DIVIDEND BEHAVIOUR IN MALAYSIA

Lok Kong Sing*
G. S. Gupta

ABSTRACT

The paper estimates the dividend behaviour model for Malaysia using the annual time series data for the period 1983 to 1992, and the cross-section data for the 23 selected firms representing various sectors of the economy. The results have good fits, and they indicate that the current earnings and previous year's dividend are the only two universal and significant explanatory variables for dividend, and thus they support Lintner's model. Depreciation and the two period change in sales have assumed the correctly signed and significant coefficients only in a few cases. The average value of the earnings' multiplier is found to be 0.31 and that of the lagged dividend 0.38, the latter implying an adjustment coefficient of 0.62.

1. INTRODUCTION

Dividend decision is an important finance function of all profit seeking organisations. This is because it assumes significant impact on the following critical factors, among others:

* Stock price
* Shareholders' profile
* Finance mix
* Cost of capital
* Tax revenue

The stock price is influenced by the fundamental model notwithstanding the Modigliani-Miller's theory of irrelevance (1961). The present world is characterised by imperfect capital market, flotation costs of public issues, personal taxation, cost of illiquidity (indivisibility of

*Mr. Lok Kong Sing is a Senior Officer with Public Bank Bhd, Penang. Dr. G. S. Gupta is a visiting Professor at the Universiti Sains Malaysia. *The authors would like to thank the reviewers for their valuable suggestions.*

stocks and transaction costs of selling stocks), the influence of financial signalling and psychological factors, etc. and through these the stock price gets influenced by dividend payouts. The clientele theory delineates the kinds of shareholders a stock attracts. While the institutional investors, widows and orphans, and the low tax bracket households prefer dividend paying stocks, others go for companies having high re-investment rate and thereby offering high capital gain opportunities. Dividend adversely affects the internal source of funds, and thereby the finance-mix. Since retained profit is cheaper than new equity, it tends to reduce the cost of capital. In the absence of investment allowance, corporate tax is neutral to dividend. However, the collection from personal income tax is directly related to dividend.

In view of the above, it is important to understand how decisions on dividends are made by organisations. While there are numerous studies on this aspect for developed countries, we could locate only one study on Malaysia (vide Mansor 1993). The Mansor research is based on an opinion survey of executives of 65 companies listed on the Kuala Lumpur Stock Exchange (KLSE) and the method of analysis is the ranking of the determinants of dividends by their significance. The present study is econometric and it uses the regression analysis to study the subject.

2. LITERATURE AND THE MODEL

Lintner (1956) was perhaps the first to advance and test a dividend behaviour model. According to this theory, dividend decisions are determined through three forces:

(a) Desired dividend (D^*) is a fixed component (b) of actual earnings (E) in the same period (t):

$$D^*_t = bE_t \qquad (1)$$

(b) Firms are reluctant in changing the dividend rate over time. Thus, they follow a partial adjustment model ($\lambda < 1$) in this context:

$$D_t - D_{t-1} = \lambda (D^*_t - D_{t-1}) \qquad (2)$$

(c) Firms are subject to asymmetric behaviour with regard to increase and decrease in dividends. They are less reluctant to raise than to cut the dividend rate. This introduces a positive constant term (α) in the dividend behaviour function.

Combining these three factors, Lintner's model turns out to be the following:

$$D_t = \alpha + \beta E_t + \gamma D_{t-1} + U_t \qquad (3)$$

where $\beta = b\lambda$, $\gamma = 1 - \lambda$, and U is error term added, recognising the stochastic nature of the dividend function.

Equation (3) contains Lintner's model, which hypothesizes dividend to depend positively both on current earnings and the previous period dividend. Darling (1957) extended Lintner's model by including two additional explanatory variables, viz depreciation (A_t) and changes in sales over two previous years ($S_t - S_{t-2}$), in the dividend behaviour function. He argued that since depreciation is a source of funds, it augments the resources from which dividend is paid out and this source is particularly helpful to maintain the dividend level in the midst of financing difficulties. Increase in sales causes increased demand for fixed assets, which calls for additional investments. Also, increase in dollar sales may be a proxy for inflation, which increases the equipments replacement cost. Since retained profit is available for investment, increase in sales calls for increased retention, which leads to a cut in dividend.

