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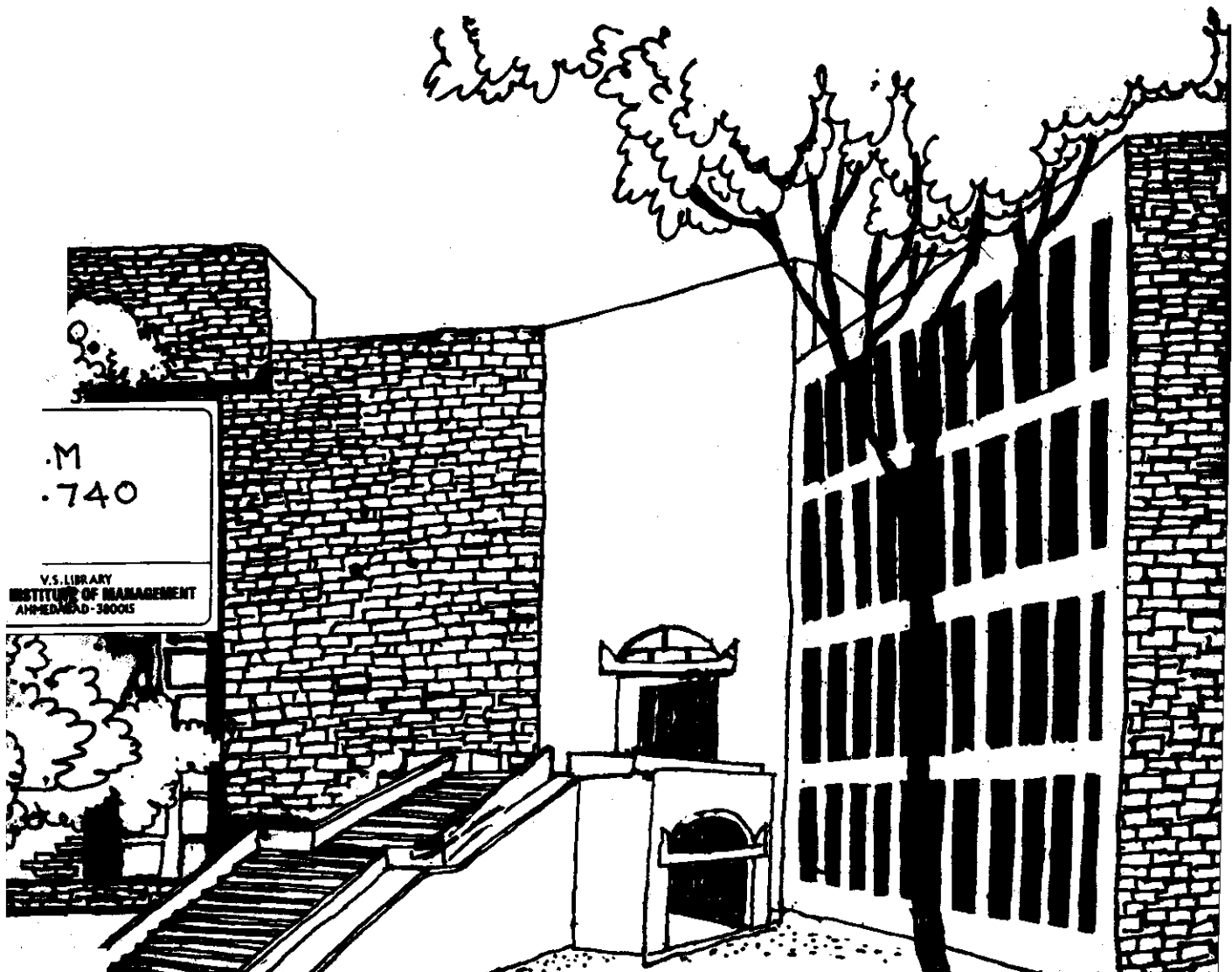
FINANCIAL MANAGEMENT
RESEARCH IN INDIA

By

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ABSTRACT

This review article has attempted to highlight the trends in financial management research in India. It has shown how methodologies such as regression analysis, factor analysis, multiple discriminant analysis, control theory, survey methods etc. have been applied to financial data by the Indian researchers for useful financial analysis.

The article also provides a list of potential topics for research in future.

I.M. Pandey.

FINANCIAL MANAGEMENT RESEARCH IN INDIA

Financial Management is one of the most important areas of business decisions. A lot of theoretical and empirical development has taken place in finance over last three decades or so. Researchers in India have started taking note of this development, and a number of empirical works using Indian data are available now. This paper aims to review and synthesize the important empirical studies in financial management in India, and to highlight the use of theories, techniques and the emerging trend in the financial data analysis. Some potential topics for future research are also indicated.

We have selected only those Indian studies for review which have empirical base, which attempt to integrate theory with practice and which have a bearing to the practical aspect of financial decision making. Therefore, literature on the operations and functioning of the Indian financial system and accounting and management control systems have been excluded. The material has been divided into six topics: (1) Accounting Information and Financial Management; (2) Capital Budgeting; (3) Cost of Capital and Capital Structure; (4) Dividend Decisions; (5) Behaviour, Performance and Efficiency of Stock Markets; and (6) Interface Between Finance Function and Strategic Management. The topic of working capital management has not been included because of the paucity of time.

ACCOUNTING INFORMATION AND FINANCIAL MANAGEMENT

Accounting information has been used in the analysis of such issues as the prediction of the failure of a firm, accounting beta estimation, bond rating, rates of return etc. The papers examined in this section show specific application of accounting information in financial management in the Indian context.

Accounting ratios are widely used for financial appraisal and forewarning purposes. A number of rules of thumb exist in this regard. In the Indian context, L.C. Gupta (1983) has made a systematic attempt to identify the ratios which have the discriminating power and are based on the logic of financial theory. He has used a simple non-parametric approach for measuring the relative differentiating power of 56 accounting ratios, classified into profitability ratios and balance sheet ratios. These ratios were tested for each of the company in sick and non-sick groups of the textile industry for each year for a 13-year period (1962-74). The sample included 21 companies in the non-sick group and 20 in the sick group. The matching was done on the basis of product(s) manufactured and size measured in terms of paid up capital, assets and sales. The sample of sick and non-sick companies was arranged in a single ordered sequence, from smallest to largest, according to the magnitude of computed accounting ratios. A cut-off point was then selected which divided the array into two classes with minimum number of mis-classifications. The percentage of mis-classification error was chosen as a deciding parameter. Out of 25 profitability ratios computed, 5 profitability ratios were finally selected which individually had shown predictive power when applied to the homogeneous textile industry sample. The ratios are: (1) Earnings before depreciation, interest and tax (EBDIT) divided by sales net of excise (NS); (2) Operating cash flow (viz. profit after taxation plus depreciation (OCF) divided by sales net of excise; (3) EBDIT/(Total assets plus accumulated depreciation); (4) OCF/(Total assets plus accumulated depreciation); and (5) EBDIT/(Interest plus .25 debt). The last ratio is a measure of debt service. The first two profitability ratios, defined in relation to sales, were found to be the "best". The remaining 3 ratios were found to be inferior as compared

to the first two. Further, in order to minimise the classification error rates, Gupta has recommended the combination of the first four profitability ratios. Profitability ratios relating to net worth were found to be worst predictor of sickness.

Gupta also calculated balance sheet ratios to test their discriminating power. They were not found to be so good as the profitability ratios. It was observed that companies with inadequate equity base had little "reserve strength" to weather adversities and are, therefore, sickness prone. Another important observation was that all liquidity ratios proved to be very poor predictor. Current ratios, for example, showed an average classification error almost three times more than profitability ratios in case of textile companies.

Gupta also tested the discriminating power of ratios for a non-textile, heterogeneous sample. The profitability ratios for the sample did not work so well as for the textile sample. Also, none of them clearly emerged as the best predictor. Gupta attributed the poor results to the problems as they relate to inter-firm comparison in India.

A number of researchers have used multiple discriminant analysis (MDA), with financial ratios as variables to predict the chances of sickness/bankruptcy for a firm. In USA, Altman (1968) was first to describe the MDA technique in general terms and develop a linear discriminant function to distinguish between bankrupt vs. non-bankrupt firms. MDA is a multi-variant analysis, used to arrive at the final profile of ratios doing the best overall job together in the prediction of failure. In fact, it actually reduces a multi-variate problem to a simple uni-variate problem and assign companies between sick and non-sick on the value of a single variable. The final best discriminant function and the cut-off point are found out in a way that the percentage mis-classification error is minimised.

Altman's study attracted wide attention. Two studies in USA which improved upon Altman's model are by Deakin (1972) and Bloom (1974). In the Indian context, Srivastava and Yadav (1985) have used MDA, besides some others. They selected a sample of 39 sick and 39 non-sick companies. In fact, they defined sick companies those which had gone into liquidation during the period under study (1966-80, both years included). The selection process of non-sick companies was based on paired sample designs, i.e. for every sick company, a non-sick company by the same industry, same financial year and the same size in terms of paid-up capital and capital employed was selected. They computed 36 ratios for each of the sick and non-sick companies one year prior to sickness. The ratios selected by them were based on the ratios which performed well in earlier studies, and which are very popular in the financial literature. They selected 7 ratio profiles on the basis of factor analysis for final analysis. Using the MDA, the following best discriminant function was found out:

$$Z = 19.8927 \, X_1 + .0047 \, X_2 + .7141 \, X_3 + .4860 \, X_4 \qquad \ldots (1)$$

where X_1 is earnings before interest and taxes to total tangible assets, X_2 is current assets to current liabilities, X_3 is net sales to total tangible assets and X_4 is defensive assets to total operating expenditure.

