Playing the Odds
Computer Formulas Are One Man's Secret To Success in Market
Hunches, Analysts' Reports Are Not for Ed Thorp; He Relies on Math, Prospers
'I Call It Getting Rich Slow'

By Jonathan R. Laing
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Newport Beach, Calif.—For relaxation, mathematician Ed Thorp likes to play a
quick game of blackjack with his Hewlett-Packard 9830 computer, which "deals."
More often than not, he wins because he uses a system he developed in the early
1960's to beat the house at the popular casino game.

Mr. Thorp, who teaches courses in probability and functional analysis at the Uni-
cversity of California at Irvine, also has winning strategies for such other games of chance as baccarat, faro and roulette.

But in the past decade, the lanky, 42-year-old former largely has deserted the
gaming tables to concentrate on the su-
preme game of them all—the stock mar-
et. "From a mathematical standpoint the market is far more interesting than other forms of gam-
bling because of the enormous number of variables and in-
teractions it encapsulates," Mr. Thorp de-
clares. "Besides, the bulk of the past thinking about the market is nothing but alchemy and astrology."

Mr. Thorp's interest in the market is more than academic, however. For he
claims to have found a mathematically based stock-trading system that not only
consistently outperforms the various popular market indexes but also yields hands-
some profits whether the market rises or falls.

Accumulating a Fortune
Using the system, he has accumulated a tidy personal fortune starting with an initial stake of $25,000 in Las Vegas gambling winnings in 1965. Moreover, he contends that a private investment pool that he started managing in late 1969 and that has since
are Goldman Sachs & Co. and Donaldson, Lufkin & Jenrette Securities Corp. "While the model is not perfect, it is rather mind-bending to some of the managers when you decide on positions, we feel it has given us a real mathematical edge," says Mike Gladstein, a Donaldson Lufkin vice president involved in its option operations.

Not surprisingly, the new computerized-trading approach is a threat to many traditional money managers cold. "The whole computer-model bit is ridiculous because the real investment world is too complicated to be reduced to a model," one mutual-fund manager contends. "You just can't replace the money manager using security analysis and market feel with a machine."

A recent trade illustrates how the Thorp technique works. On June 11, the computer
alerted the funds to an interesting situation that had developed with several Upjohn Co. securities. At the time, the stock was selling on the New York Stock Exchange at $58 a share, and the Upjohn call option expiring at the end of July 1974 on the Chicago Board Options Exchange was selling for $6 a share. A call is simply a right to purchase a number of shares of a stock at a fixed price during a given time period; though each
call covers 100 shares, its price is customarily quoted on a per-share basis. The call the computer singled out had an exercise price of $85 a share.

A $14,377 Profit
According to the computer, the option was undervalued and should have been sell-
ing at about $73.50 a share. So the fund bought 80 July Upjohn calls (for a total of 8,000 shares) for $8 a share, or a total cost of $64,480 after commissions. Simulta-
neously, it sold short 8,000 shares of the under-
lying stock for $85 a share, or $720,800 after commissions and taxes. (A short sale is, in effect, the sale of stock you don't own but anticipate will drop in value; at a given future date, you must "cover" your short sale by buying the stock at the then-current price. If the price has dropped, you have made a profit; if not, you lose.)

Two weeks later, the stock had dropped to $75.50 a share and the option had plun-
mixed to 2.5 cents a share. The fund then covered its short position in the stock at $242,856 after commissions, making a profit of $36,964 on the stock trade. At the same time, it sold the calls for $2,875 after commissions, taking a loss of $2,677 on the call position. Thus, in less than three weeks, it realized an overall profit of $14,377 on a total investment of some $770,000 (the fund only put up 50% margin on its stock short sale). The position was considered to yield a profit if Upjohn's stock moved below $80 a share or above $94 a share, neither of which was an unreasonable expectation given the stock's historic volatility.

Mr. Thorp explains: "In hedging, you don't just make a big killing with individual po-
sitions, but you rarely lose big either. If you hedge properly, you can win on nine out of 10 trades. I call it getting rich slow."

Mr. Thorp's preoccupation with system play goes back to the late 1950's, when he was an obscure mathematics instructor at MIT. The son of a Los Angeles security guard, he had yearned for a way to make