Pareto improvement occurs. It would be interesting to examine whether the various propositions remain valid in the proposed multiperiod scenario.

4. *Does the announcement that a dividend scheme will not be installed lead to an allocation which is necessarily inferior to the announcement that a dividend scheme will indeed be installed?*

As I stated above, my interpretation of Hakansson's "efficient endowments" is that announcements occur at two stages. In the first stage the firm announces that a dividend scheme will be installed and, in the second stage, the firm announces the actual amount of the dividend. I conjecture that even the announcement that a dividend scheme will *not* be installed carries information and may lead to a Pareto improvement. It is of interest then to compare the welfare implications of the announcement of different dividend schemes. This issue is briefly discussed by Hakansson in his concluding remarks.

REFERENCES

Bhattacharya, S., 1979, "Imperfect Information, Dividend Policy, and the 'Bird-in-the-Hand' Fallacy," *Bell Journal of Economics*, Spring, pp. 259–270.

Bhattacharya, S., 1980, "An Exploration of Non-Dissipative Dividend-Signalling Structures," *Quarterly Journal of Economics*, 95, February.

Diamond, D. W., and R. E. Verrechia, 1981, "Information Aggregation in a Noisy Rational Expectations Economy," *Journal of Financial Economics*, 9, September, pp. 221–235.

Hakansson, N., G. Kunkel, and J. Ohlson, 1981, "Sufficient and Necessary Conditions for Information to Have Social Value in Pure Exchange," W. P. University of California, Berkeley, August.

Hellwig, M. F., 1980, "On the Aggregation of Information in Competitive Markets," *Journal of Economic Theory*, 22, pp. 477–498.

Miller, M. H., and K. Rock, 1982 "Dividend Policy under Asymmetric Information: part I," March, mimeo.

DISCUSSION

L. H. SUMMERS*: Litzenberger and Ramaswamy, henceforth (LR) in their paper respond to one of the major criticisms of earlier work on dividend yields and stock market returns. This is the argument that observed ex-post dividend yields contain information which was not available to market participants at the beginning of the month, over which monthly returns are computed. This argument explains the observed positive relationship between dividend yield and stock market return as due to the information effect of the dividend yield, when the yield is high, or average positive information has been conveyed during the month, when it is low, negative information has been received.

This potential explanation for the observed relation between yields and returns is convincingly refuted by LR. First they note that a number of previous studies have found evidence of yield effects using methodologies which do not suffer from this difficulty. Second, they report results obtained using a yield variable which is estimated conditional only on available information. These results are quite

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close to those obtained in previous research. Third, LR estimate the relationship between yield and return for a subsample of stocks where the problem does not arise, those that went ex in the previous month, and those who announce their dividends in the month t-1.

These results convince me that LR have achieved the limited goal of the current paper, to cast doubt on the importance of the information effects argument. In my comments, I want to suggest an alternative hypothesis capable of explaining their observed empirical relationships in which taxation does not play a role. There is an important reason for preferring such an explanation. It can provide a rationale for why firms pay dividends. The standard explanation implies that paying dividends raises the required rate of return on a stock, and so reduces market value. This effect is quite large. The LR results imply that a firm with a dividend yield of 6 percent could raise its market value by more than 10 percent by eliminating dividends. Thus the results here, if taken at face value, pose a major anomaly on the supply side of the market.

The alternative explanation which I propose is that dividend yields are a proxy for ex-ante returns on securities. The models estimated by LR and others in this literature essentially assume that in the absence of tax effects, ex-ante returns are perfectly proxied by a beta measure derived from past data. There are a number of well known theoretical and empirical reasons for doubting this premise. Investors may have more information about future volatility than is contained in retrospective estimates of beta. Risk is more properly measured in terms of correlation with consumption than with the return on the stock market. Generalized models suggest that additional risk factors should play a role. Tests of the CAPM have traditionally found that contrary to the theory zero beta portfolios earn excess returns.

Suppose then that beta is an unsatisfactory proxy for ex-ante returns. It is well known that firms' dividend policies are relatively stable. Consider a group of firms which initially have the same dividend yield. As new information about their riskiness appears, their ex-ante returns will change. As long as dividends are relatively stable, the dividend yields of firms whose perceived riskiness is increased, will rise, and those of firms whose prospects are safe will decline. Higher dividend yields will be associated with higher ex-ante returns. However, the direction of causation is the opposite of that normally considered. High required rates of return cause low share values, which are associated with high dividend yields. The apparent relationship between dividend yield and stock market return is a consequence of our inability to properly model the risk factors which determine stock market returns.

This hypothesis is capable of explaining several aspects of the LR findings. First, as already emphasized it explains the puzzle of why value maximizing firms are observed to pay dividends, despite their positive correlation with returns. Second, it also accounts for the nonlinear relationship between yields and returns found by LR. An increase in the "permanent" required return on a security from 6 to 7 percent will raise its dividend yield by less than an increase in its required return from 5 to 6 percent. Hence the positive effect of dividends on returns will be a declining function of the dividend yield as found by LR. Third, the argument here breaks down for stocks with zero dividend yield. This is clearly not a function

of low risk premia. LR reports dramatic differences in the behavior of "low" and "no" dividend securities. This is what one would expect on the argument made here. Fourth, this explanation accounts for LR's otherwise puzzling finding that the dividend yield has a significant positive effect even in the months when dividends are not paid. Finally, the hypothesis here that LR's beta measure inadequately proxies for risk is consistent with their positive and often significant estimates of the intercept term, and with the significant differences in the results which are obtained when the risk measure is constrained to have the same coefficient across clientele groups.

Only subsequent research can identify the importance of the effect suggested here. It is doubtful that it can be the whole story since large positive dividend effects are also found in ex-day studies where the bias discussed here should be much smaller. Finally, it should be noted that the "reverse causation" argument adduced here can potentially explain the "high earnings price ratio" and "small firm" anomalies which have recently been the subject of much attention.

DISCUSSION

M. R. GIBBONS*: This research by Pat Hess studies both the theoretical implications of dividend yield clienteles as well as the empirical evidence on tax effects using the ex-dividend behavior of stock returns; both aspects of this paper provide useful information. Hess indicates the importance of certain assumptions in deriving dividend yield clienteles, and with daily stock return data, confirms earlier statistical results relating to tax effects. The following comments discuss separately each aspect of the paper.

On the Theoretical Justification of Dividend Yield Clienteles

Hess [3] discusses a structural model of dividend yield clienteles developed by Litzenberger and Ramaswamy [7] (hereafter, LR), and extends that discussion to the case of uncertainty. For both a world of certainty and uncertainty, Hess claims that the LR model is incomplete without further assumptions.

Using an argument analogous to that put forth by Miller and Scholes [8], Hess demonstrates that an individual in a high tax bracket could earn a higher risk-adjusted return (after taxes) by holding securities of a lower tax bracket clientele as long as individuals can offset dividend income with interest expense. Since LR assume interest expense is not deductible when individuals hold tax-free bonds (see their pages 475–476), the previous dominance argument is not applicable to their model, but it does highlight that the non-deductibility of interest expense is a critical assumption.

Hess also points out that the LR model has a problem if dividend yields for two (or more) clienteles exceed the riskless rate, for no investors would hold securities with the lower implicit tax rate. This dominance argument is not applicable to the LR analysis in the world of certainty since the shadow price of the margin constraint is inversely related to the implicit marginal tax bracket of

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