Brittain (1966) modified Lintner's model by replacing earnings with cash flows (C), which equal earnings plus depreciation. The rationale for this is found in the liberality of depreciation allowances for tax purposes. Examining the trends in after tax earnings, after tax cash flows, and dividends in USA during the period 1942 to 1960, which grew at the annual rates of 2, 6 and 5.8 percent, respectively, he concluded that cash flows would constitute a better argument than earnings in the dividend behaviour function.

A number of studies have followed the above pioneering works, but they basically represent some combinations of the above models, incorporating tax implications, stock holders' expectations, etc, and using new samples (see Marsh and Merton 1987).

The Mansor (1993) study of the Malaysian firm found that dividend decisions are governed by the following factors, in descending order of their importance:

Current earnings
Availability of cash
Shareholders' expectations about dividend

Future earnings

Past dividends

Return on investment

Industry norms

Interest rate

While some of these variables (viz shareholders' expectations about dividend, future earnings and industry norms) are difficult to measure, some others (e.g. return on investment) are indirectly contained in other determinants. Thus, the consideration of the former is forbidden by the quantitative nature of this study, and the latter is ignored for not aggravating the multicollinearity problem.

All empirical studies are based on different combinations of the above mentioned hypotheses and they have yielded good explanations for dividend decisions in various countries. The present paper examines some of these hypotheses to the Malaysian economy and thus our model may be presented as follows:

$$D = f\ (E \text{ and } A \text{ or } C,\ (S - S_{t-2}),\ D_{t-1}) \qquad (4)$$

$$f_1, f_2, f_3, f_5 > 0 > f_4$$

The tax implications and stock holders' expectations, among some other factors, have not been incorporated due to data problems.

3. DATA AND EMPIRICAL RESULTS

The linear version of equation (4) has been estimated using both the time series and cross section data from the Malaysian capital market. The time period of 1982 through 1992 and a total of 23 companies were selected for the purpose. The choice of the time period was dictated by the availability of data and the sample of companies was decided based on the following considerations:

(a) For a meaningful study, the sample size should not be less than 20.

(b) Sample should come from all major sectors so as to avoid sectoral bias.

(c) All sample companies must have been listed on the KLSE throughout the sample period so as to provide comparable data.

(d) All sample companies must have paid dividends in each of the eleven years of the sample, so as to have a comparable (homogeneous) group of companies.

The stratified random sampling procedure was applied to identify 23 companies for the study. The stratification criteria consisted basically of the sector category, and ensuring the considerations listed under points a, c and d above. The list of the selected companies is provided in Table 1. The selected sample has no representation from the construction sector, for no company in this sector satisfied the condition (d) above. Also, the sample has no trust company and this is because of their short listing history.

TABLE 1

SAMPLE COMPANIES

ID No.	Name of the company	Sector
1	Carlsberg Brewery Malaysia Bhd	Consumer Product
2	Cold Storage (M) Bhd	Consumer Product
3	Cycle & Carriage Bintang Bhd	Consumer Product
4	Khong Guan Holdings Bhd	Consumer Product
5	DMIB Bhd	Industrial Product
6	Lion Corporation Bhd	Industrial Product
7	UAC Bhd	Industrial Product
8	Boustead Holdings Bhd	Trading/Services
9	Dunlop Estates Bhd	Trading/Services
10	Jack Chia Enterprises (M) Bhd	Trading/Services
11	Killinghall (M) Bhd	Finance
12	Malayan Banking Bhd	Finance
13	Public Bank Bhd	Finance
14	Island & Penisular Bhd	Properties
15	Petaling Garden Bhd	Properties
16	Sime UEP Properties Bhd	Properties
17	South Malaysia Industries Bhd	Properties
18	Kulim Malaysia Bhd	Plantation
19	Malaysian Plantation Bhd	Plantation
20	Kuala Lumpur Kepong Bhd	Plantation
21	Malaysia Mining Corporation Bhd	Mining
22	Rahman Hydraulic Tin Bhd	Mining
23	Petaling Tin Bhd	Mining

The data on various variables were obtained from KLSE's Investment Digest and Annual Companies' Handbook, individual company's Annual Reports, and the daily newspaper "The Star". The data have been duly adjusted for capital changes, if any.

