The Lintner Model of Payout

The late John Lintner, co-inventor with William Sharpe of the CAPM, also wrote down the first quantitative model of payout policy. He based the model on interviews with 16 manufacturing firms in the 1950s:

$$\Delta DIV_t = Constant + SOA(Target\ DIV_t - DIV_{t-1}),$$

where DIV_t and DIV_{t-1} are the cash dividends paid in periods t and $t-1$, ΔDIV_t is the expected change in the dividend from date $t-1$ and SOA is the speed of adjustment. The target dividend equals a target payout ratio multiplied by earnings per share in period t. We can rewrite Lintner's formula as:

$$\Delta DIV_t = Constant + SOA(TPR \times EPS_t - DIV_{t-1})$$

This formula shows how firms "smooth" dividend payout. When EPS increase, the target payout increases, but the firm does not go immediately to the target but only part of the distance between last period's dividend and the target. Lintner predicted a positive constant, reflecting firms' bias to increase dividends rather than cut them.

Lintner's formula worked well in the 1960s and 1970s. Researchers estimated the constant as small but positive, as Lintner had predicted. The SOA was roughly 1/3, indicating that dividends move about 1/3 of the way from last year's level to the target in each year. The target payout ratio varied from firm to firm, with higher TPRs for mature, slow-growing firms.

Then in the 1990s and 2000s the model's performance degraded. Estimated SOAs were smaller and the constant was negative. It appears that dividends have become much "stickier" and less responsive to changes in earnings.

What changed? It was the shift of payout from cash dividends to share repurchases. Skinner found that the Lintner model still works, more or less as it used to, if fitted to *total* payout, defined as dividends *plus* repurchases. (That is, it works for a sample of mature firms that pay dividends and repurchase shares regularly. The fit of the model to younger firms that sometimes repurchase but do not pay cash

dividends is less impressive.)

In Lintner's day, companies sometimes paid *special dividends*, which investors understood might not be repeated. The special dividends soaked up much of the variability in payout. Now repurchases soak up that variability, and special dividends are rare.   Lambrecht and Myers suggest that "share repurchases have given financial managers an extra degree of freedom, allowing them to make cash dividends more stable while still maintaining payout according to Lintner's model."

Some journalists and investment analysts have complained that firms repurchase more shares when earnings are robust and stock prices high. Apparently they would like firms to "time" the market, buying shares when their stock is undervalued. But how does "buying low" help shareholders? It's a raw deal for shareholders who sell back to their firm when their managers have reason to believe that the stock is underpriced.

Repurchasing more shares when earnings are robust is exactly what the Lintner model predicts, because target payout increases when earnings increase.

References:

J. Lintner, "Distribution of incomes of corporations among dividends, retained earnings and taxes,"
American Economic Review 46 (1956), 97-113.

D. J. Skinner, "The evolving relation between earnings, dividends, and stock repurchases," *Journal of Financial Economics* 87 (2008), 582-609.

B. M. Lambrecht and S. C. Myers, "A Lintner model of payout and managerial rents," *Journal of Finance*, forthcoming.