

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Conference on Research in Business Finance

Volume Author/Editor: Universities-National Bureau Committee for
Economic Research

Volume Publisher: NBER

Volume ISBN: 0-87014-194-5

Volume URL: <http://www.nber.org/books/univ52-1>

Publication Date: 1952

Chapter Title: Summary and Appraisal

Chapter Author: Irwin Friend

Chapter URL: <http://www.nber.org/chapters/c4792>

Chapter pages in book: (p. 317 - 334)

SUMMARY AND APPRAISAL

IRWIN FRIEND

Department of Commerce

This conference reflects some of the more notable shifts in emphasis in the study of business finance, from a description of financial structures and standards to an analysis of their rationale, and from the viewpoint of entrepreneurs and investors to that of the economy as a whole. Particular attention has been paid to the role of business finance in facilitating the flow of investment, presumably in a manner best designed to foster economic growth and stability. The broad economic implications of practically all the important aspects of business finance have been touched on, though admittedly not resolved, including the relation of internal financing to the problem of allocation of resources, and the relation of debt financing to cyclical stability.

Though the conference has produced a number of valuable papers, it seems to me to highlight the absence of reliable data and satisfactory theory in this field. As indicated by some of the contributors, recent progress has been noteworthy; but it has also been slow. It is interesting that a high proportion of the discussion in these papers is devoted to objectives of research and a recommended program of future work rather than to present accomplishment.

I had originally intended to confine most of my comments to suggestions for further research, but I find that this area has to a considerable extent been dealt with. I shall therefore concentrate my attention on summarizing, occasionally taking issue with, and supplementing on a selective basis, some of the substantive material presented at this conference, attempting not to duplicate the remarks made by the discussants of the individual papers. In the process, I hope to underline briefly some of the needs for new data and additional studies.

HISTORICAL SOURCES AND USES OF FUNDS,
BY MAJOR INDUSTRY GROUPS

The first paper, by Loughlin F. McHugh, represents a progress report of work on sources and uses of funds of business corporations from 1926 to date which was initiated at the Department of Commerce more than two years ago, together with a presentation of some tentative results. Data for the postwar period were completed in 1948 and have been published regularly since that time. Work on the prewar estimates, however, has been intermittent and progress quite slow. It is hoped that they will be completed in the forthcoming year.

The principal bodies of information which are being utilized in estimating the historical sources and uses of funds include Bureau of Internal Revenue *Statistics of Income* data, adjusted for varying coverage, industry shifts, changes in degree of consolidation, and known peculiarities of reporting; Department of Commerce national income and product statistics; Securities and Exchange Commission and Commerce plant and equipment expenditure data; Federal Reserve Board plant and equipment expenditures data; SEC, Federal Trade Commission and FRB corporate balance sheet and profit and loss data; SEC net issue data; *Chronicle* net issue data (adjusted); banking and other financial data; special studies of government and private research agencies, such as the National Bureau of Economic Research; and sample company reports. *Statistics of Income* data alone are, of course, not adequate even for the period they cover, since the fixed asset and securities figures are greatly affected by revaluation and since many of the desired breakdowns of other items are not available.

In tracing the flow of funds received and disbursed by business concerns, the sources of funds should be equal to their uses. There are, however, several reasons for discrepancies in these over-all estimates of the sources and uses of funds, totally apart from errors in estimation. First of all, the money received by corporations — largely from unincorporated business — representing an excess of sales over purchases of used plant and equipment is not reflected in these statistics. Second, transactions in securities held as permanent investments, i.e., as noncurrent assets, are not covered except where there is a public offering. Third, net new issues, i.e., new security issues less retirements, do not include entrepreneurial capital used in setting up new corporations where there is no offering or sale of securities to the public or to institutions. The liquidation of such corporations similarly is not reflected.

These deficiencies, it should be noted, do not appear to be particularly significant in the postwar years, though for the prewar period they are more troublesome. In the late twenties, for example, transactions by corpora-

tions in securities held as "permanent" investments were quite substantial. Moreover, prior to 1933, the SEC data on net security issues — new issues less retirements — did not exist. In the prewar years generally, estimated uses of funds are somewhat larger than estimated sources, a fact which may reflect the systematic errors previously noted, or else imply either an understatement of retained profits or an underestimation of net issues. In the postwar period the discrepancies are quite small, especially in the two years for which complete *Statistics of Income* data are available.