The regression equations were estimated for each selected company using its annual time series data (1982 to 1992) as well as for each sample year using the cross-section data (company-wise data). Alternative combinations of the explanatory variables were tried for each company and each year. The results of alternative formulations were evaluated on the basis of the a priori expected signs for the regression coefficients and their significance as judged on the basis of the t-test. The simple correlation coefficients between the pairs of the explanatory variables were examined to avoid any high degree of multicollinearity. The selected estimated equations for each company are reported in Table 2 and for each year in Table 3.

TABLE 2:

ESTIMATION RESULTS – TIME SERIES

Dependent Variable: D_t
Sample period: 1983 to 1992 (n = 10)

Firm	Coefficient (and t-value) of					R^2
	Constant	E_t	D_{t-1}	A_t	$S_t - S_{t-2}$	
1	–1.09	0.274 (4.07)*	0.399 (1.84)			0.966
2	–0.35	0.463 (2.64)*	0.349 (1.47)			0.805
3	–0.06	0.164 (4.08)*	0.719 (4.05)*			0.807
4	4.83	0.164 (1.78)	0.303 (1.01)			0.390
5	–0.20	0.626 (2.67)*	0.263 (1.03)			0.686
6	–0.38	0.144 (1.19)	0.627 (2.23)			0.439
7	0.91	0.285 (3.26)*	0.585 (3.16)*			0.752
8	1.51	0.222 (7.03)*	0.304 (2.60)*			0.915
9	13.86	0.246 (0.64)			–0.0573 (0.87)	0.102

Firm	Coefficient (and t-value) of					R^2
	Constant	E_t	D_{t-1}	A_t	$S_t - S_{t-2}$	
10	2.27	0.249 (1.09)	0.248 (0.56)			0.495
11	9.69	0.105 (0.54)	0.181 (0.36)		–0.9994 (0.70)	0.193
12	21.12	0.001 (0.02)		0.323 (4.76)*		0.740
13	5.71	0.125 (2.32)*	0.475 (1.75)			0.770
14	18.79	0.112 (1.66)				0.257
15	–1.04	0.395 (3.48)*	0.740 (4.06)*			0.773
16	–4.40	0.319 (3.68)*	0.628 (2.42)*			0.812
17	3.15	0.182 (3.44)*	0.284 (1.55)			0.891
18	–1.01	0.282 (1.71)	0.577 (1.30)			0.329
19	2.94	0.315 (3.40)*				0.592
20	3.02	0.106 (1.82)	0.501 (1.82)			0.444
21	0.60	0.170 (2.33)*	0.217 (1.92)			0.574
22	4.72	0.363 (2.54)*			–0.068 (1.63)	0.505
23	16.53	0.558 (3.26)*	0.097 (0.39)			0.618
Avg	4.40	0.255	0.326	0.014	–0.049	0.602

* Indicates significant at the 5% level by the two-tail t-test.

TABLE 3:

ESTIMATION RESULTS – CROSS SECTION

Dependent Variable: Dj
Sample Size = 23 Companies (j)

Year	Coefficient (and t-value) of				R^2
	Constant	E_j	D_{-lj}	A_j	
1983**	–0.002	0.262 (3.37)*	0.599 (4.32)*	0.262 (3.37)*	0.640
1984	3.17	0.199 (4.14)*	0.390 (4.93)*		0.735
1985	–0.55	0.073 (1.25)	0.955 (8.82)*		0.854
1986	2.12	0.262 (7.14)*	0.264 (4.58)*		0.809
1987	2.46	0.464 (6.72)*			0.683
1988**	–0.01	1.244 (12.98)*	0.090 (1.70)	1.244 (12.98)*	0.912
1989**	0.05	0.732 (5.52)*	0.018 (0.69)	0.732 (5.52)*	0.608
1990	5.44	0.218 (6.01)*	0.070 (0.77)		0.697
1991	–1.11	0.146 (5.98)*	0.835 (6.63)*		0.969
1992**	–0.03	0.017 (0.26)	1.186 (10.79)*	0.017 (0.26)	0.875
AVG	1.15	0.362	0.441	0.226	0.778

** C_j was the explanatory variable but since
$C_j = E_j + A_j$, it is tantamount to using both components with identical coefficients.
* Indicates significant at the 5% level by the two-tail t-test.

