This is a preprint version of the author's article, "Market Value Accounting and the Bank Balance Sheet," *Contemporary Policy Issues,* April 1990, v. 8, iss. 2, pp. 82-94.

Working Paper 89-4

THE FEASIBILITY OF MARKET VALUE ACCOUNTING FOR COMMERCIAL BANKS

David L. Mengle

Federal Reserve Bank of Richmond

October 1989

The author thanks George Benston, Robert Graboyes, and Edward Kane for helpful comments, and Robert LaRoche for research assistance. The views expressed are those of the author and not necessarily those of the Federal Reserve Bank of Richmond or of the Board of Governors of the Federal Reserve System.

As the severity of the problems facing the federal deposit insurance funds becomes more obvious, the chorus of support for some form of market value accounting is growing. Proponents cite the benefits of increased disclosure and the discipline such accounting would bring about. Opponents argue that market value accounting is infeasible because it would be too costly and too inaccurate to be worth the effort.

While the cases for and against market value accounting have been made, relatively little has been written on how it could actually be applied in practice.[1] The objective here is to focus on the feasibility of market value accounting for depository institutions and on where the difficulties lie. To that end, the paper will concentrate on three areas: First, why should depository institutions adopt market value accounting? Second, what are the practical obstacles to instituting market value accounting and what is the practical significance of such difficulties? Third, how could the most severe obstacles be overcome?

While the practical problems of implementing market value accounting have received little attention in the academic literature, practitioners in the private sector are developing knowledge that could be used either directly or indirectly to mark bank portfolios to market. This paper will attempt to inventory the knowledge amassed thus far.

---

[1]For exceptions, see Johnson and Peterson (1984) and Benston (1989).

What is Market Value Accounting?

At present, banks report the value of assets and liabilities at historical cost values, also known as book values. This is required under both Generally Accepted Accounting Principles (GAAP). In contrast, market value accounting would require that assets and liabilities be reported at current values, that is, reported as the discounted value of expected cash flows or, if traded in active markets, at the values they would realize if sold today.

Market value accounting need not completely displace book value accounting. For example, market value accounting could be required only for limited purposes, such as determining capital adequacy and solvency. It is even possible that depository institutions and their regulators could keep market values confidential and allow book value accounting for all other purposes. While reporting separate sets of data might seem costly to some, it is already the practice in many firms to submit separate reports for financial reporting purposes, another for tax purposes, and yet another for regulatory purposes. Still, market value accounting admittedly would require a far more complex set of reporting requirements than has heretofore been the case.

An example of a market value accounting proposal may be found in Johnson and Peterson (1984). The authors proposed that values of assets and liabilities be reported at book values as is now done, but supplemented by contra accounts for each category of balance sheet item. The accounts would serve as "current value reserves," which reflect the difference between historical costs and market values in a manner somewhat analogous to loan loss reserves. The result would be equity measurements that more closely reflect

market values, but book values would still be reported and accessible to those wishing to use them.

In contrast to market value accounting, book value accounting uses the ultimate collectibility of an asset as its criterion for value. This was most obviously stated by federal regulators in 1938 in a joint declaration. Up to that time, bank investment securities had been reported at market values while loans and other bank assets were reported at book values.

The declaration explicitly accepted ultimate collectibility for securities. For example, the Board of Governors wrote that the declaration

> "...recognizes the principle that bank investments should be considered *in the light of inherent soundness rather than on a basis of day to day market fluctuations*. It is based on the view that the soundness of the banking system depends in the last analysis upon the soundness of a country's business and industrial enterprises, and should not be measured by the precarious yardstick of current market quotations which often reflect speculative and not *true appraisals of intrinsic worth*." [emphasis added.][2]

Further, the Federal Deposit Insurance Corporation argued that valuing securities at market encouraged speculative trading, "placed primary emphasis on the trading aspects rather than the investment aspects" of securities, and distorted computations of capital by allowing net worth to be influenced by the "state of the bond market."[3]

Somewhat less obvious was the significance of deleting "slow" loans as a category.[4] Up to that time, loans could be classified as "estimated loss," in which some or all of a loan could not be collected; "doubtful," in which some loss was expected; and "slow," which apparently referred at one time to loans

---

[2]Board of Governors (1938), p. 564.

[3]Federal Deposit Insurance Corporation (1938), p. 65, 74.

[4]Hempel et al. (1989), p. 11.

that would eventually be collected but were not "collectible at the stated maturity."[5]

The declaration made it clear that such loans would no longer be criticized by examiners if they were expected to be paid. More to the point was a passage by the Board of Governors:

> "...the principle is clearly recognized that in making loans, whether for working capital or fixed capital purposes, the banks should be encouraged to place the emphasis upon intrinsic value rather than upon liquidity or quick maturity."[6]

By denying that a slow loan was less valuable and therefore worthy of reserving, the regulators confined the valuation criterion to ultimate collectibility. Indeed, the significance was probably not great at the time because it is likely that banks tended to engage in mostly short-term lending. In addition, slow loans probably did not suffer much present value impairment because of the generally low interest rates prevailing at the time.

If market value accounting were instituted, the criterion for value would more closely resemble the economist's concept of opportunity cost. Market value accounting would emphasize net present values of assets and liabilities rather than ultimate collectibility. Further, it would recognize the time value of money, and would essentially reverse the 1938 principle that loans that are behind should be valued the same as those paying on schedule.

As one opponent of market value accounting has admitted, banks have in some respects implicitly accepted the principle of market valuation.[7] For example, in 1987 John Reed of Citicorp ordered that his bank set aside

---

[5]FDIC (1939), p. 62.

[6]Board of Governors (1938), pp. 563-64.

[7]Cates (1988).

significantly larger loan loss reserves for Third World debt than had previously been industry practice. As such he recognized that the loans were not worth what the books said they were worth. And since that time, many regional banks have sold most or all of their Third World loan portfolios. Since the transactions largely took place in an active secondary market, such sales in effect marked a portion of the banks' loan portfolios to market.

Market value accounting has also drawn interest from two regulatory bodies. The Financial Accounting Standards Board (FASB) published an "exposure draft" in 1987 of a proposal that market values of financial instruments be reported. Specifically, the proposal suggested that institutions be held to the following disclosure standards:

> The market value of each class of financial asset and liability shall be disclosed, either in the body of the financial statements or in the accompanying notes, unless the entity is unable to determine or estimate that value.
>
> Quoted market prices, if available, shall be used to determine market value. If quoted market prices are not available, an estimate of the market price of the financial asset or liability shall be used. If estimates of market price are used, a description of the method(s) and significant assumptions used to estimate the market value shall be disclosed.
>
> If the market value of a particular financial instrument (or group of financial instruments within a class) cannot be determined or estimated, the following shall be disclosed:
>
> a. Reasons the market value could not be determined or estimated.
>
> b. Information about the carrying amount, interest rate, maturity, and other characteristics pertinent to the value of the financial instrument or group of instruments."[8]

At present, the FASB proposal is still open, but consideration of market valuation has been delayed in favor of a two-phase approach. During the first phase, FASB and a task force made up of representatives from private financial

---

[8]Financial Accounting Standards Board (1987), p. 6.

phase, FASB and a task force made up of representatives from private financial firms and regulatory agencies will concentrate on disclosure standards for off-balance sheet activities. This phase is now underway. In the second phase, the task force will return to the more general question of disclosure of market values of financial instruments.

In addition to FASB, the now-defunct Federal Home Loan Bank Board showed some interest in market value accounting.[9] In the early 1980s, a task force was set up to study the feasibility of market value accounting.[10] But the only change to come of it was to require the (confidential) reporting of thrifts' maturity and rate structures of their assets and liabilities (just as banks were already required to report in Schedule RC-J of the Call Report). Interestingly, while the thrift regulators moved somewhat in the direction of increased disclosure of information relevant to determining market values, bank regulators have reduced somewhat their requirements for reporting the same information.

Shortly before it ceased to exist, the Bank Board also took up the problem of marking securities portfolios to market.[11] Its successor organization, the Office of Thrift Supervision (OTS), delayed until January 1, 1990, the imposition of a rule requiring that securities in investment accounts be marked to market unless an institution can show "intent and ability to hold to maturity under any foreseeable circumstances."

---

[9]See, for example, White (1988).

[10]Federal Home Loan Bank Board (1983).

[11]Federal Register, vol. 54, June 1, 1989, pp. 23457-23471; see also "It's Time to Substantiate Securities Trades," Federal Home Loan Bank Board Journal, August 1989, pp. 16-19.

While one might interpret the rule as a move toward market value accounting, the Bank Board's justification was based on their interpretation of GAAP. That is, the Bank Board believed that it was not the intent of GAAP that book value accounting of securities should be used as a means of concealing losses until gains could be realized from a sale. Further, it is probable that when and if the rule is finally issued it will apply to all depository institutions.

Why Market Value Accounting?[12]

The general argument in favor of market value accounting is based on the relevance of economic values to decisions. That is, the actual opportunity costs of a decision include both explicit and implicit costs. Since accounting costs are largely explicit costs, basing decisions on them does not necessarily use all relevant information. Put differently, economic costs and values are meant to be a fuller representation of reality than are accounting costs and values. Still, as pointed out by Benston (1982,1989), that does not mean the accounting numbers have no value. Rather, it means that market value accounting and book value accounting have different objectives.

The most important argument in favor of market value accounting is that it would establish an economically meaningful standard for determining solvency. In other words, it would attempt to use actual values to determine solvency rather than rely on values from some time in the past. And if regulators close a bank when its market value goes negative rather than

---

[12]Edward Kane and George Benston have been the leading spokesmen for market value accounting. See Kane (1985), Benston et al. (1986), and Benston (1989).

waiting for book value to go negative, losses to the deposit insurance funds should be lower.

Second, capital regulation would be more meaningful if net worth were measured with actual economic values of assets and liabilities. Measurement of capital ratios under market value accounting would account for interest rate risk and imbalances between asset and liability durations. This would be particularly important in the case of thrift institutions making long-term mortgage loans. In contrast, under the current risk-based capital system for banks there is no explicit recognition of interest rate risk.[13] Further, to the extent that market value accounting will be able to capture some of the "going concern" value of banks, capital ratios should be a better approximation of economic net worth.

Finally, marking assets to market would reduce some perverse incentives under the existing system to sell high quality assets to realize gains while retaining poor quality assets to avoid recognizing losses. For example, a bank wishing to build up its capital might be tempted to sell a profitable subsidiary in order to realize the gain while at the same time leaving troubled loans on its books rather than sell them at a loss. Under market value accounting, in contrast, the gain in value of the profitable subsidiary and loss on the loan should already be recognized so the bank would have less incentive to sell the good asset.

---

[13]The Federal Home Loan Bank Board's proposed risk-based capital requirements include a specific component that recognizes interest rate risk. Federal Register, vol. 53, December 23, 1988, pp. 51800-51820. Financial Accounting Standards Board (1987) also recognizes that market values help to determine if an institution manages its "assets and liabilities in a coordinated way" (p. 70).

It is difficult to overemphasize the importance of such incentives. If the market value of an asset is below its book value, a bank has little incentive to immediately recognize the loss by selling the asset. But it might be in the bank's economic interest to do so since the proceeds of the sale could be reinvested. And if an asset's market value is above its book value, the only way the increased value can be immediately recognized is by selling (or by selling and leasing back). Such a sale would be especially unfortunate if there is added value from "synergies" with the bank that would not be captured by the purchaser. Put more precisely, there may be certain transaction costs involved in an activity carried on by a bank that are reduced through the collection of valuable but private information that would not be transferred if the asset were sold.

So far, the arguments advanced for market value accounting would not necessarily call for complete public reporting of market values. The main argument for full use of market values is based on the benefits of increased disclosure. Depository institutions would be subject to increased discipline to avoid excessively risky behavior. Regulation, too, would benefit since regulators' actions could be evaluated against the market's estimates of an institution's condition.[14] But it is also possible that the additional costs involved in full use of market value accounting may not be justified by the benefits to users such as stockholders, managers, and accountants, none of whom have shown much enthusiasm for (but have at times shown antipathy toward) market value accounting.[15]

---

[14]Benston and Kaufman (1988), p. 36.

[15]Benston (1989).

Whatever its advantages, there are reasonable objections to market value accounting. Some examples may be found in the summary of comment letters on the exposure draft of FASB 54:

> "Those opposing market value for some or all financial instruments note: (a) market value estimates are too subjective, (b) market value estimates may not be comparable among entities due to differing estimation techniques, (c) market value lacks relevance and is "stale" information by the time financial statements are issued, (d) market value estimates are difficult to verify, and (e) market value information may be potentially misleading for the reasons noted in items (a) - (d).[16]

Since about half the respondents were financial institutions, it is fair to say that there is some degree of skepticism regarding the promise held out by market value accounting.

In addition, some feel that the costs of instituting market value accounting may not be justified by the added usefulness of the result.[17] That is, it is not clear that it will be a particularly useful tool for bank managers or source of information to the public. As Benston (1982) has pointed out, it is not the objective of historical cost accounting to report economically meaningful values. Rather, it is intended to establish control over assets and operations as well as to meet regulatory and tax requirements. In fact, explicit historical costs are probably more useful to auditors than would be market values because of the ease of verification. That may in part explain the lack of enthusiasm shown for market value accounting not just by bank managers but by bank regulators as well. Still, such objections might argue against full adoption of market value accounting, but not against using market values to determine capital and solvency.

---

[16]Financial Accounting Standards Advisory Council (1988), p. 7.

[17]Cates (1988).

Economists have also leveled objections to market value accounting. In particular, Berger et al. (1989) argue that there are different concepts of market values of assets, in particular loans, that must be agreed upon if values are to be comparable. For example, the value of a loan to the bank that made it is likely to be different from the value of the same loan to another bank or its liquidation value to the deposit insurer. More fundamentally, they argue that extending and holding loans that are by their nature unmarketable is the raison d'être of banks. If commercial loans could be readily marked to market, there would be no need for banks. Any attempt to mark such loans to market, therefore, would come up against informational obstacles for which an entire class of institutions was created.

Such objections are consistent with practitioners' fears, cited above, that market value estimates, at least of loan values, would in most cases be unavoidably subjective and costly to compare and verify. In contrast, book values are at least objective. So while market value accounting would eliminate obfuscation over differences between (objectively determined) historical and (possibly subjectively determined) current values, it would introduce new obfuscation over criteria for determining market value. Thus one problem would be replaced by another.

