The Chicago Board Options Exchange

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November 16, 1976

Mr. Robert S. Plotkin
Assistant Director
Office of Saver and Consumer Affairs
Board of Governors of the
Federal Reserve System
Washington, D.C. 20551

Dear Mr. Plotkin:

In our letter to you of May 5, 1976, we requested that the Board either issue an interpretation of or adopt an amendment to the specialist's account provisions of Regulations T and U in order that credit may be extended to options specialists and market-makers in specialist's accounts with respect to certain exercise and hedging transactions in the underlying securities. In order to facilitate your consideration of that request, we submitted with our letter a draft of a proposed new paragraph (3) of Section 4(g) of Regulation T. The draft included the following definition of a "bona fide hedge":

> A bona fide hedge of an options position with a position in the underlying security includes any combination of positions in the underlying security and positions in the option where an adverse change in the market price of the option would reasonably be anticipated to be offset, in whole or in part, by a countervailing change in the market price of the position in the underlying security. For purposes of this definition, an option position may include a combination of long positions or short positions, or both, in which event it is the potential net price change of all option contracts held in such option position that shall determine whether and to what extent the option position may be hedged by a position in the

> underlying security. Once a bona fide hedge ceases to serve as such, either because it no longer may reasonably be anticipated to offset to any degree an adverse change in the market price of the option position or because the option position has been liquidated, the position in the underlying security must be liquidated as rapidly as possible commensurate with the circumstances, or it may no longer be considered as a bona fide hedge.

We recognize that this definition is a subjective one and therefore has the disadvantage of being more difficult to enforce than a more objective definition would be. On the other hand, it has the very great advantage of being flexible enough to provide for the varying judgments brought to bear in dynamic markets by different specialists and clearing members. Since hedging is by its very nature partly subjective -- what is a sufficient hedge for one may be inadequate for another -- we believe it to be desirable to leave sufficient breathing space to permit members to make independent, good faith judgments as to what constitutes an appropriate hedge.

Insofar as the subjectivity of the definition is concerned, we believe that the fact that the definition would require hedges to be "bona fide" provides a considerable amount of regulatory protection. Terms such as "bona fide" and "good faith" are used in a number of instances under the Securities Exchange Act of 1934 and the rules and regulations thereunder to distinguish conduct which is prohibited from that which is exempt, and there has been no indication that these provisions have proved to be unenforceable. For example in the 1975 amendments to the Act, Congress exempted any "bona fide hedge transaction involving a long or short position in an equity security and a long or short position in a security entitling the holder to acquire or sell such equity security" from the prohibitions of Section 11(a)(1), thus clearly deeming it sufficient to distinguish the exempt from the prohibited by the use of the term "bona fide." Similarly, "bona fide" arbitrage and hedging transactions were exempted from the SEC's former Rule 19b-2, bona fide arbitrage transactions are exempt from

SEC Rule 11a-1, and certain arbitrage transactions engaged in for a "bona fide purpose" are exempt from SEC Rule 10a-1.

Nevertheless, although we believe the above definition of hedging has much to commend it, we did not intend and do not wish to preclude consideration of alternative definitions. Indeed, at this time we prefer the definition set forth in paragraph (c)(2)(x) of SEC Rule 15c3-1. That definition has the advantages of simplicity of expression and understanding, ease of application and of enforcement, and reduction of the likelihood of inadvertent violations. Moreover, since the definition is in the process of being programmed into the computers of the clearing firms carrying specialists' accounts, it has the further advantages of being implementable at a very early date (January 1 at the latest) and of reducing the computational burdens of specialists, clearing firms and regulators. On the other hand, we recognize that the (c)(2)(x) definition could, if adhered to slavishly, permit the financing of some stock transactions of specialists that would not be necessary to provide an economic hedge to the specialists' options positions. Accordingly, we believe that it will be necessary for the exchanges and other regulators to take steps to assure that, no matter what definition of hedging is adopted, the transactions in the account are for the bona fide purpose of hedging. We recognize that this will leave a degree of subjectivity in the application and enforcement of the regulation, but (as noted above) we do not think that this degree of subjectivity has proved unworkable in the past.

Another alternative definition that might be used would be one which would limit hedges to the net of the specialist's long and short options positions ("the net contract definition"). Under that definition, a position in the underlying stock would be deemed to be a bona fide hedge only to the extent it is offset by a contra-position in an option after all long and short options positions in the account relating to the same underlying security have been matched. For example, assume a specialist is long 10 January XYZ 50s, long 2 January XYZ 55s, short 5 April XYZ 60s and short 2 April XYZ 55s. The specialist would thus be long a total of 12 XYZ option contracts and short a total of 7, or a net long position of 5 option contracts. Under the net contract definition the specialist would be able to hedge the 5 net long option contracts by maintaining a short position of up to 500 shares of the underlying stock.

