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ABOUT THIS SERIES

This policy brief is the third in a CNAS series on the coercive tools of economic statecraft.

- American Economic Power and the New Face of Financial Warfare
- Lessons from Russia for the Future of Sanctions

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Cover Photo: Chinese Yuan Renmibi and U.S. Dollar (iStockphoto.com).
Over the past ten years, sophisticated financial sanctions have become a tool of first resort in dealing with intractable foreign policy issues. U.S. policymakers have come to see them as a silver bullet: powerful, easily imposed, and relatively painless to the United States. As President Obama noted in his 2015 National Security Strategy, these “[t]argeted economic sanctions remain an effective tool for imposing costs on ... irresponsible actors.” Sanctions have provided U.S. leaders with powerful ways to address difficult foreign policy issues such as terrorism, non-proliferation, foreign aggression, and cyberattacks. They have been credited as game-changers in key disputes. For example, most experts agree that financial levers were indispensable in driving the negotiations over Iran’s nuclear program and the ultimate agreement between Iran and the P5+1.

Yet precisely because of the increasing use of financial sanctions, the United States could one day become a victim of its own success. Two problems loom on the horizon. First, other countries’ responses to sanctions may undermine them. The United States relies on the desire for continued access to its financial sector as a way to pressure bad actors to change their behavior to advance U.S. policy objectives; countries have, however, begun reconsidering their reliance on U.S. dollars for a wide range of transactions. Such moves would hurt U.S. economic competitiveness and would also mean that future threats to cut off access to the U.S. financial system may be less effective.

Second, other countries are beginning to use similar tools of economic statecraft to achieve their own foreign policy objectives. Over the past few years, China – which often has interests inimical to those of the United States – has increasingly relied on its economic clout to pressure other East Asian countries on a range of political issues. While the economic tools China will employ – and the ways in which it will employ them – will likely differ from recent U.S. approaches, it is also likely that China will learn from the U.S. experience and refine their use of these tools to the detriment of U.S. interests.

To ensure that U.S. sanctions strategies can remain effective – and to counteract potential adversaries’ use of similar tools – U.S. policymakers need to think through what the next wave of sanctions should look like and how the United States can most effectively leverage these economic measures. In addition, U.S. policymakers should anticipate and begin to plan how to blunt China’s use of economic coercion against American interests and U.S. allies. Such an analysis should include assessments of our allies’ key economic vulnerabilities, as well as potential ways the United States could help mitigate them.

This paper first provides a recent history of the use of financial sanctions by the United States. Second, it explains why their effectiveness may decline – even though policymakers have increasingly relied on these tools over the past decade. Third, it identifies how China and similarly situated countries may employ forms of economic coercion against U.S. interests. Fourth and finally, it suggests steps the United States can take to ensure that it can continue to employ economic statecraft successfully to achieve policy objectives, while limiting others’ ability to use these tools against the United States and its allies.

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A Powerful Tool of Economic Statecraft

A key characteristic of economic sanctions – and coercive diplomacy more generally – is that they are contests in pain. In general, the greater and more meaningful the pain one side can and will impose on the other – while not suffering similar pain itself – the more likely it is that it will achieve its objectives. This dynamic is particularly notable in the case of sanctions, which are by their nature double-edged swords: economic sanctions punish the target, but also cause pain to the state imposing the sanctions. The target is denied a certain amount of commerce, but that commerce is also denied to the state imposing the sanctions. This is what makes financial levers so powerful: they rely on the importance of the U.S. dollar in the world financial system and on private firms’ concern with their business reputations. Thus they tend to impose much more pain on the target than on the sender, by effectively locking the target out of the broader international monetary system.

U.S. financial sanctions rely on the attractiveness of U.S. and European financial markets; in particular, the strength and stability of the U.S. dollar make it the currency of choice for many types of international transactions. The need to access U.S. dollars provides the key basis for many U.S. financial sanctions: if a company wants to transact in dollars, it needs access to U.S. financial markets to do so, and the United States can threaten that access if the company does not comply with its sanctions regulations. Likewise, U.S. regulators can conduct enforcement actions – potentially resulting in huge fines – against foreign financial institutions that process transactions through the U.S. financial system, thus increasing the incentive of these financial firms to comply with U.S. sanctions.