It should be pointed out that one of the most bothersome items in the current series on sources and uses of funds lies in the estimates of net issues obtained from the SEC, though the latter are much better than anything else available in the field. While (as will be discussed in some detail in a forthcoming monograph¹) there does not appear to be any substantial error in the current estimates of total net issues, a downward bias is apparent in the estimates both of new issues and retirements. There seems to be an upward bias in the estimates of net bond issues, and a downward bias in the estimate of net stock issues.

If the data on net issues were expanded conceptually to include entrepreneurial capital flowing into and out of corporations where no public offering is involved, the present SEC figures would probably prove to be somewhat too low, on the average, in prosperous years, while the reverse is most likely true in depressed periods. Shifts in legal status introduce a special problem; conceptually these could also be reflected in net issues, though it seems to me that it might be preferable if data were available to handle them separately as capital transfers. It may be noted in this connection that the relationship of corporate to individual tax rates has an effect on the direction of the bias in estimating the flow of capital into or out of the corporate sphere. Thus, with the imposition of the corporate excess profits tax in the early part of World War II many closely held corporations switched to a noncorporate status, while a reverse movement took place after the war, with the disappearance of this particular tax.

It should be emphasized that there is no satisfactory figure of census or universe proportions available either for new issues or retirements. It would be relatively simple and highly desirable to obtain the necessary information by appending an appropriate schedule to the federal corporate income tax form. In lieu of such a procedure, reasonably satisfactory data of this nature may eventually be obtained on a sample basis through the joint Federal Trade Commission-Securities and Exchange Commission financial reporting program.

¹ *The Volume and Composition of Individuals' Saving*, by Irwin Friend with the assistance of Vito Natrella.

For the period prior to 1926, when *Statistics of Income* data and many of the other sources of information were not available, it becomes progressively more difficult if not impossible to piece together a complete sources and uses of funds account for the entire corporate economy. However, as Sidney Alexander indicated, it is possible from data for a sample of corporations and other scattered financial materials to draw some significant conclusions about trends in the financing of capital requirements in the 1900-1926 period. One observation that may be worth adding is that though reasonably satisfactory series on external equity financing do not predate the first World War, it is possible to set down some meaningful propositions about such financing even prior to that period.

For example, a general knowledge of financial history suggests that prior to the early part of this century, equity securities were completely negligible as a form of business financing. People who talk of the low level of outside equity financing in the postwar period in relation to some historical perspective probably have in mind a very short period in our history, the boom years of the late twenties. Some may, of course, be referring to the purported greater willingness of the more affluent members of the community, in the indeterminate past, to make funds available to a prospective entrepreneur on a partnership basis — a point which it is extremely difficult either to prove or disprove.

SOURCES AND USES OF FUNDS BY SIZE OF FIRM AND FOR NEW BUSINESSES

The papers by Charles Schmidt and Lawrence Bridge summarize the available data on sources and uses of funds by size of firm and for new businesses. Apart from reviewing past studies in this field, Mr. Schmidt presents the results of an attempt to derive a sources and uses of funds analysis for small manufacturing corporations in 1946 on the basis of *Statistics of Income* data, and for small manufacturing corporations in the year ending March 31, 1949 on the basis of the relatively new FTC-SEC data. As he points out, neither series yields satisfactory results.

With Mr. Schmidt's conclusion — that in their presently published form *Statistics of Income* data are not suitable for purposes of estimating sources and uses of corporate funds by size of firm — I tend to agree. It should be pointed out, however, that 1946 may be a particularly atypical year for such a comparison in view of the unprecedented number of new firms entering the business population and the substantial magnitude of the shifts from noncorporate to corporate status as a result of repeal of the excess profits tax. On the other hand, an excess of capital and earned surplus over gross retained profits for such firms may actually have

reduced the excess of sources over uses as calculated by Mr. Schmidt. Nevertheless, I still think that it might be worthwhile to extend the type of analysis indicated for 1946 to other years in an attempt to determine the reasons for variations between sources and uses in different periods.

Mr. Schmidt's appraisal of the utility of the SEC-FTC series for sources and uses of funds analysis by size of firm seems to me questionable. I see little reason to conclude that since the quarterly samples in these series are not constant, the data are of little use in sources and uses of funds analysis unless the sampling procedure is changed, and that as a consequence consideration should be given to initiation of a new series. A very high proportion of the 6,000 or so manufacturing corporations in this sample are identical from quarter to quarter, and there does not seem to be any intrinsic reason why data for those firms could not be blown up separately. In fact, cost and other considerations involved in deriving a comparable sample of this magnitude would seem to dictate such an approach.