But even if there are difficulties and disagreements in arriving at an estimate of market value, a reasonable market value estimate of capital should provide a closer approximation to actual solvency than book values. Objective book values are not necessarily preferred to subjective market values if the objective book values are irrelevant to whether a bank is solvent.

In essence, then, Berger et al. have established that market value accounting would produce a less than optimal solution. But along with the

practitioners, they fail to consider whether it would be an improvement over historical cost accounting.[18] That is to say, the relevant choice is not between market value accounting and some hypothetical ideal option, but rather between market value accounting and the present system of regulatory historical cost accounting. The case for market value accounting thus returns to the matter of feasibility.

Is Market Value Accounting Possible?

There are two aspects to the feasibility of market value accounting. First, market value accounting may be more or less suitable to financial institutions than to other firms. Second, various categories of assets and liabilities of depository institutions are more difficult to value at market than others. And given the difficulties, some categories have a greater quantitative significance as a proportion of a depository institution's balance sheet. It is this significance that helps determine where research efforts should be focussed.

Can Market Value Accounting Work for Banks?

Benston (1982) has catalogued many of the discrepancies between economic values and accounting numbers. A close look, however, shows that the discrepancies are less for banks than for other types of firm. For example, book values of assets reflect purchase prices net of depreciation. But one would expect a company to purchase an asset only if it expected it to be worth more than it cost. Assets are therefore understated. But for banks, the amount lent is recorded as the book value, and it represents the amount

---

[18]Although their policy recommendations are virtually identical to the recommendations in the conclusion of the present paper. Their paper is by no means a defense of book value accounting, but a "red flag" to those who facilely assume everything can be readily marked to market.

expected to be paid back. If such a loan carries adjustable interest rates and is not expected to default, then book value should be a reasonable approximation of market value.

Another discrepancy is nonrecording of assets. For example, a contract to provide a service represents an asset with an economic value, but is not recorded as such except as income is received from it. Since banks contract to provide cash management and trust functions, they face the same problem. But for banks the vast majority of contracts are loans, and loans are recorded as assets. So nonrecording of assets is less severe a problem for banks than for other firms.

Finally, a major source of discrepancy between accounting and economic values is changes in asset values. After a firm acquires a physical asset, its book value is reduced over time by depreciation formulas. The formulas used bear no relation to economic values. But banks have relatively few physical assets, and the values of financial assets are not adjusted by depreciation. While changes in default probabilities and interest rates do lead to discrepancies between economic and accounting values of bank assets, bank assets are at least free of even further distortions from economically arbitrary depreciation adjustments.

Because the differences between economic values of bank assets and liabilities and their corresponding accounting numbers are less than for other types of firm, it is fair to say that market value accounting is more suited to financial institutions than to any other type of firm. This may also be inferred from some empirical articles published in the early 1980s that analyzed the usefulness of accounting rates of return for drawing economic

conclusions.[19] The studies demonstrated the severe biases of accounting data that arise from the difference in depreciation methodologies between firms and the lack of relationship between accounting and economic depreciation. But given the small proportion of bank assets comprised by physical capital (about 1.5 percent), the potential for such biases is small in banking relative to most other industries.

In addition, studies attempting to develop profitability measures based on actual cash flows imply that bank income data are a far more reliable indication of actual cash flows than are income data from other industries.[20] For example, reported income flows from a bank loan would be more reliable in calculating present values than would be income flows from, say, a manufacturing company's assets. As a result, market value accounting would represent a less drastic change for banking than it would for other industries. And because of the close correspondence between actual cash flows and reported cash flows for banks, adoption of market value accounting would have little effect on individual income statement items. The major change would be reporting adjustments to market values of assets and liabilities between reporting periods.

The suitability of market value accounting for banks can also be illustrated by contrasting it with its lack of suitability for public utilities. In the late nineteenth century a controversy arose regarding the appropriate base for public utility rates. In 1898 the Supreme Court in Smyth v. Ames held that

---

[19]Fisher and McGowan (1983) and Benston (1985).

[20]Salamon (1982).

> "...the basis of all calculations as to the reasonableness of rates to be charged by a corporation...must be the fair value of the property being used by it for the convenience of the public. And in order to ascertain that value, the original cost of construction, the amount expected in permanent improvements, the amount and market value of its bonds and stock, the present as compared with the original cost of construction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses, are all matters for consideration, and are to be given weight as may be just and right in each case. We do not say that there may not be other matters to be regarded in estimating the value of the property...."[21]

While at first blush the Court's criterion might seem reasonable, in practice it proved unworkable because of circularity: The market value of a regulated public utility would depend on how much the firm would be allowed to charge for its services, which the Court said should depend on market value.

The concept of market value was eventually superceded in practice by the somewhat less objectionable concept of replacement cost. But this concept had its own problems. Replacement cost might be far higher than market value for a specialized investment with actual cash flows below those required to yield a positive net present value. Put more simply, setting rates on the basis of replacement costs could embody a sunk cost fallacy. The choice between market value and replacement cost was ultimately rendered moot in a 1944 decision that recognized the circularity of the whole matter.[22]

The unsuitability of market value accounting for public utility rate setting stands in marked contrast to its possible use for financial institutions. In particular, banks do not have allowable rates of return or administered rates for their products, so there is no problem of circularity.

---

[21]Smyth v. Ames, 169 U.S. 466 (1898). For a more complete discussion of public utility rate setting, see Kahn (1970), pp. 35-41.

[22]Federal Power Commission v. Hope Natural Gas, 320 U.S. 591 (1944).

Further, the lack of significant amounts of physical investment make the question of replacement cost less pressing. Thus certainly relative to other industries, market value accounting could work for banks.

How Would Market Value Accounting Affect Individual Balance Sheet Categories?

There are two dimensions to the feasibility of market value accounting. One is the costliness of marking each category of asset or liability to market. Benston and Kaufman (1988) have considered this dimension by surveying the depository institution balance sheet category by category in order to determine how easily each item could be marked to market. The other dimension is the significance of each category as a percentage of total assets or liabilities. This section will attempt to combine the two dimensions by comparing the costliness of marking an item in a specific category to market with its importance to the balance sheet.

Some assets and liabilities will present no problems for market value accounting. For example, assets or liabilities that are traded in active markets can easily be reported at current values. But it is also possible to simplify marking untraded assets and liabilities to market by making two assumptions: first, fixed rate instruments with maturities of one year or less have maturities of zero; and second, floating rate instruments with repricing intervals of one year or less have maturities of zero. As a result of the assumptions, a significant portion of the balance sheet can be assumed to be at market (assuming no deterioration in credit quality). While such assumptions make accounting numbers less responsive to changes in interest rates, they also make marking to market considerably less costly.

Liabilities. The largest single category of liabilities consists of so-called "core deposits," that is, checking accounts, NOW accounts, money market

deposit accounts, and savings accounts. As can be calculated from Table 1, such deposits constitute over 70 percent of total liabilities for the smaller categories of bank, but barely 40 percent for money center banks.

There are two possible approaches to valuing core deposits. On the one hand, since they have a stated maturity of zero and can all be withdrawn on demand, they could be assumed to be at market. But since by definition core deposits are not withdrawn frequently, their presence represents an asset to the bank. In order to reflect the value of the core deposit base, then, Benston (1989) has suggested that the present value of the difference between the rate paid and the market rate that would normally be required to attract such funds be carried as an intangible on the asset side.

On the other hand, there is some evidence that the effective maturities of core deposits are actually quite long.[23] If this is the case, banks could carry the present value of core deposits based on some empirically determined maturity. But in practice the result should not differ much from carrying the value of core deposits as an intangible. Further, the intangible approach is more consistent with current accounting practices and should involve somewhat less computation since it does not involve inferring effective maturities.

After core deposits, certificates of deposits (CDs) come next in significance. About 90 percent of large CDs (over $100,000) have maturities of less than one year. Assuming that the same percentage of small CDs have maturities of less than one year, then an additional 27 percent of liabilities can be carried at market. For longer term CDs (and, probably, subordinated

---

[23]Flannery and James (1984). In the limit, core deposits might be considered perpetuities. But this would require an assumption that core deposits are never withdrawn, which is totally unfounded.

debt), projected cash flows would have to be discounted at prevailing rates in order to obtain a current value.

Federal funds purchased and repurchase agreements, both of which are more significant for larger banks, could be assumed to be at market. Virtually all deposits in foreign offices have maturities of less than one year. Finally, such liabilities as accounts payable and dividends declared but not yet payable are carried as "other liabilities" and can probably be carried at market. Summing all the categories of asset that can be carried at market, over 90 percent of liabilities may be assumed to be at market.

Securities. The simplest category of assets to mark to market is that of marketable securities, since market values are readily available. In fact, banks already report market values along with book values on their call reports so market value accounting would require no more information than is now the case. Table 2 shows that investment securities comprise from 9 percent of assets in money center banks to 30 percent in small banks. Securities in trading accounts are already reported at market values, although trading accounts are just 4 percent of assets for money center banks and less than 1 percent for other banks. From the point of view of bank capital and solvency, there is no reason to distinguish between securities in trading accounts and those in investment accounts.

Table 3 shows that over 83 percent of securities held by most banks (and over 90 percent held by small banks) are either federal government, agency, state and municipal, or mortgage-backed securities, most of which are actively traded. And about one-third of money center bank securities are foreign securities. The remainder consists of instruments such as corporate debt

securities, "strip" securities, investments in mutual funds, collateralized mortgage obligations, and Federal Reserve Bank stock.

Some securities (including Federal Reserve Bank stock) held by banks are not traded. Most securities that fall into this category are small local municipal issues or industrial revenue bonds. Current regulations require that if a security is rated but untraded, prices can be obtained from brokers or from yield curve estimates. If an untraded security is also unrated, then a bank is allowed to carry it at amortized cost.

If the price of an issue were not available from brokers, then it could be obtained in the same way as (hypothetical) market values of privately placed, untraded corporate issues are provided by investment banks and consulting firms.[24] That is, the firms conduct regression analyses of actively traded fixed-rate corporate issues in which spreads over, say, Treasury Bill rates are obtained as a function of various characteristics of the issuer and market. Yield curve estimates are also factored in to account for interest rate changes. The resulting information is used to assist money market funds and pension funds in marking their portfolios to market. The methods could be applied to municipal bonds to provide market values by pricing them according to how comparable traded issues are priced.

The practical significance of reporting securities at book rather than market values may be inferred from call report data. Table 4 shows that book value of securities exceeded market value in 1984, 1987, and 1988, while market value exceeded book in 1985 and 1986. Conversely, return on market value was higher in 1985 and 1986 but lower in the other years. But the

---

[24]Information provided by interviews with BARRA and Wilshire Associates. See also Bond Valuation System, BARRA, 1989.

percentage difference between book and market values was never more than three percent, and the difference can go in either direction. Further, the difference between return on book value and return on market value exceeded 20 basis points only once during this period.

Given the small differences between market and book values, the effects on capital of marking securities to market are also likely to be small. A simple example will give an idea of what would happen to capital if banks' portfolios were marked to market. In 1988, the book value of the average bank's equity capital ratio was 6 percent while securities comprised 17 percent of its assets. If banks had been required to mark their securities to market in that year (in which book values of securities exceeded market values by about 1.55 percent), equity capital for the average bank would have decreased by about 4 percent of capital.

Suppose instead that the marking to market had occurred in 1986, when market values were above book values. Assuming the same capital and securities ratios as in 1988, equity capital would have increased by about 8.5 percent of capital. But it is likely that such differences, though small, would be muted under market value accounting since banks would have incentives to hold shorter-term securities that are less subject to interest rate changes. From a liquidity point of view, such a change would be desirable.

Physical assets. Of greater difficulty than the preceding balance sheet items would be physical assets such as premises and fixed assets. It is possible to rely on appraisals or possibly on actual market values, but the problem with regard to such assets lies more in the expense than in the conceptual difficulty of obtaining values. But as Table 2 reveals, such assets constitute between one and two percent of assets across size classes,

and are unlikely to be a major source of problems. In fact, institutions wishing to book gains on such assets without actually selling them might have incentives to incur the costs of appraisals.

Alternatively, it would probably be less costly to obtain the replacement cost of the asset based on costs of similar facilities, and this could be used as the market value. But using replacement cost would bring back from the dead the ghost of a problem faced in public utility rate setting: Of what relevance is replacement cost of an asset that in retrospect yielded less than expected? It might be preferable, therefore, to use the lower of replacement cost or appraised value in order to discourage attempts to inflate reported capital.

Real estate. Moving on to increasingly difficult assets, real estate other than bank premises (known as "other real estate owned" or OREO) is already carried at the lower of cost or market. Specifically, current regulations allow banks to carry such real estate at book values not to exceed "fair values." While using such a standard is inconsistent with true market value accounting, it has the advantage of limiting the ability of banks to manipulate appraisals in such a way as to inflate their net worth.

Even if a market value standard were adopted, however, the ability to inflate real estate values would be of limited help since other real estate owned is not even one percent of assets for any size class of bank (Table 1). And any attempts to use appraisals to inflate capital are likely to invite close regulatory scrutiny. It is more likely that auditors and regulators will have to prod banks to write down those properties for which market values are less than book values.

Intangibles. The thrift crisis has focused attention on the matter of goodwill and intangibles. A glance at Table 1 shows that the significance of recorded intangibles to commercial banks is minuscule. The largest proportion of recorded intangibles is found in regional banks with assets over $1 billion, probably because of the premiums paid for interstate acquisitions. And in the case of such institutions, the share amounts to less than one third of one percent.

The problems lie with unrecorded intangibles. The difficulty of valuing the intangible value of a core deposit base has already been discussed. But there are other items of value to a bank that are not reflected on the balance sheet. For example, the value of a branch network is not recorded as an asset, even though the network has economic value because it reduces customers' costs of transacting with a bank. Also, the name and reputation of a bank, the employees' training, and the relationships between a bank and its borrowers all have economic value. Finally, the charter value of a bank is likely to include the capitalized value of the deposit insurance subsidy.[25]

But the fact that intangibles exist and have market values does not mean the values would be easy for the accounting system to capture. There are two possible ways such values could be ascertained. One is from acquisitions, in which the difference between purchase price and recorded market value would give an idea of the value of the intangibles. The other would be from the difference between the price of an actively traded bank's stock and the book value. The problem is, most bank stocks are not actively traded, but are instead held by a bank holding company. Except in the case of bank holding

---

[25]For examples of empirical analyses that attempt to uncover the value of subsidies to risk, see Kane and Foster (1986) and Kane and Unal (1989).

companies in which the lead bank dominates and does not have extensive nonbank subsidiaries, it might be difficult to attribute the intangibles entirely to the bank.