The variables in this discriminant functions are independent, and least correlated with each other in both the groups, and thus, each variable provides additional information about the financial health of the company. Since simple observation of the discriminant coefficients can mislead, therefore, Srivastava and Yadav also computed adjusted coefficients (scaled vector). It was indicated that earnings before interest and tax divided by total tangible assets ratio contributed the maximum followed by net sales to total tangible assets ratios towards the discriminating power of the discriminant function. They also empirically determined the cut-off point which worked as 1.425.

Yet another Indian study using discriminant analysis is by Sarma and Rao (1976). They used a sample of 60 textile companies, comprising 30 failed and 30 non-failed firms. The discriminant function was found to be:

$$Z\text{-score} = .0387 \ X_1 + .0018 \ X_2 - .0598 \ X_3 + .7934 \ X_4$$
$$+ .6045 \ X_5 \qquad\qquad \ldots(2)$$

What is illogical about these results is that the coefficient of X_3 (working capital to total assets) has negative sign because this implies that stronger the working capital position, the greater the chance of failure.

Srivastava and Yadav (1986) also used uni-variate analysis - mean value comparison and dichotomous classification test - to determine the discriminating power of financial ratios. Using student t-test, they found the differences between the mean values of 21 ratios significant at 5 per cent level of significance. Their results found the solvency, liquidity and liquidity turnover ratios as insignificant variables. Among significant ratios, EBIT/TTA is the most significant ratio followed by CF/TTA and NI/TTA. Their empirical analysis as conducted by the dichotomous classification test clearly indicated the superiority of profit ratios in predicting the corporate sickness. From their results, it was evident that CF/TTA ratio, provided the highest predictive power followed by EBIT/TTA ratio. In the first year before sickness, the classification error of both the ratios is 10 per cent, while in the 6th year, the error percentages are 28 and 29 respectively. The turnover ratios showed inferior results than the profitability ratios. Like Gupta's (1983) study, their study also found a very low predictive power of solvency and liquidity ratios. It was also observed that companies with heavy debt and inadequate base were prone to sickness.

When we compare Beaver's (1966), Altman's (1968), and Srivastava and Yadav's (1986) studies with that of Gupta's (1983), we find the following (see Tables 1 and 2). Beaver's method is

more reliable than Altman's. Since his error rate was 13 per
cent one year before failure and ranged between 21 and 24 per
cent for 2-5 years before failure. Also, his error rates
showed good year to year consistently, whereas Altman's error
rates showed unusual sharp jumps from year to year. Gupta's
(1983) results are much better than that of Beaver's, Altman's
and that of Srivastava and Yadav's under the Indian context.
His (Gupta's) analysis showed an error percentage of only 11
per cent for the textile sample for the first two years, on a
rough reckoning, was at least 3-4 years prior to the non-
bankruptcy stage. It is important to note that Gupta's analysis
was in terms of sickness rather than bankruptcy. The percentage
error steadily diminished as   sick textile companies moved
nearer to the stage of acute sickness; it was just around 8 per
cent for 1964, and was between nil and 5 per cent for 1966, and
thereafter, upto 1971. His year to year figures of percentage
or error also showed a remarkable consistency unlike Altman's.
Gupta's superior results may be due to the homogenity of the
industry group. A question may be raised: Is Altman's type
approach superior to a simple approach such as that of Gupta's
or Beaver's? A strong assumption of a single joint index (such
as Z-score), as derived through MDA, is that the relationship
between the variables being combined is of the "compensatory"
type, in the sense that a weakness in respect of one variable
is automatically taken care of by extra strength of other. This
may not in fact be true because of the different aspects of
firms financial operations. Gupta, for example, argues that a
firm is more like a structure resting on several pillars and
would collapse if even one of these pillars did not have a
minimum required strength. It is thus doubtful that Altman's
type approach would ever have much significance in the area.

Another application of the accounting information has been
for predicting future rates of return. Porwal and Kumar (1980)
in a study of 40 engineering firms computed ten ratios for the
period 1967-72. They also computed the rates of return for

the period of 1972-77 considering both dividend and capital appreciation. The t-test revealed no significant power of financial statements in predicting rates of return. In fact, many of the t-statistics were of the wrong signs.

Accounting information can also be useful to calculate beta. The return that investors require from a company's share depends on its market risk or what has been commonly referred in the finance theory as beta. A practical problem in estimating beta is the non-availability of stock price data. As a result, some authors in America have examined whether accounting data can be used to estimate beta. The study of Beaver, Kettler and Scholes (1970) is noteworthy in this regard. They calculated accounting beta from the financial information and estimated the sensitivity of each company's earnings changes in the aggregate earnings of all companies. Instead of looking at the financial ratios, one by one, Rosenberg and Marathe (1974) looked at a combined single estimation of beta. In India, there does not exist any study on computation of beta using accounting information.

Similar to the studies by Ball and Watts (1972) and many others, Bhat (1987) has studied the time series behaviour of corporate earnings in India. He has used a sample of 182 companies covering a period of 17 years from 1966-67 to 1982-83. The earnings variable has been measured from shareholders' perspective. Using correlation and regression methods, his findings did not suggest any persistency in the successive earnings growth rate both in the cross-sectional and time series framework. His findings confirm the "Higgledy-Piggledy" growth hypothesis of Little in the UK 20 years ago. His investigation, based on mean and median values of runs test and serial correlation test, could not reject the null hypothesis of randomness in earnings. His study has also attempted to discern and quantify the amount of market influences on company earnings and the book rate of return variables by using linear market index

model. The markex index has been constructed by using data of
182 companies, first, as simple arithmetic mean and then as
weighted arithmetic mean, weights being the net worth. His
results did not support the hypothesis that there existed a
systematic linear relationship between earnings of individual
companies and the market index. The average explanatory power
of the market index models was found less than 10 per cent, which
significantly contrasted with the American studies, where mar-
ket models have been found consistent in capturing the cross-
sectional relationships arising due to the market wide forces.

Yet, another application of financial ratio is in rating
bonds/debentures. In the USA, James Horrigan (1966) examined
the relationship between the bond ratings and financial ratios
of 254 companies. He also combined several ratios into a
single measure of bond quality. Pinches and Mingo (1973) have
applied factor analysis and MDA to financial ratios to predict
bond ratings. One has yet to attempt a study showing appli-
cation of accounting information for credit rating in India.

Other uses of financial information are in the area of
impact of inflation on corporate earnings. The studies by
Ramesh Gupta (1983) and Misra (1982) are worth noting in this
regard in the Indian context. It is also a well known fact
that financial information is extensively used in various kinds
of financial models. There are some important areas where
research is needed in India. Given the lack of a theoretical
base on which to choose a particular accounting ratio from the
vast number of variables, as well as the wide differences in
use to which these ratios are put, an attempt to simplify the
wide number of possible ratio choices to a small number of
basic financial group need to be made.

A popular business practice is that of comparing the
financial ratio of a firm to the industry average to ascertain
its relative financial health. In fact, attempts need to be

made in India to determine whether firms adjust financial ratios
to some industry standards such as the industry mean. Lev (1968)
in the US context, examined the movement of companies financial
ratios across time and attempted to determine whether firms
adjusted financial ratios to the industry mean. He used a
partial adjustment model to estimate the degree of adjustment
of ratios to an industry average. He found evidence that is
consistent with the hypothesis of firm adjustment. His results
also indicated that good predictive results can be expected
from both the lagged financial ratio itself and the lagged indus-
try average. A work of this nature in the Indian context will
prove worthwhile.

CAPITAL BUDGETING

The two most significant financial decisions in practice are:
allocation of funds and raising of funds. In financial litera-
ture, the function of allocation of funds is known as capital
budgeting and raising of funds as financing decision. Capital
budgeting decision process involves consideration of a wide
variety of issues that are fundamental to financial management.
Most of the studies in India, however, relate to the review of
the capital budgeting practices of Indian companies. In this
section, we would examine the findings of the studies by Porwal
(1976), Pandey (1986), Murthy (1965) and Chandra (1975), and a
few others.

Capital budgeting is a process of facilitating decisions
covering expenditure on long-term assets. Since a company's
profitability, nay its survival, hinges on capital expenditures,
particularly the large ones, the importance of capital budget-
ing is pervasive. It is significant to note that in the theo-
retical and empirical literature on capital budgeting, the eva-
luation phase has been accorded the maximum emphasis. Also the
adoption of the discounted cash flow (DCF) techniques has been
advocated. One can think of two reasons for this emphasis on
the evaluation phase: First, this phase is easily amenable for

a structured analysis than other aspects of capital budgeting
process. However, no empirical verification of this contention
exists. In fact, a good capital expenditure planning and control
system would more than just evaluate and select individual
projects. It would, in fact, encompass the entire investment
programme and spending and tie into the firm's long range
planning and corporate strategy.