Mr. Schmidt's comprehensive review of income, balance sheet, and sources and uses of funds statements available for analyzing the effects of business size on investment and its financing should be supplemented by reference to sources of available data which relate to individual items in a sources and uses analysis. One of the best known is the Federal Reserve System's survey of business loans of member banks as of November 30, 1946, which collected data on the number, value, interest rates and collateral on outstanding short-term and long-term loans by size of borrower as well as by industry, region, and, to a limited extent, date of organization of borrower.

Not so well known, but of considerable interest, are the SEC studies — both published and unpublished — of the relative flotation costs of security issues of small and large corporations. Research workers customarily think of the SEC as a source of data invaluable for large corporations but of little utility for small firms. Though such an impression obviously is not without foundation, the Commission does have a great mass of useful data on Regulation A issues, i.e., issues less than \$300,000 in size, a good deal of which is public information. There have also been several fairly comprehensive, unpublished studies on the characteristics of such issues, including size of issue; types of securities and methods of offering; size, industry, location and age of issuer; extent of proposed distribution; financial data available on the issuer; and market after issuance — as well as on their sales success and costs of flotation. Though not too large amounts of such securities were ever offered, it is interesting to note that in the immediate postwar years when the stock market was rising

and business booming, the proportion of offerings sold was quite high, in contrast to the very small proportion sold in the immediate prewar period.

One other comment I might make in connection with Mr. Schmidt's paper is that the absence of data on the sources and uses of funds by size of firm makes much more difficult the interpretation of trends in the over-all sources and uses of funds for all size groups combined. Thus the substantial decline in the over-all ratio of dividends to net earnings for corporations as a whole from the 1920's to the postwar period might conceivably indicate a greater reluctance to undertake new financing as a result of increased difficulties or expense; or it may reflect an additional incentive to retain earnings in view of the much higher current individual income tax rate. The smaller and more closely held companies would be particularly subject to the latter incentive, and it is interesting to note that for the stocks of large companies that are widely held, there does not seem to have been as much of a decline in the ratio of dividends to net earnings from the twenties to the present as is indicated by the data for corporations as a whole.

Similarly, fluctuations over time in items like aggregate business inventories and liquid assets, in relation to such explanatory variables as sales and current liabilities, cannot be satisfactorily explained without data by size of firm. For example, inventory analysts are aware that while, for a given level of activity, aggregate trade inventories declined in relation to sales from the 1920's to the 1930's — presumably reflecting some increase in efficiency — this is not true of manufacturing inventories. One reason which might be given for the apparent secular stability of inventory turnover in manufacturing is that an increase in vertical integration — which lowers sales more than it does inventories — was counteracted by increases in efficiency. Another possibility is that such increases in efficiency were offset by a drop over this period in the relative importance of small manufacturing firms which, perhaps as a reflection of financing difficulties, have comparatively high inventory turnover. Not only are there significant differences in the financial characteristics and behavior of small as compared to large firms, but there are also important secular and cyclical variations in the relative importance of the two groups.

The main body of the paper by Mr. Bridge summarizes the results of the first reasonably comprehensive survey of the sources and disposition of initial funds invested in new firms. This relatively new material, covering the postwar period, was developed during the past two years in the Department of Commerce. Some of the difficulties and limitations characteristic of such a survey are described both in Mr. Bridge's paper and in the more detailed articles to which he refers, and were expanded at some

length by the discussants. Specific mention was made of the desirability of obtaining life span data as against the new versus established firm breakdown. It was pointed out in this connection that some work in this area is currently proceeding at the Department of Commerce.

The high proportion of initial investment financed by the personal saving of entrepreneurs shown by the Commerce survey, the moderate amount furnished by banks, and the insignificant proportion financed by the capital markets are not entirely surprising, though these data furnish the first reliable indications of the magnitudes involved. More surprising, perhaps, is the substantial size of the contribution of new firms to aggregate business outlays on plant and equipment and inventories. The period covered is, of course, unusual in this respect. It might be interesting, however, to apply the average investment of new firms indicated by the survey, adjusted for price level and possibly other differences, to the historical data on the business population in order to determine the impact of such firms on the business cycle.

Mr. Oxenfeldt laid great stress on the fact that investment by new firms might very well have been carried out by existing firms in the absence of competition furnished by the newcomers. No one would disagree with this general statement, but I would like to see some analysis of the cyclical timing and magnitude of inventory investment of new as compared with existing firms. Presumably new firms require a certain minimum volume of inventories before they can start operations, and even the same aggregate volume of sales would necessitate larger over-all inventories, at least initially, as a result of the increase in the number of firms in the business population.