Off-balance sheet items. When a bank enters into a loan guarantee, letter of credit, or other off-balance sheet item, it creates a contingent liability since it may have to perform on the obligation. But it also gains the right to collect the amount from the party receiving the guarantee. Benston (1989) suggests booking the same amount on the asset side and liability side. If the bank does have to fulfill the guarantee, he calls for booking the asset at the amount expected to be collected. While this has the advantage of treating both on- and off-balance sheet items in a consistent manner, it does little to reflect the actual risk that a bank (1) may have to perform, and (2) be unable to collect fully from the guaranteed party. It is not clear how the asymmetry could be remedied unless accounting firms or rating agencies could make some plausible judgments of the relative magnitudes of risks on the two sides of the balance sheet.

So far no category of asset or liability appears to present insuperable obstacles to adopting market value accounting. Over 30 percent of assets, including securities (18 percent), cash (11 percent), and federal funds and repurchase agreements (4 percent), present no problems. Somewhat more troublesome but of little significance are fixed assets (1.5 percent) and other real estate owned, investment in subsidiaries, and intangibles (together less than one percent). Loans, however, present additional problems since by their nature they are thought of as unmarketable. The following section will consider how loans could be treated under market value accounting.

Can Loans Be Marked to Market?[26]

Loans constitute the largest asset category for banks regardless of size, ranging from about 51 percent of assets for the smallest banks to over 60 percent for the large regional institutions. Thus biases between banks in valuing loans may well be of concern. While little has appeared in the academic literature about valuing loans, private sector practioners are showing an increasing amount of interest in the subject. The purpose of this section is to bring together some of the knowledge developed so far.

Interest rate risk. As mentioned previously, it is possible to simplify marking loans to market by making two assumptions: first, that fixed rate loans with a maturity of one year or less are at market values (assuming no deterioration in quality); and second, that floating rate loans with repricing intervals of one year or less are at market. This was the approach used in an early draft of a market value accounting proposal of a task force established by the Federal Home Loan Bank Board (1982).

Table 5 shows the result of the assumptions: On average, 66 percent of banks' loan portfolios can be considered to be at market values even under current regulatory accounting procedures, at least as far as interest rate risk is concerned. For the remaining 34 percent of loans, market values can be determined by discounting the expected cash flows (adjusted for expected prepayment of principal) at prevailing rates on comparable loans.

Credit risk. It is not as simple to generalize about credit risk across an entire loan portfolio as it is about interest rate risk. But there are

---

[26]Much of the information in the following section is based on interviews with individuals at BULAN, Diversified Corporate Loans, Drexel Burnham Lambert, KPMG Peat Marwick, Lafayette Group, Loan Pricing Corporation, NMB Bank, and Salomon Brothers.

some exceptions. Both loans to individuals and real estate loans may be relatively simple to mark to market values because experience has shown that such loans have predictable default rates. Just as expected cash flows from the portfolio of consumer and mortgage loans can be adjusted for prepayments, so can they be adjusted for expected defaults. The significance of the ability to approximate values for such loans is shown in Table 6. Loans to individuals are 12 percent and loans secured by real estate are 22 percent of the average bank's asset portfolio.[27]

The major loan categories remaining are two: (1) commercial and industrial loans, and (2) all other loans, which includes loans to foreign governments. The valuation of both is controversial, but only for commercial loans is the art of valuation in its infancy. Still, since commercial loans are about 20 percent of the average bank's assets and other loans are almost 4 percent, the significance to capital calculations cannot be overlooked.

Loans without a secondary market.

Most commercial loans are not easily categorized into a small number of borrowers. Rather, they are dispersed among a large number of heterogeneous borrowers ranging in size from major corporations to small neighborhood businesses. Further, banks make loans on the basis of private information on their borrowers. Consequently, commercial loans are not easily marketed and, indeed, no true secondary market for commercial loans yet exists.

Loan loss reserves. If market value accounting were adopted, valuation of the commercial loan portfolio would stress net present values of expected cash flows. But in actual practice, loans might be treated in a manner

---

[27]For an example of how to determine the market value of a fixed-rate mortgage portfolio, see the Appendix to Kane and Foster (1986).

surprisingly similar to current GAAP practice. At present, banks maintain reserves (called allowance for loan and lease losses and carried as a contra-asset account) to reflect anticipated losses. As losses are considered more certain, they are charged off both the loan portfolio and the allowance, although banks continue to attempt to recover the written off amounts. While loans net of reserves may not be consciously designed to reflect net present values, they normally are a closer approximation to present values than are book values.

Loan loss reserves are set by banks and audited by accounting firms and regulators. Generally, auditors look closely at the largest loans outstanding, past due loans, and loans to troubled industries, and determine a prudent level of reserves for the loans. They also examine samples of other loans in order to generalize about the rest of the portfolio and determine an overall reserve level. In addition, bank regulators have guidelines linking reserve levels to classified loans. For example, the Federal Reserve Bank of Richmond expects its member banks to set aside 10 percent of substandard loans, 50 percent of doubtful loans, and 100 percent of loss loans as reserves. An additional 0.5 percent of all loans is set aside as general loan loss reserves.

The accounting industry is attempting to refine the methodologies they use to determine loan loss reserve levels. The most recent efforts rely on expert systems (artificial intelligence) to capture the judgment process used by auditors to arrive at an estimation of the quality of a loan.[28] The system asks a series of questions regarding exposure, liquidity, and past performance

---

[28]Ribar, Willingham, and Bell (1989).

in order to estimate reserves. The result of such an analysis on, say, a loan classified as substandard might be to set aside reserves of 30 percent rather than the required 10 percent.

While expert systems might provide more standardized criteria for loan loss reserves than would auditors acting individually, they do not actually attempt to ascertain market values. Rather, they attempt to assemble the knowledge and experience of professionals in what is an essentially administrative procedure. Still, since auditors are acting as appraisers of loans, using such methods as expert systems would be no less appropriate than relying on appraisers to determine the value of assets that have not yet been exchanged. And if reserve methodologies also sought to reflect interest rate risk, the approximation to market values would be even closer.

Market-based alternatives. In contrast to administrative loan loss reserving practices, market-based valuation methodologies would be based on actual market data rather than on the opinions of an auditor or group of auditors. Such methodologies may take two forms: matrix pricing and use of actual market transaction data.

Matrix pricing classifies loans by characteristics, relates the characteristics to yields, and then uses the results to infer discount factors for comparable loans. In fact, the method suggested for valuing untraded municipal securities in the previous section is a form of matrix pricing (as are hedonic pricing models used in housing economics). Once a discount factor appropriate to a loan is determined, it can be used to find the present value of the expected cash flow.

An example of matrix pricing may be found in the service provided by the Loan Pricing Corporation (LPC). LPC does not provide the facility for selling

loans nor does it market its service as a means of finding the present value of a loan. Rather, it assembles information that can be used by bank clients to price the loans they are originating or renegotiating. As part of its service, it has developed a model for estimating average loan rates. The model attempts to relate a rate, expressed as spread over prime or over Libor, to such factors as "borrower size, risk, location, industry, loan type, purpose, maturity," and other factors.[29] The regression results are then used to determine whether a particular loan is underpriced or overpriced relative to the norm for loans sharing the same characteristics.

According to the author's interviews with LPC, it is also working on the problem of assigning a present value to a floating rate loan. The LPC model generally yields a "normally" priced loan. The solution LPC is currently working on is to use the swap market to find fixed rate equivalents to both the actual loan and the loan priced at the norm. If the two fixed rate equivalents differ significantly, the rate implied by the norm can then be used to discount the cash flows from the actual loan and find a present value.

So far, the LPC approach has only been applied to higher quality credits. While the rates implied by their model do take some account of risk, the data assembled thus far have apparently not included nonperforming loans. But as with untraded securities, using data on a large sample of loans to infer rates with which to discount the cash flow on comparable loans may yet be a promising approach to loan valuation.

In contrast to matrix pricing, using actual transaction data would have the advantage of the informational efficiencies of a market and the discipline

---

[29]Loan Pricing Corporation (1988).

on values provided by the arbitrage process. But a market would be unlikely to capture the private information banks have about their borrowers. To the extent that some loans are suited to trading in a market, however, the difficulties of administratively determining reserves for the other loans would be reduced.

Loan securitization would provide a means of using market trades to infer loan values. It is considered promising because even if individual loans cannot be marked easily to market, a portfolio of loans can be.[30] So far, banks have packaged mortgage loans, automobile loans, and credit card receivables into marketable securities, but there has been very little securitization of commercial and industrial loans. If securitized packages of commercial loans were traded, a bank could could mark its portfolio to market by finding pools of loans reflecting comparable characteristics and applying the pools' discount from face value to the bank's own portfolio.

In Canada there have been calls for commercial loan securitization. In particular, the Economic Council of Canada (1989) has suggested that securitization could be facilitated by greater standardization of commercial loan terms. In addition, differences in maturity and collateral could be dealt with by including guarantees of principal and interest. It remains to be seen whether standardization of loans is consistent with banks' role as specialists in private information about borrowing firms.

The seem to be some beginnings of a secondary market, although not a market that is of help in marking loans to market. Gary Gorton and Joseph Haubrich (1990) describe the growth and characteristics of the loan sales

---

[30]See, for example, Martin Mayer, "Marking to Market," American Banker, December 11, 1987; and Benston and Kaufman (1988), pp. 80-81.

market now operating in the United States. The market involves loan participations sold by originating banks that entitle the purchasers to the cash flow on the original loan. Most participations are in floating rate loans. While the loans exchanged in the market were originally short-term high quality credits, the market has broadened over time. Still, most of the trading in the market is between the largest banks. Many of the loans sold are participations in leveraged buyout loans, many of which are so large that the originating banks would run up against loan limits if shares of the loans were not participated out.

Ideally, the loan sales market would reveal discounts on loans to specific borrowers that could be used to determine loss reserves. But actual transactions involve sales of loans at book values, although the selling bank retains a part of the fee and interest income passed through to the buyer. Thus there is no discount that can be used to mark to market. In essence, the buyer would have to establish its own reserves on the purchased loan if problems were to arise. And it is not clear that the market has a broad enough base of participants to be of help to the majority of banks in the United States. Finally, some participations cannot be resold, so there would be no continuing revaluation of particular loans. In sum, the loan sales market does not yet appear to represent a fully functioning secondary market.

Outside of the loan sales market, there have been few applications of commercial loan securitization. To give an example of one application, Drexel Burnham Lambert in 1987 claimed to have "designed an offering package that would allow a bank to sell its nonperforming loans to investors at a deep

discount."[31] But the main result thus far has been the so-called Mellon "bad bank" (or, more properly, Grant Street National Bank) deal in which Mellon sells its nonperforming loans to an organization created for that purpose alone. Drexel apparently went through the portfolio loan by loan and developed projected cash flows. They then designed a bond issue that could be supported by the cash flows.

It seems inescapable that a truly reliable market valuation must involve continuing analysis of expected cash flows as was performed by Drexel. But given the large number of loans in many banks' portfolios, computing discounted cash flows for each transaction might prove to be a complicated and costly undertaking. Still, there are tax advantages once the marked-down portions of the loans are charged off. In general, the Drexel approach suffers from the same problem as does setting loan loss reserves and, for that matter, matrix pricing: It tries to estimate what loans would be worth in a market that does not yet exist.

While actual examples of commercial loan securitization are few, some firms are seeking to create an active market for loans. For example, Diversified Corporate Loans, Inc. (DCL), formerly Dimensional Corporate Finance, has been attempting for several years to set up a tradable pool of commercial loans. Essentially, DCL has been trying to establish a system whereby banks could sell commercial loans into a pool. Prices are based on a spread over commercial paper, and are determined by a survey of pool participants' assessment of risks. Loans are then sold without recourse into the pool, which consists of loans of similar quality and maturity. Buyers

---

[31]"Banks Increasingly Sell Parts of Their Loan Portfolios," Wall Street Journal, March 4, 1987.

then purchase a "proportional interest," that is, a fractional interest in each loan in the pool. A bank selling a loan receives the equivalent value of proportional interest.

Such a pool could provide a means for valuing commercial loans, since it combines loans of similar quality and maturity. But DCL has been criticized for the limited scope of its idea.[32] Specifically, the first portfolio offered will consist of investment-grade (that is, highest quality) loans maturing in 183 days or less. Because the loans are short term and of high quality, however, there is likely to be little if any difference between book and market values. And such difference as does exist may not be worth the cost of determining. Thus it is not clear how much guidance will come from DCL's pool.

It is possible, however, that the major contribution of DCL if it succeeds will be not so much in the information it provides but rather in developing a facility through which loans may be exchanged. So while it may not be of assistance now in marking to market, the facility over which DCL conducts its transactions may eventually provide a means for marketing loans of a wider range of quality.

A more recent and promising entry is related to an attempt by the Lafayette Group to set up a "bankers' bank." One of the planned functions of the bankers' bank would be to purchase nonperforming commercial loans. It could also involve a secondary market in which commercial loans could be bought and sold. In particular, they hope to "standardize the sale of these

---

[32]"Bankers Calling Loan-Pooling Program Too Limited," American Banker, September 9, 1989.

loans in order to find their true value."[33] Their model would estimate variances of cash flows as a function of characteristics of the underlying source of the cash flows, macroeconomic variables, collateral, and other factors such as workout strategies. The valuation procedure would then project expected cash flows for each loan and adjust them for their estimated variance.

Along with the market would come the ability to package and securitize commercial loans. Even though the original intent of the bankers' bank was to purchase nonperforming loans, the securities issued by the bank could include both performing and nonperforming loans. But it is unlikely that the securitized packages would be of much help to banks in computing loan loss reserves because the packages would probably contain far higher proportions of nonperforming loans than would be the case for any solvent bank. The important contribution would be from the market loan trading facility.

The market would be modeled after BULAN's Mortrade data base that is already used for trading mortgages. The Mortrade system is essentially an informational network over which sellers can make known what types of loans they are offering and buyers can make known the types of loans they are looking for. Actual transactions can then be consummated either over the network or off-line. The information available over the network could be useful in marking a mortgage portfolio to market because a depository institution could search a network for a pool of mortgages comparable to its own portfolio. The pool's price, normally expressed as a discount from face

---

[33]"'Bankers' Bank' Would Securitize Bad Assets," American Banker, June 6, 1989.

value, could then be used to get an approximate discount for the institution's own portfolio.

