CASH FLOW — THE KEY TO LONG TERM PERFORMANCE

Norbert McDermott and Michael Walsh*

INTRODUCTION AND SUMMARY

The ambition of every company, whether public or private, is to survive and develop and thus ensure continued prosperity for its stakeholders. In many instances, this will be an explicity stated objective, while in others, it will be tacitly accepted but less clearly articulated. Survival and continued prosperity in today's economic environment necessitates an ability to grow and develop as market conditions change. Shareholders are investors who have a choice of investment mechanisms, and unless a company is capable of providing a return at least as great as that provided by alternative investments of equal risk profile, the company will not be capable of attracting shareholder funds in the long run. A company therefore must be capable of finding and investing in projects which provide growth in earnings and real returns to shareholders on an on-going basis if its long-term future is to be secured. The massive reduction in the number of companies quoted on the Irish Stock Exchange over the past 25 years suggests that many companies have either been incapable of identifying appropriate growth opportunities or lacked the resources to implement them.

This study sets out to examine the performance of the Irish public companies since the mid 1970's, with particular reference to shareholder requirements. It establishes that over the period 1975-1981 only 33% of Irish public companies provided positive real returns above inflation, measured in terms of dividends plus capital growth, for their shareholders (Note 1). The research identified growth in cash flow per share as being a much better indicator of real returns to shareholders than growth in earnings or dividends. In addition, it found that the stock market was not discriminating between companies yielding positive and negative real returns via the normal market indicators of price/earnings ratio or dividend yield. The importance of cash flow has long been recognised in

*Norbert McDermott is Group Project Analyst with the Clondalkin Group Ltd.; Michael Walsh is Lecturer in Finance at University College, Dublin.

Journal of Irish Business and Administrative Research. Volume 3. Number 2. October 1981. pp. 71-81.

evaluating specific capital projects, but is infrequently applied to evaluate the performance of a business as a whole. Focussing on cash flow serves to highlight the massive exposure of many of the Irish public companies to inflation as a result of not obtaining adequate profit margins, and having high working capital and/or fixed asset requirements.

GROWTH INDICATORS

The data base used for the study consisted of the 54 companies listed on Dudgeon's Share Index as of December 31st, 1980. It excluded the financials, exploration companies and the semi-public and infrequently traded industrials. Earnings, dividends and other financial information were compiled covering the 6 year period January 1st, 1975 to January 1st, 1981. No companies which had been trading during the earlier part of this period were incorporated if they had gone out of business or were not included on the Dudgeon's list as of December 31st, 1980. Shareholder returns were measured by combining divident income with capital appreciation (or depreciation) in share price, i.e. the dividend income received from each company was reinvested to purchase further shares in the company in question to the total value of the dividend received based on the share price ruling on January 1st of the following year. Share price and dividend data were obtained for 7 periods — January 1st, 1975 to January 1st, 1981 inclusive — to yield six measurements. To reduce the effect of severe fluctuations in share price completely dictating the values of the opening and closing investments, a notional sum of £1,000 was invested in each company's shares, in addition to the divident received, on January 1 st each year at the price ruling on that date. This has the effect of smoothing out share price fluctuations, and is useful in that it simulates real investors in the market such as pension funds, who invest total cash flow on an ongoing basis.

Performance in terms of real return to shareholders (RRS) was measured against growth in earnings per share (EPS), dividends per share (DPS) and cash flow per share (CFPS) over the same period. Earnings and dividends data were again extracted from the Dudgeon Share Index over the years 1975-1981. Cash flow per share (CFPS) was considered as cash flow from the shareholders' viewpoint, viz. earnings after taxes plus depreciation. This measure was obtained by adding depreciation per share which was extracted from each company's annual reports to the relevant earnings per share in that year. Average annual compound growth in earnings, dividends and cash flow per share were obtained by fitting a least squares exponential curve to the data, and obtaining a correlation coefficient.