Mr. Bridge also mentions several related studies now in the planning stage at the Department of Commerce. Among other objectives, these studies are intended to investigate financing difficulties of new and established firms not reflected in the actual data on sources of funds obtained, and the relationship of size of initial investment and form of financing, as well as of nonfinancial factors, to the subsequent experience of new firms.

FACTORS INFLUENCING THE DEMAND FOR FUNDS BY BUSINESS ENTERPRISES, AND THE PROBLEM OF FORECASTING BUSINESS CAPITAL REQUIREMENTS

In their analysis of problems and procedures in projecting business capital requirements, Edgar M. Hoover and Burton H. Klein discuss various statistical methods for estimating future requirements, with special emphasis on projections of fixed capital investment and profits. They consider from several different points of view the estimation of a "sustainable" level of

investment associated with an assumed volume of over-all economic activity — particularly under conditions of stable full employment; the amount of expected profits under such assumed conditions, and the adequacy of expected profits from an investment incentives standpoint.

Because the discussion is in very general terms, with little indication of the quantitative differences implicit in the various possible assumptions and procedures, the paper may tend to give the impression that even with all the limitations of our knowledge it is possible to derive a reasonably close estimate of a "sustainable" level of investment in year 195x which is consistent with the expected level of profits. Even if we were to accept for purposes of the argument any projected level of profits, it seems to me that attention should be called to the widely disparate results obtained by deriving a norm for sustainable plant and equipment expenditures in relation to private gross national product on the basis of dollar values on the one hand, and real or deflated values on the other; or a norm for investment incentives on the basis of lagged profits before taxes, as compared with the implications of lagged profits after taxes. It may be unnecessary to point out that the periods and relationships used in obtaining the norms also have a considerable effect on the results.

There are two other related points that may be worth raising in connection with the paper by Messrs. Hoover and Klein. First, in discussing sustainable rates of investment, they mention the finding that business expenditures for new equipment showed a steadily rising trend of 3 percent per year (in 1929 prices) between 1869 and 1929, and they critically appraise some conclusions that have been drawn from that fact. Actually, the finding appears to be incorrectly quoted in the secondary source to which they refer. The trend rise from 1869 to 1898 seems to have been over 5 percent, from 1899 to 1929 close to 4 percent, and only by 1929 down to 3 percent, according to the original data. I should like to add that if instead of 1929 prices, 1914 prices were used, the rise in such "real" or deflated terms from 1899 to 1929 would have been $5\frac{1}{2}$ rather than 4 percent yearly. Though differences of this magnitude may not normally occur, the weighting or aggregation problem is at least as troublesome here as elsewhere.

Second, in discussing the relation of investment to profit incentives, Messrs. Hoover and Klein do not mention the factors — particularly low interest rates — which may in the postwar period tend permanently to raise investment for a given level of income. The level of wage rates relative to equipment costs and interest rates may operate in the same direction. However, since the authors apparently rely on norms based on profits before taxes rather than after taxes as the basis for appraising the adequacy as well

as estimating the level of profits, the factors which tend to raise postwar investment for a given level of income may be more than offset by the smaller profits after taxes now associated with given profits before taxes.

The paper by Albert R. Koch presents projections of the average capital expenditures and financial requirements of manufacturing corporations as a whole under full-employment conditions for the years 1950-54, applying some of the procedures outlined by Messrs. Hoover and Klein. Average, high and low projections of outlays, profits, and internal and external sources of funds are made in terms of average 1949 prices. Basically, these estimates involve projections of historical relationships between each of the different types of expenditures, internal financing and supplier credit on the one side and projected full-employment sales on the other. After determining additional outside financial requirements by subtracting the indicated sources from total uses, this capital demand is broken down into debt and equity money so as to maintain the 1949 debt-to-equity ratio.

Mr. Koch has done a careful and valuable job within the limits of available data, and he has taken pains to point out the many qualifications of such an analysis. However, I should like to take issue with what is probably his most important finding: that — under the assumption of full employment and maintenance of the historical relationships between sales and investment, profitability and methods of financing — equity financing through stock sales from 1950 to 1954 would have to be fairly significant relative to the actual recent volume in order to maintain the 1949 debt-to-equity relationship. My reservation is not that I necessarily consider this incorrect, but simply that I have some doubts that, even granting all the assumptions, our available data and knowledge are sufficient to lead to such a conclusion with any degree of confidence.