The bankers' bank would take the BULAN concept one step further by turning it into a network over which sales are actually consummated, thereby yielding quotes on loans and pools in a manner similar to that found on the NASDAQ network for over-the-counter stocks. It is hoped that if the terms of commercial loans can be standardized and that the necessary items of information communicated on the system, then participating banks will be able to enter the system to either buy or sell and will be able to gain a fairly accurate idea of what their loans would fetch.

The Market for Loans to Less Developed Countries.

One area that holds out promise for the ability to mark loans to market is the growing market for loans to less developed countries (LDCs). While loans to LDCs may not be a significant percentage of assets for the vast majority of banks, they are significant for a few. Table 7 shows the extent of LDC debt exposure for the sixteen largest banks in the United States as of 1988. In addition, a survey has shown that if the ten largest bank holding companies in the United States had been required to mark their LDC loans to market values at least one bank's capital would have been virtually wiped out while the other banks would have recognized substantial losses.[34] Given the potential effect of the change, then, marking LDC loans to market remains controversial.

LDC loans seem well suited to a secondary market because they are to a fairly small and easily distinguished group of borrowers. Further, each has a

---

[34]"Third World Debt Cures Are Bitter Pills for Big Banks," American Banker, October 5, 1988.

large enough volume outstanding to make trading worthwhile. But as recently as 1985, Edward Kane lamented the lack of such a market and attributed the lack to regulators' unwillingness to recognize the risks faced by banks lending to LDCs.[35] Since Citicorp made its now famous LDC loan loss reserve increase in 1987, however, the market has become more active and more highly developed.

Today, brokers in the secondary market include Nederlandsche Middenstandsbank (better known as NMB Bank), Salomon Brothers, Merrill Lynch, Citicorp, First Chicago, and Chase, to name just a few. In all, ten firms are considered major brokers, which take positions in most or all LDCs' debt; ten more are "niche" brokers, which specialize in a country or region; and three are "brokers' brokers," which do not take positions but help match buyers and sellers for specific transactions. Both Salomon and Merrill publish secondary market price quotations, usually on a biweekly basis. While there are no published volume figures, analysts seem to agree that annual volume ranges from about $40 billion to $60 billion.[36]

Since 1987, banks have participated extensively in the LDC loan market. Many regional banks, especially those in the Middle Atlantic and Southeast, used the market to drastically reduce their LDC loan exposure. According to one observer, $15 billion of debt has been eliminated from bank balance sheets in the United States through the market.[37] The most frequent means of reduction has been selling the loans in the market. The most recent example

---

[35]Kane (1985), p. 125.

[36]Information provided by the author's telephone interviews with at Salomon Brothers and NMB Bank.

[37]Interview with Peter Geraghty, NMB Bank.

is NCNB Texas selling its entire portfolio of Mexican loans in Spring 1989.[38]

Despite the activity in the market, the validity of secondary market quotations for LDC loans is not universally accepted. For example, when the General Accounting Office issued a report recommending that loan loss reserves for LDC loans be increased to levels consistent with secondary market prices,[39] the bank regulatory agencies responded that the market is thin, that the prices are biased by debt-for-equity and debt-for-debt swaps, and that in setting reserves market prices are no substitute for the judgment of "trained and experienced professionals," that is, examiners. Further, the Federal Reserve's response included a reaffirmation of the doctrine of ultimate collectibility in that "the market price may not reflect the ultimate value of a loan held to maturity."[40]

There seems to be some skepticism about whether secondary market prices reflect the "underlying value" of the loans. A typical quote:

> "The market price reflects the value of only one kind of debt--the generic, illiquid paper that banks hold in abundance. It is a 'distress' price for creditors simply looking to rid themselves of their burdens, based less on economic fundamentals than the perceived political climate."[41]

The quote apparently means that LDC loans are sold at prices below the net present value of the expected cash flows. But to suggest that such "fire sale" prices would persist over time is to dangle some delicious arbitrage

---

[38]"NCNB Texas: The Fastest Liquidator in the West," Latin Finance, May 1989, p. 35.

[39]U.S., General Accounting Office (1988), pp. 25-30.

[40]Ibid, pp. 62-68.

[41]"'Black Market' Gives Big Banks an Edge in Debt Sales," American Banker, March 8, 1989. See also "Anomalous but Profitable," Euromoney, January 1988 (supplement).

opportunities before market participants, opportunities that should be eliminated by the incentives of the participants to take advantage of them.

Another problem pointed out by the regulatory agencies is that debt prices may be biased by exchanges of the debt of one LDC for that of another or for equity in firms in the borrowing country. In either case the original debt could be taken off the balance sheet at prices above secondary market cash prices. In addition, some money center banks may report a higher selling price (and book a lower loss) by selling debt along with access to a relending program at a borrowing country's central bank. Each of these artifices will be considered in turn.

Debt-for-debt swaps do not contradict the validity of secondary market prices. On the contrary, such swaps are geared to secondary market prices in practice. For example, assume that Mexican debt trades for 42 cents on the dollar of face value on the secondary market, while Brazilian debt trades for 30 cents on the dollar. A bank may swap $10 million (face value) of Mexican debt for $10 million (face value) of Brazilian debt, and in the process would receive $1.2 million cash since the bank giving up Brazilian debt has received assets it could sell for $1.2 million more on the secondary market. Under current accounting practices, the selling bank would book no loss on the debt, and in fact would add to its cash. The point is, both banks' actions involve a conscious recognition of the validity of secondary market prices no matter what the accounting treatment of the transaction.

Debt-for-equity swaps present another set of problems. In a typical transaction, a bank takes its LDC debt to the borrowing country central bank and exchanges the debt for the local currency at the official rate on the understanding that the currency will be used for equity investment. The bank

then buys equity in a local firm. The debt may have been converted at face value or at a discount, but the discount is probably less than would have been realized had the bank sold the debt for cash on the secondary market. Thus the bank avoids writing the debt down to secondary market levels as would have been required after a sale in the market for cash.

Under current accounting practices, debt-for-equity swaps may enable banks to avoid (or, more likely, postpone) recognizing their true losses. Since market value accounting would require losses to be immediately recognized, there would be less incentive to use debt-equity swaps to avoid writedowns.

But even under market value accounting, there could still be obfuscation of losses by means of debt-for-equity swaps. For example, a bank need not swap debt in its own portfolio. Instead, it can buy the debt on the secondary market and then go through the same swap. As in the previous example, the central bank of the borrowing country would convert the debt to the local currency on favorable terms and the currency would be invested in local equities. The bank would profit by the spread between the value of the debt and that of the equity, a spread that is enlarged by the implicit subsidy from the central bank's conversion at a favorable rate.

The problem in such transactions is not bias in secondary market debt prices, but how to account for the value of the equity. Indeed, debt-for-equity swaps might be open to manipulation so "the value of [borrowing country firm] equity is whatever their accountants say."[42] On the one hand, if the equity is traded in an active secondary market, it can be marked to market on

---

[42]Ibid.

the bank's books after adjustment for exchange rates. On the other hand, if the equity is not actively traded, accounting treatment will be difficult.

A solution would be to require a bank to mark the value of the untraded equity down to the lesser of (1) the secondary market value of the debt swapped for the equity or (2) the estimated value of the equity. The former would reduce the ability to overstate equity values because of subsidies from borrowing countries. The latter would be necessary if the firm in which the equity is held were to go bankrupt or otherwise fail to meet expectations.

Finally, selling debt along with access to a relending facility in reality constitutes selling an intangible asset in addition to debt. In an accounting sense, the sale of the intangible is reflected entirely in the selling bank's charging off a lower percentage of the original loan than the secondary market price might imply. But it does not follow that the higher reported sale price implies that secondary market prices are biased estimates of the net present value of the expected cash flows.

Apparently, banks do accept the validity of secondary markets in practice. For example, a survey by the Federal Reserve Bank of Richmond revealed that NCNB, First Wachovia, First Union, and Crestar all used the secondary market to eliminate most or all of their LDC exposure. It seems unlikely that such institutions were under any pressure to sell at "fire sale" prices or to otherwise sell out for less than they felt their holdings were worth. It is far more likely that when money center banks report sales of LDC loans at prices above market, they should be viewed with caution.

The notion of a thin market is harder to refute. While the market for most countries' debt may see issues change hands every day, transactions often occur in large lumps for two reasons. First, when a bank reduces its exposure

by selling debt, the transaction can be quite large relative to the market. Second, debtor nations themselves may engage in transactions that affect the amount of debt outstanding. For example, an LDC with a debt-for-equity swap program may allow some debt to be converted during a limited period. So rather than having a large number of transactions offset each other, the pressure on price at a particular time often occurs on just one side. Consequently, bid-offer price spreads might diverge significantly, at least temporarily.

A look at the price movements of LDC debt my shed some light on the question of thinness. Charts A through F show bid and offer price movements since 1987 for six of the most actively traded LDC borrowers, Argentina, Brazil, Chile, Mexico, Venezuela, and Yugoslavia. Significant movements in the prices occur after the Brazilian debt moratorium in early 1987 and the Citibank reserve increase in the spring of 1989. It is safe to say that the market reflects the increasingly pessimistic outlook for LDC debt.

In addition, Charts G through L show the behavior of the bid-offer spread for the countries' debt over the same period. While the spreads are sometimes substantial, the charts show that they do not persist. Rather, the evidence suggests the spreads are volatile (at least compared with such highly developed markets as those for stocks and bonds) because of the relatively small number of transactor and their size in relation to the market. But since the spreads quickly disappear, it is reasonable to infer that the arbitrage process is at work.

Further, it should be noted that the prices are "indicative" prices rather than records of actual trades. That is, they are based on surveys of what prices participants are willing to accept. But in practice spreads tend

to be lower since the participants might actually accept a higher bid price or lower offer price than they are willing to reveal before an actual trade.

Arbitrage is the main reason secondary market prices are likely to provide a reliable means of marking to market. If the market were to consistently underprice (or overprice) issues, one could profit by taking a position contrary to the market. Further, with 23 active brokers, 20 of which take positions in some or all of the debt, characterization of the market as thin seems misplaced. Given the development of the market, there remains little justification for rejecting secondary market prices for marking LDC loans to market.

What Should Be Done?

Three points should follow from the above analysis. First, with regard to capital and solvency regulation, market value accounting promises an improvement over historical cost accounting. Second, determining market values will require close analysis of expected cash flows, and that will in all likelihood be far more costly to firms than current practices. Third, loans are the only significant category of assets that would be difficult to value. But in practice, loan loss reserves might actually be set in a manner similar to that used in current value accounting.

There is no practical reason some balance sheet items could not be carried at market values immediately. Many, such as unimpaired floating rate loans and short term liabilities, can be assumed to be at market values. Securities and loans to less developed countries have active markets in which market values are readily available. For long-term fixed-rate loans and liabilities, however, it would be necessary to use discounted expected cash flows to approximate market values. While doing so would be costly to the

firms involved, it would have the offsetting benefit of providing far more accurate information regarding the deposit insurance funds' potential exposure to losses.

Market value accounting could be adopted in phases. The first phase would involve carrying all marketable assets at market values. The second phase would then extend market value estimation to other balance sheet items. Such a schedule would provide an impetus for accelerating the development of secondary markets and securitization of commercial loans.

Even if market value accounting is rejected this time around, the fact that there are moves toward commercial loan securitization and a secondary loan market means there will be less and less justification for maintaining the status quo. Securitization makes sense for reasons unrelated to market value accounting, but the knowledge it provides will make market value accounting more feasible. And as banks have more exposure to institutions that deal in market values, their squeamishness about market value accounting will likely decrease.

REFERENCES

Benston, George J. "Accounting Numbers and Economic Values." Antitrust Bulletin (Spring 1982): 161-215.

_____. "The Validity of Profits-Structure with Particular Reference to the FTC's Line of Business Data." American Economic Review 75 (March 1985): 37-67.

_____. "Market Value Accounting by Banks: Benefits, Costs and Incentives." Proceedings of a Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago, 1989.

Benston, George J., and George G. Kaufman. "Regulating Bank Safety and Performance." In Restructuring Banking and Financial Services in America, pp. 63-99. Edited by William S. Haraf and Rose Marie Kushmeider. Washington: American Enterprise Institute for Public Policy Research, 1988.

Benston, George J., Robert A. Eisenbeis, Paul M. Horvitz, Edward J. Kane, and George G. Kaufman. Perspectives on Safe and Sound Banking. Cambridge, Massachusetts: MIT Press, 1986.

Berger, Allen N., Kathleen A. Kuester, and James M. O'Brien. "Some Red Flags Concerning Market Value Accounting." Proceedings of a Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago, 1989.

Board of Governors of the Federal Reserve System. "Revision in Bank Examination Procedure and in the Investment Securities Regulation of the Comptroller of the Currency." Federal Reserve Bulletin 24 (July 1938): 563-66.

Cates, David C. "Bank Credit Quality in a Restructured Financial System." American Banker, April 13, 1988.

Economic Council of Canada. A New Frontier: Globalization and Canada's Financial Markets. Ottawa: Economic Council of Canada, 1989.

Federal Deposit Insurance Corporation. "Development of Uniform Examination Procedures among Federal and State Bank Supervisors." Annual Report of the Federal Deposit Insurance Corporation for the Year Ending December 31, 1938, pp. 61-78.

Federal Home Loan Bank Board. "Revised Report of the Interoffice Task Force on Market Value Accounting," October 8, 1982.

_____. "Report of the Expanded Task Force on Current Value Accounting," April 12, 1983.

Financial Accounting Standards Advisory Council. "Comment Letter Summary, Test Application Notes and Project Status--Financial Instruments Disclosure." Memorandum, Financial Accounting Standards Board, July 26, 1988.

Financial Accounting Standards Board. Proposed Statement of Financial Accounting Standards: Disclosures about Financial Instruments. Exposure Draft. Financial Accounting Series, No. 054. Stamford, Connecticut: Financial Accounting Standards Board, 1987.

Fisher, Franklin M., and John J. McGowan. "On the Misuse of Accounting Rates of Return to Infer Monopoly Profits." American Economic Review 73 (March 1983): 82-97.

Flannery, Mark J., and Christopher M. James. "Market Evidence on the Effective Maturity of Bank Assets and Liabilities." Journal of Money, Credit, and Banking 16 (November 1984, Part I): 435-445.

Gorton, Gary B., and Joseph G. Haubrich. "The Loan Sales Market." Research in Financial Services: Private and Public Policy. New York: JAI Press, 1990, forthcoming.

