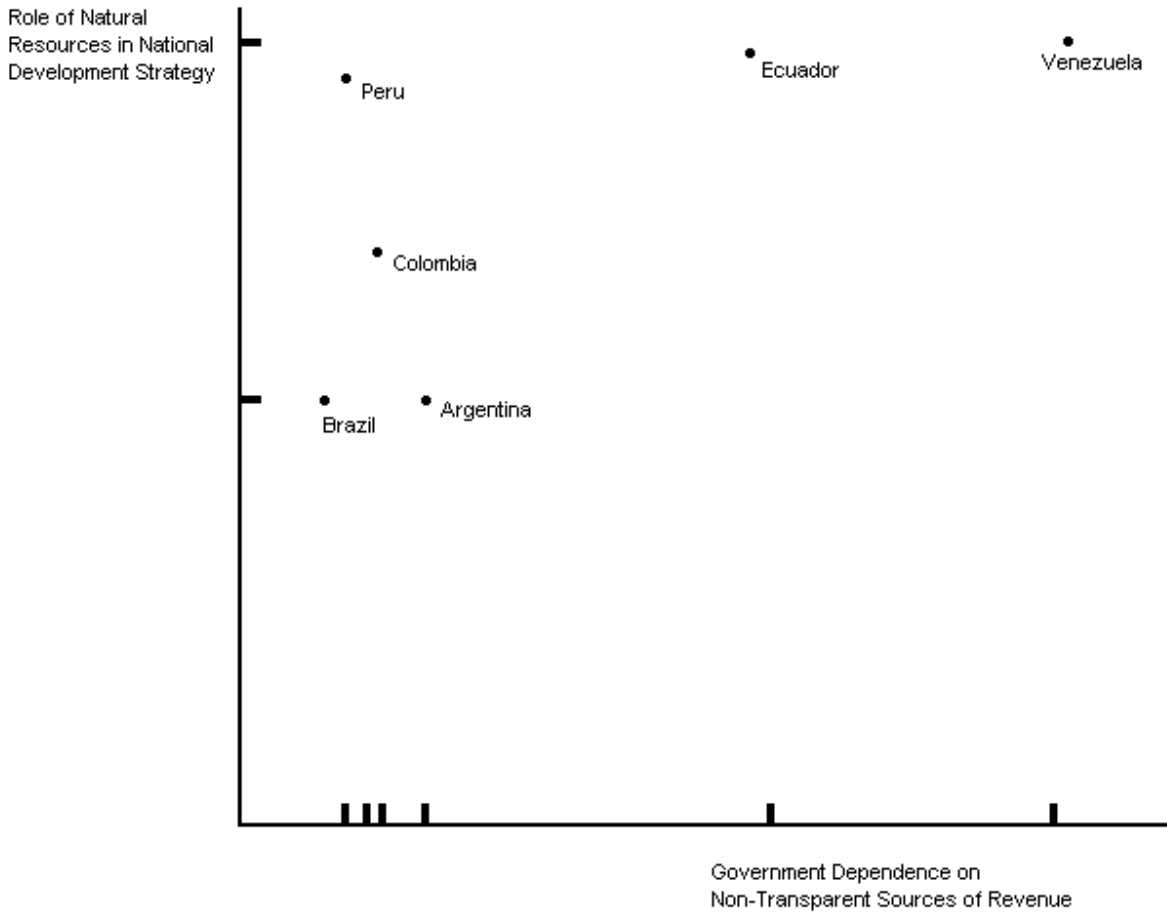
Still, China is clearly less interested in fueling Latin American industrialization. As the Chinese Commerce Minister commented during a visit to Argentina in 2011, "Many Latin American countries abound in natural resources and produce lots of farm products, and are competitive in exporting these goods," while China had the advantage in manufactured products such as clothes, shoes, caps, and electronics.¹⁴⁹

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These two criteria of development strategy and transparent government finances permit us to plot China's relations with specific Latin American countries along two axes to get a general sense of the bilateral relationships (Figure 1). The vertical axis represents the role of China's energy investments in the general development strategies of Latin America. If the national development strategy is fundamentally based on the export of raw materials, including oil and gas, the country will be at the upper end of the vertical axis. We can expect that in this case, relations with China will tend toward the mutually beneficial and that relations will encounter few problems. If the Latin American country is trying to develop its industrial and service sectors and thus desires more value added and employment generated through its relations with China, however, the relationship will be fraught with more disagreement. Gallagher and Porzecanski have concluded, for example, that Latin American exports to both global and regional markets of manufactured products, high technology manufactures and services are under significant threat from Chinese exports. Among the six Latin American countries where Chinese energy investment is greatest, Argentina, Brazil, and Colombia face the most significant competition;¹⁵⁰ Peru, Ecuador, and Venezuela export so few manufactured products that they did not merit detailed attention in that study.