Specifically, stock financing, which is essentially a residual in Mr. Koch's estimation process, constitutes such a small proportion of total sources or uses, and the margin of uncertainty in each of the other items derived from historical relationships is so great, that I am far from certain that any reasonably definitive statement of this type can be made. For example, in deriving the "low" projection of the annual increase in cash, it was assumed that cash would rise with sales to maintain the proportion of cash to sales at the end of 1949, while the ratio of cash to sales in the immediate prewar years (when cash was a higher proportion of sales) was used in conjunction with the 1949 relation to obtain the "high" projection of the annual increase in cash. Actually, the historical data which Mr. Koch presents indicate a lower ratio of cash to sales in 1929 and 1937 — about the same, incidentally, in both years — than prevailed in 1949; and it might be asked whether this ratio is not more appropriately used in deriv-

ing the low projection of cash rather than the one for 1949. Quite apart from historical relationships, with their obvious limitations, the question may legitimately be raised whether there was not excess liquidity at the end of 1949.

Turning to the sources side, I shall bypass the difficulty of estimating profits before taxes and simply comment on estimation of the portion of such profits which would be retained. The projections assume that 40 percent of profits before taxes will be paid out as taxes and that two-thirds of profits after taxes will be paid out as dividends. To indicate the nature of the magnitudes involved, I might note that if the effective income tax rate of all manufacturing corporations averaged 38 percent, the same proportion as in the 1947-49 period, the need for \$100 million to \$200 million of the projected stock sales per year would disappear. More important, if the ratio of dividend payments to income after taxes were significantly below two-thirds, e.g., 60 percent as compared to 48 percent in 1949 and currently, all need for projected stock sales would disappear under Mr. Koch's average uses and average internal sources of funds model. The prewar ratios were 64 percent in 1929, 83 percent in 1937 and 55 percent in 1940.

Finally, I should like to point out that even if Mr. Koch's projections are accepted, it appears that the lower range of his estimates of uses and the upper range of his estimates of internal sources of funds would entirely obviate the need for stock financing, though such a variant on the model is not presented in the paper.

In spite of all their shortcomings, such projections, I think, serve a real use, not only in presenting a range of estimates which are internally consistent and in reasonable accord with historical experience, but also in indicating the areas which are particularly in need of further exploration.

FACTORS INFLUENCING MANAGERIAL DECISIONS IN DETERMINING FORMS OF BUSINESS FINANCING

While the essay by Neil H. Jacoby and J. Fred Weston does not present any new material on factors influencing managerial decisions in respect to forms of business financing, it does present a highly readable account of the present status of knowledge, a suggested framework of analysis with a useful classification of the factors involved, a discussion of specific research areas and techniques, and some remarks on the relation of information in this area to policy formation.

In one of the few instances where Messrs. Jacoby and Weston attempt, on the basis of available information, to draw conclusions about the factors that influence managerial decisions on financing forms, it seems to me that

there is some question about the inference they make. This occurs in their discussion of Chudson's monograph on *The Pattern of Corporate Financial Structure*, in which an analysis of the rank correlations of the ratios of long-term and short-term debt to total assets for the various minor industrial divisions, and of long-term debt and capital stock to total assets, showed no statistically significant relationship, inverse or direct. They state that these observations have far-reaching implications, indicating an absence of substitutability between short-term and long-term debt, and between long-term debt and capital stock. Though they later point out the need for further testing, they make this tentative generalization: "One possible inference from these conclusions is that the scope for the exercise of managerial discretion in choosing between the major categories of financing forms is limited, because a broad and pervasive set of exogenous factors circumscribes the range of managerial discretion."

The relevance of the test to the conclusion seems to me doubtful. Thus, a statistically insignificant correlation between the ratios of long-term and short-term debt to total assets for the different industry groups simply implies that among industry groups there was no discernible relation between the size of the two ratios. The more relevant question is whether there was such a relation within industry groups, but I might note that even if there was not, the conclusion that "the scope for the exercise of managerial discretion in choosing between the major categories of financing forms is limited" would probably still not be justified.

THE INVESTIGATION OF FACTORS INFLUENCING THE FORM IN WHICH FUNDS ARE MADE AVAILABLE FOR BUSINESS INVESTMENT

While the preceding papers have stressed the need for additional research on the characteristics of the supply of funds for business investment, with specific reference to studies of financial standards of institutional suppliers of funds, Homer Jones emphasizes that this should cover not only financial institutions but also individual investors, both actual and prospective. A survey indicating the factors influencing the amount of funds such persons make, or would make, available for investment, particularly in equity form, would be a real contribution, although admittedly a difficult project to carry through. Mr. Jones refers in this connection to the pioneering work of the Michigan Survey Center, but does not mention the earlier prewar surveys carried out by the New York Stock Exchange.

