Bankruptcy, Liquidity, and Recession

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This paper examines the possibility that the economy-wide level of bankruptcy risk plays a structural role in the propagation of recessions. The argument is as follows: Bankruptcy imposes net social costs, so that all agents have an interest in avoiding it. Consumers and firms do this by being careful to retain sufficient liquid assets to meet fixed expenses; banks and other lenders, by being selective in choosing borrowers and limiting the size of loans. The onset of recession strains the system by reducing the flow of income available to meet current obligations and by increasing uncertainty about future liquidity needs. There is a general attempt to insure solvency which leads to a reduced demand for consumer and producer durables—which may in turn generate further income reductions.

I find that this story helps explain some features of recession. It is largely but not entirely supported by the available evidence.

I. Bankruptcy

By many measures, the general level of bankruptcy risk is a (roughly coincident) countercyclical variable. The link from recession to bankruptcy is not principally reduction in net worth, but increased incidence of technical insolvency—the inability to meet current cash obligations. Recessions create financial distress by narrowing the margin between cash flow and debt service.

The financial difficulties induced by recession are not socially costless. Administrative and legal expenses in bankruptcy are substantial. Other costs include losses from hasty liquidation of assets; delays and uncertainties in payments; loss of customer and credit relationships; and interrupted production.

Why, if there is a social gain from avoiding them, do bankruptcies ever occur? Existing explanations rely on some sort of missing market argument (see Jeremy Bulow and John Shoven, and references therein). We can suggest a solution based on a moral hazard: Lenders cannot observe the objective conditions on which borrowers base their portfolio decisions. If a lender does not develop a reputation for pressing his claims, borrowers have an incentive to become too illiquid in order to force an improvement in terms.

Because bankruptcy has net social costs, borrowers and lenders adopt strategies to reduce bankruptcy risk. We are interested in the implications of these strategies for the business cycle. In what follows, assume that there has already occurred an unanticipated drop in national income—because of a drop in government demand, for example. A key result is that, when bankruptcy considerations are taken into account, this drop in income may substantially reduce expenditure on illiquid, durable assets.

II. Consumers

The individual forming a consumption plan is usually thought of as facing a stock constraint—that lifetime consumption not exceed lifetime resources. This restriction can be more generally formulated as a flow constraint—that at each moment there must be sufficient cash and new credit to cover expenditure and debt repayment. The usually ignored flow constraint reduces to the stock constraint only if all assets are liquid (easily convertible into cash), or if the consumer can borrow freely against lifetime wealth. Neither condition holds in practice. Most consumer assets have some degree of

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illiquidity—notably human capital, but also durables, some part of equity in business or property, pensions, insurance, and some financial assets. Many assets are likewise imperfect as collateral, because of moral hazard (as in the case of human capital), difficulties in transferring property rights (human capital, pensions, expected bequests), or differences in valuation between borrower and lender due to asymmetric information (durables).

When the flow constraint is relevant, a principal effect of a drop in current income is the reduction of expenditure of illiquid, long-lived assets (such as durables). There are two reasons for this. First, lower current income increases the short-run probability that the flow constraint will have to be satisfied through costly means, for example, the distress sales of assets, borrowing at unfavorable terms, severe reduction in current living standard, or, as the last resort, bankruptcy. As Frederic Mishkin (1976) first pointed out, deferring purchases of durables lessens this danger by conserving financial resources and avoiding additional fixed obligations (debt service). These benefits are felt at once, while the costs are spread over the future. Thus, for nonmarginal falls in income, this strategy will likely be preferred over responses which involve largely current costs, for example, increased labor supply or smaller consumption of perishables.

Second, a drop in current income typically has ambiguous implications for the consumer's estimates of future income flows and, hence, for the level of durables holdings consistent with maintenance of solvency in the long run. An asymmetry arises here: Because durables are illiquid, it is more costly to correct (what turns out to be) an overpurchase than an underpurchase. Assuming that waiting for new information will tend to resolve the ambiguity created by the initial income fall (for example, was the drop caused by a permanent demand shift or by temporary cyclical conditions?), even a risk-neutral consumer will be motivated to defer durables purchases until the uncertainty is resolved. (For a parallel analysis of this "consumer confidence" effect in the context of irreversible investment theory, see my earlier paper.)

III. Firms

With modifications, this story for consumers can be applied to firms. The firm, too, must reconcile long-term spending plans with the necessity of having the cash flow to meet short-term obligations. Low internal liquidity and many fixed expenses increase the risk of financial embarrassment; at least, they raise the cost of new financing. Again, deferral of capital expenditures is an appropriate defense of the balance sheet against a fall in current income.

