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CHAPTER 4
INTERPRETING DATA ON CREDIT RISK

In Chapter 3 we discussed the data in terms of the kinds of information it would be desirable to have and the extent to which that information is presently available. This chapter also discusses the data, but here the focus is on the efficacy of the available time series in providing the credit risk information they purport to contain and, in particular, on how – and how carefully – the data must be interpreted to avoid misleading conclusions. In short, Chapter 4 deals with the problems of interpreting data on credit risk. Collectively, the discussions of these problems form a guide to the interpretation of the series, a framework of concepts within which judgments about the risk of the nation's credit should be reached. They demonstrate why it is important to handle these indicators with great care.

Balancing Too Much Risk Against Too Little

Ideally, we wish to have measures that tell us the current risk position of the credit structure, and the changes through time in that risk. We need to know when the credit structure has sufficiently weakened that it might contribute to a downturn in the economy or aggravate a business setback once under way. Correspondingly, we must know when the credit structure goes too far in the opposite direction; when the quality of credit has become so conservative that it may be holding back a business recovery or not contributing in an appropriate fashion to economic growth.

The available measures of credit risk do not tell us these things in any precise way. They are not sufficiently definitive to show us just where the peril points of the credit structure are. First, these hypothetical peril points are not actually "points"; they are, rather, best thought of as bands of considerable width, and this makes them more nebulous and difficult to define. A second reason why we are unaware of the location of these peril points or bands is because they will change over time. Credit terms, borrower characteristics, delinquencies and losses that are quite reasonable at one time under one set of conditions might well represent an excessively risky level some years later, or vice versa.

A healthy and growing economy almost inevitably requires rapid growth in its financial assets and liabilities, and such growth will normally entail credit granted on more generous terms and to less credit-worthy borrowers. Such developments may increase credit risk, but within reasonable limits this may be acceptable.

Consider, for example, the analogous problems caused by modern means of travel. Automobiles and airplanes are much faster and more comfortable than the means of transportation they displaced, but they may also be more dangerous. And there is no clearly defined point at which the danger in a new method of transportation outweighs its value in other respects. Thus, it cannot be argued that autos and airplanes should be abolished, or even that development of still faster and potentially more dangerous methods of travel should be halted. It does argue, however, for traffic regulations, instrument-landing systems, and statistics on accidents and their causes. Likewise, a larger and faster moving financial system requires safety precautions.[1] At the very least, we should know how and to what degree credit risk is changing.

Three types of changes occur over time in the risk position of the economy and in the location of its peril points. First, there is the variation that takes place within the business cycle. Credit risk varies in response to the cyclical movements of the economy and is associated with cyclical changes in production, incomes, and employment.

Second, credit risk will vary with long-run changes in the degree of economic stability. These might be due to secular shifts in the industrial structure or the occupational make-up of the economy. Or they might be due to governmental

actions, either through the so-called automatic stabilizers or by discretionary economic policy actions.[2]

Third, related to both cyclical stability and credit risk, institutional changes take place in the credit markets. The spread of repayment amortization has been among the more important of these. This feature of credit contracts, which reduces the credit risk substantially,[3] has become almost universal in home mortgages, auto, appliance and home-modernization loans, and probably has been incorporated in an increasing proportion of bank term loans to business. Other institutional developments in recent decades have included establishment of bad debt reserves on a systematic basis; federal insurance of bank deposits and saving shares; federal insurance and guarantee of mortgages; regulation of financial institutions by the Federal Home Loan Bank Board, the Securities and Exchange Commission, etc.; and probably also improved financial planning on the past of borrowers and better credit administration on the part of lenders. All of these innovations in the structure of the credit markets have served to lessen in some degree the risk involved in making larger loans on more generous terms to borrowers at the margin. Some institutional developments may of course, have had the opposite effect.[4]

These institutional changes affect our measurement of and judgment about what might be termed the "credit risk trade-off"; i.e., the balancing of the hazard that credit will become too risky, with its attendant unhappy consequences, against the hazard that credit will become too safe, and thus will fail to play its part in the growth of the economy. This trade-off can be likened to what is frequently discussed as a trade-off between unemployment and inflation, where the undesirable consequences of an inadequate utilization of resources must be balanced against the undesirable consequences of a rising price level. Just as it is difficult to know exactly where to draw the line between unemployment and inflation, so is it difficult to judge when credit becomes excessively risky or excessively safe.

