By Jonathan Weisman and David Enrich

President Barack Obama unveiled his proposed $90 billion bank tax Thursday with some of his toughest rhetoric yet toward Wall Street, saying: "We want our money back, and we're going to get it."

The president's tough line dovetails with a political push by Democrats to capitalize on anger over bonuses and profits from banks that benefited from taxpayer bailouts during the nadir of the financial crisis.

Democratic leaders responded cautiously to the proposal, mindful that the president's pledge last year to retrieve bonuses paid to American International Group executives has yet to be fulfilled, according to senior leadership aides. One senior Democratic aide said the House wouldn't move forward on the tax proposal until leaders there were sure the Senate would follow suit.

Banks will be hit by a new tax that targets institutions that rely on short-term borrowing, such as Goldman Sachs, Morgan Stanley, and Citigroup.

President Obama comments on Wall Street opposition to new bank fees. Video courtesy of Fox News.

While much of the banking industry is up in arms over the proposed tax, the impact would likely be a relatively modest dent to the companies' profits.

The 10-year assessment on bank liabilities—dubbed the Financial Crisis Responsibility Fee—would fall most heavily on the nation's top six banking companies: Citigroup Inc., J.P. Morgan Chase & Co., Bank of America Corp., Goldman Sachs Group Inc., Morgan Stanley and Wells Fargo & Co. Each would likely face an annual bill of $1 billion or more, with Citigroup and J.P. Morgan facing the largest liabilities, likely more than $2.4 billion apiece.

Betsy Graseck, a banking analyst at Morgan Stanley, estimated the tax would shave roughly 5% from top banks' bottom lines this year.

The White House pushed hard against opposition to the tax. The president spoke of "obscene bonuses" and the "twisted logic" of bank executives who oppose the tax. White House spokesman Robert Gibbs suggested the banks were trying to pass the tab for their woes to taxpayers.

Industry officials warned that the new tax could constrain bankers' ability to make new loans, which could hurt the economy. In addition, some analysts cautioned that the plan could encourage banks, to reduce their exposure to the fee, to shift more assets and liabilities into the types of off-balance-sheet vehicles that helped sow the seeds of the financial crisis.

Democratic political strategists say the president's plan could box in Republicans who are trying to harness the popular rage at Wall Street bailouts, but won't support a tax increase.

If Republicans oppose the tax, Democrats will accuse them of siding with bankers bailed out by taxpayers. If GOP candidates side with the president, they risk alienating antitax activists who are bringing renewed passion to the party.

"If you want to be on the side of the big banks, this is a great country. You're free to do so," Mr. Gibbs said.

Republican strategists saw no such trap. They focused their attention on the people who they say will ultimately pay the tax's tab: consumers facing higher bank fees and small businesses blocked from loans.

"Making it harder for families and small businesses to save, invest and hire would be the latest in a number of tone-deaf policies coming out of the Democratic Congress," said Ken Spain, spokesman for the National Republican Congressional Committee, which oversees House campaigns for the GOP.

Not all Democrats came on board. Sen. Kirsten Gillibrand, a New York Democrat, said she opposed the proposed tax, saying it "could disproportionately affect New York City's economic recovery, which relies on a growing financial-services industry."

If approved by Congress, the tax would force about 50 banks, insurance companies and large broker-dealers to collectively pay roughly $90 billion over 10 years.

Under the plan, a 0.15% tax would be levied on liabilities and would apply to a range of firms that received taxpayer assistance, excepting the Detroit auto makers. The tax would be levied on total assets, minus a type of capital considered high quality, such as common stock, and disclosed and retained earnings.

The nation's large regional banks would face smaller fees than their Wall Street counterparts, based on the composition of their balance sheets.

Some Democrats want to go further. Rep. Peter Welch (D, Vt.) has proposed a 50% tax on bonuses over $50,000 at any financial firm that took federal assistance during the financial crisis. That would be on top of the president's tax, he said.

"When people are robbing a bank, it's time to stop them," he said in an interview.

Obama is proposing an annual 0.15% fee for the next 10 years on some debt held by the nation's largest financial institutions.

The president's plan could let some of the steam out of such proposals, while still giving Democrats a line of attack for the midterm elections.

White House officials said the president was serious about his bank-tax proposal, which has been under discussion since August. A provision inserted in the legislation authorizing the Troubled Asset Relief Program required the administration to come up with a way to recover money spent to save the financial system.

Investors shrugged off news of the proposed fee. Shares of most banks inched upward Thursday, with the KBW Bank Index climbing about 1.6%.

Analysts say the impact could be muted if the fee is tax-deductible, an issue that hasn't been addressed by the Treasury Department.

Still, it is the latest in a string of recent federal initiatives that could erode bank profits. In November, the Federal Reserve announced rules, set to take effect in July, that will bar banks from charging certain overdraft fees without explicit consent from their customers. And other changes that could be costly to the banking industry continue to work their way through Congress, such as legislation that would impose new restrictions on the trading of derivatives.