In the case of Iran, for example, the United States used its position as the financial capital of the world – and one of the largest global markets – to pressure foreign financial institutions and companies to abandon their business with the Islamic Republic of Iran. The U.S. Department of the Treasury forced those companies to choose: they could either do business in U.S. financial markets and have access to U.S. dollars for their transactions, or they could do business in Iran, but not both. Further, the Department of the Treasury aggressively targeted and heavily penalized foreign companies whose transactions with Iranian individuals and companies made use of the U.S. financial system – such as through correspondent banking or U-turn dollar transactions – and thus violated U.S. law. As a result of this campaign, a large number of foreign firms ceased doing business with Iran, increasing economic pressure on the country. This ability to impose sanctions with teeth and that thus convince non-U.S. companies to stop conducting business with Iran helped push it to the negotiating table to discuss its nuclear program, which led ultimately to the Joint Comprehensive Plan of Action.

The need to access U.S. dollars provides the key basis for many U.S. financial sanctions: if a company wants to transact in dollars, it needs access to U.S. financial markets to do so, and the United States can threaten that access if the company does not comply with its sanctions regulations.

Similarly, the United States has recently imposed sanctions on Russia that target Russia’s ability to refinance its massive external debt and to develop its energy resources over the medium to long term. These new sanctions leverage key U.S. advantages, notably its technological superiority and its capital markets with attractive interest rates and financing terms. In an attempt to cut Russia off from Western financial markets, U.S. and EU sanctions on Russia prohibit Western financial firms from dealing in certain new Russian debt or equity with more than a 30-day maturity period. This makes it exceedingly difficult for Russian companies to secure the financing necessary to service their country’s massive debt. In addition, the sanctions prevent U.S. energy companies from providing cutting-edge technologies to Russian firms that would help those firms develop their difficult-to-reach energy such as shale, offshore, and Arctic oil resources.
Beyond the contest in pain tolerance, three other factors played an important role in making these two sanctions programs more effective than other sanctions campaigns, such as U.S. attempts to pressure North Korea. First, the target states, notably Iran and Russia, were well integrated into Western markets. While Iran has not conducted business with most U.S. companies since the early 1980s, it had extensive and important business relationships with European companies and countries until 2010. These relationships provided Iran with an important economic lifeline, allowing it to secure key financing and serving as a gateway to important petroleum export markets. Likewise, Russian companies were heavily reliant on Western financial markets to refinance their debt, and Russian energy companies relied on Western firms’ technology to develop frontier energy resources.

Second, the United States – with cooperation from the European Union – was able to implement these sanctions effectively without securing a significantly broader coalition or seeking political agreement from the United Nations Security Council that comprehensive sanctions have often required. As demonstrated by U.S. efforts to isolate Iran since 1980, Iraq in the 1990s, and Cuba since the 1960s, the most effective forms of economic sanctions usually require global buy-in; without global participation, target countries can find willing trade partners and avoid the impact of unilateral sanctions.

In the case of recent financial sanctions, however, while U.S. government officials engaged in significant outreach efforts to persuade European and Asian countries to cooperate with its sanctions strategy, the United States was also able to threaten foreign firms with loss of access to its financial system if they did not comply with U.S. prohibitions on doing business in Iran. Thus while international cooperation was desirable, this sanctions strategy required less international consensus than, for example, the comprehensive sanctions levied against Iraq in the 1990s.

Third, the incentive for potential partners to forsake connections with U.S. markets in favor of the target’s markets was very low, particularly in the case of Iran. Some companies – in particular energy and retail companies – were interested in Iranian markets, but the cost of being cut out of U.S. markets was simply too high. While Iran might have a significant upside for major energy companies, realizing those opportunities was unlikely to exceed the cost of being shut out of U.S. markets. While Russia is a more attractive market, many foreign firms would likewise be unwilling to forgo access to U.S. markets for Russian business.

Thus these recent U.S. sanctions have been more effective than prior sanctions, particularly because the United States has been able to impose significantly more pain on the target states without needing to achieve the same degree of international consensus.
The Limits of Financial Sanctions

Despite recent successes, there are significant reasons to believe that in the future these tools will become increasingly difficult to employ successfully. Structural features of the sanctions landscape and the efforts of potential U.S. targets will constrain U.S. advantages in this space.

