

Knight Capital \$440 Million Loss

From: <http://www.cse.psu.edu/~gxt29/bug/softwarebug.html#economiccost>

Unfortunately, the trading algorithm the program was using was a bit eccentric as well. On every stock exchange, there is a "bid" and an "ask" price. The bid price is what you'd like to pay the holder of the stock if you want to buy their shares. The ask price is what they'll pay to buy those same shares from you. There's always a spread between the two prices, with the "ask" being a few cents or more above the "bid". If the stock is thinly traded, then the spread between the ask and the bid is higher than what you'd see for, say, IBM.

Knight Capital's software went out and bought at the "market", meaning it paid ask price and then sold at the bid price--instantly. Over and over and over again. One of the stocks the program was trading, electric utility Exelon, had a bid/ask spread of 15 cents. Knight Capital was trading blocks of Exelon common stock at a rate as high as 40 trades per second--and taking a 15 cent per share loss on each round-trip transaction. As one observer put it: "Do that 40 times a second, 2,400 times a minute, and you now have a system that's very efficient at burning money".

As the program continued its ill-fated test run, Knight's fast buys and sells moved prices up and attracted more action from other trading programs. This only increased the amount of losses resulting from their trades to the point where, at the end of the debacle 45 minutes later, Knight Capital had lost \$440m and was teetering on the brink of insolvency.