Neither Mr. Jones nor this conference — perhaps wisely in the present stage of knowledge — has paid much attention to the available material relating to the problem of determining or projecting the over-all propensity to save on the part of individuals, corporations or the economy at large,

or to make available funds in different forms and under varying conditions. However, it may be in order to comment briefly on the growing institutionalization of savings, with the resultant pressure on banks and insurance companies to find investment outlets. Since, with minor exceptions, those institutions do not buy common stock, there has been a steady growth in the demand for fixed-interest-bearing obligations. The substantial demand for corporate bonds by life insurance companies is particularly notable. The current flow of funds into the private insurance field is three times the average of the late 1920's. These companies alone bought on balance during the past few years a volume of corporate bonds about equal to the total increase in corporate bonds outstanding. Even more recently, attention has been called to the prospective importance of the growth in private pension plans.

I should like to indicate a *caveat*, which seems normally to be overlooked, in projecting trends in the institutionalization of savings, particularly as they relate to life insurance companies. From an estimated 0.8 percent in 1909, the ratio of saving in insurance to income increased to 1.7 percent in the late twenties and to 2.4 percent in the late thirties. The ratio, however, has declined since that time and is currently 1.8 percent. In the postwar period, saving in insurance also leveled off in absolute amounts as a rise in benefits paid out on past insurance fully offset the increase in new insurance.

COSTS OF DEBT AND EQUITY FUNDS FOR BUSINESS: TRENDS AND PROBLEMS OF MEASUREMENT

The paper by David Durand deals primarily with the conceptual problems involved in measuring the costs of debt and equity funds for business. Though the author makes a number of challenging remarks and develops some interesting hypotheses, I have the feeling that he tends first to underestimate existing theory and second, perhaps, to complicate unnecessarily the conceptual problems.

In the first section of his paper, Mr. Durand states his "unorthodox" position: that instead of maximizing income, the businessman should try to maximize the discounted value of his future income. As Mr. Anderson pointed out, this position is quite orthodox, and the injection of the elements of time preference, uncertainty and risk is in no sense inconsistent with current economic theory, or different from present classroom practice in corporation finance.

In the second section of his paper, Mr. Durand introduces and discusses at some length two methods of capitalizing earnings of a business — in the one case capitalizing net operating income, in the other net income

— which apparently are commonly used by security analysts. Presumably, though the point is not spelled out, it is implied that a businessman confronted with a financing decision also uses one or the other method in maximizing the discounted value of his future income.

It is not clear from Mr. Durand's example why the two methods need give different results. The substantially different results he obtains, with the "radically different implications for financial policy," arise from the use of the same capitalization rate, regardless of the stream of income being capitalized and regardless of variations in risk as evidenced by different bond-equity relationships. I see little reason for proponents of the two methods to use the same capitalization rate or for the capitalization rate to be independent of the proportion of bonds in the capital structure.

It seems to me more straightforward to assume that a businessman would employ bond rather than stock financing whenever the difference between the expected-earnings/price (or earnings net-proceeds) ratio and the interest rate exceeds the risk differential as the businessman assesses that risk. Allowing for corporate taxes, the expected-earnings/price ratio should be compared with the interest rate times the complement of the tax rate rather than with the interest rate alone. Presumably, abstracting from a number of complications, stock financing would not be used except where the expected rate of return on additional investment exceeds the ratio of expected (per share) earnings on old investment to current price (or expected net proceeds per share).

In this connection, I disagree with Mr. Durand's appraisal of the hazard involved in the use of the difference between the stock earnings-price ratio and bond yield as a measure of differential in "cost" between the two forms of financing. It does not, as he states, imply wholehearted acceptance of the net income method of valuation, but simply gives a measure of the variation in risk differential as evaluated at the intersection points of the supply and demand schedules of capital.

The basic limitations in attempting to draw any definitive conclusions from the historical movements in the earnings-price ratio and bond yield (adjusted for corporate taxes) are in my opinion not those cited by Mr. Durand, but simply, first, the difficulty of deriving an expected-earnings/price ratio from the actual data and, second, the difficulty of constructing the supply and demand schedules from their intersections over time. It should be noted that the higher level of debt financing at much lower interest rates in the recent postwar period — as compared with the twenties — apparently implies a substantial easing in the supply of senior money, while the lower stock financing at somewhat higher earnings-price ratios (assuming that the latter is an index of expected earnings-price relation-

ships at comparable points in the cycle) implies a moderate tightening in the supply of junior money. The latter, incidentally, might be explainable either in terms of a different risk appraisal by suppliers of funds or by the changes in effective personal tax rates paid by stockholders.