Since it is commonly assumed that "satisfactory" growth in earnings will automatically lead to increasing value for shareholders, performance in terms of RRS was measured against growth in EPS (see note 6). Inflation

ran at an average annual rate of 14.975% during the six years 1975-1981, so companies yielding 5% real earnings growth (i.e. 20% nominal growth) were first examined. 23 companies achieved average annual compound EPS growth of 20% or greater over the period 1975/1981 (since all measures were taken on January 1st, 1981, the most recent earnings figures would have related to 1979). Of these, 10 (43%) yielded negative real returns to shareholders indicating that strong EPS growth is a poor indicator of the likely returns to shareholders. One weakness in simply identifying companies achieving growth of at least 20% per annum is the sensitivity of the measure to starting and finishing points. Some of the companies in question had zero earnings in 1975, so that relatively high earnings at the end point could show an artificially high growth rate. This problem was overcome by focussing on the correlation coefficient which had been obtained when fitting the least squares regression to obtain the compound growth. Since a value close to unity for the correlation coefficient indicates that the growth rate is a reliable estimate of the trend, it was a simple matter to eliminate the unstable performers. 18 companies had E.P.S. growth over 15% p.a., with a stability factor of 0.8 or better. However, only 9 of these yielded positive RRS over the period.

The analysis in respect of dividend patterns was particularly surprising. Here, 60% of companies achieving annual compound growth in dividends per share in excess of 20% p.a. yielded negative real returns to shareholders. This suggests that growth in dividends is an even poorer indicator of positive real returns than earnings growth. Eliminating the unstable companies by applying the correlation coefficient threshold of 0.80 to a compound growth rate equal to or greater than inflation (15%), the results are improved but still show that 50% of companies achieving the specified dividend per share growth yield negative returns.

While growth in EPS and DPS is not particularly informative, the research fins that growth in CFPS is. 89% of the companies with cahs flow growth in excess of 15% p.a. and a stability factor of 0.7 yielded positive real returns (Tables 1, 2). When the stability factor is ignored the results are not so strong (Table 3). However, cash flow growth is still a significantly better indicator than either dividend or earnings growth.

Table 1: Companies Achieving Positive RRS, 1975-1981 (18 Companies) v Stability of Growth in EPS/DPS/CFPS

Correlation Coefficient	EPS	DPS	CFPS
r = .90+	7 (39%)	8 (44%)	11 (61%)
= .80+	9 (50%)	11 (61%)	13 (72%)
= .70+	10 (56%)	11 (61%)	16 (89%)

Table 2: Companies with Average Annual Compound Growth of 15% + p.a. in EPS/DPS/CFPS : 1975-1981, AND r = .80+

	EPS	DPS	CFPS
Number of Companies	18 (100%)	18 (100%)	17 (100%)
Negative RRS	9 (50%)	9 (50%)	5 (29%)

Conclusion:
The number of companies achieving stable EPS and DPS growth above the rate of inflation is *not* significantly different from the outcome for the overall population, while the results for CFPS *are* significantly different, at the 5% level of significance.

Table 3: Companies with Average Annual Compound Growth of 20% + p.a. EPS/DPS/CFPS : 1975-1981

	EPS	DPS	CFPS
Number of Companies	23 (100%)	15 (100%)	20 (100%)
Negative RRS	10 (43%)	9 (60%)	7 (35%)

The relative importance of earnings, dividends and cash flow per share were also tested using multivariate regression analysis and a step-wise regression technique. The equations tested were of the following form:

(1) RRS = a+b (EPS) + c (DPS)
(2) RRS = d+e (EPS) + f (CFPS)
(3) RRS = g+h (EPS) + i (DPS) + j (CFPS)

The results obtained are contained in Table 4.

Table 4: Equation	(1)	(2)	(3)
Constant	—11.49	—22.68	—22.71
EPS Coefficient	.57 (1.88)	.23 (1.17)	.01 (.02)
DPS Coefficient	.05 (.14)		.27 (.73)
CFPS Coefficient		.98 (2.51)	1.06 (2.61)
Correlation Coefficient	.53	.60	.61

The figures in Table 4 are the coefficients in the relevant equations, and the T statistics are shown in brackets. The equations confirm the findings, indicating that earnings growth is a better measure of real return to shareholders than is dividend growth, while cash flow growth is better than either of these. The T statistic suggests that the dominant coefficients are significent in each case, although one must be aware of the likelihood of autocorrelation as the variables in the regression are not fully independent.

