Earnings Per Share, Adjusted For New Issues: Some Comments

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(1) In the last issue of this Journal, J. R. Harris1 makes a number of criticisms of a currently popular method for adjusting “earnings per share” series where new money is raised by an issue “below the market”. To recapitulate: the E.P.S. series is unambiguous where shareholders’ funds grow entirely by retention of earnings and where there are no other changes in the firm’s capital structure; secondly, where there are bonus issues the E.P.S. series can be adjusted easily and again unambiguously. Where there are issues of shares to outsiders for purposes of take-over of other companies or assets (including cash), the E.P.S. is again, according to Harris, the true record of investor’s experience. It is in the cases where issues are made to existing shareholders “below market”, i.e., when the issue contains a so-called “bonus element” and where an adjustment is made for this bonus element, that Harris takes objection.

“Constant Share” Earnings

The adjustment in question rests on the fiction that a hypothetical investor faced with the offer to subscribe for new shares will sell sufficient of his entitlement to finance the balance. In this way the amount of the initial investment is held constant. The earnings attributable to this “constant share” become the E.P.S. series; the dividends attributable to it become the dividends per share series.

Harris objects to this device on the ground that the series so obtained will reflect the price which happens to prevail in the market. He demonstrates by means of a numerical example that of two companies with identical earnings performances, if one sells at a P/E ratio double the other, its apparent growth in E.P.S. will be much more impressive than the other. Hence the vicious consequence that overvaluation will appear to justify itself by producing a high growth in E.P.S.

Harris offers a number of alternative methods of adjustment but finds that if the market price method of adjusting E.P.S., makes the series subject to the vagaries of market valuation, the alternatives involve arbitrary choices on the part of the analyst.

(2) In this note I shall offer a qualified defence of the use of market price in adjusting E.P.S. My principal contention will be that in practice the E.P.S. is not nearly as sensitive to variations in market price as Harris suggests.

In so arguing, however, it is as well not to lose sight of the fact that the adjustment in question belongs to the realm of “second best.” The real problem is that when new money is introduced at different times, the amounts can only be brought into relation through a discounting process. In the method familiar to capital budgeting theory2, for example, the firm may be considered as equivalent to the total of the capital goods which it possesses; its present value will be equal to the discounted sum of the cash flows.

Thus, gross profit would be set against the gross investment for each year and the difference would be discounted at the market rate of interest.

In practice however, our lack of knowledge of the investment plans of the enterprise, or worse, management’s own lack of knowledge of its investment plans prevents such a method being applied. In such circumstances the practice of applying a multiplier to earnings, suitably adjusted for expected growth and risk may serve as an approximate guide to market value. Its defect is that it does not really take into account the time pattern of return and investment, and instead substitutes the assumption that the market will at some stage arrive at a true value.

Use of Market Values

It is with these qualifications that the following defence of the use of market values in adjusting E.P.S. series is offered. It is admitted that the device is imperfect; but in the context of “second-best” it provides a useful index of investment growth; and in the cases of typical issues of most leading stocks the variability of market values in adjusting E.P.S. will appear to justify it.

(3) The fiction of the hypothetical investor who sells sufficient of his entitlement to a new issue to finance the balance of his entitlement is a possible way in which an investor


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might proceed though rather improbable. On the face of it there is no reason why an investor should especially prefer to keep his investment constant rather than to take up all of his entitlement.

It is perhaps more helpful to translate the fiction into another form which is however equivalent to it. According to this version, the management raises its new money by issues "at market" to whoever will accept them. In other words, the firm issues as few shares as possible in raising new capital. If, as happens in the case of "below market" issues, more shares are issued, then these extra shares may be likened to the familiar bonus issue. The adjustment \[ \frac{P}{q} \] which Harris derives from the first fiction procures the same result as if the new money had been raised by issuing the minimum number of shares, i.e., by making all issues "at market".

In demonstrating this equivalence, our premise is that the value of the enterprise before the issue will be equal to the value of the enterprise after the issue plus the value of the money raised in the issue.

Let \[ P = \text{cum-rights price} \]
\[ Q = \text{number of shares in existence before issue} \]
\[ A = \text{amount raised by new issue} \]
\[ k = \text{number of shares required to be issued if issue is made "at market"} \]
\[ p = \text{ex-rights price} \]
\[ q = \text{number of shares in existence after issue} \]

If the new money is raised by an issue "at market", then:

\[ PQ + \frac{A}{P} = p (Q + \frac{A}{p}) = pq \quad \text{(1)} \]

If the same amount \( A \) is raised by an issue at "below market", let \( k < P \).