Hempel, George H., Donald G. Simonson, Marvin Carlson, Marsha Simonson, and Marcia M. Cornett. "Market Value Accounting for Financial Service Companies." National Center on Financial Services, University of California, Berkeley, 1989.

Johnson, Ramon E., and Paul T. Peterson. "Current Value Accounting for S&Ls: A Needed Reform?" Journal of Accountancy, January 1984, pp. 80-85.

Kahn, Alfred E. The Economics of Regulation, vol. 1. New York: Wiley, 1970.

Kane, Edward J. The Gathering Crisis in Federal Deposit Insurance. Cambridge, Massachusetts: MIT Press, 1985.

Kane, Edward J., and Chester Foster. "Valuing and Eliminating Subsidies Associated with Conjectural Guarantees of FNMA Liabilities." Ohio State University, May 1986.

Kane, Edward J., and Haluk Unal. "Valuing Structural and Temporal Variation in the Market's Valuation of Banking Firms." Journal of Finance (December 1989, forthcoming).

Loan Pricing Corporation. "Loan Pricing Matrix." Technical paper 11-88, 1988.

Ribar, Gary S., John J. Willingham, and Timothy B. Bell. "The Auditor's Evaluation of Commercial Loans." New York: KPMG Peat Marwick, 1989.

Salamon, Gerald L. "Cash Recovery Rates and Measures of Firm Profitability." Accounting Review 57 (April 1982): 292-302.

U.S. General Accounting Office. Supervision of International Lending is Inadequate. Report to Congressional Requesters. GAO/NSIAD-88-87. May 1988.

White, Lawrence J. "Mark-to-Market Accounting is Vital to FSLIC and Valuable to Thrifts." Outlook of the Federal Home Loan Bank System 4 (January/February 1988): 20-24.

TABLE 1

LIABILITY CATEGORIES AS PERCENTAGE OF TOTAL LIABILITIES
U.S. COMMERCIAL BANKS
12/31/88

	BANK SIZE (ASSETS)						
	0 - $100M	100- $300	300- $1B	1- $5B	>$5B	MONEY CENTER	TOTAL
TOTAL DEPOSITS	97.73	95.44	90.30	82.89	76.18	75.85	83.06
DEMAND	14.87	16.05	16.93	17.92	16.53	13.10	15.87
NOWs AND SHARE DRAFTS	12.08	10.68	8.90	7.42	5.36	2.60	6.80
SAVINGS	21.63	24.48	23.41	21.39	16.79	11.39	18.44
MMDAs	12.71	14.72	14.52	14.11	11.72	7.29	11.90
PASSBOOK	8.92	9.76	8.89	7.28	5.07	4.10	6.53
TIME UNDER $100,000	37.05	31.03	25.63	19.48	13.34	5.01	18.40
TIME CDs OVER $100,000	11.16	12.33	13.76	12.33	13.25	5.84	11.25
OTHER TIME OVER $100,000	0.46	0.47	0.50	0.82	1.20	2.60	1.20
DEPOSITS IN FGN. OFFICES	0.03	0.09	0.94	3.31	9.53	35.31	10.90
FEDERAL FUNDS PURCHASED	0.37	1.07	3.35	6.52	8.79	3.49	5.03
SECURITIES SOLD FOR REPURCHASE	0.42	1.34	2.76	4.75	4.07	1.71	2.89
SUBORDINATED DEBENTURES	0.05	0.08	0.17	0.25	0.74	1.36	0.58
OTHER LIABILITIES	1.44	2.06	3.42	5.59	10.22	17.58	8.44
NUMBER OF BANKS	10146	1880	546	255	87	9	12923

Source (for all tables): Consolidated Reports of Condition and Income.

TABLE 2

ASSET CATEGORIES
AS PERCENTAGE OF TOTAL ASSETS
U.S. COMMERCIAL BANKS
12/31/88

	BANK SIZE (ASSETS)						
	0 - $100M	100- $300	300- $1B	1- $5B	>$5B	MONEY CENTER	TOTAL
CASH AND DUE FROM	8.49	7.91	8.68	11.06	12.75	14.20	11.36
TOTAL SECURITIES	30.00	25.29	20.06	17.06	13.03	9.27	16.93
FED FUNDS SOLD	5.62	4.62	3.92	2.63	2.57	2.63	3.29
SECURITIES PURCHASED (RP)	0.15	0.34	0.67	0.80	0.66	1.62	0.79
LOANS & LEASES	52.33	58.62	63.24	64.75	65.15	60.93	61.82
TRADING ACCOUNT ASSETS	0.04	0.09	0.28	0.29	0.75	4.11	1.16
PREMISES & FIXED ASSETS	1.76	1.73	1.61	1.43	1.34	1.38	1.48
OTHER REAL ESTATE OWNED	0.70	0.54	0.52	0.37	0.23	0.20	0.37
INTANGIBLE ASSETS	0.05	0.09	0.13	0.23	0.28	0.04	0.16
OTHER ASSETS	1.73	1.65	1.93	2.41	4.78	8.26	4.13

TABLE 3

CATEGORIES OF SECURITIES
AS PERCENTAGE OF TOTAL SECURITIES
U.S. COMMERCIAL BANKS
12/31/88

	BANK SIZE (ASSETS)						
	$0 - $100M	$100M - $300	$300 - $1B	$1B - $5B	> $5B	MONEY CENTER	TOTAL
U.S. TREASURY	34.67	31.91	34.77	33.62	31.15	13.84	30.93
U.S. GOVT AGENCIES AND CORPS	39.93	34.48	29.20	28.84	30.77	22.05	31.81
STATES AND MUNICIPALITIES	16.94	21.30	20.60	20.73	21.74	19.88	20.12
OTHER DOMESTIC SECURITIES	8.46	12.21	14.49	15.51	12.53	10.43	12.12
FOREIGN SECURITIES	0.01	0.10	0.91	1.26	3.81	33.80	5.01

Note: Securities are reported as book values.

TABLE 4

BOOK AND MARKET VALUES OF SECURITIES
U.S. COMMERCIAL BANKS

	1984	1985	1986	1987	1988
BOOK VALUE ($millions)	382,489	435,370	477,345	509,909	518,499
MARKET VALUE ($millions)	373,972	438,830	491,734	505,605	510,571
PERCENT DIFFERENCE	-2.28	0.79	2.93	-0.85	-1.55
RETURN ON BOOK VALUE (%)	9.63	8.60	7.94	7.61	7.88
RETURN ON MARKET VALUE (%)	9.85	8.53	7.71	7.67	8.01

TABLE 5

FIXED RATE AND ADJUSTABLE RATE LOANS
BY MATURITY OR REPRICING FREQUENCY
AS PERCENTAGE OF TOTAL LOANS
U.S. COMMERCIAL BANKS
12/31/88

	BANK SIZE (ASSETS)						
	0 - $100M	100- $300	300- $1B	1- $5B	>$5B	MONEY CENTER	TOTAL
FIXED RATE AND ADJUSTABLE RATE LOANS WITH MATURITY OR REPRICING LESS THAN 1YR	62.96	61.64	62.40	65.76	67.48	70.62	66.30
ADJ RATE LESS THAN 1YR	33.17	41.90	48.01	52.26	55.13	50.15	49.40
ADJ RATE 1 - 5 YRS	1.74	2.30	2.54	2.08	1.42	0.71	1.62
ADJ GREATER THAN 5 YRS	0.12	0.15	0.40	0.50	0.33	0.88	0.44
FIXED RATE LESS THAN 1YR	29.79	19.73	14.39	13.50	12.35	20.47	16.90
FIXED RATE 1 - 5 YRS	25.55	24.92	23.29	22.15	20.49	11.16	20.13
FIXED RATE GREATER THAN 5 YRS	9.11	10.81	10.73	8.95	8.75	9.05	9.26

TABLE 6

LOAN CATEGORIES AS A PERCENTAGE OF TOTAL ASSETS
U.S. COMMERCIAL BANKS
12/31/88

	BANK SIZE (ASSETS)						
	0 - $100M	100- $300	300- $1B	1- $5B	>$5B	MONEY CENTER	TOTAL
LOANS SECURED BY REAL ESTATE	24.85	28.50	27.94	23.77	19.44	15.32	21.72
CNSTRCTN & LAND DEVLPMNT	1.87	2.70	4.39	5.26	5.65	3.19	4.21
FARMLAND	2.38	0.91	0.41	0.19	0.14	0.04	0.50
1 - 4 FAMILY, REVOLVING	0.57	1.19	1.71	1.95	1.43	0.73	1.28
OTHER 1 - 4 FAMILY	13.02	14.04	11.04	7.96	5.96	5.16	8.29
MULTI-FAMILY RESIDNTL	0.47	0.78	0.83	0.58	0.49	0.61	0.59
NON-FARM. NON-RES. PROP	6.54	8.85	9.56	7.82	5.55	2.49	6.15
MADE IN FGN OFFICES	0.00	0.01	0.00	0.01	0.22	3.10	0.70
LOANS TO DEP. INST.	0.14	0.64	0.88	1.13	1.47	5.35	1.91
LOANS FOR AGR. PRODUCTION	4.62	1.31	0.53	0.42	0.37	0.26	0.98
C&I LOANS	11.06	13.86	16.63	18.87	23.63	22.75	19.43
ACCEPTANCES OF OTHER BANKS	0.52	0.45	0.24	0.06	0.03	0.04	0.16
LOANS TO INDIVIDUALS	10.51	12.49	13.94	15.40	12.58	6.09	11.63
CREDIT CARDS	0.47	1.33	2.91	4.89	5.32	1.81	3.32
OTHER	10.04	11.16	11.04	10.51	7.26	4.29	8.32
LNS TO STATES AND MUNIC.	0.50	1.11	1.82	2.21	1.75	0.98	1.47
ALL OTHER LOANS	0.55	0.69	1.43	2.42	4.40	9.16	3.90
TO FGN GOVTS	0.00	0.02	0.11	0.23	1.01	3.90	1.16
OTHER LOANS	0.02	0.62	1.32	2.19	3.39	5.25	2.68
LEASE FINANCING RECEIVABLES	0.12	0.21	0.49	1.00	1.86	1.42	1.11
ALLOW FOR LN LOSSES	-0.87	-0.87	-1.04	-1.04	-1.54	-2.73	-1.50
LOANS NET OF ALLOWANCE	51.46	57.75	62.20	63.72	63.61	58.19	60.33

TABLE 7

1988 LDC EXPOSURE: LEADING U.S. BANKS
(percent)

Bank	LDC Loans/ Assets	LDC Loans/ Equity	Reserves/ LDC Loans
Citicorp	5.83	122.67	23.55
Chase Manhattan Corp.	8.11	159.27	25.32
Chemical Banking Corp.	9.04	153.44	20.85
Bankers Trust Co.	6.90	114.33	NA
JP Morgan & Co.	5.48	79.61	NA
Bank of New York	3.15	53.50	40.00
Manufacturers Hanover	12.29	251.15	20.73
First Chicago Corp.	4.73	88.64	43.33
Continental Bank Corp.	4.91	93.46	50.07
BankAmerica Corp.	9.51	216.92	27.78
First Interstate Corp.	1.02	26.52	52.00
Security Pacific Corp.	0.67	13.53	58.00
Wells Fargo & Co.	0.53	9.50	60.00
Mellon Bank	3.80	93.42	47.42
Republic New York Corp.	1.80	30.93	NA
Marine Midland Bank	5.78	127.23	46.07

Source: Latin Finance, May 1989. NA means not available.