THE FAILURE OF MARKET VALUATION INDICATORS

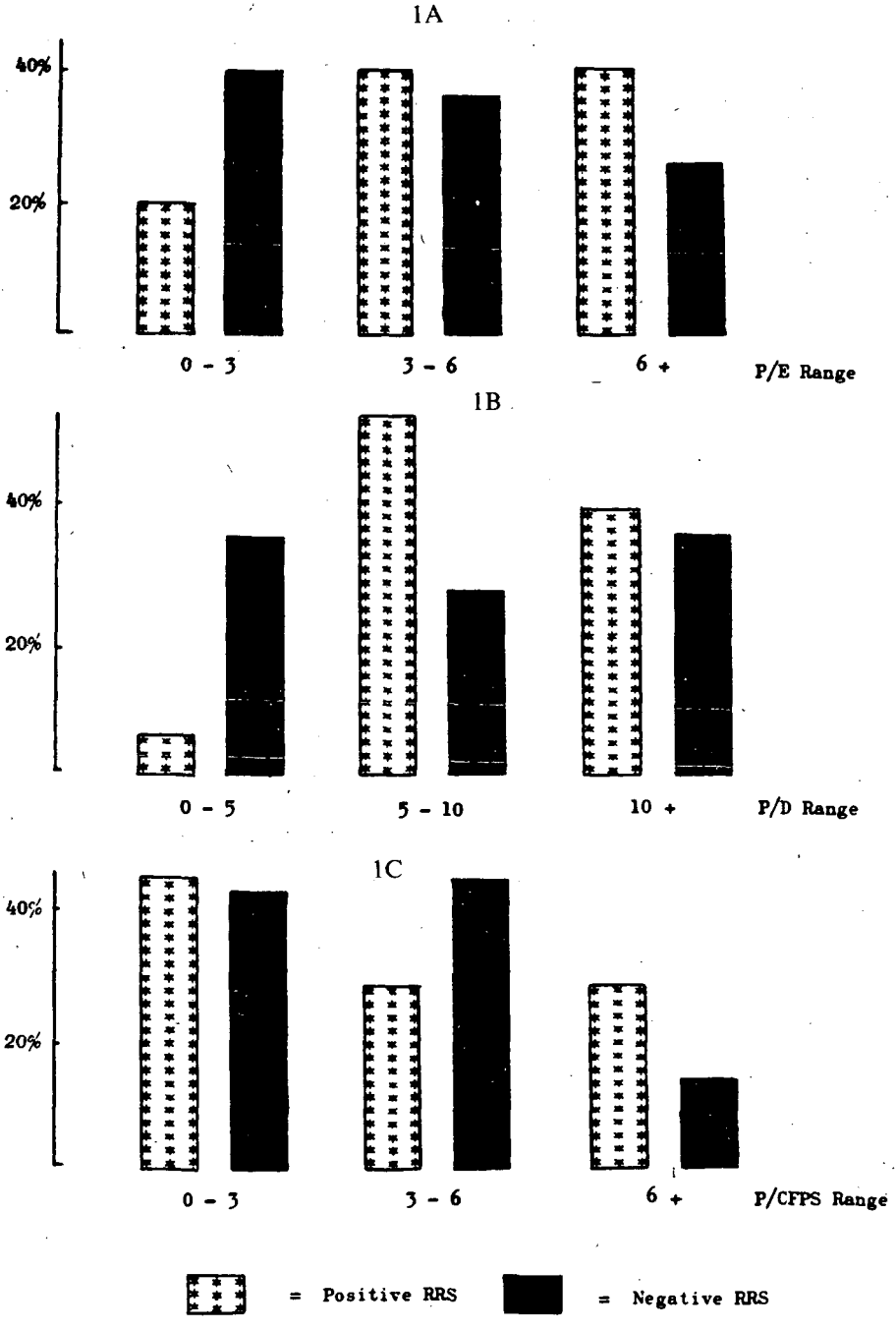
Having examined growth in earnings, dividends and cash flow, one can proceed to look at how the stock market is valuing companies based on earnings, dividends and cash flow. The most common measure of stock market valuation is the price-earnings (P/E) ratio. High P/E ratios supposedly imply market expectations of growth. Figure 1A groups the 54 companies into three P/E bands. A distinction is made between companies achieving positive and negative real returns to shareholders. The figure shows both good and bad companies in terms of RRS appearing almost equally at all levels of the P/E ratios, indicating that the P/E ratio is not discriminating between companies yielding positive and negative real returns to shareholders (see Note 4).

