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Suggestions for a Cash Flow-Oriented Bank Examination

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I. Introduction

In the summer of 1967, as an offshoot of a paper for the Board of Governor's "Reappraisal of the Discount Mechanism,"¹ some suggestions were put forth for a cash flow-oriented bank examination procedure. In the light of developments since then, in particular the growth of liability management banking and the recurrent threats (1966, 1970, 1974) of financial instability, the 1967 suggestions for reforming bank examinations seem especially relevant. The aim of the suggested examination was to use the examination process to generate information on both the liquidity and solvency of particular institutions but also on threats, if any, to the stability of financial markets; this information was to be forward looking and to be such that the implications of alternative economic and policy scenarios could be investigated. In particular, the examination procedure was designed to focus upon the actual (past) and potential (near-term future) position-making operations of a bank, so that the Federal Reserve authorities would be aware of actual or threatened financial fragility. The perspective underlying the suggestions was of a dynamic, evolving set of financial institutions and relations. All too often, it seems as if the Federal Reserve authorities have been surprised by changes in financial practices. One aim in the design of the examination system was to establish a regular reporting procedure which would force the authorities to be aware of institutional changes that were ongoing, and which furthermore forced the authorities to inquire into how the ongoing developments can be expected to affect the stability of the financial system.

Questions about the need for bank examinations were not addressed in the report.² The assumption underlying the report was that bank examinations were to continue and the objective was to make them more useful. An open question, in my mind, is whether the objective of the suggested reform of bank examinations can be served by an integrated system of reports that focuses upon bank cash flows, so that the expensive examination procedure is not necessary.

The 1967 comments upon the proposed examination forms are reproduced in Appendix A, and Appendix B contains the forms that were

set up in 1967. A clear picture of what was intended can be obtained by reading the comments on each form as the form is perused. Some additional 1975 comments on the examination procedure are in Appendix C.

In the body of the paper an argument as of 1975 for the proposed procedure is presented. This paper draws upon but considerably modifies the argument submitted in 1967.

II. Economic Theory Underpinning

The economic theoretic underpinning of the proposed examination procedure is the financial instability hypothesis which in turn is an unorthodox interpretation of *The General Theory* of Keynes.³ This view holds that endogenous destabilizing forces, centered in the sophisticated financial system of a modern capitalist economy, make business cycles of the kind that involve threats and realizations of financial crises an inherent characteristic of these economies. Recent experience—the crunch of 1966, the liquidity squeeze of 1969-70, and the current (1974-75) difficulties—furnishes conclusive evidence that such crises and threats of crises are very much with us; the open issues center around the explanation of these events and whether they can—or even should—be avoided by either policy measures or institutional reform.

Perhaps the fundamental question in economic theory is whether the development of such crisis-prone situations reflects a fundamental characteristic of the economy we are dealing with, whether they are the result of correctable institutional flaws, or whether they are due to policy errors. A quite common interpretation, implicit in both the monetarist and the conventional Keynesian views, is that events like our current crisis are due to errors of economic policy management rather than inherent characteristics of the economy. A view that was quite common during the aftermath of the Great Depression was that financial crises could be avoided if rather substantial reforms (100 percent money, for example) were made in the banking system. The view underlying this paper is that while improvements in policy management and institutional reforms may alleviate and attenuate some of the forces that make for financial instability, the fundamental endogenous speculative elements in the demand for, and the financing of positions in, capital assets under capitalist financial arrangements make for the development, over time, of crisis-prone financial interrelations. As has been demonstrated in 1966, 1970, and 1974, such crisis-prone financial situations need not lead to a full-blown crisis; on the other hand, the repercussions of aborting a threatened financial crisis by Federal Reserve action can lead to subsequent inflationary pressures. Thus, the Federal Reserve, cognizant of its ultimate responsibilities as a lender of last resort (i.e., an aborter of financial crises), needs to develop in-

information on financial market developments that point towards the emergence of a crisis-prone—i.e., fragile—financial structure. The information that is needed includes knowledge of the evolving position-making activities of banks and the changing nature of the interrelations among banks and between banks and nonbank financial institutions. Such information can only be achieved by systematic direct observations on bank behavior—i.e., by an examination procedure.

A basic proposition in the alternative interpretation of Keynes is that “capital assets are valuable because they yield profits (i.e., cash flows), not because they are productive” (a paraphrase of a remark by Keynes). Both capital assets and financial instruments have to be viewed as annuities—i.e., items that are expected to yield cash flows. Thus, real assets and financial assets are similar in that they yield expected cash flows. The balance sheet of all units can be interpreted as a set of instruments which results in dated, demand, and contingent commitments to receive and to pay cash. One operational constraint upon the behavior of all units is the need to have cash on hand to meet payment commitments as they arise—i.e., all economic units can be viewed as banks (New York City in the Spring of 1975). The nature of liabilities, in particular their time dimension, is of as much importance as the cash flow due to assets of a unit in determining the product and factor market conditions that may affect its ability to meet commitments. By considering all of economic activity and all financial instruments as yielding cash flows, the “real” and the “financial” aspects of a capitalist economy can be integrated.