Then:

\[ PQ + \frac{A}{P} = p (Q + \frac{A}{p}) = pq \quad \text{(2)} \]

Then:

\[ \frac{P}{P} = \frac{Q + \frac{A}{p}}{A} = \frac{\text{No. of shares required to be issued "at market"}}{\text{No. of shares issued at "less than market"}} \]

The adjustment thus brings all issues to a common basis of comparison by assuming that all issues are made "at market" and eliminating the purely "bonus" shares.

Now Harris's objection that a share which is selling at a high price will show a higher growth rate than an identical share selling at a lower price remains unaffected by the foregoing. But the force of his objection against the "hybrid" nature of the adjustment seems somewhat diminished. For Harris admits the legitimacy of the E.P.S. series where shares are issued to outsiders for take-overs or to acquire assets; in such cases the firm will derive a positive and real advantage from a high market price. If the market has in fact over-valued its shares the acquisition of assets will be facilitated and the E.P.S. series will be correspondingly improved.

Indeed, the "hybrid" nature of the adjustment merely emphasises that one possible way of growth for the firm is to take advantage of its market price to acquire assets. Market price thus enters directly into the firm's transactions with the capital market. The maximization of market price may thus be a legitimate object of policy and financial management; the choice of capital structure, dividend policy and so on, may be determined with these objects in view.

Because market price can be an active agent in the growth process, i.e., because the adoption of certain policies will be contingent upon a satisfactory market premium, it seems unavoidable that the investment record of a stock can be treated independent of its market value. It is true that this provides an additional uncertainty in projecting past results into the future; but this again is unavoidable and recognizes such basic facts of life as that an adverse movement in the capital will often lead to revisions of plans and checks to growth.

(4) The next question concerns the sensitivity of the ratio \[ \frac{P}{P} \] to alternative market prices. Is the ratio so unstable when different prices are used as to make it useless as an adjusting factor as Harris suggests?

It is to be noted that if any actual market cum-rights price is linked with any actual ex-rights price there would indeed be a very wide degree of variation in \[ \frac{P}{P} \]. But our present interest is in the relationship be-

3. E.g. the 1961 break in the New York stock market resulted in the cancellation of many planned issues. Many of these issues would have been hitched "at market" or close thereto.

4. Harris: op cit p. 6. "This point highlights the fact that this method of adjusting earnings per share is a hybrid. If a company has made no cash issues, the analyst is able to study the sequence of its earnings per share and the market performance of its shares, two separate records. When the company has made cash issues and adjustments are made based on market prices, then the two records have been mixed and depend on each other."
tween \( P \) and its corresponding theoretical \( p \); or vice versa. The relationship between these is determined by the terms of the issue and the amount of money to be raised. In order to calculate \( P \), it is only necessary to take one actual market value. The ratio displays considerably less variability when so calculated than might be suggested by casual inspection of actual cum-rights and ex-rights prices.

If there is a certain percentage change in \( P \) and this produces exactly the same percentage change \( p \), then clearly the ratio \( \frac{P}{p} \) will be unchanged. When new money is introduced, the percentage change in \( p \) will be somewhat less than the percentage change in \( P \); however in the majority of cases the percentage change in \( p \) is sufficiently close to the percentage change in \( P \) as to make the change in negligible for quite wide fluctuations in \( P \).

Thus \( p \) will respond to a change of \( u\% \) in \( P \) by changing \( (u - u.A) \).

Clearly the ratio \( \frac{P}{p} \) will be independent of changes in \( P \) only where \( (u.A) \) is zero, i.e., where \( A \) is zero, \( u = \frac{A}{PQ} \).