On the horizontal axis, we need to measure the direct impact on a government of large-scale investments in the energy sector and large government-to-government loans. The issues here are both corruption and dependence on nontransparent sources of revenue. The level of corruption is an indicator of a government's use of revenue to reward supporters, as well as itself. A government could simply sack members of the Treasury Department for their brief term in office, but where the democratic process is unconsolidated, it might be able to use these funds to subvert democracy and effectively buy itself continued victory in future elections. To the degree that the government is pursuing the latter strategy, we can say that it is very dependent on non-transparent sources of revenue. We can use *Transparency International's* index of corruption rankings of 178 countries and the "democracy" variable from the Polity IV database.

Figure 1. Bilateral Relations Between China and Latin America



The more dependent a government is on nontransparent sources of revenue, the more it has an incentive to keep relations with China positive, since China has no interest in monitoring the impact of its investments and loans as long as it receives product. The more those Chinese funds come into a financial structure characterized by transparency, the more the government will have to invest the loan funds in public goods projects, or leave those funds in the specific energy investments. In the latter case, the government itself benefits less directly than in the former, and thus to generate citizen support for the political party in office will be more concerned about prodding the Chinese government and investors to provide investments that promote the provision of public goods in the country. Since such investments are not of primary concern for China, disagreements with this type of Latin American government are more likely to occur.

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We can thus see that the farther out on the graph, the better the relations between China and a Latin American country should be. We can array China's main Latin American energy partners (Venezuela, Ecuador, Brazil, and Argentina) along these axes. Despite having rich agricultural and mining sectors, Argentina and Brazil pursue industrialization and a high value-added service sector in their development strategies, while Venezuela and Ecuador are far more dependent on their primary sectors for development. The Transparency International rankings of 178 countries, from best to worst, place Brazil at 69, Colombia and Peru tied at 78, Argentina at 105, Ecuador at 127, and Venezuela nearly at the bottom at 164.¹⁵¹ Polity IV's "democracy" variable is scored from 0-10, with 10 representing the highest level of democracy. In 2010, Venezuela earned a score of 1, Ecuador a 5, Colombia a 7, both Brazil and Argentina scored 8s, and Peru garnered a 9.¹⁵²

Venezuela stands out among this group of China's main partners in the region both in terms of the dependence of the national development model on raw material exports and dependence on nontransparent sources of government finances. Venezuela is farthest out in Figure 1. It's no surprise, therefore, that Venezuela has not experienced any significant disagreements with China.

Ecuador's development strategy is closer to Venezuela's and though its transparency ranking is closer to Argentina's than Venezuela, it still ranks fairly low. Referring to trade with China, Vice President Lenin Moreno said in 2008, "Ecuador plans to diversify its exports to China, including bananas, shrimp, flowers, cacao, and other products, on favorable conditions."¹⁵³ As expected by the argument presented here, it has experienced some tension with China. President Correa initially criticized the Chinese government for demanding high interest rates and payment through oil delivery on loans provided by Chinese NOCs and its Development Bank.¹⁵⁴ The Chinese ambassador expressed displeasure at the tough comments made by Correa.¹⁵⁵

These early tensions in the relationship reflect Correa's miscalculations about his bargaining power both at home (he's now lost the support of the indigenous movements) and internationally (his plan to get the international community to pay Ecuador not to exploit oil resources in the Amazon failed). Not only has the Correa government had trouble getting international finance since he defaulted on government bonds in 2008, but the 50 percent decline in net foreign direct

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investment (FDI) in 2010 over 2009 puts Ecuador ahead of only Venezuela in a low ranking for FDI in a region in which FDI grew 40 percent.¹⁵⁶ Consequently, despite his earlier protests, the Correa government has borrowed over \$7 billion from China at interest rates up to 7 percent and paid for by oil exports at apparently below market prices.¹⁵⁷

At the other end of the spectrum are Brazil and Argentina. Brazil has a development strategy that emphasizes value-added and employment generation and in which government finances are relatively transparent—as indicated by its Transparency International ranking—and its democracy fairly consolidated, as suggested by its Polity IV score. Brazil is found in the lower half of the vertical axis and the lower quartile of the horizontal axis, placing it closest of the four countries to the origin in Figure 1. In contrast to Venezuela and despite the size of Chinese investments in Brazil's energy sector, the Brazilian government criticizes Chinese investment for its low contribution to local industry and employment. For example, in 2011 Brazil imposed antidumping tariffs on steel tubing, viscose textiles, paper, tires, and shoe imports from China;¹⁵⁸ Brazil has also criticized the manner in which China was investing in Brazil and the structure of its exports to China.¹⁵⁹ While president, Luiz Inacio Lula da Silva criticized the Chinese in Africa because "they bring all these Chinese to work in a mine, and this doesn't generate opportunity for work in that country;" and Brazil has echoed U.S. concerns about the undervaluing of the Chinese currency.¹⁶⁰