Chart A: Secondary Market Price for Bank Loans to Argentina

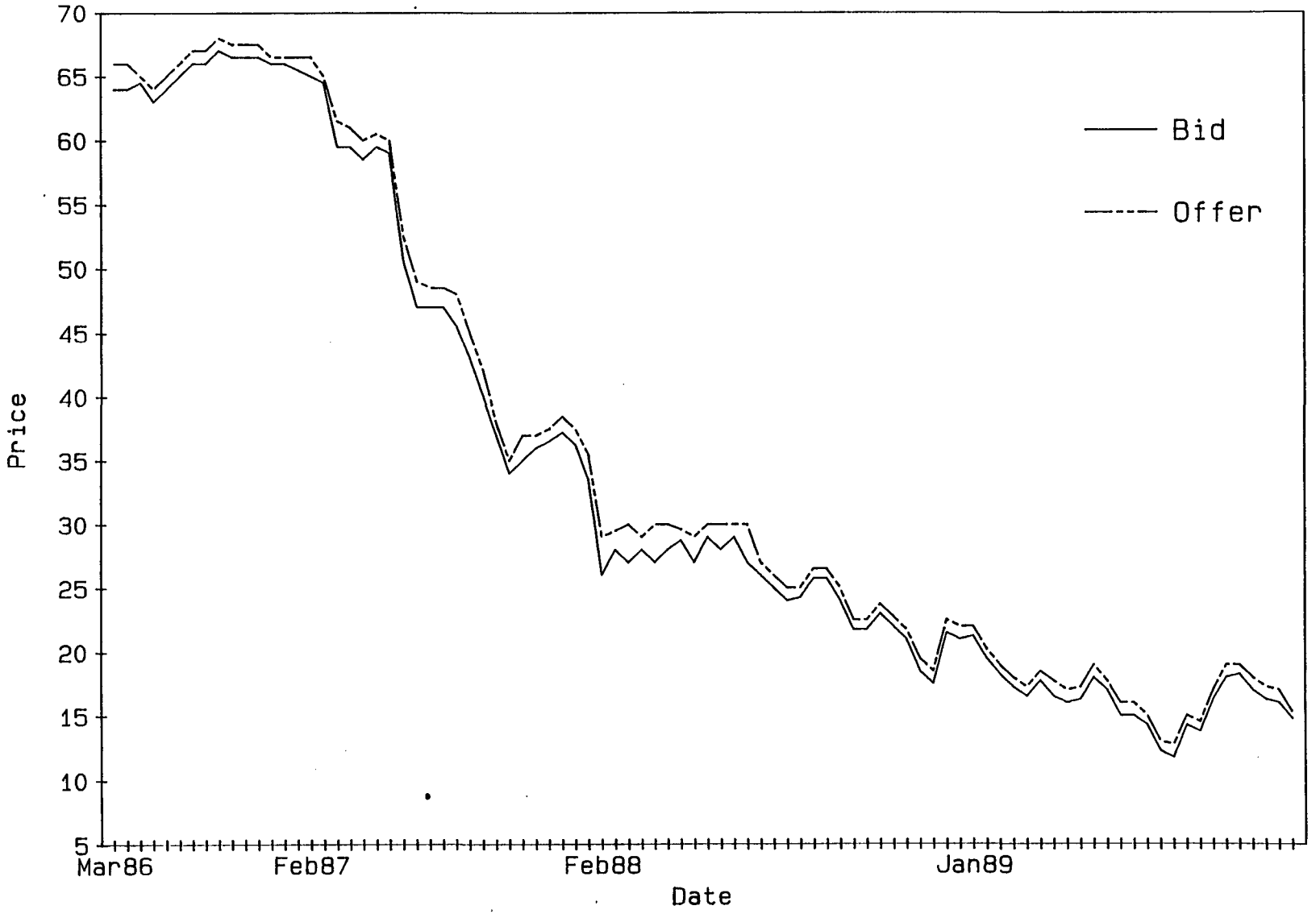


Chart B: Secondary Market Price for Bank Loans to Brazil

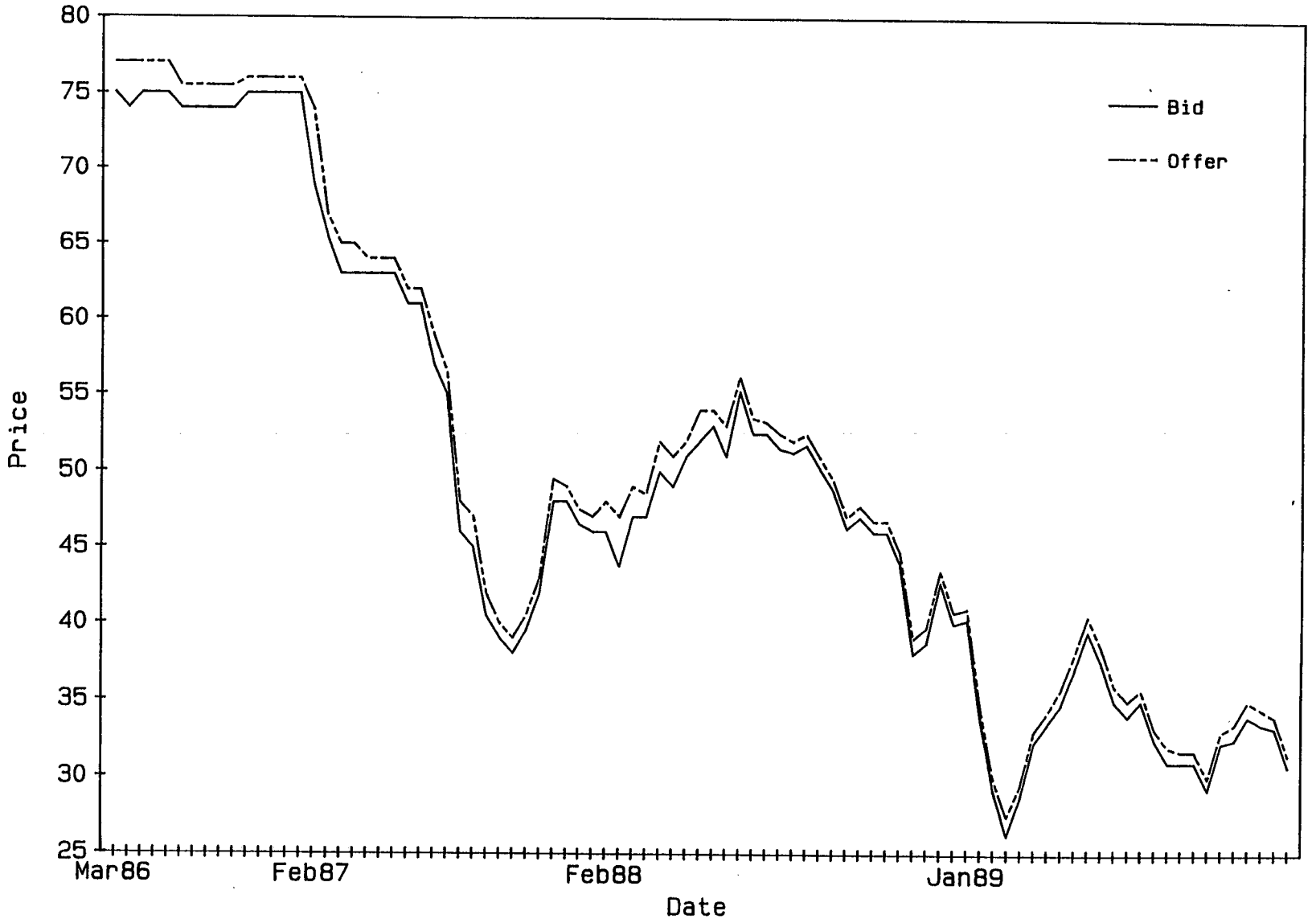


Chart C: Secondary Market Price for Bank Loans to Chile

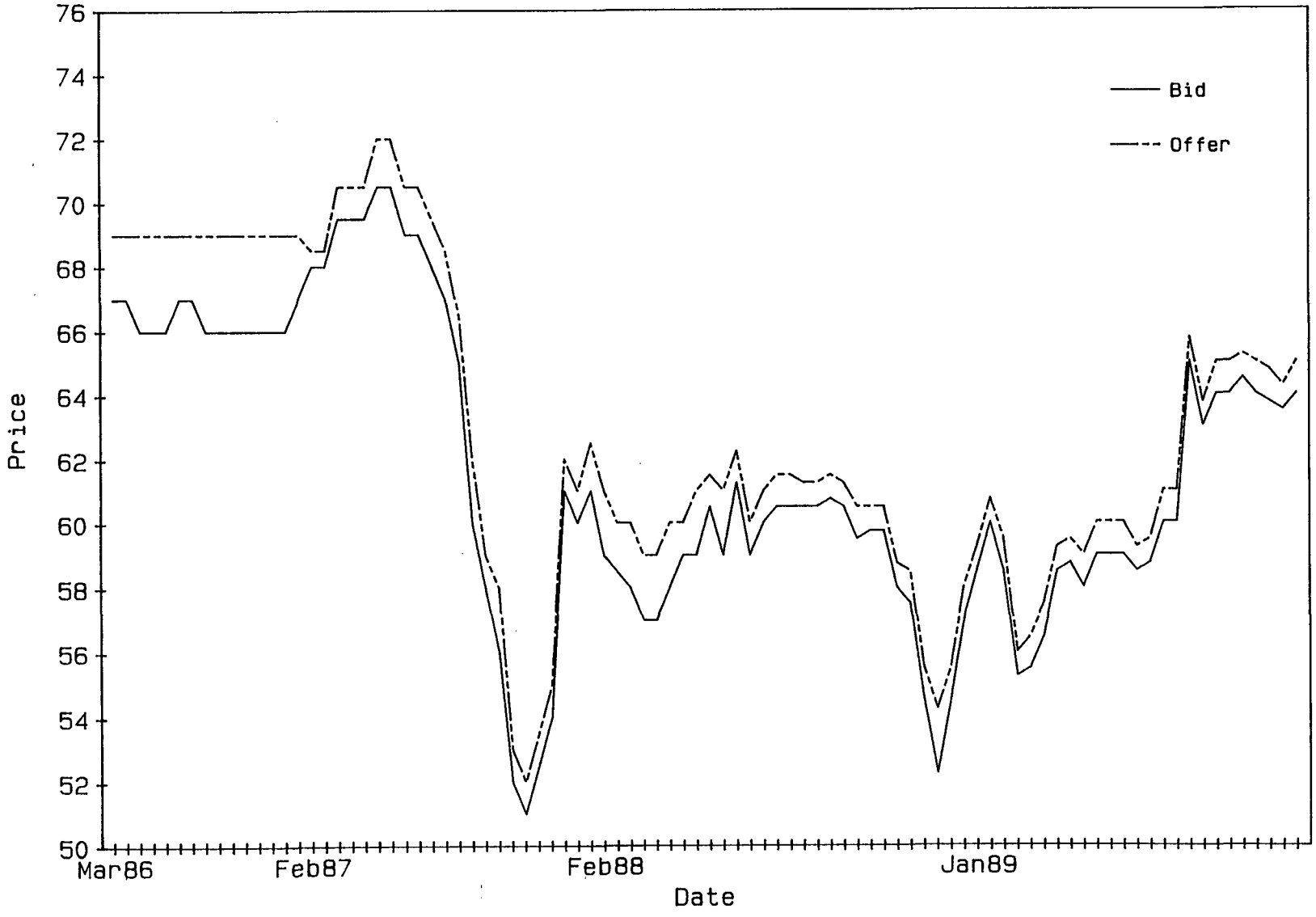


Chart D: Secondary Market Price for Bank Loans to Mexico

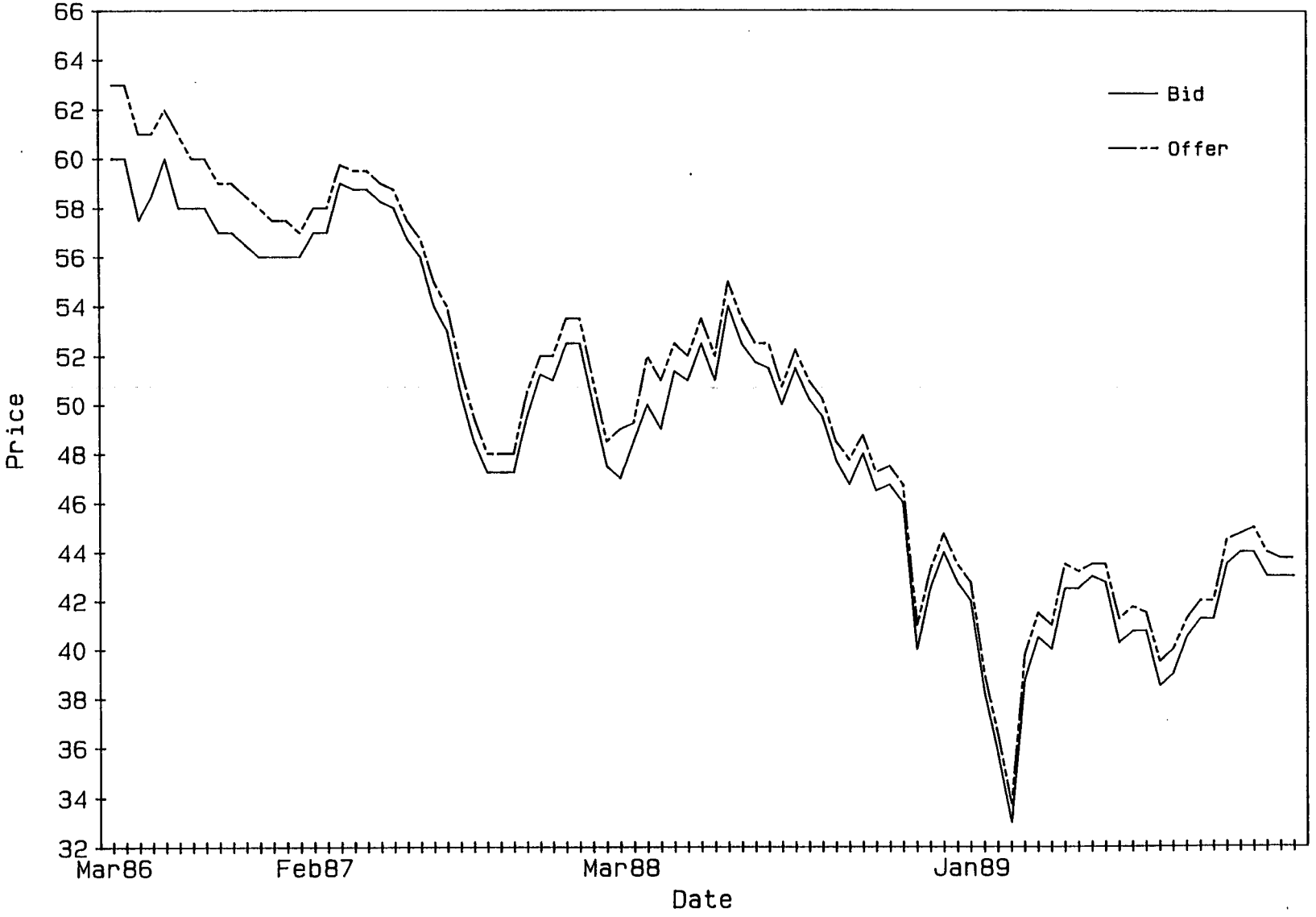


Chart E: Secondary Market Price for Bank Loans to Venezuela