An alternative popular measure is the dividend yield. Low yield shares promise growth and dividend increases in the future, while high yield shares have less market perceived promise. One can take the inverse of the dividend yield and multiply it by 100 to obtain a price/dividend (P/D) ratio comparable to the P/E ratio. These results are also charted (Figure 1B) and again have very little information content as an indicator of real returns. A similar analysis using a price/cash flow per share ratio, which is not a commonly used measure, is marginally better, but not sufficiently so to suggest any real discriminating ability. Thus while cash flow has the best indicator of real returns to shareholders, this is not evident in share pricing. The net result of these analyses is that none of the market valuation indicators show any evidence of discrimination between companies which have been yielding positive as opposed to negative real returns to shareholders.

IMPACT OF INFLATION

The ability of a company to grow in real terms becomes progressively more compromised if inflation rates are increasing in an economy. Inflation has cash implications for funding increased working capital and also for the capital expenditure required to maintain if not expand capacity. The data in Table 5 is a notional example which illustrates one aspect of the working capital situation. This illustrates how companies

Figure 1: Distribution of Companies achieving Positive and Negative RRS across the P/E, P/D, P/CFPS Ranges



can use their growth potential to finance either real growth or phantom growth (i.e. inflation). While profits may be high on a historical cost basis, their quality deteriorates with inflation when one extracts inventory profits, and takes into account the increased cost of replacing existing assets. It is generally accepted that conventional financial reporting fails to reflect the impact of inflation on company earnings and obscures the fact that business is simply not accumulating and retaining the resources required to meet the challenges facing it (see Note 5). A side effect is that all companies in an economy are being forced to "grow" at a minimum level equal to the rate of inflation in the economy irrespective of their real growth potential. Inflation, therefore, can cause financial structure and financial health to deteriorate quite quickly depending on a company's exposure to working capital and capital expenditure requirements.

Table 5	*Swiss Company*	*Irish Company*
Assumption	20% real growth 0% inflation	0% real growth 20% inflation
Stocks — Now	100	100
Stocks — Next Year	120	120

CASH GENERATION, INFLATION EXPOSURE AND GROWTH POTENTIAL: A MODEL

To focus on the importance of cash generation as the essential ingredient for long term prosperity, a simple cash flow model was developed. One could write an equation for the components of cash flow as follows:

Cash Flow $= PBDIT - \Delta WC - CX - Tax - Int - Div$

where
- PBDIT = Profit before depreciation, interest and tax
- ΔWC = Change in working capital
- CX = Capital expenditure
- Int = Interest
- Div = Dividend

By writing
- m = PBDIT/sales
- g = Sales growth (real plus inflation)
- w = Working capital/sales
- x = Capital expenditure/sales
- t = Tax/sales

the above formula can be rewitten as follows:

$$\begin{aligned}\text{Cash Flow} &= m\,S\,(1+g) - wSg - xS\,(1+g) - tS - \text{Int} - \text{Div}\\ &= S[g\,(m - w - x)+m - x - t] - \text{Int} - \text{Div}\end{aligned}$$

where S stands for sales.

Interest and dividends can be viewed as cash flows payable to the suppliers of capital. If all surplus cash flow is assumed to be paid out the above equation can be solved for zero net cash flow. The equation can be rearranged and dividing both sides by capital employed (CE = net fixed assets plus net current assets), reduces to:

$$\frac{\text{Int}+\text{Div}}{CE} = \frac{S}{CE}[g\,(m - w - x)+m - x - t]$$

The component on the left hand side is the return on capital employed, and the equation thus highlights the key determinants of earning cash returns on investment i.e. utilisation of assets, margins, capital expenditure, working capital and growth rate — the latter including real growth plus inflation (see Note 7).