Pandey (1986) conducted an intensive study with a view to
find out the policies and practices of Indian companies regard-
ing various phases of capital expenditure planning and control,
and to test the opinion of business executives on the need for
linking a corporate strategy and investment decision making.
Fourteen companies participated in the study. They belonged to
different businesses and, in terms of size (i.e. number of emplo-
yees); capital investment (i.e. net tangible fixed assets);
volume of spending (i.e. capital expenditure incurred) and level
of technology, they represented variety. Porwal's (1976) study,
conducted for the year 1969-70, analyzed 52 usable questionnaires
to ascertain the planning, organization, quantitative, qualita-
tive, behavioural and control aspects of the capital expenditure
programmes in large manufacturing limited companies in the private
sector in India. Murthy's study, on the other hand, was confined
to 50 randomly chosen Bombay-based manufacturing companies for
the year 1981.

Pandey's (1986) study observed that the definition and
classification of capital expenditure spending in India is guided
a lot by accounting conventions and tax regulations rather than
sound financial management principles. It was also found that
a very large number of project idea generation is a bottom-up
process. Porwal's (1976) study, on the other hand, had con-
cluded that capital budgeting was a top-down process. Indian
practice coincides with that in USA (Pandey, 1985). A note of
caution may be sounded. The small number of ideas generated at
top may represent a high percentage of investment value, so what
looks to be entirely bottom-up process may not be actually so.

Although a large number of ideas originate at the plant level
in India, the authority to progress and approve investment
proposals and to spend money for approved expenditures is
rigidly concentrated in the hands of a few top management offi-
cials. This phenomenon also prevails in UK and to a large
extent in USA. Indian practice of highly controlled capital
expenditure authorisation at the top has remained unchanged
since 1969-70 when Porwal (1976) conducted his study. Although
the practice of idea origination apparently gives an impression
of a bottom-up process, expenditure authorisation is a top-down
process. Indian studies also indicate that executives lack
clarity in estimating cash flows. In India, as in UK, most
companies choose an arbitrary period for forecasting cash flows.
The majority of the companies have a forecasting period of 5
to 10 years. This may be so because companies in India largely
depend on the government-controlled financial institutions for
financing their projects, and these institutions require 5 to
10 years forecasts of the proposed project's cash flows.

As regards the use of evaluation criteria, Indian practice
almost resembles that of companies in USA and UK. In India,
almost every company used payback with other methods, while
little more than three-fourth used NPV or IRR with other methods.
Despite its alleged theoretical shortcomings, IRR is more popular
than NPV. It is significant to note that, in Pandey's study,
none of the companies used DCF techniques without using pay-
back. Studies by Porwal (1976) and Murthy (1985) also made
the same observations. One significant difference between
Indian and USA practices in regard to evaluation criteria is
that payback still seems to be "primary" method and IRR or
NPV as "secondary" method in India rather than the opposite as
in USA (Pandey, 1985). Indian managers feel that payback is
t e method of communication, and it best protects the recovery of
capital - a scarce commodity in the developing countries.

Analysis of risk is an important aspect of capital budgeting decisions. The four most important contributors of investment risk in India are: selling price, product demand, technological changes and government policies (Pandey, 1986). India is no more a seller's market as competition is intensifying in a large number of products; hence uncertainty of selling price and product demand are being realised as important factors of investment risk. Uncertain government policies, of course, are a continuous source of investment risk in developing countries. Pandey's study found that sensitivity analysis and conservative forecasts are two equally important and widely used methods of handling investment risk in India. Studies in USA and UK indicate that risk adjusted discount rate method is the most popular investment analysis technique. The contrasts in risk evaluation practices in India and USA and UK are sharp and significant. Given the complex nature of risk factors in developing countries, risk evaluation cannot be handled through a single principle such as NPV calculation based on conservative forecasts or risk adjusted discount rate. The managers must know the impact of project profitability of the full range of critical variables. Chandra's (1975) and Porwal's (1976) studies found the use of shorter payback period or higher cut-off rate for handling risk. None of the studies indicated the use of probability distribution in India.

The survey studies in India reveal that managers are becoming aware of the need of cost of capital concept in the investment evaluation. However, they lack scientific understanding of the determination of the cost of capital. Like in India, companies in USA and UK also have a tendency to equate the minimum rate with interest rate or the cost of specific source of finance. The phenomenon of depending on the management judgement for the assessment of cost of capital is also prevalent in both developed and developing countries.

All studies in India indicate that capital rationing is
not a problem for Indian companies, although they do sometimes
face internally imposed capital spending restrictions. Indian
companies do not use any mathematical technique to allocate
resources under capital shortage. Priorities for allocating
limited limited resources are determined by management, based
on need for and usefulness of projects. Qualitative factors
and judgement play a very important role in investment planning
in India. The three most important qualitative factors are:
urgency, strategy and environment. It is also found that it is
a common practice in India to reappraise approved projects; but
the authority to reappraise and take corrective action is gene-
rally centralised.

A finding of great significance in Pandey's study is the
admissions by more than three-fourth of the companies that
strategic considerations are of utmost importance in capital
budgeting decisions. A little less than half of the companies
cited examples where strategic considerations played primary
role in investment decisions. It should be appreciated that in
a developing country like India, business complexities are much
more than any developed countries, and therefore, there is
imminent need for a strategic approach, which in the last decade
has emerged as a systematic and global approach to the problem
of guiding a company in its structural inter-relations with the
environment through its external and internal postures. By this,
one should not get the impression that DCF techniques will be
discarded or de-emphasized if the strategic framework is used
for allocating resources. What is being stressed is that the
strategic framework provides a high-level screening and an
integrating perspective to the whole system of capital expendi-
ture planning and control. Once strategic questions have been
answered, investment proposals may be subjected to DCF evalua-
tion. It is not very difficult to appreciate that a close
linkage between capital expenditures, at least major ones, and

strategic positioning exists which has led some researchers to equate the set of problems companies referred to as capital budgeting is a task for general management rather than financial analysts (Bower, 1972). Some recent empirical work amply support the practitioners' concern for a strategic consideration in capital planning and control (Donaldson, 1984). It is, therefore, a myopia point of view to ignore a strategic dimensions, or to assume that they are separable from the problem of efficient resources allocations addressed by capital budgeting theory.

Based on the Indian experience, the model for a comprehensive capital expenditure planning and control may be summarised as follows (Pandey, 1986): corporate strategy provides the focal point for the firm's long run strategic planning. Capital budgeting system, particularly for large strategic projects, is a determinant in the context of strategic planning, and thus, is a top-down process. Corporate strategy and strategic planning play the most crucial role at the identification and evaluation phases. Operating and administrative capital budgeting decisions can be decided at lower/middle level of management within the overall strategic framework and guidelines from top management. The capital budgeting system at lower/middle level will largely be a bottom-up process. It may be noted that external and internal environment provides a context to the company to establish and review its missions, concerns, a multiple objectives which, in turn, shall be its corporate strategy.

One aspect of capital budgeting which is of importance to the practising managers is the impact of inflation on the viability of investment projects. Ramesh Gupta (1978) in his study, with the help of a case study, showed that the discounted cash flow rate of return measure used in making capital investment decisions is sensitive to price level changes. He argues that three kinds of price level adjustments are necessary

to calculate internal rate of return (IRR) under changing
prices. First, if a specific output price changes occur,
they should be reflected in the cash flows through changes
in the funds revenue. Second, a specific input price changes
should also be incurred in computing cash flows. This adjust-
ment accounts for the impact of price changes on the firm's
operating costs. The third adjustment, which may be necessary
is for general price (purchasing power of rupee) level changes.
This adjustment is made, according to the author, so that the
resulting cash flows may be equated in real value terms with
the initial investment. It is accompanied by dividing the
relevant cash flows for each period by a deflating factor
obtained from the wholesale price index number for that period.
In his case example, Gupta uses different specific price
indices to deflate expenses and revenue items for specific
price changes. The cash flows so arrived at are again declated
for general price level change to compute internal rate of
return. We suspect that the last step will amount to á double
counting.

One can attempt a more serious study of examining the
varying effects of inflation on investments, specifically the
calculation involved in net present value or internal rate of
return. A study by Kim (1979) in the US context, focuses on
this issue. He derived a model to test the inflationary
impact on net operating income. He empirically tested deter-
minants of inter-firm investment under inflation.

VALUATION, COST OF CAPITAL AND CAPITAL STRUCTURE

Raising of funds to finance the firm's investments is another
important function of the financial manager. In practice, it
is observed that financial managers use different combinations
of debt and equity. A practical question therefore is: What
motivate them to do so? More fundamental questions to be
answered are: (1) Does use of debt create value? (2) If so, do
firms gravitage towards an optimum mix of debt and equity?

In theory, it is argued that the financing decision is irrelevant under perfect capital markets. When within the framework of perfect capital markets, taxes and bankruptcy costs are assumed, the financial economists argue that an optimum capital structure, which maximizes the market value of the firm (or minimizes cost of capital), can exist. In the finance literature, two alternate theories are also found justifying the optimum capital structure in the absence of bankruptcy costs and taxes. One theory justifies optimum capital structure in terms of the agency costs while another justifies in terms of the information signalling. The empirical evidence on the capital structure and the cost of capital is as conflicting or inconclusive as theory is. The empirical evidence, however, seems to be somewhat tilted in favour of the view that debt has net tax advantage. What is also clear is that zero debt is not optimum. In practice, firms in USA or India, are found following different financing policies - some aggressive and some conservative. One needs to investigate into the causes of this behaviour.