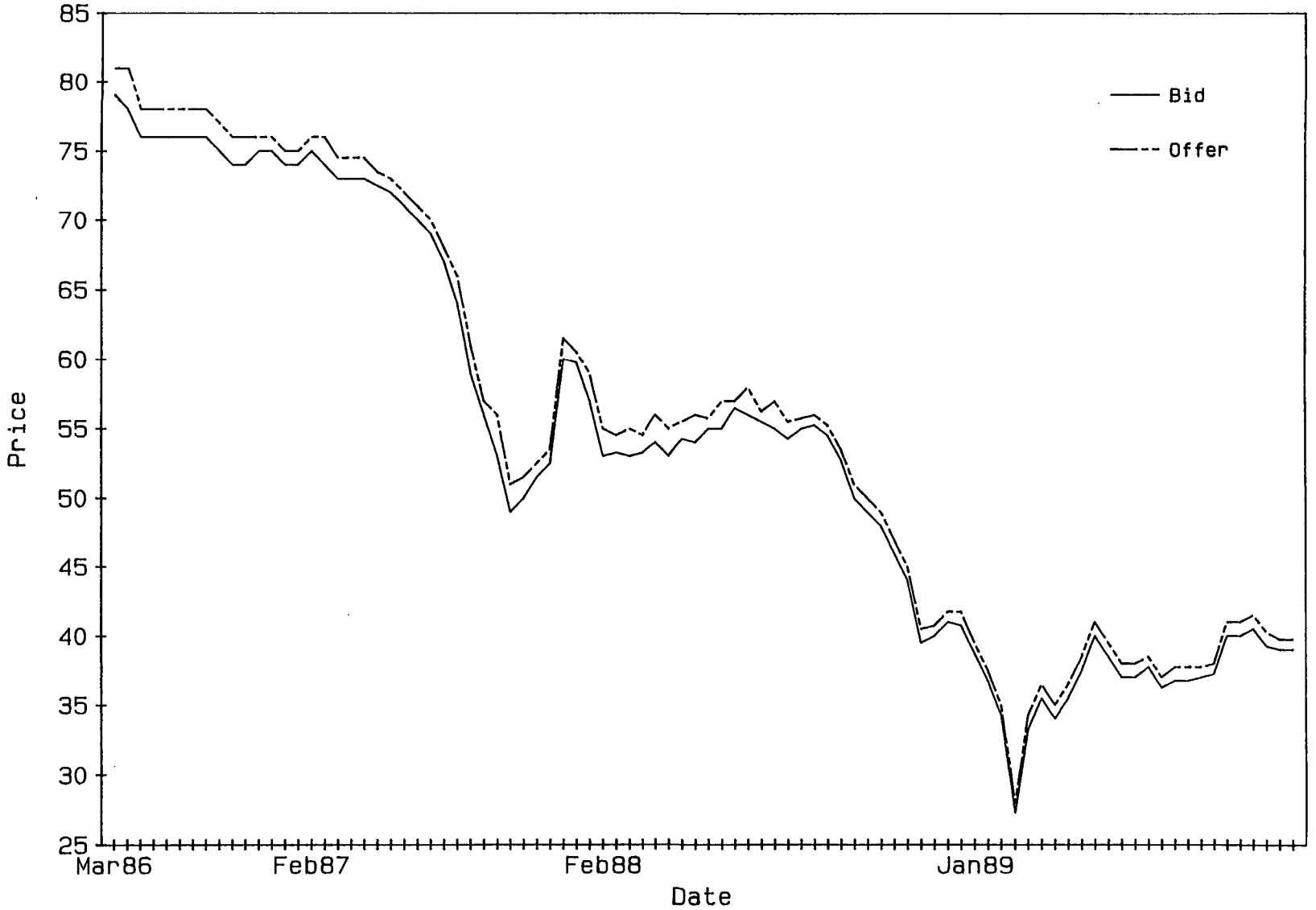


Chart F: Secondary Market Price for Bank Loans to Yugoslavia

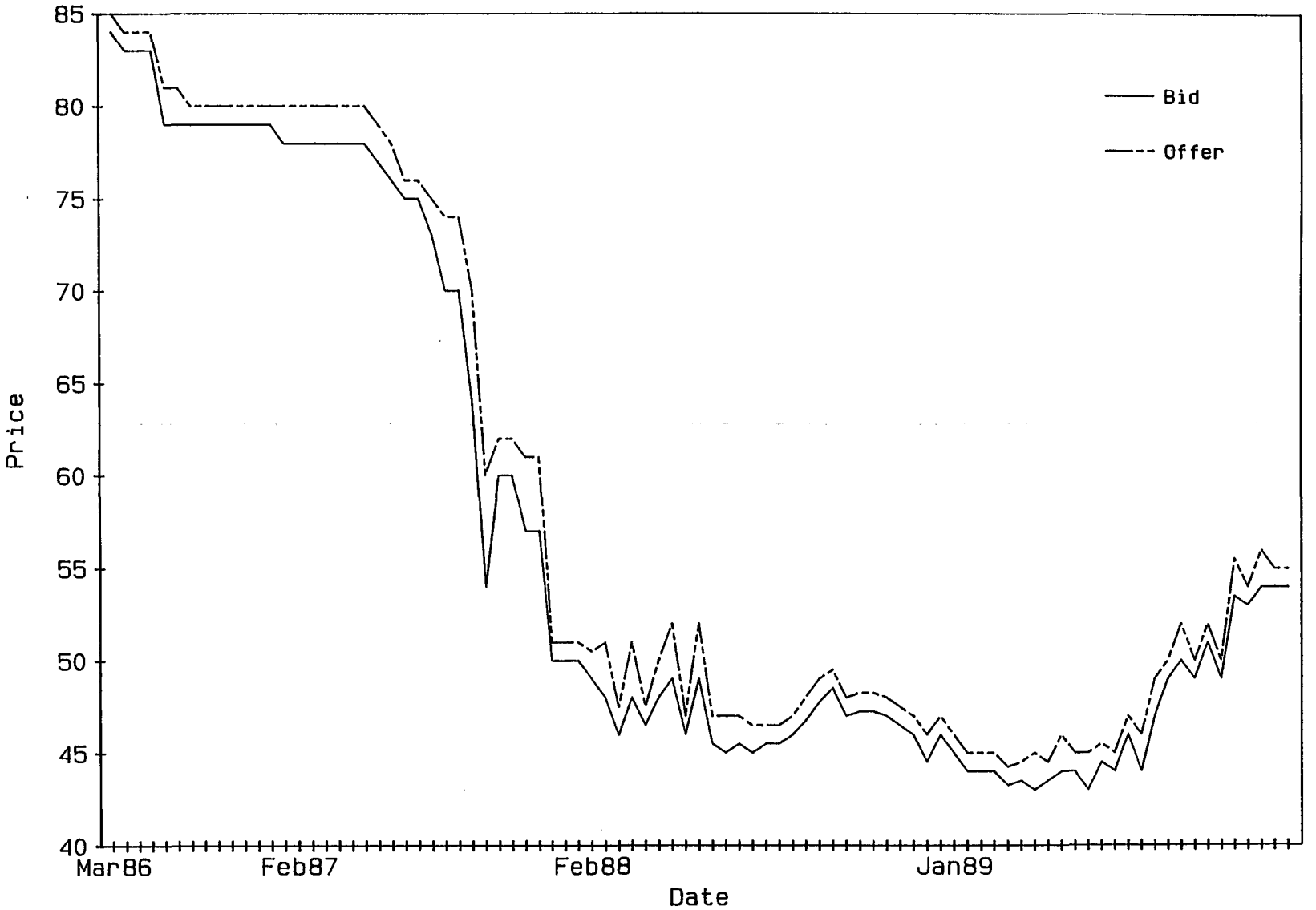


Chart G: Bid-Offer Spread for Bank Loans to Argentina

(As Percentage of Bid)

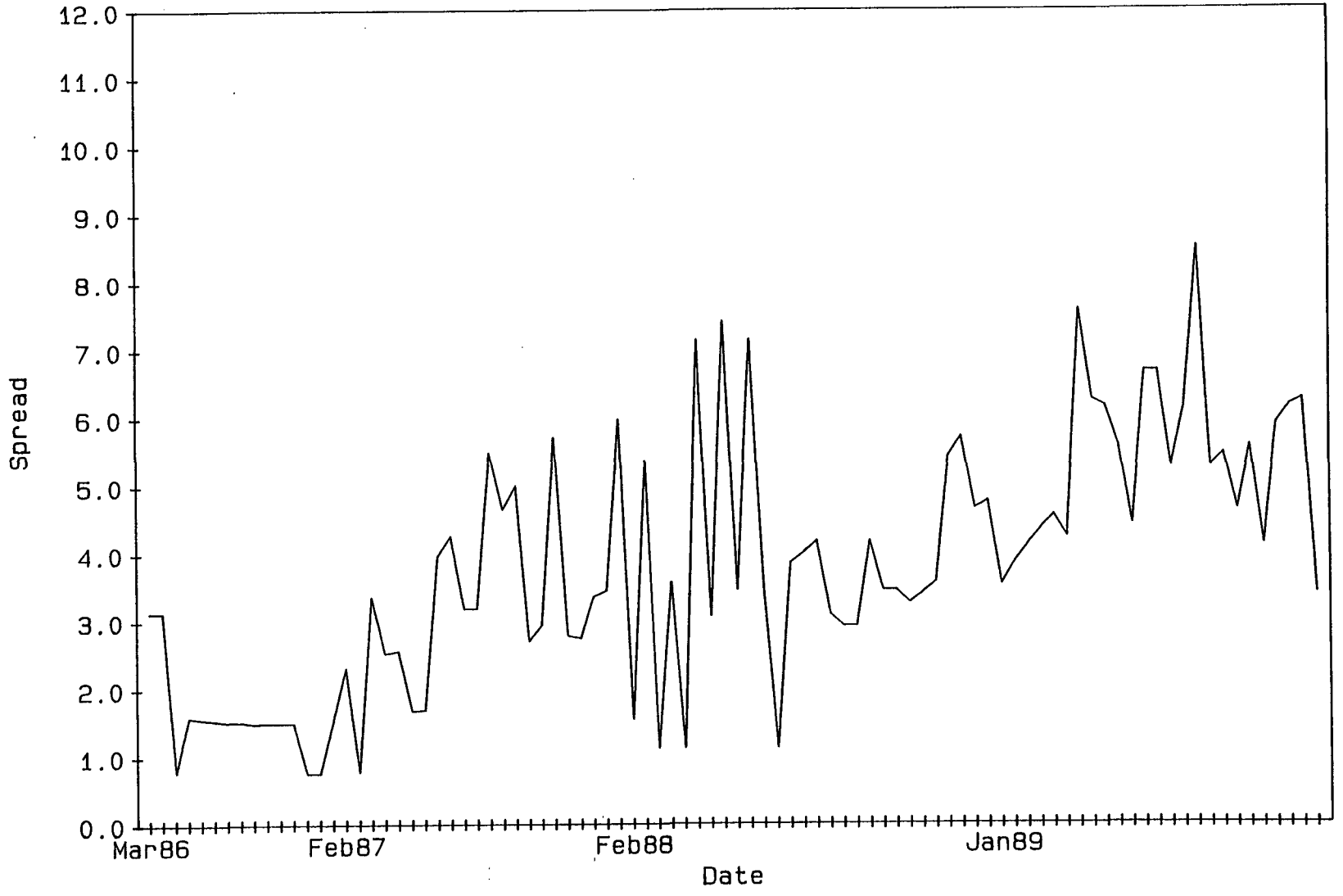


Chart H: Bid-Offer Spread for Bank Loans to Brazil

(As Percentage of Bid)

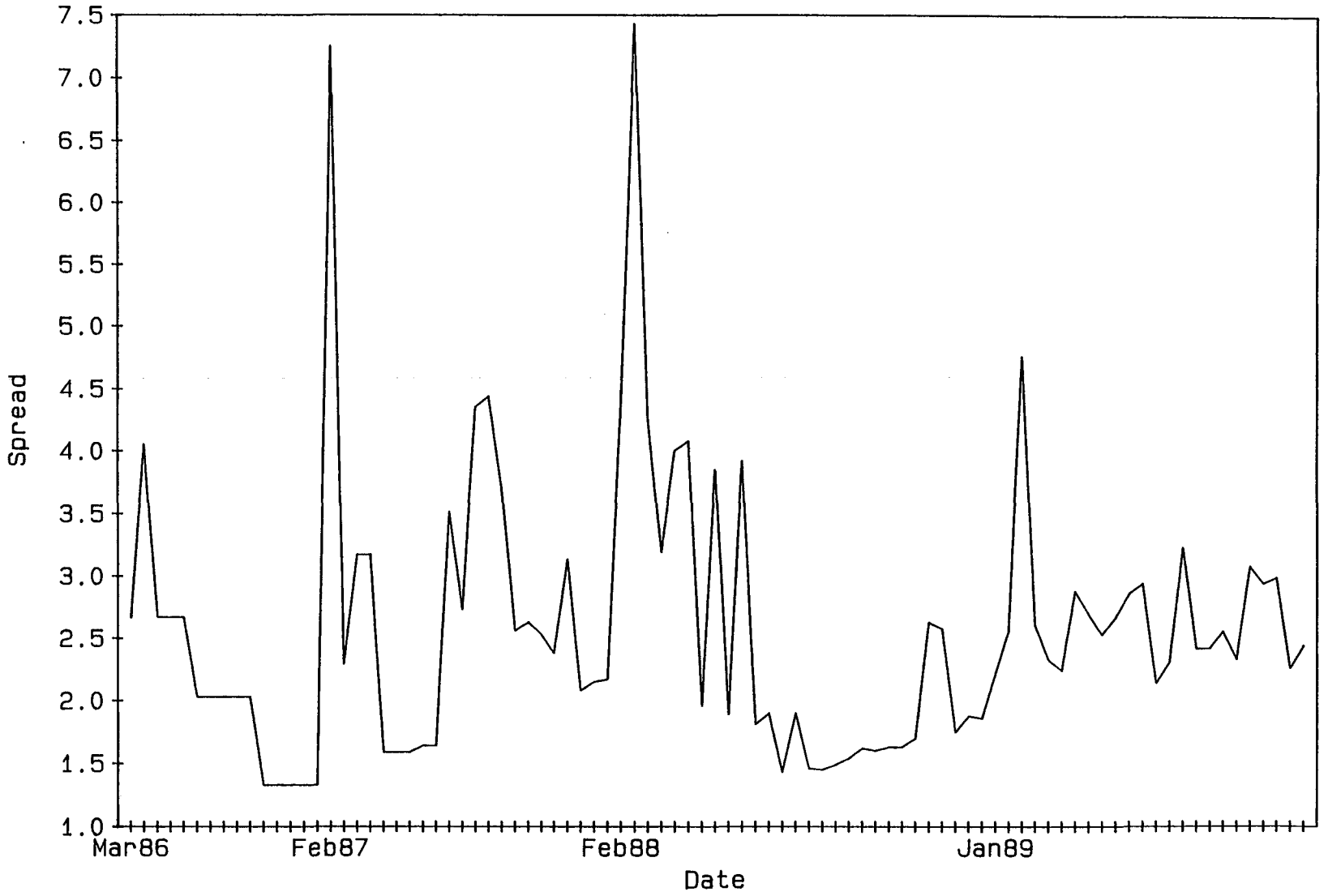


Chart I: Bid-Offer Spread for Bank Loans to Chile

(As Percentage of Bid)

