WHEN IS EARLY EXERCISE OPTIMAL?

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AMERICAN CALL OPTIONS

Call Value = Intrinsic Value + Interest Rate Value + Volatility Value - Dividend Value

For an American option only the dividend value can negatively affect the value of the call option. If the underlying stock pays no dividend (or no dividend is to be paid prior to expiration of the option), a call option can never be less than parity (intrinsic value). However, if the negative effects of the dividend are greater than the positive effects of the other components, it might be possible for the call, if it is European, to be less than parity (intrinsic value).

The relationship of the stock and the dividend versus the option and the dividend must be understood in order to determine when early exercise may seem logical. When a stock pays a dividend, the value of the stock is diminished by the amount of that dividend. Since the stockholder receives the value of the dividend, the two changes offset, such that there is no net change of value for the stockholder. On the other hand, when a stock pays a dividend, the option holder owns no right to the paid dividend. The option value will decrease to represent the new intrinsic value as a result of the stock value decrease, and the option holder will lose value on the option with no offsetting gain from the paid dividend.

It is clear that the only reason a trader would ever consider to exercise a call stock option early is to receive the dividend. If the stock pays a dividend, the time a trader should consider early exercise is the day before the stock goes ex-dividend. In general, an investor should wait till the day before the stock goes ex-dividend to ensure that the accrued dividend is fully represented in the price of the stock, and therefore the option.

AMERICAN PUT OPTIONS

Put Value = Intrinsic Value - Interest Rate Value + Volatility Value + Dividend Value

For a put option the only component that can negatively affect its price is the interest rate value. Unlike the call option, the time a put option is a candidate for early exercise is anytime the interest which can be earned through the sale of the stock at the exercise price is considerably large. Determining the exact time at which this occurs is quite difficult. If the underlying stock pays a significant dividend it is most likely to occur on the day after the stock goes ex-dividend.