We would refer to two Indian studies on the relationship between cost of capital and capital structure. Sarma and Rao (1968), following Modigliani and Miller's (MM's) 1966 article, employed a 2 SLS method on the data of 30 Indian engineering firms for three years. In their estimates, the leverage variable had a coefficient greater than the tax rate. Thus, agreeing with the traditional view, they concluded that the cost of capital is affected by debt apart from its tax advantages. Another study was conducted by Pandey (1981). He attempted to determine the empirical relationship between cost of capital and capital structure using data of 4 industries viz. cotton (47), chemicals (32), engineering (32) and electricity generation (20). As it has been concluded by Wippren and Rao (1972), the equivalent risk hypothesis is not valid. Therefore, to account for the heterogeneous characteristics of the sample firms, Pandey in his study, introduced a proxy for risk variable

measured by the coefficient of variation of the net operating
income. Other explanatory variables, expected to influence the
cost of capital and/or leverage, were also incorporated in the
regression equations. These variables were: size, growth, payout,
and liquidity. Two measures of leverages were used. The first
measure included preference capital in debt, while the second
measure treated it as a part of equity. Because of the substi-
tutability of short-term loans for long-term loans in India,
debt included both short-term and long-term debt. When the ave-
rage cost of capital was regressed with leverage holding other
variable constant, the results were found consistent with the
traditional position. In view of the MM's (1963) tax corrected
article, for supporting the traditional view, it should be shown
that the cost of capital would decline with leverage even in the
absence of tax deductibility of interest charges. Therefore,
a modified model was used. The regressions were run for the
pooled data of 3 industries: electricity generation industry was
excluded for the lack of sufficient number of observations. The
coefficients of leverage variables were significant and negative
in sign. The third regression model was used to determine the
empirical relation with leverage and cost of equity. If the MM
view is correct, the cost of equity must increase linearly with
leverage. On the other hand, if the traditional view approxi-
mates the reality, the cost of equity function would be either
horizontal or rise slightly up to some level of leverage. Con-
trary to these views, Pandey in his study explored the possibi-
lity of the cost of equity declining with leverage up to a
certain level. The basis for this possibility is that leverage
could accelerate growth in earnings and if growth in earnings
is higher than the risk, then cost of equity could decline with
leverage. This hypothesis could be established only in the case
of electricity industry. The results of other industries, how-
ever, showed that cost of equity remains constant upto a level of
leverage change. Thus, the results of these models also gene-
rally supported the traditional view. It is observed that the

lack of consistency in the behaviour of equity with leverage
is not entirely unexpected. Firms within the same industry
differ widely with respect to their economic characteristics.
Moreover, risk preferences of investors differ. As a result,
leverage may affect the cost of equity differently.

Some studies have been conducted to ascertain the deter-
minants of financial leverage under the Indian context.
Bhat's (1980) paper concerns the impact of size, growth, busi-
ness risk, dividend policy, profitability, debts service capa-
city and the degree of operating leverage on the leverage ratio
of the firm. The study uses the multiple regression model to
find out the contribution of each characteristic. Business risk
(defined as earnings instability), profitability, dividend pay-
out and debt service capacity were found to be significant
determinants of the leverage ratio. The study used a sample of
62 companies from engineering industry. Pandey's (1984) study
about the corporate managers' attitude towards use of borrowings
in India revealed that the practising managers generally pre-
ferred to borrow instead of using other sources of funds because
of low cost of debt due to the interest tax deductibility and
the complicated procedures for raising the equity capital. In
light of this finding, Pandey (1985) conducted an empirical
study examining the industrial patterns, trend, and volatilities
of leverage and the impact of size, profitability, and growth
on leverage. For this purpose, data of 743 companies in 18
industrial groups for the period 1973-74 to 1980-81 were analyzed.
It was found that about 72 to 80 per cent of the assets of sample
companies were financed by external debt, including current lia-
bilities. Companies employed trade credit as much as bank
borrowings. The level of leverage for all industries showed a
noticeable increase after 1973-74. The study also indicated
that classifying leverage percentages by the type of industry
does not produce any patterns which may be regarded as systematic
and significant. The trends and volatilities associated with the
leverage percentages also did not give any support to the belief

that the type of industry had an impact on the degree of leve-
rage. It was also revealed that there was some evidence of
the tendency of large size companies to concentrate in the
high levels of leverage. But it is difficult to say conclusively
that size has an impact on the degree of leverage since a large
number of small firms were also found employing high levels of
debt. Pandey's study also did not show a definite structural
relationship between the degree of leverage, on the one hand and
profitability and growth on the other hand; although over time
profitability and growth have improved and so has the degree of
leverage. The majority of the profitability and growth groups
of companies were concentrated within narrow bands of leverage.

Chakraborty (1977) has also conducted a study to investi-
gate debt equity ratio in the private corporate sector in India.
After discussing issues concerning the choice of samples and the
manner of computing debt equity ratio, he tested the relation
of debt equity ratio with age, total assets, retained earnings,
profitability and capital intensity. He found that age, retained
earnings and profitability were negatively correlated while total
assets and capital intensity were positively related to debt
equity ratio. He also provided a glimpse of the regional patterns
of debt equity ratio in different industrial centres in India.
He also attempted a prediction equation for debt-equity ratio
for each industry. Chakraborty also used a very simple metho-
dology for calculating cost of capital. He showed calculation
of cost of capital for 22 firms. He found that cost of capital
increased from 7.36 per cent to 12.36 per cent. The average cost
of capital for all the consumer goods industry firms taken to-
gether was the highest while it was lowest for the intermediate
goods firms. One of the reasons for this was attributed to the
relatively low amount of debt used in the former industry than
in the latter. An indirect attempt was also made to test the MM
hypothesis by plotting debt-equity ratios on the X-axis and the
cost of capital on the Y-axis for 22 firms. The result showed

almost a horizontal line parallel to the X-axis. The study has
also discussed environmental factors influencing corporate debt-
equity ratios and cost of capital in India.

Financial institutions are the largest providers of the
long-term loans to the industry in India. They impose an
option of converting loans into equity after two or three years
of the implementation of the projects financed. Srivastava
and Oza (1980) have conducted a study to analyse the financial
institutions experiences with respect to (a) stipulation of con-
vertibility options, and (b) decision criteria used for the
exercise of options and related problems, and suggest alternative
criteria used which can incorporate risk and uncertainty in-
volved in decisions to convert in case of profitable and loss
incurring companies at the time of decision-making. The find-
ings of study are based on case studies of six companies. The
significant finding of the study is that all-India financial
institutions do not gain from conversion on an average. Also,
the stipulation of convertibility clause causes delays in the
actual disbursement of loan assistance. The study has also
made recommendations about the operation of the convertibility
option.

In the area of share valuation, Prasanna Chandra has con-
ducted a study to assess the effect of certain economic factors
on share prices. His methodology included multiple regression
analysis with standard OLS assumptions. To overcome the problem
of heteroscedasticity either variables may be deflated or log-
linear model may be used. Chandra's empirical evidence showed
that log-linear model approach was better than the use of
deflated variables. In examining the determinants of share
prices, Chandra's five independent variables, viz. return (ari-
thmatic average of EPS of last three years and arithmatic ave-
rage of DPS for last two years), growth (growth in EPS, DPS
and based on retained earnings), risk (variability of EPS),
leverage (net worth plus preference plus debenture divided by

net worth, total assets plus the difference between total assets
and net worth divided by total assets, and total assets divided
by net worth - all measures relate to previous period and use
book values) and size (total book value assets in the previous
year and sales in the previous year). Share price was measured
as the arithmatic average of the high and low prices over the
financial year of the company. Chandra found significant
relation between share price and the independent variables.

DIVIDEND POLICY

In case of dividend policy, the following two questions have
generally attracted the attention of academicians: (1) Does
dividend policy affect the firm's value? and (2) If so, does
a firm approach towards some optimum dividend payout? Con-
flicting answers to these questions have been provided in the
literature.

Like in the financing decision, the theory of and empirical
evidence about the dividend policy are conflicting. There are
three contradictory theoretical views. The first view is that
the dividend policy does not matter, if we assume a real world
with perfect capital markets and no taxes. The supply effect
argument is also advanced to conclude that changes in the divi-
dend policy will not affect the firm's value. It is stated
that the low-payout and high-payout clienteles are already
satisfied by the thousands of existing firms; therefore, any
"supply" of dividend will not influence the market value of the
firm. The second theory of dividend policy is that there will
definitely be low- and high-payout clienteles because of the
differential personal taxes. The majority of the holders of this
view also show that on balance, there will be preponderous of
low-payout clientele because of low capital gain taxes. The
third view argues that there does exist an optimum dividend
policy. An optimum policy is justified in terms of the infor-
mation content of dividends or the agency costs.

One important study focusing on the behavioural aspect of dividend policy is by Lintner (1956) in the American context. He investigated a partial adjustment model as he tested the dividend patterns of 28 companies. He concluded that a major portion of the dividend of a firm could be expressed in the following way:

$$D_t^* = rE_t \qquad \qquad \ldots(3)$$

and

$$Dt - D_{t-1} = a + b (D_t^* - D_{t-1}) + _t \qquad \ldots(4)$$

or

$$D_t = a + b D_t^* + D_{t-1} (1-b) + _t \qquad \ldots(5)$$

where D_t^* is firm's desired dividend payment, E_t is earnings, r is targeted payout ratio, a is constant relating to dividend growth, and b is the adjustment factor relating to the previous period's dividend and the new desired level of dividends where b 1.