First, the United States and the European Union will likely find that sanctions of this kind will not work as well on other potential adversaries as they did on Iran and Russia. The three reasons previously cited regarding the impact of those sanctions may not exist in these new circumstances. Iran, and to a lesser extent Russia, were ideal target states; they were fairly well-integrated into Western financial markets, needed access to these markets for the continued development of important sectors of their economies, and, critically, the pain of the sanctions was much greater for those countries than for the United States or the European Union.

These circumstances may not exist when the United States is considering imposing similar sanctions in the future. For example, while China is well-integrated into U.S. financial markets, and while access to those markets is important for continued Chinese economic development, such sanctions would also cause significant damage to the U.S. and EU economies. In addition, China has the ability to retaliate economically against the United States and the European Union in ways that would be quite painful, such as by limiting U.S. and European access to Chinese markets. This potential retaliation is likely one of the reasons the Obama administration has been reluctant to impose sanctions on Chinese individuals and companies following repeated and egregious cyber attacks. Such mutual vulnerability may make U.S. and European policymakers refrain from imposing financial sanctions on China for its role in cyberattacks or for its construction of military installations in the South China Sea.

Second, other countries are developing mitigation strategies that will make these sanctions less effective. In the short term, the countries currently under U.S. and European Union sanctions have found ways to work around these sanctions: Iran has done so by engaging in black market activities. Russia sought to “backfill” the lost contracts – that is finding alternate partners to step in and provide the goods and services no longer provided by U.S. and European companies – by dealing with the Chinese. Russia, however, has been only partially successful; for example, while China is willing to cover certain financing, such transactions are significantly more expensive than if done in Western capital markets. The U.S. Department of the Treasury has taken a number of steps to prevent such backfilling, through both enforcement actions and diplomatic channels.

In the longer term, countries concerned about being the target of U.S. financial sanctions are also developing ways to hedge against the risk of becoming a target. For example, many analysts believe that the Chinese push for their currency to function as a global reserve is an attempt to establish an alternative to the U.S. dollar. U.S. financial sanctions rely on the attractiveness of U.S. and European financial markets: the strength and stability of the U.S. dollar, in particular, make it the ideal currency for conducting many types of international transactions. But if alternate reserve currencies become more attractive, then many of these companies will no longer need to rely primarily on the U.S. dollar and the U.S. financial system, thus undermining U.S. sanctions leverage.

The more the United States threatens companies with loss of access to its financial sector or penalizes those companies relying on dollars for various transactions, the more attractive alternative structural arrangements of the global economy may become.
may become. For example, foreign companies may be more likely to use alternate currencies for trade and commodity financing because doing so decreases their vulnerability to U.S. enforcement actions. This in turn could undermine future U.S. sanctions efforts, as companies need not cease doing business with a targeted country to preserve their access to U.S. financial markets. While this is unlikely to occur in the near future, the prospect has already sparked concerns among policymakers and analysts.

Third, the continued use of financial sanctions may drive companies away from U.S. markets, ultimately causing damage to the U.S. economy. While policymakers will certainly continue using these tools, this increased cost may – in certain circumstances – make other options seem more attractive.

In addition, other challenges that have complicated – although not prevented – the imposition of effective financial sanctions may become more pronounced. For example, European and U.S. companies eager to do business in certain markets may resist the U.S. application of more financial penalties on countries such as China and Russia, as these policies may hurt their bottom line and provide distinct advantages to non-Western firms to attract and secure business.

Although the United States will likely have the world’s most advanced economy for years to come, its ability to use financial sanctions to achieve political objectives may become more challenging.

**Economic Coercion Against U.S. Interests**

Other countries have gone to school on the impressive record of U.S. economic statecraft, and policymakers must be prepared for the United States and its allies to be on the receiving end of economic coercion.

China, in particular, can be expected to play the game of economic statecraft. However, its strategy is unlikely to mimic exactly what the United States has done with financial sanctions against targets such as Iran.

First, for the same reasons that U.S. financial sanctions against China would be extremely painful to the U.S. economy, Chinese financial sanctions against the United States would hurt China too. As analysts have noted over the years, this mutual economic dependency may limit the countries’ willingness to use economic weapons against each other.