In addition to receiving cash from the fulfillment of owned contracts and from “normal” deposits, a bank, or for that matter any economic unit, acquires cash by dealing in assets or selling liabilities. But dealing in assets or selling liabilities implies that a bank’s viability, as well as its future profitability, depends upon the normal or proper functioning of some financial markets. For example, the ability of a bank to sell commercial paper or certificates of deposit depends upon both the unit’s own profitability and the normal functioning of the commercial paper and certificate of deposit markets. Thus, a dual vulnerability emerges whenever cash flows from operations are insufficient to meet financial commitments: a unit can be in a cash flow bind due to a shortfall of cash from operations or because it cannot sell assets or issue debts to raise cash.

Of particular importance in a cash flow perspective of the functioning of the economy is the distinction between hedge, speculative, and “Ponzi” finance.⁴ In hedge finance the cash flows from operations are expected to be sufficient to fulfill contractual commitments. In speculative finance the present value of expected cash receipts exceeds that of cash payments, but liabilities are more current than assets so that regular refinancing of positions is needed (this is the typical position of a bank). In Ponzi financ-

ing the present value of cash flows from assets is less than the present value of cash flows due to liabilities, but payments, including dividend and interest disbursements, are met by increasing liabilities. (Those real estate investment trusts which paid cash dividends on the basis of interest accruals were engaged in Ponzi finance.)

Units that engage in hedge financing cannot be adversely affected by purely financial market developments, in the sense that they do not depend upon raising funds in financial markets to meet their obligations. Units that engage in speculative finance can be adversely affected by purely financial market considerations. Inasmuch as the cash flow on liabilities is of nearer term than the cash flow on assets for units that engage in speculative finance, a rise in interest rates can transform a speculative finance unit into a Ponzi finance unit.

It is evident that the nature of Federal Reserve responsibility, as well as the effects upon system performance of Federal Reserve policy actions, depends upon the relative weight of hedge, speculative, and Ponzi finance in the economy. In particular, in a world of hedge finance rising and falling interest rates do not affect the viability of institutions, whereas in a world with a large admixture of speculative finance high and rising interest rates can transform speculative units into Ponzi units. Ponzi units can be sustained either because of Micawber sentiments—something will turn up—or because no one is willing to announce that “the Emperor has no clothes.” The emergence of a significant number of units engaged in Ponzi finance makes the economy vulnerable to a debt-deflation process. Thus, the ability of the Federal Reserve to use its monetary weapons to control the economy is dependent upon constraining the growth of speculative and, thus, potential Ponzi-type finance. It also means that the tolerance of an economy for rising interest rates depends upon the extent of speculative finance in the economy, for it is the tipping of units that are engaged in speculative finance into units which are engaged in Ponzi finance that is critical in the emergence of a debt-deflation prone situation.

III. Banking Theoretic Underpinning

A cash flow-oriented examination and analysis of the operations of a commercial bank, or other depository institution, is based upon the view that liquidity is not an innate attribute of an asset, but rather that liquidity is a time-related characteristic of an ongoing, continuing economic institution imbedded in an evolving financial system. Whether a particular institution is, or is not, liquid over some time horizon depends not only upon its initial balance sheet but also upon what happens in its business operations and in the various financial markets in which the instruments it owns or “sells” are traded. The liquidity of an institution cannot be

measured by assigning invariant predetermined liquidity quotients to assets and similar liquidity requirement factors to liabilities: the liquidity quotients and requirements are system-determined variables.

The normal operations of a unit over a time period generate cash and a need for cash. In addition to the cash flow from ordinary operations, a unit can adjust its cash position by operating in asset and liability markets. In what follows, the financial transactions that are used to adjust a unit's cash position are called "position-making" activities. How, in fact, a unit goes about making position depends upon the nature of the markets that exist. A unit is liquid if, when it has a need for cash, it can obtain cash by operating in markets that quickly, easily, and cheaply yield cash. Ultimately, the liquidity of an institution depends upon the way it would obtain cash if some need to do so should arise; thus, any scenario of a unit's position-making activities depends in a critical way upon the expected developments in various financial markets.