The implications are that firms establish their dividends in accordance with the level of current earnings and that the changes in dividends over time do not correspond exactly with the changes in earnings in the immediate time period. An alternative explanation to the b coefficient being the average-speed-of-adjustment factor. We can interpret quantity (1-b) as a safety factor that management observes by not increasing the dividend payment to the levels where it cannot be maintained. Together a and b coefficients can be used to test the hypothesis that management is more likely to increase dividend over time rather than cut them; this obviously contrasts with the major premise of the residual theory. Of the 28 companies analyzed by Lintner (1956), 26 appeared to have specific pre-determined values of r, the target payout ratio, and the vast majority update their dividend policies only. While it can be argued that desired level of dividends depends not only on current earnings but also on expected future levels of earnings, the empirical evidence has borne this theory out, see Brittain

(1966) and Fama and Babiak (1968)). However, with the partial adjustment coefficient b being included in the model, we essentially have a proxy of expected earnings; this supports the theoretical development of the partial adjustment model. It may be mentioned that Fama and Babiak (1968) went on to estimating target ratio and the adjustment rate for each company. They found, on an average, firms in USA aimed to distribute nearly half of their net income and to move about a third of the way towards this objective in any one year.

It is Lintner's model which has been the focus of empirical studies in the Indian context. Much work does not exist on other aspects of dividend policy in India. RBI (1971), using Lintner's model, tested dividend and retained earnings of public and private limited companies in India for the period 1955-56 to 1965-66. They used three different definitions of earnings: (a) profit after tax; (b) cash flow; and (c) profit after depreciation. It is observed that Lintner's model is appropriate with net profit significant in 5 industries and cash flow in other 4. Payout ratios differ widely between industries while no clear pattern is observed in the short-run payout ratios, the long-run coefficients in the agriculture-based industries are lower as compared to iron and steel, chemicals and cement. The results of RBI's study are summarized in Tables 3 and 4.

Another study about the dividend behaviour of Indian industries is conducted by Dhameja (1978). His sample included 158 non-government, public limited manufacturing companies listed on various Indian Stock Exchanges. Companies which had data available for the entire period of 1961-72 and which contained no change in accounting year during this period were included in the sample. He tested dividend behaviour of Indian companies by size (total assets and total sales), industry (Bombay Stock Exchange clas-ification), growth (in total assets and earnings per share) and control (as given in monopoly and inquiry report and the Dutt Committee). The variables analyzed by Dhameja are

dividend payout (DP), dividend rate as reported by the companies (DP_r), and dividend rate adjusted for bonus, rights etc. (DR_a). His results indicated that between 1961-72, dividend payout and adjusted dividend rate have shown an increase while reported dividend rate has slightly declined. It is also observed that two-third of the companies distributed dividend in all the years (1961-72), 14 per cent skipped dividends once, while 5 per cent skipped dividend more than five times. The study also found that there was no statistically significant relationship between dividend payout, on the one hand, and industry and size on the other. Growth was inversely related to dividend payout and was found to be significant. As regards adjusted dividend rate, it was significantly directly related to industry growth and mildly to size. Dhameja also applied Lintner's model to the pooled data for the year 1963-72. His main conclusions are: that dividend decisions are better explained by Lintner's model with current profits and lagged dividends as explanatory variable; that due to importance of investments and debt among foreign and group companies or high growth companies, dividend decisions are well explained by Lintner's extended equation; for non-group companies, he does not find any significant contribution to $\bar{R}^2$; change in sales have positive coefficient among foreign companies indicating sources of funds and therefore, points towards the monopolistic position enjoyed by them; group and non-group companies get negative coefficients with regard to change in sales after 1966 indicating liberal credit policy, followed by the block of funds in working capital. High doses of debt had negative influence on dividend policy; and all companies particularly foreign companies distributed their increased profits by enhancing their dividend rates and thus relied on external sources of finance. Had the dividend rate been maintained at 1962 level (which in all cases have been found to be less than 10 per cent), the foreign companies and Indian companies would have relied less on external sources by 25 per cent. The change in depreciation method was found to inflate profits by 39 per cent and to increase debt equity ratio by about

10 per cent. Most of the group companies indicated their inten-
tion to draw out funds as early as possible. The low growth
companies changed their depreciation methods to sack up profits
while high growth companies changed to depreciation methods to
even out the burden of depreciation throughout the life of the
asset. Depreciation was also changed to enable companies to
issue bonus shares and to declare cash dividends.

Another significant study in the area of dividend decisions
is by Krishnamurthy and Sastry (1975). The major question which
they have examined is whether firms in India follow a suitable
dividend policy in the long-run, and whether they alter dividend
policies to suit their investment plans and external financing
situation. Their sample consisted of 360 companies from cotton
textile (165), jute (30), sugar (41), paper (11), chemicals (40),
engineering (62), and cement (11) industries. They have provided
OLS and 2 SLS results by cross-sectional pooled data as well as
time series analysis for 1956-71. The OLS results of the study
indicated that Lintner's model explained dividend behaviour
quite well. Their evidence did not support permanent income
hypothesis of profits in the dividend behaviour. Dividend
decisions were found largely autonomous of investment and external
financing decisions and therefore retained earnings are residual
in character. It was also observed that short-run and long-run
marginal dividend payout ratios for agriculture-based industries
are generally low compared to non-agriculture based industries.
The marginal coefficients were found lower for the traditional
industry. They also found that external financing activity was
determined by internal savings and investment expenditures, fixed
and/or inventory. Inventory investment appeared to have larger
impact on the flow of external finance as compared to fixed in-
vestment. Their results did not suggest inter-dependence of
decisions of investment, dividend and external financing. There
was one way influence of dividends through retained earnings on
investment and external financing.

Their 2 SLS results also arrived more or less at the same conclusion as through OLS. It was found that dividends were determined a la Litner by profits, and dividend decisions were found largely autonomous of investment and external financing policies and hence retained earnings were residual in character. The flow of external finance was found to be affected more by dividend policies than by investment policies. Debt as a constraining factor in the flow of external finance was observed in some industries. Financial variable appeared to be relatively more important than the accelerator in explaining the investment behaviour. Retained earnings were somewhat more important for fixed investment relative to external finance, while external finance appeared to be slightly more important for inventory investment than retained earnings. The complete inter-dependence among all the three decisions, i.e. investment, dividend, and external financing was largely absent. The only exception was jute industry. However, year-wise inter-dependence was observed. The 2 SLS was preferred due to the presence of simultaneously though such estimates are generally not efficient. The results needed to be verified by a system methods of estimation. As regards the time series results, financial variables appeared to be significant in explaining the investment behaviour. External financing was more important than retained earnings. These results were not strongly in favour of Lintner hypothesis. The impact of investment and external financing on dividend policies was generally absent. Retained earnings and investment were found to be determined by external financing while investment policies appeared to influence the flow of external finance more than the dividend policy. As earlier, inter-dependence among the three decisions was generally absent. However, pair-wise inter-dependence was observed between investment and external finance in all the industries. There was some difference between the cross-section and time series results. Authors attributed that to the source of all variation in the two samples, level of aggregation the time period, the data base and specification among others.

Yet another study of interest in the context of dividend policy is L.C. Gupta's (1973) study on bonus shares in India. He studied 496 bonus issues during 1948-71. It was found that bonus shares were issued by companies not necessarily with a view to increasing total dividend distribution. The corporate practice in India showed an extreme degree of diversity in this respect. It was observed that as many as one-third of the companies issuing bonus shares did not increase the total quantum of dividend on the enlarged capital, a significant number of them even reducing the total dividend distribution. Bonus issues occurred at irregular intervals and on widely varying ratios. The higher bonus ratios have been found more often among companies paying hig dividend rates. It is revealing that great majority of the bonus issues in India were in relatively high ratio of 20 per cent and above, which is in significant contrast to the American practice of generally paying 2-5 per cent 'stock dividend'. Gupta also tested the impact of bonus issues on the share price. It was found that the speculative price rise which occurred immediately after bonus announcement was frequently based not so much on a realistic appraisal of the fundamental factors governing profit and dividend as on rumours and psychology. The price rise at the end of one year from bonus announcement was less universal than the price rise in the period immediately after such announcement. The market seemed to place exaggerated significance on bonus ratios, whereas the immediate price rise idirectly related to bonus ratios, the price changes after one year showed no such relationship. The author concluded that the dramatic price adjustment that took place from the level immediately after bonus announcement suggested that the immediate price rise was haphazard and not sufficiently discriminating, being carried out too far in some cases and too little in others.

In India fiscal policy significantly affect the investment and financing decisions of the companies. Srinivas— (1980) has

attempted to study the impact of two fiscal incentives - development rebate and backward area capital subsidy - on corporate financial decisions. He has used data of three industries - electric equipment and cables, chemicals and pharmaceuticals - for the period 1968 to 1973 for analysis. His findings were: (i) Development rebate had significant impact on investment and borrowing decisions only in the pharmaceutical industry. (ii) Development rebate had significant negative effect on dividend in the chemical industry in the early years. In the electric industry, the impact was found in later years. (iii) The interaction between investment, borrowing and dividend decisions were established only in the case of chemical industry. (iv) The impact of development rebate extends over a period of time and hence evaluation has to be made on the basis of total impact of development rebate over a period of time. (v) Backward area subsidy did not seem to have had any impact on projects selection especially for those which were financed by financial institutions.