The term g (m — w — x) is of particular interest. This is the growth term and hence it is an indicator of the extent to which a company is exposed to inflation. (m — w — x) is normally negative for most companies, so the term g (m — w — x) is negative. Suppose m=.17, w=.13, x=.09, then if g = .15 (i.e. say inflation at 15%) the term has the value — 0.0075. The implication is that the company in question needs cash equal to .0075 times sales to finance the effect of inflation on the business. The same amount of cash would be required if inflation were 10% and real growth 5% i.e. where g still equals .15. One could see the above model in a number of ways. For instance, by establishing the relevant financial statistics for each public company one could insert the various terms in the equation, apply the company's cost of capital based on its debt/equity ratio and solve for the inherent growth which the company could sustain based on its cash generation performance.

CASH GENERATION, INFLATION EXPOSURE AND GROWTH POTENTIAL: APPLICATION

The foregoing analyses in the early part of this paper clearly indicated the importance of cash flow. The findings suggest that real returns are more closely correlated with cash flow than with earnings or dividends. This is a reflection of the fact that future growth can only be financed if cash flow is being generated, and is also a recognition of the cash implications of on-going inflation. The cash flow model outlined in the previous section affords an opportunity to quantify a company's exposure to inflation

taking into account both working capital and fixed asset requirements. It further allows one to obtain an insight into a company's inherent growth potential based on its cahs generating capacity.

The critical ratios for the cash flow equation are:

Profit before Depreciation Interest & Tax/Sales
Working Capital/Sales
Capital Expenditure/Sales
Sales/Capital Employed

The inflation exposure factor incorporates the first three of these ratios. Almost all companies feature as having a real exposure to inflation with companies having the greatest working capital requirements showing the greatest exposure. However, there are a number of notable exceptions, the nature of whose business generally involves either little debtors or stock and perhaps substantial creditors. Inflationary conditions could thus be considered as favouring such companies relative to others from a cash commitment viewpoint.

A detailed analysis of the financial reports of all 54 public companies was carried out for the six year period 1975-80 inclusive to extract the relevant ratios. A six yearly average was taken and the factors inserted in the model. Table 6 groups the 54 companies in terms of increasing exposure to inflation, and classifies them according to whether they yielded positive or negative real returns to shareholders. This Table and Figure 2 indicate a very strong correlation between the companies having a more favourable exposure to inflation and those achieving real returns to shareholders. Regression analysis confirmed this strong relationship at the one per cent level of significance. This result is encouragingly consistent with the cash flow findings since the companies with a lower inflation exposure are, all things being equal, likely to have greater cash flow surpluses (Note 2).

CONCLUSIONS

Historically, in looking at simple measures of company performance focus was placed either on growth in earnings per share or growth in dividends per share. The research summarised in this paper has shown that neither of these measures is adequate. The findings indicate that strong earnings and dividend growth imply nothing about the real returns to shareholders. Growth in cash flow per share does, however, contain useful information. The more established market indicators such as price/earnings ratios and dividend yields show little powers of discrimination between companies yielding positive and negative real returns for shareholders. This, coupled with the lack of correlation