Second, China has historically adopted a less aggressive form of economic statecraft than the United States. This restraint is likely due more to the inherent limits of the tools at China’s disposal than to any principled or strategic calculation about the proper limits of economic coercion. Instead of applying blanket sanctions against target states to coerce changes in their behavior, the Chinese have relied on exerting economic pressure by restricting imports from key foreign industries and by refusing to allow certain companies to secure Chinese government contracts.
China creates coercive leverage with regulations, purchasing decisions, the refusal to allow the import of certain goods into Chinese markets, and limiting exports of strategic materials to the markets of its adversaries. Moreover, given the importance of China as a market, these coercive measures may also have reputational effects not unlike those that operate with the financial levers the United States and its Western allies have utilized; states and firms may not want the stigma associated with being locked out or otherwise sanctioned by such a major economic market player as China.

Notable examples of this willingness to use economic power for political ends are China’s recent attempts to coerce a number of countries in East Asia. In 2010, following the arrest of a Chinese ship captain after he rammed a Japanese Coast Guard vessel in a disputed maritime region, the Chinese restricted exports to Japan of rare earth elements (essential to many high-tech industries). Chinese customs officials blocked the export of these strategic goods to Japan until it released the captain. Likewise, following a 2012 dispute with the Philippines over Chinese fishermen operating in the Scarborough Shoal, Chinese authorities imposed tighter measures on agricultural imports from the Philippines, and in particular on bananas. Given the importance of bananas and other agricultural exports for the Philippine economy, China’s economic pressure on the Philippines convinced the Philippines to settle the dispute quickly.

In response to recent U.S. threats to impose economic sanctions on Chinese individuals and entities for cyberattacks, China has prepared to impose costs on U.S. businesses in retaliation. For example, new banking sector regulations that prohibit domestic firms from using non-Chinese technology could make it more difficult for U.S. companies to do business in China following U.S. threats. While these are not economic sanctions as U.S. policymakers might conceptualize them, these actions are undoubtedly coercive; by imposing pain on U.S. companies, the Chinese are trying to influence U.S. policies, in this case the U.S. decision to target Chinese cyber attackers. Moving forward, U.S. policymakers can expect China to exert its economic muscle in this way, rather than by directly imposing Western-style economic sanctions on target countries or persons.

Due in part to observing the power that the United States has brought to bear using economic leverage — and enjoying substantial leverage of their own even after China’s 2015 stock market collapse — Chinese policymakers are increasingly looking to use economic coercion to achieve foreign policy objectives. A prominent think tank associated with the Chinese government has pointed out that, “given the fact that our nation has increasing economic power, we should prudently use economic sanctions against those countries that undermine world peace and threaten our country’s national interests.”

China’s willingness to use its economic tools to coerce cooperation related to maritime disputes in the Western Pacific complicates U.S. attempts to coordinate responses to increased Chinese assertiveness in the region.

Given the size and robustness of the U.S. economy, such economic statecraft may be unlikely to threaten its continued growth or pressure the United States into making major policy adjustments. But potential adversaries are likely to target other countries in ways that threaten U.S. interests. China’s willingness to use its economic tools to coerce cooperation related to maritime disputes in the Western Pacific complicates U.S. attempts to coordinate responses to increased Chinese assertiveness in the region. Likewise, Chinese attempts to penalize U.S. companies in response to U.S. policies may deter the United States from imposing its own sanctions.

China’s use of economic coercion against U.S. allies — which affects U.S. interests — also makes a U.S. response more challenging, echoing debates about extended deterrence during the Cold War. While it would be fairly easy to ramp up support from U.S. allies for imposing sanctions on China if it employed sanctions against the United States, it would be more difficult to do so in response to Chinese sanctions against other countries that also threatened U.S. interests.
Maintaining the Pressure

While sophisticated new financial sanctions may not remain as effective in their current form to U.S. policymakers in the future, other countries, seeing the success the United States has enjoyed, are increasingly likely to seek to use forms of economic coercion. Yet, even if its effectiveness wanes somewhat, the successes of recent years, and the importance of incorporating economic statecraft into a comprehensive coercion strategy, mean that U.S. policymakers must think through ways to continue to bring economic leverage to bear.