STOCK MARKETS: BEHAVIOUR, RATES OF RETURN AND EFFICIENCY

Stock markets are emerging as vital economic institutions in developing countries. Their importance is growing because of two major functions that they perform. First, in an era of capital scarcity, they are a vehicle to the transfer of private savings into business investment. In India, for example, the value of companies issuing shares may account for close to two-third of the value of all the companies. Second, the changing share prices are indicative of the evolving profitability of business and significantly help investors to allocate resources better. Again in India, the share prices index is growing at 30 to 40 per cent annually recently and offering returns far existing prevailing interest rates. In fact, the growing importance of the stock market in India is reflected in the institutional structure that the market has already developed. The stock market in India operates through recognized stock exchanges that are located in 8 cities. Over 2000 shares, comprising about a quarter of all share issuing firms, are listed on these exchanges.

Stock markets can serve their economic role well only when investors have faith that the prices on the stock exchanges are correct and that they are getting their money's worth. Two misgivings are generally cited in this regard in India. First, information about shares is concentrated in the hands of a limited group and that it percolates slightly through the market. Second, despite growth, the existing size of the market is a small (thin) so that both share price manipulation or over-reaction can cause excessive price movements. Such concern is easy to understand if one looks at the volatility of stock prices in India.

The efficient stock market is one for which information is processed properly and securities such as shares and debentures are correctly priced. Thus, in western countries research has been designed to test stock market efficiency at three levels. These are known as weak form, semi-strong form and the strong form of efficiency. In each case, the question is the same, namely, whether the stock prices reflect a particular piece of information correctly and in a timely fashion; however, the nature of the information has been different. In the weak form, the barest of information - past share prices - comprise the information set. This simply means that investors in pricing shares today should have taken into account the past prices of those shares. In the semi-strong form, the information set comprises of publicly available information. An example of this may be whether share prices incorporate announcements made by firms. The strong-form comprises of ascertainable information including information privy to managers.

Researchers have generally claimed that stock markets in developing countries are not as efficient as in the US. This is a matter of grave concern because it could affect the potential for taping local capital for economic development. Consequently, the extent of market efficiency in such developed countries has been the subject of numerous studies. However, due to data problems, attention has been mostly restricted to tests of the weak-form.

A number of authors have tested stock market efficiency in
India in its weak-form. The weak-form of efficiency is popu-
larly known as Random Walk Hypothesis.(RWH). In its simplest
form, RWH states that price changes cannot be predicted from
earlier changes in any meaningful manner. The basic idea under-
lying RWH is that the successive price changes in an individual
security are independent over time and that its actual price
fluctuates randomly about its intrinsic or theoretical value.
Since RWH is aimed at testing independence of successive price
changes, serial correlation tests are particularly appropriate.
Researchers have also used runs tests, spectral analysis and
filter rules to test RWH. In India, Barua (1980) used daily
closing prices of 20 securities (without indicating the selec-
tion procedure) and the Economic Times price index during the
time period of July 1977 to June 1979 to test the randomness
of the stock market. His auto-correlation results computed with
1 to 8 period lags, revealed 17 securities are significant at 5 per
cent level while 11 out of 17 significant at a lag of 1 or 2 days.
When runs test was performed, only 1 security and the market index
showed non-random behaviour at 5 per cent significant level.
The market index was found to be non-random possibly because of
aggregation problem. It was also observed that price changes
distribution was not normal. A more comprehensive study of the
RWH has been conducted by Gupta (1985) using serial correlations
and runs tests. He has used two samples: the first sample con-
sisting of the Economic Times (ET) Index Number of Ordinary
Share Prices compiled on daily basis and the Financial Express
(FE) Series of Index Number of Equity Prices, both daily series
and weekly series. Second sample consisted of 39 equity shares.
The period covered is January 1971 to March 1976. Gupta has
provided a detailed account of the appropriateness (or otherwise)
of samples chosen by him. Since government had enacted Companies
(Temporary Restrictions on Dividend) Act, 1974, which had created
a kind of abnormal situation in the stock markets, Gupta has per-
formed his tests separately for "post-dividend restrictions"

period and "pre-dividend restriction" period. His findings revealed that the RWH is not upheld for both ET and FE daily industries indices in terms of both the serial correlation analysis and runs tests. This holds for both the periods. The analysis of ET data carried out at the industry level generally supports the random walk model for both the periods. However, in terms of both the tests and for both the periods, a few of the series failed the tests of randomness. In general, empirical results of both serial correlations and runs tests pertaining to FE weekly industry-wise indices support the random walk model for both the periods. Although some non-randomness is exhibited, the degree of dependence did not seem to be strong enough for the stock market traders to take abnormal profits. In case of indi-vidual share prices, the empirical evidence produced by both the serial correlation and runs analysis strongly supported the RWH. 39 individual share price series were found to be random in terms of both the tests. As in case of Barua's study, Gupta also attributes the non-performance of the random tests in case of index numbers to the aggregation. The formation of indices seems to have largely eaten up randomness and in effect produced sys-tematic element owing to the averaging effect.

In their study, Rao and Mukherji (1971) had used spectral analysis on weekly prices of Indian Aluminium Company share during 1950-70. They did not find any evidence contrary to the RWH. In yet another study, Ray (1976) employed the serial corre-lation tests, runs tests as well as spectral analysis to examine the behaviour of 7 daily series of index numbers of stock prices quoted at the Bombay Stock Exchange. Two of the 7 series tested were found to obey RWH while the remaining did not. However, the dependence in the remaining five series was not very strong. In another study, Sarma and Kennedy (1977) examined monthly indices of Bombay, New York and London Stock Exchanges during 1963-73, by means of runs tests and spectral analysis. They found the behaviour of Bombay variable dividend industrial share price index undistinguishable from that of the London financial

time and S&P (425. The observed and accepted number of runs reported by them were close to one another. Also, the actual and expected distribution of runs by length were found to be extremely similar to all the indices. Randomness of these indices were also confirmed by spectral densities.

In his study, Ramachandran (1985) has attempted to test efficiency of the Indian stock market in its weak and semi-strong forms. The period of the study was 6 year starting from January 1976 and ending with December 1981. He has not provided any explanation of the basis for selection of securities and the state of stock market during the period of his study. The weak-form of market was tested for statistical independence of success ive price changes and by filter rules tests. His results generally indicated market to be efficient in the weak form.

There has not been any serious empirical work of significant nature about the semi-strong form of market efficiency in India. In testing the semi-strong form of market efficiency, the impact of such public information of announcement of bonus shares or stock splits could be studied. One could test the reaction in share prices to such information and determine whether it was justifiable in a well functioning stock market. The statistical procedure generally applied is to judge whether the reaction of bonus shares or stock split announcements was a normal fluctuation, or a significant over-reaction. The performance measure (or residual) is:

$$e_{i,t} = r_{i,t} - \hat{a} + \hat{b} \; r_{m,t} \qquad \qquad \dots (6)$$

where $r_{i,t}$ is rate of return of stock i in month t, $r_{m,t}$ is rate of return to a market index in month t, and $\hat{a}$ and $\hat{b}$ are market model parameters for the firm. The market index is defined as the average of the rates of return on the individual shares. Next, for any given month, relative to t=0 (the period of bonus shares or split announcement), the abnormal performance is:

$$AP_t = \prod_{-6}^{t} \frac{1}{N} \sum_{1}^{N} (1 + e_{i,t}); \quad t = -6, \dots +6 \qquad \dots (7)$$

A plot of abnormal performance against time is indicative of adjustment to the flow of information.

Ramachandran (1985) examined the semi-strong form of market efficiency in India by analysing the impact of announcement of the bonus share issues by corporate management on the price of equity shares of these companies. Forty bonus shares issues declared during January 1976 to December 1981 were included in the sample. The market model was used to isolate the systematic influence on the behaviour of security returns. His results indicated that market tended to carry over the new information made available with other information on its disposal.

A significant area of research in the context of stock market is the measurement of rates of return on securities. Three studies exist on the rates of return performance of shares in India. The most detailed and comprehensive study is by L.C.Gupta (1983). He has computed both portfolio rates of return as well as individual share rates of return using a sample of 606 companies covering a period of 16 years, from 1960 to 1976. For computing the rates of return for different holding periods as many as 36 sub-periods are used. The companies covered in his study amount to 70 per cent of the amount of quoted equity capital. However, the composition of his sample is somewhat over weighted with the large sized companies. His method of computing rates of return is essentially the internal rate of return technique as given below:

$$P_o = \frac{D_1}{(1+r)} + \frac{D_2}{(1+r)^2} + \ldots + \frac{D_n}{(1+r)^n} + \frac{P_n}{(1+r)^n} \qquad \ldots(8$$

where P_o is the acquisition cost, D_t is cash dividend in t, P_n is terminal price and r is the internal rate of return.