No precise quantitative calculation is available to determine the point at which the volume of credit becomes excessive and its risk perilously high. No established norms exist. Economists have been concerned for many years about the question of the amount of debt burden consumers and other debtors can safely carry, without reaching very definitive conclusions. As indicated in Chapter 2, one of the basic problems stems from the tendency of consumer credit to contribute to a bunching of purchases of major durables during periods of prosperity. The regular repayments of this debt then become a forced saving which can compound the difficulties of a period of business decline, when unemployment mounts and incomes and expenditures fall. In general terms, Sumner Slichter approached the question as follows:

> the level of indebtedness is dangerously large . . . when repayments are so large that in a period of recession (even a mild recession), they are likely to cause such an excess of planned saving over planned investment that the maladjustment cannot be rather promptly corrected either by accelerating the drop in interest rates and the increase in the availability of investment-seeking funds or by fiscal policy.[5]

Although the credit risk trade-off is similar in nature to the unemployment-inflation trade-off, the measurement problems in the two situations are not so similar. While statistical measures of the price level and unemployment are imperfect, they are on the whole much further advanced than measures of credit risk.[6] First, no comprehensive measures of the risk position of the entire credit structure exist. Second, those measures that we do have for various sectors of the credit structure are sometimes ambiguous and open to more than one interpretation. Finally, not even rough empirical standards (analogous to the 4 per cent level of unemployment, for example) have been developed to indicate when credit terms are too generous, when credit is being granted to classes of borrowers whose use of the funds will prove unproductive, or when the incidence of loss or delinquency is excessive.

Perhaps, this is too severe an indictment of the available series on credit risk. In many other aspects of economic life we are beset by ambiguities and serious limitations to the time series that are widely used as measure of activity. For

example, to measure the physical volume of residential construction, we use housing starts and the deflated "put-in-place" series. But the "starts" series does not allow for changes in the average size of new dwelling units, nor for changes over time in the quality of construction. The constant-dollar volume of construction put in place is open to serious doubt because the price index used as a deflator is based in large part on the prices of inputs (e.g., wages), and thus makes inadequate allowance for changes in productivity. In this perspective, therefore, our measures of risk, while far from satisfactory, do not come off quite so badly.

Other Problems of Interpretation

A Related Problem

An important consideration about the risk-related characteristics is the fact that the tests that have established the validity of these loan and borrower characteristics as indicators of credit risk (discussed in Chapter 5) always date back to some occasion in the past. Thus, just as the peril points can change over time, the relationship that once existed between the characteristic and one or another of the measures of actual credit experience may not entirely hold true in the present or the future. It is generally reasonable to anticipate that the direction of the relationship will persist; for example, other things equal, higher loan-to-value ratios can logically be expected to be associated with higher delinquency rates now and in the future, as they were in the past. It is unreasonable, however, to expect the future relationship to be precisely the same; both the shape and degree of the relationship are subject to change over time. A loan-to-value ratio of, say, 80 per cent, that in the past was associated with a foreclosure rate of, say, 1 per cent, may very well be associated at some future point in time with a higher or lower foreclosure rate.

Divergent Indicators

Another general problem of interpretation, alluded to in earlier chapters, is the confusion that may arise when different indicators of credit risk move in different directions; specifically, when measures of credit difficulties go one way and measures of risk-related characteristics (for the same credit sector) go the other. Likely, this apparent contradiction of evidence is the result of a strong cyclical movement in business conditions working to push credit difficulties in one direction and the terms and standards on new credit in the other direction. A business boom will, for example, reduce home mortgage foreclosures, but at the same time will encourage lenders to make new mortgages on easier terms to marginally less creditworthy home buyers, thereby raising loan-to-value ratios and payments-to-income ratios. In such a situation, the foreclosures series will be suggesting lower credit risk while the characteristics series indicate higher risk.

This evidence on what is happening to the risk on home mortgages may appear contradictory, although in fact it is not. The difficulty arises from the interpretation of the time series on characteristics; specifically, of using those series as though they were representative of all home mortgages outstanding, when in fact they apply only to new mortgages. What is happening to the characteristics of outstanding mortgages during a boom is that the rise in incomes is lowering the payments-to-income ratios of most mortgage debtors, and the inflation of home prices is raising borrowers' equity (lowering the loan-to-value ratio).[7] Thus, the series on characteristics of outstanding home mortgages would, if available, indicate lower credit risk, just as the foreclosures series does. Unfortunately, time series on loan and borrower characteristics of outstanding credit – especially home mortgages, corporate bonds and mortgages on income-producing properties – are rarely available. As a result, series on characteristics on new loans extended may at times be mistakenly used as proxies for series on outstandings, which can lead to erroneous conclusions about the current trend of credit risk. If any series are to be used as proxies, they should probably be indicators of general business conditions, such as personal income, or its rate of change, or the unemployment rate.