THE EFFECT OF THE AVAILABILITY OF FUNDS, AND THE
TERMS THEREOF, ON BUSINESS INVESTMENT

There are two parts to the paper by Franco Modigliani and Morton Zeman: first, a brief discussion of some theoretical aspects of the manner in which interest rates and expected-earnings/price relationships affect both business investment and a rational entrepreneurial choice between senior and junior capital; and, second, a statistical test of the latter — namely, the theory adduced to explain the relative demand for senior and junior capital — against over-all historical data from 1920 to date.

The element of novelty in the theoretical formulation appears to be the attempt to incorporate the effects of uncertainty through the use of the dispersion of anticipated earnings. As a consequence of some fairly restrictive assumptions, Messrs. Modigliani and Zeman arrive at an interesting conclusion that “the optimum total amount of new financing is independent of the risk aversion of the stockholders and of the form in which the financing is done.”

The reasonableness of the assumptions seems to be questionable. I doubt that for given expected average profits, risk is dependent solely, or even primarily, on a measure of dispersion of such profits. For example, I question whether risk remains unaffected for given expected average profits and dispersion regardless of the probability of a net deficit or the possibility of bankruptcy. Moreover, the authors' empirical investigation does not give any support to their theoretical analysis: their attempt to introduce a particular measure of dispersion as an explanatory variable for the ratio of common stock to total new capital issues not only leads to insignificant results but, as they are careful to note, to results “contrary to expectation.”

The statistical relationships used to explain the historical fluctuations in the relative demand for senior and junior capital are of interest apart from the theoretical exposition of the influence of uncertainty. Unfortunately, the coefficients of correlation obtained for the various hypotheses tested by the authors are rather low especially when it is considered that the extreme observation for the year 1929 tends to exaggerate the significance of the expected-earnings/price ratio. In addition, questions might be raised — as the authors are well aware — concerning the use of bonds rather than debt (including bank loans) to represent senior capital, and

about the aggregation problems involved in adding such groups as railroads together with other corporations. The ultimate question, of course, is whether in fact the observed points trace out a demand relationship (at least in a substitution sense) — a matter that is open to some doubt.

I want to emphasize that from an *a priori* point of view I would not have been startled by a reasonably close relationship between the relative importance of stock issues and the difference between expected-earnings/price measures and the interest rate. I have in the past experimented with a number of such measures but have uniformly been disappointed with the results.

In supplementing the analysis presented by Messrs. Modigliani and Zeman, I might observe that from a behavioristic point of view there have been several studies suggesting that fluctuations in the interest rate, within the moderate range to which we have become accustomed, seem generally to have little effect on business investment, at least by fairly large, established firms to which such capital is available on reasonable terms. Moreover, there is some indication that this may also be true for equity capital.

Thus, according to a recently published McGraw-Hill survey, businessmen indicated that a 50 percent rise in stock prices from late 1949 (to a Dow-Jones industrial average not far from 300) would have little influence on their investment programs. Such a rise under current conditions would involve a reduction of the earnings-price ratio on stocks to a point as low as or lower than that prevailing in the boom years of the twenties. Similarly, according to preliminary results of a special survey of capital budgets, carried on by the Department of Commerce as part of its joint program with the Securities and Exchange Commission, changes in the availability and cost of debt and equity capital since the beginning of 1949 have had virtually no effect on investment programs for 1949 or 1950.

It has been suggested, however, that a form of capital rationing precludes access to capital for a large sector of the business population, particularly new and small businesses, which it is maintained cannot obtain funds on virtually any terms, even where the contemplated investment may be justified on the basis of objective, economic factors. In this connection, I might mention that the Department of Commerce is now engaged in preparations for a comprehensive survey of the financial needs of business, especially small business. This survey, the first of its type, will undertake to provide quantitative information on the demand for both equity and debt capital, and on the extent to which this demand remains unsatisfied under present institutional and market conditions. An attempt will be made to appraise the financial position of firms seeking capital; and in the case of those which appear on the basis of balance sheet and earnings data

to be sound prospects, the factors which have prevented them from fulfilling their needs for funds will be investigated.