In focusing on this next wave of sanctions, U.S. policymakers should consider two steps they can take to ensure that the United States can continue effectively deploying these powerful economic tools. First, institutionalizing ways to identify the vulnerabilities unique to each potential target state will help policymakers apply the most effective economic leverage. Identifying these leverage points – which may not directly involve the U.S. financial system – will allow policymakers to continue exerting pressure even if the financial levers are no longer as powerful. Policymakers at the White House, the Department of the Treasury, and the Department of State should work together to develop a comprehensive assessment of potential adversaries’ economic vulnerabilities, such as the need for critical technologies, the need to access certain markets, and the need to engage in partnerships to obtain particular resources. In a recent example, U.S. policymakers identified the development of Russia’s shale, Arctic, and deepwater oil resources as economically important to the country in the medium and long term. By prohibiting U.S. companies from signing contracts related to these resources and banning them from exporting technology necessary for the development of such resources in response to Russia’s activities in Crimea and eastern Ukraine, the United States and the European Union dimmed Russia’s medium-term economic outlook.

Policymakers could establish a sanctions working group tasked to systematically review countries that might be subjected to sanctions in the future and to identify particular vulnerabilities and pressure points in their economies and how the United States might target those vulnerabilities. Such a strategic assessment – similar to military contingency planning – would allow policymakers to respond more quickly to emerging challenges. As with military contingency planning, the existence of a plan would not indicate strategic intent to go to war; this would be a “peacetime” exercise, meant to prepare policymakers and implementers to react more expeditiously to rapidly unfolding crises. By contrast, it took months for the United States to ramp up pressure on Russia in response to its activities in Crimea and eastern Ukraine; by the time these levers were employed, Russia had seized control of Crimea and had established facts on the ground in its favor in eastern Ukraine. Identifying vulnerabilities in advance would mean that even if financial sanctions were no longer the best option, U.S. policymakers would have other economic tools that they could employ quickly to significant effect. In many cases, for example, the United States may control access to critical technologies, giving policymakers powerful tools to impose costs on target states.

Second, if policymakers identify such vulnerabilities but do not control access to the pressure points – like the critical technology Russia needs to develop its offshore and Arctic oil resources – the United States should determine whether one of its allies controls such levers. In other words, the United States would need to identify possible vulnerabilities it has limited means to affect, identify who has those means, and persuade that ally or partner of the need for action. Further, to retain
options in circumstances where the United States would want to impose pressure and U.S. partners might have the leverage but not the inclination, U.S. policymakers should develop, in advance, ways to mitigate or offset sanctions pain to such partners so as to increase the likelihood that they would help U.S. attempts to impose powerful sanctions. Such mechanisms could include purchasing the goods or services that our allies could no longer send to target states, providing tax breaks for U.S. companies to import those goods or services from that partner country, or providing financial assistance, perhaps in the form of foreign aid, to offset any economic costs of the sanctions.

Fortunately, the United States has already laid the groundwork for this type of cooperation. For the past decade, officials at the Departments of Treasury and State have engaged in significant and sustained outreach efforts with allies and partners to coordinate sanctions policy regarding Iran and Russia.\textsuperscript{41} Such relationships will be important to the effectiveness of future strategies of economic pressure.\textsuperscript{42}

Note, however, that there are at least two significant challenges to such an approach. First, allies are unlikely to see the underlying policy dispute exactly the way U.S. policymakers do, which complicates reliance on allies to apply sanctions. In general, the greater the differences between the U.S. and its allies’ positions – especially when the United States is asking those allies to apply the primary source of leverage – the less likely sanctions can be effectively employed. Second, European partners have historically demanded a higher legal standard of proof of wrongdoing than the United States has, and meeting such legal standards can make the imposition of economic sanctions more challenging.

U.S. policymakers should also consider a number of steps to limit potential adversaries’ use of economic coercion. In particular, the United States should develop a strategy to blunt Chinese use of economic statecraft against its neighbors. For example, if China were to exercise economic coercion against Japan, the United States should engage in “backfilling” of its own, providing Japan with access to key materials and technologies should the Chinese cease providing such goods and services. U.S. steps could include rolling back regulations prohibiting the export of particular key materials to Japan, or providing tax breaks to U.S. companies that increase their exports of such goods and services to Japan. Likewise, the U.S. government should consider ways to assist the Philippine economy if, for example, China threatens to constrict imports of key Philippine agricultural products, such as by committing to purchase certain amounts of these agricultural products or by providing incentives to U.S. companies to import them. If the United States shows success in blunting Chinese economic coercion of our allies and partners and can credibly signal an intention to continue doing so, that could shape the environment for Chinese strategic choices.