At the same time that we avoid erroneously using the characteristics series on new credit as a substitute for series on the outstanding stock of credit, we do not want to ignore the former. It is

necessary to look ahead a bit further and reach a judgment about the future impact of (to continue our example) the riskier terms currently being granted on new home mortgages. If and when the boom ends and an economic setback must be weathered, how will *these* mortgages fare? What sort of foreclosure record will they produce when unemployment climbs and incomes and home prices fall?

New Forms of Credit

Another pitfall in the statistical analysis of credit risk can arise from the examination of credit on a sector-by-sector basis, when the limits of each sector are rigidly defined. New forms of credit regularly appear to take the place of old forms, and since this substitution may well involve significant changes in risk, it is important to an over-all judgment of credit risk that these new instruments be included in the analysis. Atkinson, for example, found this to be a problem in his study of postwar bond quality.

> a very important [problem] that plagued us in the bond study . . . [was] the fact that a fixed definition of corporate bonds followed through the years tended to exclude new areas of business lending where it was expected credit quality was deteriorating. Exclusion of private placements and convertibles from the universe is serious and perhaps even more serious is the fact that bank term loans may be filling a role in this financing area. Thus, analysis of one type of instrument may give faulty measures of credit quality in general.[8]

Other Pitfalls of Interpretation

In closing this chapter it is worthwhile to emphasize that a number of the points developed in Chapter 3 concerning the properties of the data on credit risk are important also to their proper interpretation. When examining the series on loan and borrower characteristics, the analyst must judge the relative importance of each characteristic. He must watch for offsetting trends among the different characteristics. For such series as the aggregate ratios of repayments to income, he must be alert to whether the coverage is the total population or the debtor population. When information is not available on the proportion of cases that fall at the risky end of the scale, he must keep in mind the fact that movements of the averages do not always reflect the changes taking place among the extreme cases. With data on credit experience, the analyst should watch for a developing pattern among the several types of series that measure collection difficulties at different levels of severity: e.g., first delinquencies and fefaults, then repossessions and foreclosures, finally bankruptcies, failures and losses.

In addition, sampling variability, deficient reporting systems and other statistical shortcomings are all reasons why our indicators are sometimes unreliable. For example, an examination of the default experience of corporate bonds in the 1930's indicates that a much larger proportion of the bonds issued in the late 1920's went into default than did those issued in the early 1920's. Yet the relationship between the profits and interest charges of bond-issuing corporations, i.e., the "times-charges-earned" measure, shows an improvement through the 1920's. Various explanations can be advanced for this discrepancy, but the point here is that one must, as we have learned in other areas of current economic analysis, be aware of the uncertainty attached to simple inferences from single indicators of credit risk.

[1]This analogy is taken from Albert Wojnilower, "The New Banking and the Quality of Credit," pp. 225-230.

[2]For a comprehensive review of the major forces influencing economic stability, see Arthur F. Burns, "Progress Towards Economic Stability," *American Economic Review*, March 1960.

[3]See Raymond J. Saulnier, *Urban Mortgage Lending by Life Insurance Companies*, New York, NBER, 1950, Table 23, p. 85 and Table 33, p. 101.

[4]For an extensive discussion of these institutional changes and similar developments, see James S. Earley, *The Quality of Credit in the United States: A Summary Volume*. See also his "Problems in the Measurement of the Quality of Credit," p. 202, which deals with some of the problems discussed here and with related problems.

[5]Sumner H. Slichter, Section II of "The Economics of Eisenhower: A Symposium," *Review of Economics and Statistics*, November 1956, p. 369. For another discussion of the burden of consumer credit, see *Consumer Instalment Credit*, Part I, Volume 1, Chapter 10.

[6]Note, however, that as with our measures of credit risk the acceptable level of unemployment may change over time. See Arthur F. Burns, *The Management of Prosperity*, 1965 Benjamin F. Fairless Memorial Lectures, New York, 1966, Lecture Two, "The Problem of Unemployment."

[7]Note, for example, that the sharp rise in delinquency and foreclosure rates on home mortgages in the late 1950's may be associated with the slowdown in the long postwar rise in home prices. Up to that point, the homeowner who found himself in economic difficulty could eariy satisfy his mortgage obligation by selling his house, the market value of which had generally been maintained or lifted by inflation. By the early 1960's, however, this was less frequently the case, and delinquencies and foreclosures became more common.

[8]Thomas R. Atkinson, correspondence to the author, August 8, 1967.