The net contract definition has many of the advantages of the (c)(2)(x) definition in that it would be simple to understand, apply and enforce. However, it has the serious disadvantage of excluding many transactions in an underlying stock that would be bona fide hedge transactions. For example, assume that on November 5 Honeywell common stock has a market value of 42-1/2 and that a specialist is long 5 November HON 40s having a market value of 2-1/2, short 7 November HON 45's having a market value of 1/4, and short 3 February HON 45's having a market value of 1-7/8. Although this specialist would have a net short position of 5 option contracts, we believe that most specialists and clearing firms would believe that the appropriate hedge for this total position would be the short sale of from 100 to 200 shares of the underlying stock. (See the further discussion below of this position.) Thus, there will be circumstances when the net contract definition will yield a perverse result and prevent specialists from fully hedging the risks inherent in their options positions.

A third alternative definition that we believe merits consideration is one which would incorporate an options pricing model formula by reference. Under a formula of this type, it is possible to estimate the rate of change in the price of an option with respect to small changes in price in the underlying stock -- the estimate of the amount by which an option price would change upon a change of $1.00 in the stock price is commonly called the "dollar delta" -- and thus determine the amount of stock that would theoretically hedge a total options position against small changes in the price of the stock. An example of this is shown in the following table, which sets forth the specialist's positions referred to in the example in the preceding paragraph, the dollar deltas related thereto under a commonly used formula and the equivalent stock positions (with short positions being shown with a minus sign):

Options Position	Dollar Delta	Equivalent Stock Position
5 Nov. HON 40	0.83	415
-7 Nov. HON 45	-0.21	-147
-3 Feb. HON 45	-0.42	-126
		142

It can be seen from the table that under the formula the net equivalent stock position for the specialist's options position is 142 shares long. Accordingly, a riskless hedge would require

the specialist to maintain a short position of 142 shares of the stock.*

The principal advantage of a dollar delta formula is that it provides a good mathematical test of a bona fide hedge. Although the formula is a complex one, it could be programmed without undue difficulty and the computer printouts of equivalent stock positions would be relatively simple to understand and to review. A number of clearing firms have already developed and are using computer programs incorporating the dollar delta concept in order to supervise the hedges of the specialists for whom they clear, and we understand that these firms find their programs to be very useful for this purpose.

On the other hand, there are a number of disadvantages to a dollar delta formula. In the first place, a determination would have to be made as to which formula to use and as to what values to place on certain components of the formula -- namely, the measure of the stock's volatility and the short-term interest rate. However, we do not believe that this would be an insurmountable disadvantage. A standard formula, such as the one designed by Black-Scholes, could be adopted; volatility could be determined by reference to a standard formula or index (such as the common "beta" index); and the short-term interest rate could be determined by reference to a specific money market rate.

A definition based on a dollar delta formula would have the further disadvantage of being extremely difficult to express in a general regulation. Our suggested solution to this problem would be for the exchanges to adopt a rule or an interpretation to the effect that a "bona fide" hedge would be permitted only if it fell within an approved formula. The formula could then be approved by the Board in much the same fashion as it now approves the exchanges' reports regarding specialists' use of credit; alternatively, the formula could be made subject to the approval or disapproval of the SEC under Section 19(b)(3)(A) of the 1934 Act.

The dollar delta formula also has the disadvantage of producing a result that is affected by price movements in the stock or by other factors (e.g., change in the short-term

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*A fuller explanation of dollar deltas and the related formula is set forth in the paper attached hereto entitled "Explanation and Derivations of Dollar Deltas."

interest rate and the passage of time) even though there is no change in the options positions being hedged. For this reason, we believe that the formula should be applied only as at the end of the business day on which a stock transaction is effected. If at that time the hedge is appropriate in accordance with the formula, then the stock could thereafter be carried in the account without regard to subsequent application of the formula. (Of course, if the specialist has another transaction that has the effect of increasing his stock position, that transaction would have to be tested against the formula as at the close of business of the day on which it is effected.)

Another disadvantage of a definition based on a dollar delta formula is that, despite the fact that the formula produces an apparently mathematical result, that result is only an estimate of the amount by which the prices of an options position are expected to change in relation to small price changes in the underlying stock. Thus, although the formula is extremely useful, many specialists and clearing firms prefer to rely on their own experiences and judgments in determining the extent to which a position should be hedged. For this reason, we recommend that a definition that is based on a dollar delta formula contain a permissible deviation -- say, plus or minus 500 shares provided that the total stock position constitutes a "bona fide hedged position" within the definition of paragraph (c)(2)(x) of Rule 15c3-1. This type of permissible deviation would not only allow some latitude for differences in judgment; it would also give specialists a factor of safety that would serve to reduce inadvertent violations.

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We hope that the foregoing discussion will be of use to you in your deliberations. If we can be of further assistance -- as, for example, by furnishing a draft of any of the alternatives referred to above (with any modifications you might think appropriate) or by personally discussing any of the foregoing -- please let us know. We will be happy to meet with you at your convenience if you should so desire.

Very truly yours,

Joseph W. Sullivan

Encl.
cc: Mr. Daniel J. Piliero II