

# American Option Pricing with Transaction Costs

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## **Abstract**

In this paper we examine the problem of finding investors' reservation option prices and corresponding early exercise policies of American-style options in the market with proportional transaction costs. We present a model, where investors have a CARA utility and finite time horizons, and derive some properties of reservation option prices. We discuss the numerical algorithm and present the results of numerical computations for American put and call options. We examine the effects on the reservation option prices and the corresponding optimal exercise policies of varying the investor's ARA and the level of transaction costs. We carry out the detailed analysis of the early exercise policy and find that in the market with transaction costs the holder of an American-style option exercises this option earlier as compared to the case with no transaction costs. This phenomenon concerns both put and call options written on a non-dividend paying stock. The higher level the transaction costs is, or the higher risk avers the option holder is, the earlier an American option is exercised.