Let \( P = \) an actual cum-rights price. Suppose that during the year another cum-rights value of \( P' \) is observed. Let \( u \) be the \( \% \) variation in \( P \).

\[
\text{Hence } u = \frac{P' - P}{P} = \frac{P'}{P} - 1
\]

Define \( v = 1 + u \)

Then \( P' = vP \)

Given a percentage variation in \( P \) of \( u\% \), we have to ask what will be the corresponding percentage variation in the ex-rights price \( p \).

\[
p = \frac{PQ + A}{q} \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad p' = \frac{P'Q + A}{q} = \frac{PQ + A}{q}
\]

The corresponding percentage variation in \( p \) will be:

\[
\frac{p' - p}{p} = \frac{P'Q + A}{PQ} - 1 = \frac{PQ(1 + u) + A - pq}{pq} = \frac{PQ + uPQ + A - pq}{pq} = \frac{uPQ}{pq} = \frac{u(pq - A)}{pq} = \frac{u(1 - A)}{pq} = u - \frac{u.A}{pq}
\]

Let \( \text{INDUSTRY SURVEYS} \)

Investigation of practical methods of implementing continuing surveys of selected industries which the Society's former President, H. V. Napier, suggested in August, 1964, has commenced.

A committee is considering the possibility of using groups of three with rotating membership to carry out the surveys. No member would be required to remain with the investigating team for more than eighteen months.

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5. Prices taken in calculating \( PQ \) were those in the month following completion of issue, viz., B.H.P. 69/6, A.C.I. 72/6, Bitumen and Oil 20/6, Blue Metal Industries 20/6, Aust. Cement 17/6.

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A £16m. B.H.P. 1961-1-6 issue at par 20/-
\[ \frac{A}{pq} = \frac{16}{388.8} = 0.0414 \]
= 0.0414

A £5.692m. A.C.I. 1961-1-5 at 30/-, 10/- Prem.
\[ \frac{A}{pq} = \frac{5.692}{68.774} = 0.0828 \]
= 0.0828

Bitumen and Oil 1961-1-10 at 15/-, 10/- Prem.
\[ \frac{A}{pq} = \frac{0.75}{9.66} = 0.0776 \]
= 0.0776

Blue Metal Industries 1961-1-4 at par 5/-
\[ \frac{A}{pq} = \frac{0.637}{9.66} = 0.056 \]
= 0.056

Aust. Cement 1962-1-3 at 6/6, 1/6 Prem.
\[ \frac{A}{pq} = \frac{1.366}{7.336} = 0.1007 \]
= 0.1007

Taking the highest of these values (Australian Cement .1007) and applying the equation derived earlier, let us suppose a very wide price fluctuation of \( \pm 20\% \) around a mean value and examine the impact on \( \frac{p}{p} \) variation in \( \frac{p}{u} = u - u.A \)

\[ \frac{p}{pq} = 0.2 - 0.2 \times 0.1 \]
\[ \frac{p}{p} = \pm 0.18. \]

For a price variation of \( \pm 20\% \) \( \frac{p}{p} \) would change by 18% and the ratio \( \frac{p}{p} \) would be modified in the ratio \( \frac{1.18}{1.20} \).

While there would undoubtedly be some stocks in which the proportion is such that \( \frac{p}{p} \) is more sensitive to fluctuations in \( \frac{p}{p} \) than in the above it is believed that the above examples are representative of the majority of issues. Indeed in the example the price fluctuation is much greater than occurs in the majority of cases. Even if there were a fluctuation of this order however, the movement in \( \frac{p}{p} \) within tolerable limits in the present writer's opinion. The scope for variation for example, in arriving at accounting net income would be much greater than the variation arising from adjustment of E.P.S. by market price. It can, however, be seen that in adjusting the E.P.S. series it is desirable particularly in the case of small companies making large issues, that specific note should be made of the proportion which the new money bears to the total value of the enterprise.

That the room for subjectivity in choice of market price is less than might be supposed may be illustrated by the G. J. Coles issue of 1961. Of this Harris remarks: "in some cases, for example, the last G. J. Coles issues, the variations in price during the course of the issue must mean that the method chosen by a particular analyst will make quite a difference to the amount of the adjustment."

The issue in question was made to shareholders at March 10, 1961, and applications closed June 30, 1961; there was therefore a long period of rights trading and the fluctuations in price were somewhat wider than is usual in leading stocks. In the two months prior to the issue the shares ranged between 15/1 and 13/8. During the issue the rights fluctuated between 6/- and 8/6 and the shares ex-rights varied between 11/- and 13/9. Terms of the issue were 3-10.

Working back to the cum-rights prices, the highest equivalent price during the rights trading was 16/4 and the lowest equivalent price was 12/10. The mean price was therefore 14/7 and the price fluctuation was \( \pm 12\% \).