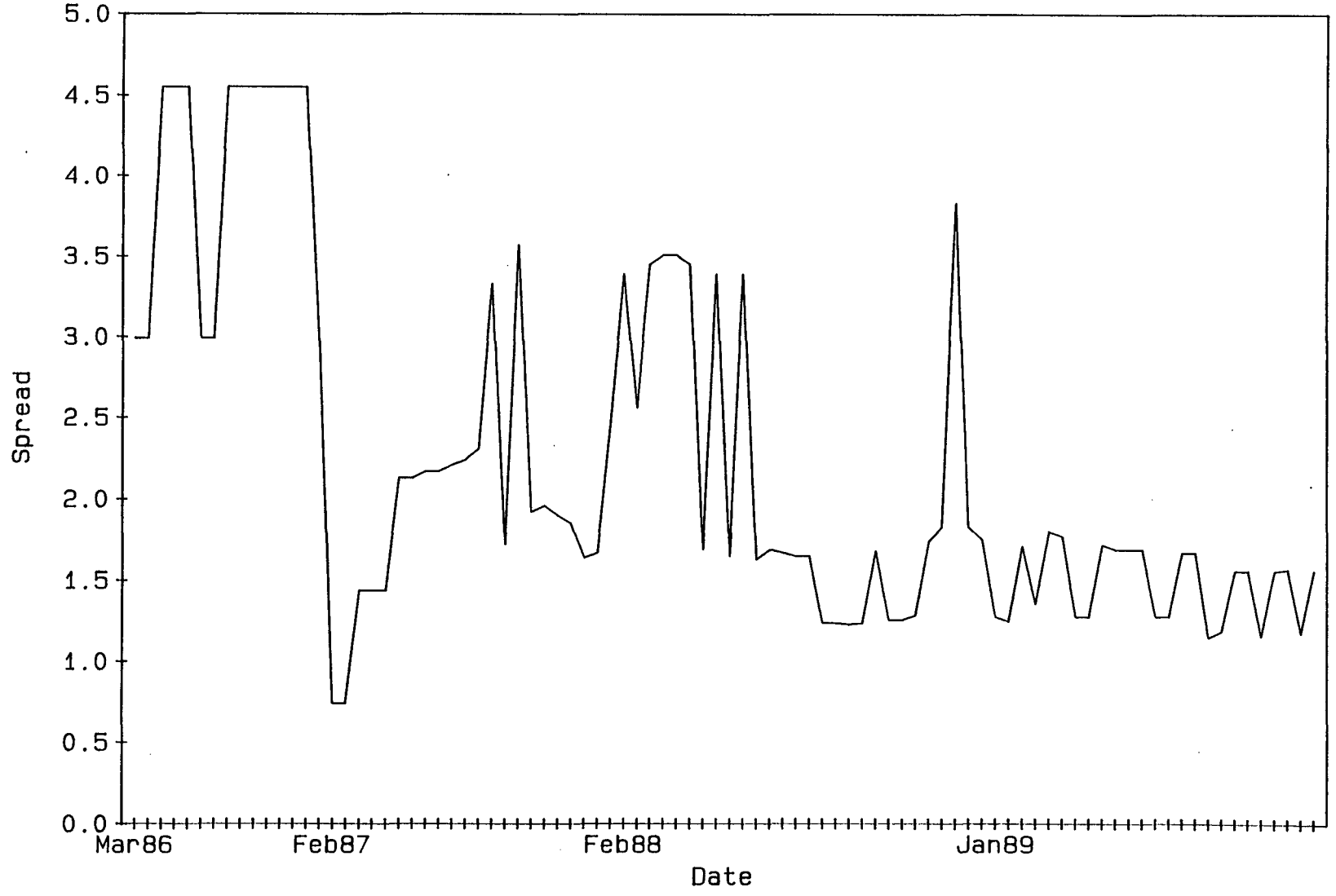


Chart J: Bid-Offer Spread for Bank Loans to Mexico

(As Percentage of Bid)

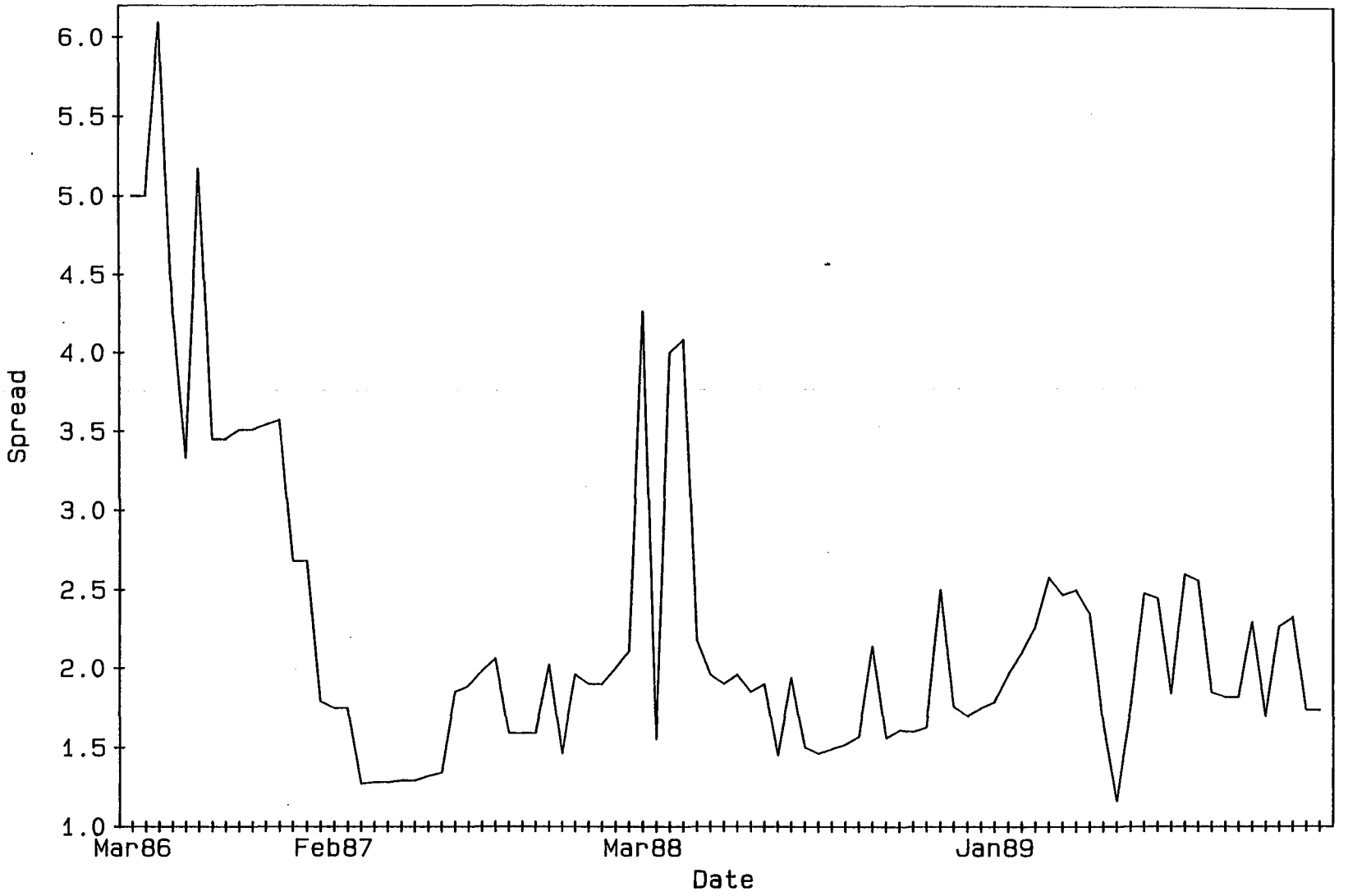


Chart K: Bid-Offer Spread for Bank Loans to Venezuela

(As Percentage of Bid)

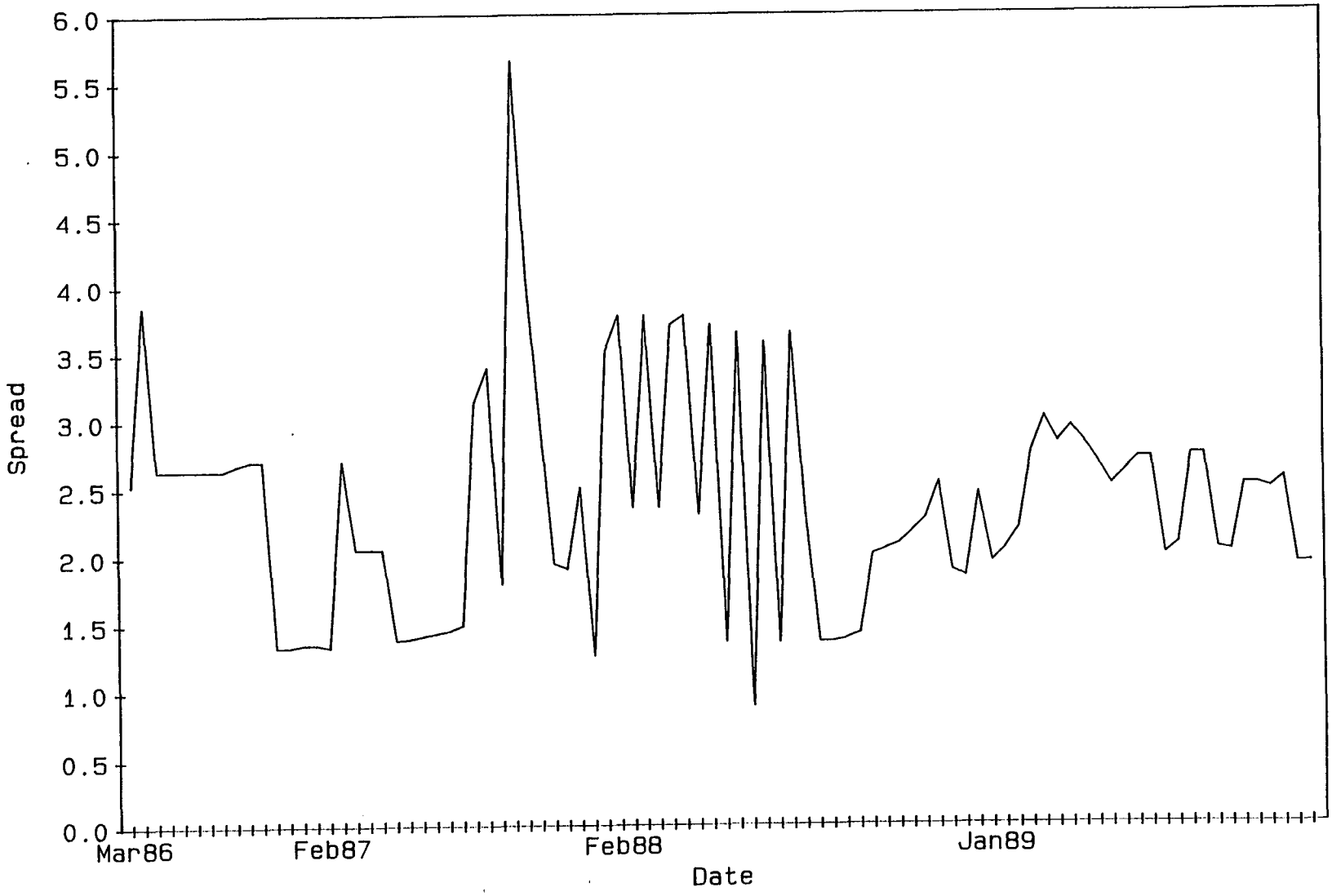
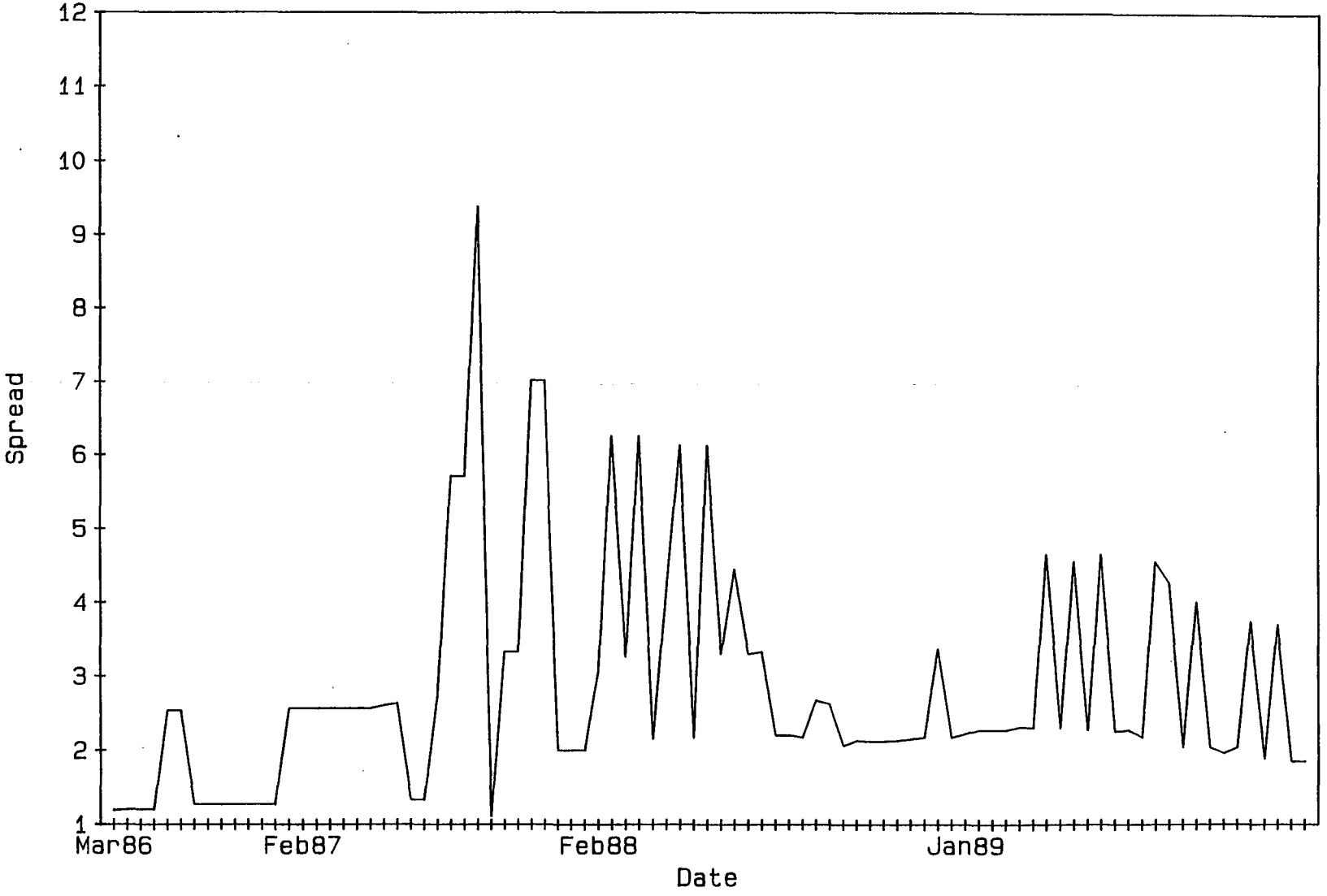


Chart L: Bid-Offer Spread for Bank Loans to Yugoslavia

(As Percentage of Bid)