Argentina also has a manufacturing sector that is under stress, and unlike the neoliberal administration of Carlos Menem in the 1990s, governments since the economic collapse of 2001 have sought to increase the role of the industrial sector in the country's development. Like Brazil, it is just below the halfway point of the vertical axis (see Figure 1). Its Polity IV score of 8 indicates that democracy is consolidating, though its Transparency International ranking of 105 suggests problems with lack of transparency; consequently, the country lies somewhere in the middle of the horizontal axis, above Brazil, Peru, and Colombia. Relations do reflect tension, as China has complained about Argentine trade barriers to Chinese manufactured goods and the Chinese vice-minister of commerce felt compelled to note that Chinese investment "created more than 5,800 jobs in Argentina to 2010 and will generate up to 5,000 more jobs in the next three years."¹⁶¹ In response to Argentine antidumping tariffs on

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manufactured products, China raised barriers to imports of soy oil from Argentina for almost two years, from 2009 to 2011.¹⁶² But even as that conflict was working itself out, Argentina raised barriers to the import of Chinese automobiles assembled in Uruguay, forcing the Chinese company to open a plant in Argentina.¹⁶³

Argentina has more trade tension with China than would be expected from this argument, accounting for 64 percent of all antidumping measures taken by Latin America against China in 2009, and doubling between 2007-2008 and again from 2008-2009.¹⁶⁴ This outlier status reflects the nature of the governing Peronist party, whose origins lie in industrial labor unions.

Turning to the countries with lower levels of Chinese investment, we can locate Peru in Figure 1 as high on the natural resource axis (vertical) and in the lower part of the axis (horizontal), capturing the dependence of the government on nontransparent sources of income¹⁶⁵ (Peru has a Transparency International (TI) score of 78 and a Polity IV score of 9). Reflecting its democratic nature, Peru has experienced conflict with China at the nongovernmental level, with environmentalists, indigenous communities, and textile workers protesting Chinese investments and cheap manufactured products to Peru. On the other hand, indicative of the government's development strategy focusing on natural resource exploitation, the government of Peru has not adopted a contentious stance toward China. In regard to Colombia, it places slightly further out on the horizontal axis than Peru (TI of 78 and Polity IV of 7), but much lower on the vertical axis because of its larger role of industrial and service sectors in development strategy. Colombia has, in line with expectations raised by the analysis here, investigated Chinese exports of shoes to Colombia and imposed antidumping tariffs on imports of Chinese steel tubes.¹⁶⁶

V. Conclusion

In their global search for energy, Asian consumers are naturally attracted to Latin America's energy resources. The three new Asian players in Latin American markets have invested in 10 countries, but only six have attracted significant levels of Asian investment: Venezuela, Brazil, Argentina, Ecuador, Colombia, and Peru. The paper finds that Chinese NOCs are more likely to accept investment terms that include expensive resource rents and other constraints imposed by

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resource nationalism than their other Asian counterparts whose approach is more commercially oriented, reducing their risks in the more stridently nationalistic investment environments in Latin America. Chinese firms are better able to pay higher rates for energy assets because their access to preferential finance is stronger and transparency and government accountability regarding their foreign investment activity is lower.

However, even Chinese firms are starting to encounter pushback in countries like Brazil that have their own industrialization priorities. This trend may limit the attractiveness of certain developed Latin American markets for a continuing surge of Asian finance, and result in a greater focus by Chinese NOCs on riskier markets such as Venezuela or Bolivia, where ruling governments are less transparent.

The differences among Chinese, Indian, and South Korea investment patterns in Latin American energy are important because they reward different development strategies and government behavior. It's not particularly the case that China favors governments with leftist populist policies. However, governments with these policies and significant energy resources (Venezuela and Ecuador) prefer to mortgage those resources to the Chinese rather than alter public policy in order to attract other foreign investors who are more likely to resist more nationalistic, rent seeking policies. China's financial support has meant that certain governments could avoid undue political fallout from their more extreme populist economic policies. For example, China became Ecuador's major source of foreign lending after it defaulted on its international debt in 2008. Chinese financing has thus permitted the Correa government to maintain high levels of public spending, thus essentially bankrolling the popularity of a government that is taking a radical position against the rules and norms guiding international finance. And China's \$40 billion oil credit swaps with the Chávez government are certainly an important factor in that government's ability to survive as FDI falls, crime increases, and basic goods and services become scarce.

The implications of Asian investment in the energy sector for Latin America can thus be highly significant, since they can strengthen governments that are subverting the basic tenets of

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governmental accountability and prolong the reign of public policies that undermine the long-term development and economic health of important countries in the region.

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Notes

1. I thank Amy Myers Jaffe and Jareer Ellass for comments. James Coan, Jaime Arredondo, Esteban Ferrero Botero, and Katherine Collins provided research assistance. Responsibility for views presented here is mine.

2. Japan has a longstanding relationship with Latin America, and is thus not included in this analysis.

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