The United States should develop a strategy to blunt Chinese use of economic statecraft against its neighbors.
Looking Ahead

Over the past ten years, the United States has increasingly employed a new set of sanctions, many of which rely for their leverage on access to the U.S. financial sector. While these tools have arguably been effective in certain circumstances, they may cause two significant unintended consequences. First, their success may be a diminishing asset: target states could withdraw from U.S. markets to escape their reach, limiting U.S. leverage. Second, potential adversaries are seeing how powerful economic statecraft – when combined with other coercive measures – can be, and may seek to apply sanctions of their own to the detriment of U.S. interests.

Yet this does not mean that the United States cannot continue to employ sophisticated sanctions to great effect, nor that other powers will now gain an upper hand in using these tools. Rather, U.S. policymakers should think through what the next wave of sanctions will look like, and in particular focus on how the United States can leverage its key resources and those of its partners. The United States will also need to develop its own mitigation strategies, such as ensuring that its allies and partners are able to withstand such coercive attempts, as countries such as China begin to increasingly recognize and use the immense power of these economic tools to achieve political aims.

The future path of economic coercion, in other words, is likely to resemble the familiar paths of military coercion: advantages in offense beget innovations in defense that spur new efforts in offense. Measures beget counter-measures, and the arms race continues. Stronger countries can retain a long-term advantage only if they are more innovative, agile, and wise than their adversaries in their employment of the tools. The United States will have to show such innovation, agility, and wisdom to ensure its continued advantage.
Endnotes


2. President Barack Obama, National Security Strategy of the United States (Washington, D.C.: February 2015), 23. President Obama also noted that sanctions “will continue to be carefully designed and tailored to achieve clear aims while minimizing any unintended consequences for other economic actors, the global economy, and civilian populations.” For a discussion of the limits on precision in targeting these financial tool, see Peter D. Feaver and Eric Lorber, “The Sanctions Myth,” The National Interest (July/August 2015).


13. For an excellent overview of these sanctions – as well as lessons to learn from the Russia episode – see Peter Harrell, “Lessons from Russia for the Future of Sanctions” (Center for a New American Security, September 2015).

14. Ibid.

15. For a description of which activities are now prohibited, see the Directives promulgated pursuant to Executive Order 13662, “Blocking Property of Additional Persons Contributing to the Situation in Ukraine.”

16. U.S. sanctions helped bring Iran to the negotiating table and were important in convincing the Islamic Republic to reach agreement over its nuclear program. It remains an open question, however, whether sanctions have been effective in changing Russian behavior in Crimea, eastern Ukraine, and Eastern Europe more broadly. See, e.g., Richard Nephew, “Are Sanctions Effective?” Center on Global Energy Policy Blog, March 16, 2015, http://energypolicy.columbia.edu/sanctions-blog-columbia-s-center-global-energy-policy-post-two.
17. The United Nations Security Council passed certain resolutions related to Iran’s proliferation activity in the mid-to-late 2000s, but those resolutions did not impose comprehensive sanctions like the 1990s U.N. sanctions on Iraq.


20. See, for example, David Shambaugh, Tangled Titans: The United States and China (New York: Rowman & Littlefield, 2013).


22. Cooper and Lorber, “Sanctioning the Dragon.”


29. This topic was the focus of a number of questions in a recent Senate Foreign Relations Committee hearing on the “Sanctions and the JCPOA,” July 30, 2015.


34. Ibid.


37. Ibid.


40. For a classic discussion of the difficulties of extended deterrence, see Thomas Schelling, Arms and Influence (New Haven: Yale University Press, 1966), 36.

41. Zarate, Treasury’s War, 296–313.

42. While these vulnerability assessments and mitigation techniques would be important in ensuring continued U.S. advantages in economic coercion, U.S. policymakers would still need to continue other efforts to ensure that financial sanctions remain a viable and effective tool of economic coercion, such as by continuing efforts to prevent significant backfilling, and by ensuring that the dollar remains the currency of choice for most international transactions.
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Production Notes

Paper recycling is reprocessing waste paper fibers back into a usable paper product.

Soy ink is a helpful component in paper recycling. It helps in this process because the soy ink can be removed more easily than regular ink and can be taken out of paper during the de-inking process of recycling. This allows the recycled paper to have less damage to its paper fibers and have a brighter appearance. The waste that is left from the soy ink during the de-inking process is not hazardous and it can be treated easily through the development of modern processes.