A consideration that weakens the analogy from consumers to firms is that, unlike consumers, firms have the option of equity finance. It is interesting to note, however, that debt-equity ratios are countercyclical, a fact due only in part to slowdown in internal equity buildup during recession (see Merton Miller). Managers apparently prefer to see equity from a position of relative financial strength. A conjecture is that they are concerned about the signal they send to financial markets. Offering a new issue with an unfavorable balance sheet is like a cut in the dividend; it conveys pessimism on the part of insiders.

The argument for a link between asset composition and spending by consumers and firms is related to the older notion of "liquidity constraints" (formalized in modern treatments of "effective demand"). That essentially static idea, that an agent might literally reach zero liquidity and thus be prevented from making planned purchases, was used (for example) to justify explicitly temporary tax cuts as an expansionary tool. This did not seem credible, since only a small fraction of the economy is at zero liquidity at a given time. Our dynamic formulation recognizes that, while few are actually at zero liquidity or going bankrupt, the need to guard against the risks of low liquidity is a factor in the economic behavior of most agents.

IV. Banks

The basic proposition, that consumers and firms react to a cash squeeze by cutting durables expenditures and avoiding new debt, could be overturned if lenders' terms

became sufficiently attractive in recession.[1] Interest rates do tend to be procyclical; one wonders why cycles aren't smoothed out by marginal adjustments in the timing of durables purchases.

A case can be made that the "easiness" of credit in recession is illusory, as follows: Banks are not interested in the extending of credit *per se* but in the probability of repayment. If the risk of default were known and exogenous in each case, the market for loans could be cleared by an interest rate that included a premium compensating for that risk. However, if borrowers have better knowledge of their own default risk than the bank has, then the familiar adverse selection mechanism makes the quality of the applicant pool (unobservable by banks) dependent on the loan terms offered. As a promising line of research beginning with Dwight Jaffee and Thomas Russell has shown, under these circumstances the loan market is cleared not just by interest rates, but by other dimensions of the transaction, such as loan size. A sensible strategy for the bank may well be to set a low interest rate and to limit loan sizes below what borrowers would like. Thus interest rates are only a partial measure of credit tightness.

With the increase in insolvency that accompanies a drop in national income, banks suffer a deterioration in portfolio quality. They become cautious and try to shift toward safer assets. The predicted effects (which are consistent with the data) are a fall in safe asset yields; an increased spread between safe yields and personal or corporate borrowing rates; and reduced willingness of banks to lend to consumers and the (lower-liquidity) firms most likely to require external financing for projects.

The opportunities for arbitrage profit from borrowing to buy durables in recession are thus more limited than they may first appear. The caution of banks, the disadvantages of incurring more debt with a weakened balance sheet, and the temporary uncertainties associated with a fall in income all act to push the marginal cost of debt finance in recession above the posted interest rate. What is likely to make these factors decisive is that the relevant margin is not between buying now and never buying the durable, but between buying now and possibly buying later.

[1]It could also be overturned if the supply of durable goods were inelastic over the cycle. However, the large variance of production in these industries suggests a relatively elastic supply in the short run.

V. Implications for Recession Dynamics and Policy

Costly bankruptcy and asset illiquidity (arising from the absence of certain Arrow-Debreu markets) bring a distinctly Keynesian flavor to the analysis of recession. Expenditure once more depends on income as well as wealth, because of the relationship of current income to liquidity and insolvency risk. Thus the hypothesized initial fall in income may be propagated through the economy via a multiplier mechanism: income affecting spending affecting income. Note that the largest impact is predicted to occur in sectors producing long-lived, illiquid goods; this is in fact what we observe. This description of recession dynamics does not rest on the assumption of sticky prices (except for the fixity of nominal money and debt values). As lower incomes force down real demands, the movement of firms back along their supply curves will cause the general price level to fall (relative to trend). The lower price level will be expansionary through the familiar Pigou and Keynes effects; but in the present model it will also exert a depressing influence by increasing the real (inside) debt burdens and insolvency risks of consumers and firms. If the latter effect is strong enough, the process may be unstable:[2] this was recognized fifty years ago by Irving Fisher.