In carrying out this program, questionnaires will be mailed to a large sample of firms, to give adequate representation to companies of all sizes, ages and geographical locations. The initial mailing, covering about 20,000 firms, will go only to manufacturing and trade firms, while service and other industries will be reserved for subsequent surveys. Balance sheet and earnings data will be obtained from a sample of the firms replying to the questionnaire, and for part of this sample case studies will be made of existing impediments to the fulfillment of their capital requirements. In these case studies the prospective suppliers of capital will be approached as well as the firms seeking funds.

While we have already laid out the general nature of the study — including the sampling design — and have drawn up tentative questionnaires, its adequacy will be tested on a small sample of 200 firms, half by personal interview, half by mail, before the final form of this program is determined.

SOME CONCLUDING REMARKS

It seems to me that this conference has raised the right questions and has correctly depicted the present, admittedly unsatisfactory, state of our knowledge. Some of the more important conceptual as well as empirical gaps have been suggested, and both work in progress and additional research recommendations have been discussed, though by no means exhaustively. For example, no mention has been made of either the National Bureau study of past and prospective capital requirements of the economy as a whole, which was recently initiated, or of the Wharton School study of characteristics of the over-the-counter securities markets which is well under way.

The necessity of obtaining over-all data to provide a frame of reference, as against nonrepresentative sample information, has been pointed out; but the fact that for meaningful analysis over-all data must be supplemented by industry, size, age and even by frequency distribution detail has also been stressed. To the best of my recollection, no one was bold enough to recommend regional detail at this point, but I trust that in some future conference progress will have been sufficient to warrant such a breakdown. Various procedures of analysis have been proposed, including time-series analysis of aggregate data, cross-section analysis of aggregates, and case studies covering the same firms for as extended periods as possible. The suppliers of funds as well as the firms seeking funds have been mentioned as potentially fruitful sources of data on business financing.

I should like to underline a point suggested in several of the papers: that it is necessary to obtain not only the reasonably objective financial data now customarily compiled, but also through appropriate surveys to collect information on the factors motivating business firms (and suppliers of funds) in their financial decisions. Such information could hardly be derived from historical data, partly because of shifts over time as well as the limited number of observations. Cross-section data help, but they are ordinarily far from sufficient for the purpose in the face of the extreme company to company variability introduced. On the other hand, I should not want to rely on survey information of the opinion poll type without first confronting the answers obtained with the financial data of the particular firm and, second, confronting the latter with the financial data of firms generally.

Finally, it might be noted that one important body of data in the field of business finance — stock market statistics — has been very little touched on during the course of this conference, in large part, I assume, as a reaction against the high proportion of questionable and, from the point of view of business finance, largely irrelevant analysis in this field. Yet comprehensive study of the prices of equity securities of different groups of firms, in different markets and at different stages of the cycle, and their relations to earnings and dividends — with particular emphasis on price experience during the period of gestation of a new offering — is still in order, even in the wider perspective of business finance than that with which stock market analysts have customarily been concerned. This is only one of a number of possible examples to indicate that not only is business finance an extremely promising field for further research but much of the empirical data already available are still far from adequately investigated.

REPLY

DAVID DURAND, *National Bureau of Economic Research*

In stating that it is "more straightforward to assume that a businessman would employ bond rather than stock financing whenever the difference between the expected-earnings/price (or earnings/net proceeds) ratio and the interest rate exceeds the risk differential as the businessman assesses that risk," Mr. Friend is begging the question, just as many previous writers

have begged it. How does the businessman go about estimating this differential? That is the important issue.

At present, all we know is that risk exists and that businessmen are aware of it; we do not know how they actually estimate it. We may surmise, however, that they use a variety of methods. Undoubtedly, some businessmen estimate risk by careful analysis based on economic considerations; whereas others, finding such analysis too difficult, probably resort to whim, prejudice, or astrological advice. But even among those who use careful analysis, there are bound to be differences of opinion concerning basic methods, as well as differences in final conclusions. Thus, one careful analyst may arrive at a high estimate of risk and recommend stock financing, while another, appraising precisely the same situation, may arrive at a low estimate and recommend bonds.

If we are to understand financing practices, we must make a concerted effort to learn the technical details of risk appraisal. The NOI method, to which Mr. Friend takes exception, was introduced in my paper as a concrete example of one possible method by which a businessman might estimate the risk differential between stock financing and bond financing. I do not think that it is a good method, or that many businessmen use it. Nevertheless, it may be the best method we have at the present time, in which case we clearly need to seek better ones. Our search will not be advanced if we go no further than to say that businessmen estimate risk differentials in ways known only to them.