Gupta (1983) used three alternative systems of weighing the individual shares in calculating the portfolio rates of returns: (a) equal weights, (b) weights proportionate to paid up equity capital, (c) average holding period and weights proportionate to the total market value of each company's equity averag

over the holding period. His portfolio rates of return for
the various holding periods assuming weights proportionate to the
paid up equity capital are summarised in Table 10.[5] It may be
observed that the longest holding period (16 years span, 1960-76)
related to 397 companies. The number of companies is large for
the shorter holding periods. The most significant findings of
Gupta's study are summarised below: (1) The mean value of rates
of return on the portfolio of shares declined moderately, but
unmistakably as the holding period length is increased all the
way from one year to 16 years: at the one end, the one year
holding periods show a main return of 10.11 per cent per annum,
while at the other end, the 16 year holding period shows a return
of 5.58 per cent per annum. The uncertainty surroundings of the
rate of return diminishes significantly when the duration of the
holding period is lengthened. (2) The investors time horizon
crucially influences the degree of market risk faced by him.
If the time horizon is fairly long, the cyclical and irregular
share market fluctuations tend to even out, and hence the varia-
bility of return between one period and another is less. (3) The
market risk facing an investor holding an equity portfolio is
considerable even for holding periods as long as 10 years. (4)
For investors with shorter time horizons, such as 5 years, an
investment in equities will be regarded as highly speculative
with real possibility of even negative returns. (5) A signi-
ficant feature of the distribution of individual share returns
was that in at least one-fifth of the companies, the equity
holders return was negative, whatever the holding period. Only
a smaller proportion of individual shares for 5 year and longer
holdings did really well, giving an annual overall return of at
least 15 per cent. Another one between 30 to 40 per cent of them
did moderately well, giving a 6 to 15 per cent return. In case
of the remaining companies which formed well over one-third of
the total number analyzed for most periods, the equity share-
holders overall return could not be regarded as satisfactory.

In every period examined, at least one-fifth of the companies
gave negative returns to their equity holders. (6) The high
dispersion of individual share returns, even for very long
periods, with a sizeable proportion of shares giving too low
and overall rate of return was revealing. It implies that
equities market function largely on a hit or miss basis, because
investors are unable to form reasonably correct estimates of
the expected returns. Equity markets ability to allocate the
available funds efficiently among individual firms also comes under
doubt for the same reason. (7) In all the periods significant
capital gains, if any, say, atleast 3 per cent per annum occurred
only 10 to 15 per cent of equities analysed. Capital losses
were far more rampant in every holding period. (8) The wide-
spread belief that investment in equities provides at least a
partial hedge against the inflation has proved totally unfounded
under Indian context. (9) The estimate of long-term equity rates
of return has almost always been out of alignment with the other
capital market rates in India. While the relationships among all
other rates are in confirmity with the theory of market risk
premiums, the overall equity returns sounded a discordant role.
The equity returns remained below those on debentures, prefer-
ence shares, company deposits and even on long-term bank depo-
sits. (10) There is serious doubt whether the return-risk relation-
ship envisaged by the capital asset pricing theory is normally
operative in practice over the greater part of the equities
market.

Yalawar (1985) has computed rates of return using a sample
of 122 common stocks listed and traded actively on the Bombay
Stock Exchange for a period extending from January 19, 1963 to
December 19, 1982. For the purpose of his study, he has taken
monthly closing transactions prices data. As against Gupta's
internal rate of return approach, Yalawar has defined rates of
return in terms of geometric mean. His rate of return computa-
tion were not adjusted for cash dividend. However, as he found
RBI's variable dividend yield mean being 5.5 per cent with a

standard deviation of .71 per cent, 5.5 per cent was taken as
dividend component of the equity rates of return. Yalawar
calculated both nominal and real rates of return. A number of
his findings are similar to that of Gupta's (1983). Unlike
Gupta's findings, the investment returns on common stocks were
found to be high and consistent with the theory of market risk
premiums on long-term securities. The return risk relation-
ship as envisaged by the CAPM was found operative over a greater
part of active equities market in India. However, further re-
search is warranted to examine whether or not there exist
material gains from applying some form of a multi-factor model
to explain the security returns in India. Yalawar also found
that active common stocks are a good hedge a ainst inflation.

Yalawar's findings also revealed that Bombay Stock Exchange
was efficient in the weak form as he found the behaviour of
stock prices to be random. There existed already some evidence
supporting the random behaviour of stock prices in India.

Gujarathi's (1983) study relates to the examination of the
return performance of new issues of equity shares in 1970s. The
performance, measured by risk adjusted returns, was studied for
the short-run (from the data of closure of subscription list to
the data of first market quotation) as also for the long-run
(upto 60 months after the first market is established). The
results of examination of initial performance showed extra normal
positive performance. It is also observed that FERA issues did
not yield highest returns as popularly believed. In fact, they
yielded lowest returns. This is attributable to the very high
over subscription which considerably reduced the chances of
allotment. It was also found that "premium issues" were not more
profitable for investors in comparison with common premium
issues. This is again because of a scramble for these issues
by investors. It was revealed that late quotation does not nece-
ssarily mean lower quotation and there was no relationship bet-
ween who underwrites the issue and the response by public to the
issue. It is worth purchasing issues in the initial stage because

they contribute to yield extra normal positive returns till the
end of one month from the date of first quotation. It may be
noted that for making computations, the study had used CAPM
framework, which is yet to be conclusively verified in the Indian
context.

FINANCE FUNCTION IN STRATEGIC FRAMEWORK

The theory of finance has undergone fundamental changes over the
past three decades or so. Finance is no more a descriptive disci-
pline; it is now viewed as a specialized branch of applied micro-
economics, and the emphasis now is on the development of formal
models, using sophisticated mathematical and econometric tools.
In the opinion of a number of researchers, this approach has
created a gulf between theory and practice. Carter (1981), for
example, states:

> "Finance has moved much more toward applied economic
> theory, leaving the management science model builders
> to other things. The finance-cum-economic theorists,
> in turn, have allegiances in many areas, but typically
> to "pure" economic and not management. Recent MBA
> graduates, filled with an image of the market as per-
> fectly efficient, are not likely to fair well when
> facing the experienced line manager, regardless of
> the intellectual justification supporting their
> position."

Similar concerns have been shown by Gordon (1981), McInnes
and Carleton (1982), Pinches (1982), and many others. Recently,
it is also felt that the finance theory is not complete and
meaningful without its linkage with the strategic management
(Derkindern and Crum (1981)), Duhaime and Thomas (1983),
Pandey (1985). We take the perspective that strategy is an
integrating mechanism, and that the corporate finance policy
should be developed in the context of the strategic decision-
making framework. It is generally, agreed now that strategy is
a central theme which establishes an effective and efficient match

between a firm's competence and the opportunities and risks created by environmental changes. It is a link between the goals and objectives pursued by the firm and the plans and policies used by it to guide its operations.

The crucial assumption on which the finance theory is founded is that capital markets are efficient and competitive. As explained in the earlier sections of this paper, efficient capital markets imply that they are well functioning and securities are fairly priced. The significant implications for the corporate finance policy are: (a) owners have the primary interest in the firm, and therefore, the sole objective of the firm should be to maximise shareholders' wealth; (b) the current market value of the share is the measure of the shareholders' wealth; (c) the firm should accept only those investments which generate positive NPVs and thus, increase the current value of the firm's share; (d) the firm's capital structure and dividend decisions are irrelevant, as they are solely guided by perfect capital markets and management has no control over them; and (e) NPVs of the individual projects simply add; therefore, the firm's diversification policy is not desirable.

It is noteworthy that unlike the finance theory, strategic management framework considers diversification as a major corporate strategy. Does diversification improve the firm's profitability and growth and reduce risk? P.P. George (1985) has attempted to answer these questions in the Indian context. His study aimed to answer the following questions: (i) Do diversified companies outperform non-diversified companies? (ii) Do the performances differ among the different types of diversification strategies? (iii) Is there any optimum strategy for diversification? For the purpose of empirical investigation, George categorises sample companies into four strategic groups: (1) related diversifiers, (2) dominant-unrelated diversifiers, (3) restricted-unrelated diversifiers, and (4) unrestricted unrelated diversifiers. A sample of 68 large Indian companies in the manufacturing sector was used. The main findings of George's study were: (i) diversi-

fication was useful for improving profitability, growth,
and capital market performance and reducing risk, (ii) related
diversifiers performed better than the unrelated diversifiers,
and (iii) unrestricted unrelated diversifiers turned out to be
the worst performers while the dominant unrelated group was
found as the best performers.

It is well known that product and labour markets are im-
perfect. Empirical studies also do not universally and con-
clusively support the efficient capital market hypothesis. A
number of them are based, particularly the Indian studies, on
small data-base. In fact, the financial economists do recognize
market imperfections such as transaction costs, bankruptcy
costs, taxes, information gap, agency costs, signalling effects
and many other imperfections. However, as Gordon (1981) puts
it, each of those imperfections is looked at within the context
of theoretical system in which markets are otherwise perfectly
competitive. The narrow concern of the finance theory is to
analyze the extent of the impact of imperfections on the finan-
cial decisions in otherwise well functioning capital markets.
Strategic management disputes this narrow focus. It considers
all markets, including product, labour, and capital as imperfect
and changing. Strategies are developed to manage the business
firm in the uncertain and imperfect market conditions and en-
vironment. It is an important management task to analyze chang-
ing market conditions and environment to make forecasts and plan
generation and allocation of resources.