If the path based on local price adjustment process is unstable, then there is a

[2]This instability argument can be made formally in a flexible-price temporary equilibrium model if one assumes costly bankruptcy, imperfect liquidity of nonmoney assets, and the existence of noncontingent (nominal) debt. In this context, a rise in the price of money (deflation) may perversely increase the demand for money (and reduce the demand for goods) as debtors try to maintain solvency in face of an increased real debt burden. This assumes an equilibrium exists, which is problematic in a model with bankruptcy.

potential justification for public action (macro-economic policy). Tax relief financed by bonds, for example, can be thought of as the government becoming a financial intermediary that makes it possible for low-liquidity agents to borrow. Monetary policy can exploit the nonneutrality inherent in the fixity of nominal debt values to increase spending through "reflection." Of course, this rationalization for policy has no answer to the argument that activist policy is too imprecise for practical use.

VI. Evidence

At present the empirical evidence relevant to the story I have told is limited and does not permit firm conclusions. Econometric results drawn from time-series data support the idea that balance sheet variables help determine durables expenditure. Otto Eckstein, Edward Green, and Allen Sinai reported favorable results in a regression explaining auto purchases; the Data Resources model today makes use of liquidity and debt variables in predicting both consumer and firm spending behavior. Mishkin has done the most extensive work by far (see his 1977 paper and references therein), consistently reporting positive effects of liquid assets and negative effects of debt on various components of consumer durables expenditure and housing. It has been argued, however (see discussion of Mishkin, 1977), that some of these results may derive from spurious correlations; for example, both the stock market (the most variable part of liquidity) and durables purchases could be driven by a third variable, say, expectations of economic growth.

The small amount of cross-sectional evidence offers less support. James Tobin, in an example to illustrate his dichotomous-dependent-variable procedure, found that the ratio of car purchases to disposable income was related to age but not to holdings of liquid assets. Tobin's data base was the Survey of Consumer Finances for 1952–53; I have done some preliminary work using the same survey for 1969. I have found auto expenditures to be best explained by (previous year) disposable income, pre-existing auto stocks, and demographic variables—notably age. The dominance of disposable income over measures of net wealth supports the liquidity approach; contrary to expectations, however, holdings of nonstock financial assets, stocks, and home equity all failed to contribute to the explanation of auto expenditures. The three components of consumer debt included in the regression entered negatively, but at low statistical significance levels.

For firms, there is a well-known tradition that the level of internal liquidity is important for the rate of investment (see, for example, Robert Coen), but I am not aware of a full-fledged balance-sheet analysis of firm investment.

Besides econometric analysis, evidence can be gathered from case study. Mishkin (1978, 1979) has looked at consumer durables expenditure in the Great Depression and the Great Recession of 1974–75. I have made some effort to expand on his work and to look at other episodes; initial results suggest that additional research would be worthwhile. Following are just a few comments.

The Great Depression. Bankruptcy risk was, of course, very important in 1929–33, a period in which banks as well as borrowers had to hoard liquidity in order to maintain solvency. Mishkin has already documented how the liquidity/bankruptcy model can explain the "autonomous" drop in consumer spending to which Peter Temin attributed part of the depression's severity. Other points which can be clarified by this approach include 1) the behavior of interest rates in 1931–32, when (safe) government bill yields and (risky) corporate bond yields radically diverged (Temin, p. 104); 2) the lack of response of investment spending to apparently cheap money later in the depression (not a liquidity trap, but rather a dearth of solvent private borrowers); and 3) the inability of deflation (which increased debt burdens and insolvency) to stimulate the economy.

The 1968 tax surcharge. The failure of this explicitly temporary tax measure, in apparent contrast to the permanent tax cut of 1964, convinced many macro economists of

the empirical dominance of pure net wealth (life cycle) theories of consumption. My reported regression results notwithstanding, this conclusion is probably too hasty. While the impact of the surcharge was not trivial ($36 billion in 1969), powerful offsets included easy money and credit policies, a bull market, and (because of the 1966–67 credit crunch) a low inherited debt burden. Further research into this episode is planned.

The 1980 recession. The surprising strength of consumer spending in 1979 (attributed by some to the positive effects of the real estate boom on consumer liquidity) was overmatched by the unexpectedly restrictive credit policies which began in October. Interest rates have followed a familiar path since then: high at first, then falling. Some large firms have had well-publicized cash flow problems. Bankruptcy, default, and debt burdens have approached 1975 highs while durables demand has been sharply cut. The evidence is admittedly impressionistic and circumstantial. Still, the roles of bankruptcy and liquidity factors in this as well as other episodes bear investigation.

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