Figure 2

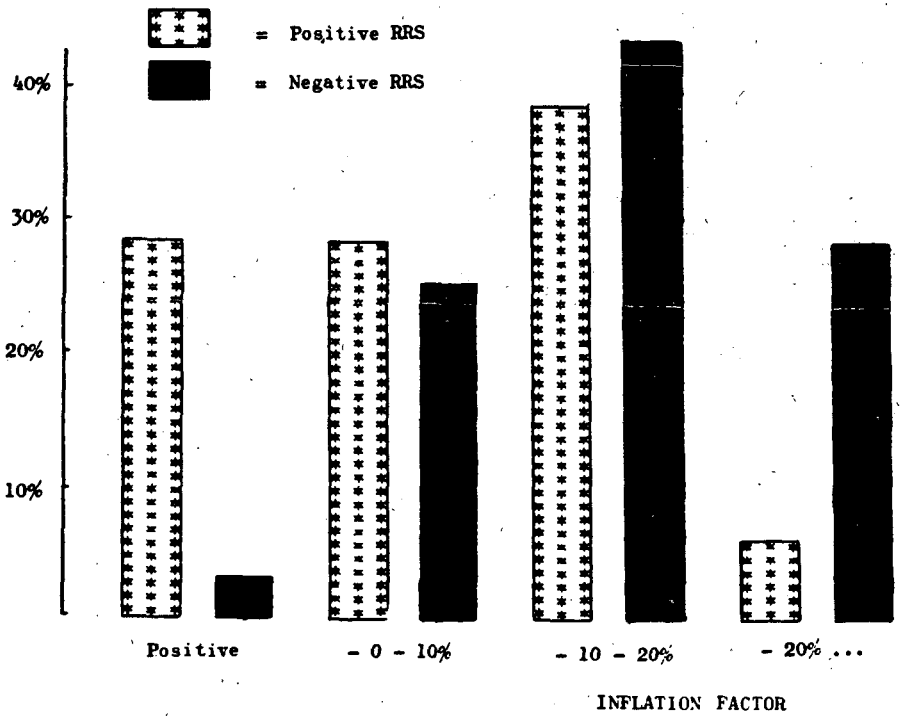


Table 6: Inflation Exposure v Real Return to Shareholders (RRS)

Inflation Exposure Factor		Positive RRS=18 COS			Negative RRS=36 COS		
		No.	Cum No.	% Pos	No.	Cum No.	% Neg
Positive		5	5	28%	1	1	3%
0.1%	—5.0%	2	7	39%	2	3	8%
—5.1%	—10.0%	3	10	56%	7	10	28%
—10.1%	—15.0%	1	11	61%	8	18	50%
—15.1%	—20.0%	6	17	94%	8	26	72%
—20.1%	—25.0%	1	18	100%	6	32	89%
—25.1%	—30.0%	0	18	100%	2	34	94%
—30.1%	—35.0%	0	18	100%	1	35	97%
—35.1%		0	18	100%	1	36	100%

between the inherent growth potential based on the company's financial statistics and that implied by the stock market, clearly implies that while the best indicator of real returns to shareholders is cash flow, this fact is not evident in the market approach to share pricing (see not 9). The research did find a strong correlation between a company's performance in terms of real return to the shareholder and its exposure to inflation.

The net conclusion is that cash flow is now a more important barometer of overall company success than has generally been publicly acclaimed. This is hardly surprising since the importance of cash flow has long been recognised and has been widely applied in the evaluation of capital projects through techniques such as discounted cash flow (DCF). But it has not been extensively used in evaluating a company or business as a whole. The cash flow model developed and applied in this research shows that a simple, yet workable, model based on margins, working capital needs and capital expenditure can be used in isolating the key indicator of company performance — cash flow generation.

BIBLIOGRAPHY AND NOTES

1. This percentage is sensitive to the period in which the analysis is performed. However relative performance is largely invariant for proximate time periods.
2. A complete set of the tabulated results is available from the authors.
3. D. Allen, "Establishing a Financial Objective — A Practical Approach" *Long Range Planning* Dec. 1979.
4. Piper & Fruhan "Is your Stock Worth its Market Price?" *Harvard Business Review:* May-June, 1981.
5. A. Rappaport, "A total Fascination with the Short Run" *Business Week* May 4, 1981.
6. A. Rapaport, "Strategic Analysis for More Profitable Acquisition" *Harvard Business Review* July-August 1979.
7. S. J. Q. Robinson, "What Growth Rate can you Achieve" *Long Range Planning*, 12 August 1979.
8. Walsh & Mock "Setting Corporate Objectives using Market Required Earnings" *Long Range Planning*, October 1979.
9. This result emerged from further analysis undertaken in an MBA thesis by one of the authors using the cash flow model, which is not reported in this paper. The model was used to obtain the inherent growth potential obtained from the financial statistics of each public company, and was compared with the growth potential implied by the stock market using a dividend valuation model for share pricing.