Shareholders are not the only interest group in the firm
even if it is not disputed that capital markets are efficient.
These are many other constituents such as lenders, employees,
customers, suppliers, competitors, government, and society. It
may be realised that in a country such as India, it is difficult
to ignore the interests of employees and government. Management
in practice, therefore, may develop goals and strategies which
are consistent with the interests of various constituencies and

integrate their actions. Suppliers, competitors, and customers
together determine the product-market domain of the firm which
broadly defines the economic environment within which the firm
operates. The firm should have a sustained viability to surviv-
ing in the product-market environment which will be continuously
threatened by competitors. The firm thus, will be able to meet
the needs of its constituents only when it maintains as well
as improves its product-market positions. Such considerations
have important implications for corporate goals and financial
resource commitment and this will significantly shape the firm's
financial policies which may go beyond the shareholders' wealth
maximisation principle.

Employees (human capital), making the firm's organization,
constituted other important interest groups in the firm. Their
loyalty, tenure, efficiency and skills will have to be developed
and sustained through corporate objectives. Firm's profitability
and survival are important objectives for them. Top managers
themselves are a part of the organisation and human capital.
Survival, independence, flexibility and self-sufficiency are
important considerations for them. Government and society also
have important influences on the firms. It is difficult to think
of the successful operations of a firm if it completely ignores
the objectives and goals, should also reflect their interests.
The shareholders' wealth maximisation objective may not nece-
ssarily take care of their interests.

Traditionally, lenders and shareholders have considerable
influences in shaping the objectives and strategies of the firm.
It should, however, be emphasised that the management's sole
responsibility is not simply to create wealth for owners. Manage-
ment has to establish a proper balance between the interests and
objectives of all constituencies of the firm. Contrary to the
wealth maximising focus in the finance theory, strategic manage-
ment is multi-directed; it optimises the vector of objectives
for attaining the firm's legistimation. Since management is
motivated by its concern for survival, desire for indepdence,

flexibility and self-sufficiency, the focus of strategic manage-
ment is on growth, profitability, and flow of funds rather than
on the organisation of the market value of share. This focus
helps management to create enough corporate wealth, which should
be distinguished from shareholders' wealth, to achieve market
dominance which would in turn, result in profitability, flow of
funds, flexibility and independence and therefore, the ultimate
successful survival of the firm.

The finance theory, with its obsession with the wealth maxi-
misation principle, fails to incorporate strategic considerations
for the firm's resources allocation and resource generation. It
either ignores or implicitly assumes that those strategies which
shape the direction of an organisation's critical resources
towards opportunities created or to be created in a changing en-
vironment have been made. It will prove dysfunctional to develop
the firm's financial policy without matching it with the cor-
porate strategy. The important question which researcher should
attend to is: What framework should be developed to fit finan-
cial policies into the overall strategic decision making process?

What has been argued in this section has two important impli-
cations: First, it is hoped that inter-disciplinary interaction
which is urgently needed to bridge the gap between the finance
theory and strategic management (Myers, 1984) will be encouraged.
We may quote views of Jemison as quoted by Bettis (1983) are
worth noting:

> "Strategic management has reached where integrative
> research approaches are necessary for continued pro-
> gress in the field. Early research emanated from a
> variety of research streams, each employing different
> paradigms, units of analysis, casual presumptions and
> research biases. This research has provided valuable
> insights into the problems of general managers from
> various perspective, but the lack of integration
> among research streams may ultimately retire the
> growth of strategic management."

Second, if our concern about the narrowness of the finance
theory and the need to incorporate it with the strategic deci-
sion making process is valid, serious thoughts should be given
by the academicians to the current way of teaching finance courses.
The advanced finance courses should be taught in the perspective
of strategic management and clearly highlight the strengths and
limitations of the finance theory in meeting the practical needs
of business firms. The dilemma which the finance students face,
as a consequence of the present teaching of the finance theory,
has been aptly summarised by Gordon (1981):

> "The great gulf between theory and practice (of finance)
> is clearly and painfully illustrated by the textbooks
> of finance. In most elementary textbooks, the chapter
> on capital structure has a section stating that capital
> structure is of no consequence, and another section stat-
> ing that it is a matter of greater consequence. The same
> is true of the chapter on dividend policy, and the
> chapters on investment contain great contradictions.
> Instead of reconciling these contradictions, advanced
> texts derive with great rigor and some fan-fare athe
> propositions that follow from perfectly capital mar-
> ket. The results are that students leave the elemen-
> tary course confused, and students with advanced work
> in the theory of finance enter into industry convinced
> that their superiors are stupid or their ideas are
> obsolete. Fortunately, their superiors are patients in
> the knowledge that few years of experience will per-
> suade them to abandon their neo-classical theory."

We hope this orientation will be possible if the researchers in
India focus their attention on the special conditions and situa-
tions being faced by the Indian firms for relating the strategic
analysis with financial planning. Mere replication of the work
done in advanced countries will not help the Indian practice
much.

CONCLUDING REMARKS

This review paper has attempted to highlight the trends in financial management research in India, with particular focus on research methodologies used. Hopefully, we have been able to show how methodologies, such as factor analysis, multiple discriminant analysis, regression analysis, control theory, etc. have been applied to financial data by the Indian researchers for useful financial analysis.

Some of the possible topics for empirical research in India in future are: (1) Accounting information: analysis of earnings behaviour; estimation of risk using accounting data; testing the impact of accounting information on capital market; identification of useful ratios in decision-making; (2) Capital Budgeting: process of managing large capital projects with particular emphasis on complexity and uncertainty of environment; analysis of behavioural, organizational or political issues underlying capital investment decisions; identification of right-type of capital projects; problem of cost overruns; linkage between strategic management and capital expenditure planning and control; (3) Capital structure and financing: influence of regulatory environment of the firms' capital structure decisions; framework for designing capital structure in practice; testing the utility of the cost of capital models for Indian companies; estimation of cost of capital for industries and individual companies; financing innovations and their

implications for financing decisions; (4) Capital market:
testing the efficiency of capital market in India; appli-
cability of the capital asset pricing model in India; the
institutional influence on capital market; development of
mutual funds and their impact on the Indian capital markets;
(5) Strategic finance: use of sophisticated techniques,
such as programming approach, simultaneous-equation approach
and econometric model in financial analysis and planning;
framework for integrating strategic analysis and financial
policy; case research showing the role of financial policy
as subordinate to strategic management etc.

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Table 1 : Comparison of Percentage Classi-
fication Error or Five Profitability
Ratios: Gupta's Study

Year	EBIT/ Sales	OCF/ Sales	EBDIT/ (Assets + Acc.Dep.)	OCF/ (Assets + Acc.Dep.)	EBDIT/ (Int.+ .25 Debt.)
1962	10.5	13.2	15.8	13.2	10.5
1963	10.8	10.8	13.5	13.5	13.5
1964	7.9	7.9	10.5	10.5	13.2
1965	5.4	2.7	2.7	5.4	2.7
1966	5.6	0.0	2.8	0.0	0.0

Table 2 : Percentage Classification Error in
Predicting Failure/Bankruptcies:
Comparison of Various Studies

Year prior to failure/ bankruptcy	Beaver's best ratio (cash flow/ total debt)	Altman's discrimi- nant fun- ction	Srivastava & Yadav's discriminant function	Srivastava & Yadav's best ratio (CF/TTA)	Gupta's EBIT/ Sales ratio
1	13	5	5	10	10.5
2	21	28	13	16	10.8
3	23	52	14	19	7.9
4	24	71	18	23	5.4
5	22	64	21	28	5.6

**Table 3 : Results of RBI's Study of Dividend:
Lintner's Partial Adjustment Model**

<u>All Public Ltd. Companies</u>:

L   : $D_t = 7.63 + 0.41P_t + 0.30D_{t-1}$

CF   : $D_t = 17.17 + 0.24C_t + 0.12D_{t-1}$

            $\bar{R}^2 = .99$

<u>All Private Ltd. Companies</u>:

L   : $D_t = 6.86 + 0.31P + 0.33D_{t-1}$

            $\bar{R}^2 \quad .89$

CF   : $D_t = 5.99 + 0.15C_t + 0.50D_{t-1}$

            $\bar{R}^2 = .84$

**Table 4 : RBI Study: Propensities to Pay
Dividend After Tax for Selected
Industries: Lintner's Model**

	Short-term marginal propensity	Long-term Dividend pay-out (target)
Coal mining	0.0966	0.1669
Sugar	0.1628	0.3618
Cotton textile	0.1611	0.3751
Iron & Steel	0.1471	0.5017
Chemical	0.5623	0.6106
Cement	0.1866	0.5300
Paper and paper board	0.1558	0.4058
Electricity generation	0.5331	0.3524

Table 5 : Portfolio Rates of Return (percentage
per annum) on Equities for Various
Holding Periods: L.C. Gupta's Study

Holding period length	Number of measure-ments taken	Mean Rates of Return	Extreme Value		Stand-ard De-viation	Coeffici-ent of variation
			Maximum	Minimum		
1-year	16	10.11	30.73	-4.58	9.17	.91
5-year	12	8.10	15.38	2.62	4.40	.54
10-year	7	7.89	10.32	5.07	1.60	.20
15-year	1	6.56	-	-	-	-
16-year	1	5.58	-	-	-	-

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