Let us suppose that three analysts calculate \( \frac{p}{p} \); the first analyst takes the highest cum-rights price and its theoretical equivalent ex-rights price; the second takes the mean cum-rights price and its corresponding theoretical ex-rights price; and the third analyst takes the lowest cum-rights price. The values of \( \frac{p}{p} \) so calculated are as follows:

\[
\begin{align*}
\text{Highest price } p & = 13.75 = .840 \\
\text{Mean price } p & = 12.4 = .85 \\
\text{Lowest price } p & = 11 = .859 \\
\end{align*}
\]

It would appear then that unless one were prepared to argue that at no stage during the course of trading was G. J. Coles selling at a toler-

6. A recent example is the Ready Credits 1-1 issue where \( \frac{A}{pq} \) approaches .5.
7. Price information was obtained from the Melbourne Stock Exchange Gazette.
Future Plans

Experience gained to date has suggested that the basic format for meetings and subject matters is sound and this pattern will probably be followed in the future.

Meetings projected so far for 1965 are:

**February** — Mr. Norman Coles, Director. “G. J. Coles & Co. Ltd.”

**March** — Internal Study Meeting. “Calculation of Per Share Earnings.”

**April** — Mr. R. Irish, Chairman, “Rothmans Limited.”

**May** — Mr. E. Dunshea, Director. “Dunlop Rubber Australia Limited.”

It has already emerged that there exists considerable scope for development of the internal study meetings and in the view of the Committee this phase of our activity can be of material help to members. We feel that from these beginnings, a code of standard requirements may be built up which will in turn provide the Analyst with the material he seeks in his seeking publicity for its views.

**ANNUAL PROGRAMME**

Sydney members can look to an interesting 1965 schedule. Initially planned are seven luncheon meetings to which guest speakers will be invited. Eight evening meetings, to examine selected companies, are proposed.

**SECOND EUROPEAN CONGRESS**

Reference was made to the article by Mr. J. R. Harris in the December, 1962, issue of the Australian Security Analysts’ Journal by members attending the Second Congress of the European Federation of Financial Analysts’ Societies.

Members generally agreed that an adjustment which was isolated from the influence of the market and based purely on intrinsic value would be desirable but no practical method was as yet feasible.

The article was reproduced in the British Society’s “The Investment Analyst” of May, 1963.

**EARNINGS PER SHARE**

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ably correct value then it may be concluded that the growth index furnished by the E.P.S. series adjusted by means of market price is sufficiently determinate and unambiguous to serve the purposes of the security analyst.

(5) The other methods of adjusting earnings per share which Harris proposes are interesting though it seems to me that he supplies quite decisive reasons for rejecting them. As he himself shows the asset backing method suffers from the defect that there appears to be no apparent growth in E.P.S. in a company which manages to find new investment opportunities earning 14% when the market rate is 7%. The “standard earning rate” method has some advantages particularly if one could establish the correct interest rate to use. One suspects, however, that if this path were chosen one would be forced eventually to the discounted cash flow approach, i.e., the interest rate would have to be applied to all cash flows and not simply to money introduced into the firm.

**MELBOURNE’S 1965 PROGRAMME**

The Society’s Melbourne committee is actively engaged on the forward programme for 1965. A number of meetings are in the process of negotiation. However, the dates for the first two meetings have already been arranged as follows:

(1) **February 22nd**: 5.15 p.m., National Mutual Centre — Theatrette.

Sir Edgar Coles, Chairman and Controlling Managing Director of G. J. Coles & Co. Ltd., has kindly agreed to address the Society on various aspects of his Company’s activities.

The “working party” (Messrs. P. F. MacLaren and D. C. Steele) expect to have a report issued to Members before the meeting.

(2) **March 15th**: 5.15 p.m. — Venue to be advised.

This will be an Internal Meeting, the subject being “Earnings Per Share”.

Terms of Reference — “To examine problems arising in the definition and calculation of equity share earnings and in year-to-year comparisons of these and suggest solutions.”


It is hoped that a copy of the Sub-Committee’s views will be circulated to Members prior to the Meeting so that they may come prepared to take part in the discussion.

Mr. P. W. Dowley will take the chair and lead the discussion on what promises to be a most interesting subject.

Would Members kindly note the above dates in their diaries.

**Employment**

A member of the Society interested in long-term security analysis is seeking an appointment. The name and address may be obtained on application to the Secretary.

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