About 850 U.S. chief executives received backdated or otherwise manipulated stock option grants that boosted their annual pay, on average, by at least 10%, according to a new study.

The study, released yesterday by professors at Harvard and Cornell universities and the French business school Insead, bolsters the view of federal prosecutors who have viewed stock-option backdating as means to steal money from shareholders. Defenders of the companies who engaged in the practice have said that backdating often involved minor sums and was merely an alternative way of providing market-based pay.

The study, a paper done for the Harvard Law School Program on Corporate Governance, didn't name executives or companies that may have backdated. It relied on broad statistical analyses that identified suspiciously "lucky" patterns of options granted at low prices.

The researchers also found that executives who reaped riches from backdating options started out with reported compensation that was richer than their peers at similar companies. On top of that above-average pay, executives received an average of an extra $1.3 million to $1.7 million through each manipulated grant, the academics found.

"It's not pocket change," said Lucian Bebchuk, a professor of law, economics and finance at Harvard and one of the study's authors.

More than 130 companies are under federal investigation in the stock option timing scandal, which has claimed the jobs of more than 50 executives and directors. Five former executives face criminal charges.

A stock option gives an employee the right to buy shares of a stock in the future -- generally at its current, or strike, price. The lower the strike price, the more potentially valuable the option. Backdating the option to when the stock was trading at an unusually low price can add millions of dollars to executives' pay.

Researchers examined the timing of stock option grants from 1996 through 2005, sifting through 19,036 grants made by about 6,000 companies led by a total of 8,800 chief executives.

The professors found that 2,329, or 12%, were granted at monthly low prices -- what the professor termed "lucky" grants. Only 4% were granted at monthly highs. If options were chosen randomly, roughly 5% should have been granted at monthly lows or highs, since there are about 20 trading days in a month.

The professors determined there were more than 1,100 "lucky" grants that didn't result from random selection, but were instead likely backdated or otherwise manipulated. In all, 12% of all
U.S. public firms, or 720, awarded one or more manipulated grants, the study found. The study said 850 CEOs, or about 10%, received "lucky grants" based on manipulation.

The study also found that companies with long serving CEOs and lacking a majority of independent directors were more likely to make lucky grants.