WASHINGTON—The U.S. Treasury refrained from labeling China a currency manipulator but took a tougher line than in past years, saying the yuan is "substantially undervalued," warning "progress thus far is insufficient and that more rapid progress is needed."

The Treasury's much-awaited report on China's currency reform steps up the rhetorical heat from the last update in July, which merely called the yuan "undervalued" instead of "substantially undervalued."

The Treasury is required to review twice a year whether China and other nations are manipulating their currencies. Such a declaration against China could have major ramifications for the international financial system as it could set off a trade war between the U.S. and its largest trading partner. The U.S. so far has stopped short of calling China a currency manipulator, and instead has used speeches and diplomacy to pressure the country to free its grip on the currency's value.

Chinese President Hu Jintao, during his Washington visit last month, said China was committed to exchange-rate reform. Since China announced last June that it would restart a program to make its currency more flexible, the yuan has appreciated around 3.7% against the dollar.

The report is likely to disappoint many U.S. lawmakers. With U.S. manufacturers complaining their products are being outsold by Chinese goods made at a cheaper cost, helped by an exchange rate they say is kept unfairly low, lawmakers wanted Treasury to name Beijing a currency manipulator and are threatening to pass punitive legislation. The Obama administration held up publishing the report until after Mr. Hu's visit. Legislators had called for the administration to press Mr. Hu on the exchange rate.

"It's as plain as the nose on your face that China manipulates its currency. It's just as plain that the only way to address this problem is for Congress to act," said Sen. Charles Schumer, (D., N.Y.), a lead critic of China's exchange rate policy, on Friday. Senate Finance Committee Chairman Max Baucus (D., Mont.) also criticized the administration for not labeling Beijing a currency manipulator. "China has been given a free pass on its currency practices for far too long," he said, adding that Congress needed to hold its largest trading partner to account.

Pressures on China's economy may help to drive that change. "It is in China's interest to allow the nominal exchange rate to appreciate more rapidly, both against the dollar and against the currencies of its other major trading partners," the Treasury said. Without greater flexibility, Beijing risks fueling excessively rapid growth of credit, and creating upward pressure on property and equity prices, which could threaten growth, it said.

Including inflation, the Treasury estimates the yuan's move is equivalent to an annual rate of 10% a year. China has
also started relaxing restraints on the use of the yuan. The Treasury said these reforms will over time "contribute to a more market-determined exchange rate."

The undervalued yuan is also harming other emerging-nation economies, which could help the U.S. in its negotiations at the Group of 20 nations conference later this month. Countries such as Brazil, which have more open exchange rate policies, are dealing with a surge in investment that threatens to overheat their economies, the Treasury said, leading in some cases to over-valued exchange rates.

Despite the often-fierce rhetoric, no key lawmaker has introduced a bill trying to punish China for how it manages the yuan since Republicans took over the house. Big U.S. companies have warned against sparking a trade war with China, saying it would be more productive to protect their interests in other areas, such as defending intellectual property rights.

Eswar Prasad, a Cornell University economist and former China expert at the International Monetary Fund, said the Treasury's approach is constructive and avoids bringing "things to a boil." The report, "takes a carefully calibrated approach to Chinese currency policy, conveying a clear message on the need for more currency flexibility but without using language that would damage relations with China," Mr. Prasad said.

The Treasury said it would continue to closely monitor yuan appreciation.

The report studied ten countries’ exchange rate policies that account for over three quarters of U.S. trade.

—Luca Di Leo contributed to this article.

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