In these tables, all the variables are measured on per share basis and in sen (Malaysia currency). Thus, dividend is dividend per share (DPS) in sen. The companies are numbered as per their identification in Table 1.

The empirical results reveal fairly good fits in terms of the R^2 value, t-value, and the included explanatory variables. The R^2 value ranges from 0.102 to 0.969, and it assumes a value of above 0.7 in 55% of the cases. The t-value is generally significant even at the 1% level for the earnings variable. It is quite often significant for the lagged dividend variable. The depreciation variable enters only in one company's equation, (Killinghall (M) Bhd) and in four years (1983, 1988, 1989 and 1992), though usually with a highly significant coefficient. For all other in Table 2 and Table 3, the depreciation variable was found to be inappropriate either because of wrongly signed or highly insignificant coefficient. The change in sales variable appears in three companies' equations (numbering 8, 11 and 22) only and with low t-values, though correctly signed coefficients. It is excluded from all other equations in Tables 2 and 3 for the same reason as for the depreciation variable explained above. The cash flow variable instead of the earnings variable was tried for all cases but the former proved better than the latter only for four years' (1983, 1988, 1989 and 1992) equations. Thus, the results support Lintner's model in all cases and Darling's and Brittain's modifications in a few selective cases.

4. ANALYSIS OF RESULTS

A careful evaluation of the estimated results in Tables 2 and 3 revealed the following:

(a) Current earnings and the previous year's dividend are the universal determinants of dividend. Each exercises a positive impact. The coefficient of earnings ranges from 0.106 to 0.464 (ignoring the outliers: 0.001, 0.017, 0.073, 0.626 and 0.732), with an average value (average of the corresponding coefficients in Tables 2 and 3) of 0.31. This implies that if the earnings per share (EPS) increases by 10 sen, dividend per share (DPS), on average increases by 3.1 sen, which appears quite reasonable. The magnitude of the coefficient of lagged dividend variable varies between 0.181 and 0.740 (ignoring some outliers), and assumes an average value of 0.38. This means that if the current DPS goes up by 10 sen, next year's DPS would increase by 3.8 sen, ceteris paribus. As is obvious from equations 2 and 3, this magnitude implies an adjustment coefficient of 0.62, which means that companies' adjust their actual change in DPS to the desired change in it by 62%.

(b) Depreciation influences dividend positively but this variable is relevant only in a few cases. The average value of this coefficient stands at 0.12. This means, on average, every 10 sen increase in depreciation per share (APS) leads to a 1.2 sen increase in DPS.

(c) Two years' change in sales creates a negative impact on dividend payout. However, this influence is found to be significant only in a limited number of cases. On average, every 10 sen increase in sales in a current year over the previous two years causes a 0.5 sen decrease in DPS.

(d) The four determinants of dividend, viz earnings, previous year's dividend, depreciation and two year change in sales, explain a fairly high degree of the variation in the explained variable. The said proportion goes to above 80% in 11 equations out of a total of 33 equations reported in Tables 2 and 3. This supports the appropriateness of our model (equation 4) and its empirical results.

(e) The model provides a better fit over cross-section of companies for various years than over time for various companies. This is reflected in the better results of Table 3 over those of Table 2 both in terms of the individual regression coefficients' significance as well as the overall fit of the regressions as indicated by the R^2 values.

5. CONCLUSION

We have found that the dividend behaviour model developed and tested for the US and other developed countries is well applicable to the Malaysian economy. In particular, the business organisations must realise that consciously or otherwise they decide on their dividend payout on the basis of their earnings, depreciation and change in sales, and that their decisions on current dividend have positive repercussions on their future dividend decisions. This finding does not contradict Mansor's results, which are based on opinion surveys and thus, ignore the quantitative measurement of the relationship. It must be recalled that the study is based on the sample of dividend paying companies only, and hence our results may be biased towards such companies.

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