The view of a bank's operations that underlies the proposed examination procedure emphasizes the central importance of position-making. A bank is not a money lender that first acquires and then places funds. Any particular day's asset acquisitions, particularly loans made, are the result of ongoing and continuing business relations; a bank first lends or invests and then 'finds' the cash to cover whatever cash drains arise. In some circumstances this cash can be found in excess cash on hand, in others it is found by selling or pledging owned assets for cash, and in still other circumstances the cash is acquired by issuing new liabilities. Whether excess reserves, asset management, or liability management is the source of the cash that is obtained to make a position depends upon the composition of the balance sheets and the financial markets that exist. In particular, the efforts to generate a secondary market for acceptances and the Federal Reserve's discount window can be interpreted as the development of devices to facilitate position-making—i.e., the acquisition of cash to fulfill contractual or legal requirements.

In the suggested bank examination procedure the essential operation of a bank is taken to be position-making. The key role of position-making in banking follows from the view that banks are active profit-maximizing institutions rather than passive reactors to funds placed in their custody. The instruments and financial markets used in position-making change over time, and at any one time not all banks will make position in the same way.

In addition to the narrowly defined commercial banks, all other financial institutions, and in particular those financial institutions that can be characterized as fringe banks—real estate investment trusts, finance companies, government bond dealers, commercial paper houses, etc.—actively engage in position-making. Any overview of the banking system in the Uni-

ted States must consider the relations between commercial banks narrowly defined and such fringe banks. One implication of the position-making perspective is that the Federal Reserve needs to be concerned with those markets in which fringe banks finance their activities and the extent to which the commercial banks provide both the "normal" finance and the "fall back" financing for fringe banking institutions. Thus, line-of-credit arrangements with financial institutions of various kinds by commercial banks become a major concern of the Federal Reserve. Any bank examination procedure that is concerned with the dynamic adjustments of banking will need to be set up so as to reveal such connections.

In light of developments over the past several years it seems that a cash flow-oriented bank examination of the type suggested should enable the authorities to get a better handle on the operations of the giant multibillion dollar banks than is now available. It is now clear, as it was not in 1967, that the giant banks are the effective lenders of last resort to both nonbank financial institutions and various short-term financial markets, in which both financial institutions and nonfinancial corporations raise funds. In a revision and updating of bank examinations, one focal point should be the commitments by banks, especially the giant banks, to fringe banking institutions and markets. For example, the back up lines of credit by commercial banks to financial and nonfinancial corporations that borrow in the commercial paper market are really commitments by the banks to the continued viability of the commercial paper market.

One byproduct of a cash flow examination procedure will be more precise knowledge of the relations between the examined institutions and fringe banks. Such a clarification will enable the Federal Reserve to know better what is emerging in financial relations and to be prepared better for contingencies that might dominate as the determinants of its behavior if financial disruption is imminent.

The extent of the explicit and implicit exposure by banks to these fringe banks is obviously a parameter that has to be fed into monetary policy operations. It seems evident that monetary constraint, in the face of a booming economy, is for a time offset by an accelerated growth of non-deposit liabilities of banks and of fringe banking. It is also clear that during such boom periods emphasis upon bank liabilities and in particular those liabilities which are normally called money— M_1 , M_2 , or whatever—misses what is going on in the economy and, thus, tends to mislead the authorities. In particular, the ability of money market developments to offset monetary constraint, at least for a while, means that monetary constraint will be ineffective until it leads to such interest rates and exotic financing that a "break" in financial variables or channels can occur. (Such a break transforms normally speculative finance into Ponzi finance.) When this happens the need for the authorities to act as a "lender of last resort" can

lead to a substantial infusion of monetary reserves. Recent experience indicates that the availability of traditional monetary constraint as a tool of economic control is very much in question.

IV. Bank Examination

In the suggested examination procedure two items are emphasized: the desirability of generating a flow of information from bank examinations into the data which affect monetary policy decisions, and the need to emphasize how, at any time, banks make position—i.e., which money market instruments can be expected to be mainly affected over the examination horizon by emerging developments, as seen by an analysis of current and forecast bank behavior. It is important to note that while the standard examination is essentially timeless, the cash flow procedure emphasizes the future implications of today's legacy of the past as embodied in financial relations—i.e., time and the uncertainties inherent in time are integral to the cash flow perspective.

The standard bank examination procedure focuses on two phenomena: the discovery of fraud and the oversight of the loan portfolio. A major concern is the proper documentation of loans and some evaluation of whether loans are substandard. Substandard loans in turn are classified according to the estimated likelihood of repayment. Traditionally, bank examiners pay little or no attention to the liability structure—perhaps because the current fancy liability structures are a relatively new phenomenon. The present emphasis upon fraud and loan quality is adequate for the examination and analysis of the operations of smaller banks—which in the present context might well be all banks of less than \$500 million in assets. (The 200th bank in the April 21, 1975 *Business Week* list of the 200 largest banks has \$625 million in assets.) The need is for an examination procedure that can lead to a better control and understanding of what happens in financial markets.

There is a fundamental difference in the perspective of the standard and the suggested bank examination. The standard examination procedure focuses on the individual bank and views the emergence of problem banks as the result of individual error if not fraud. It quite clearly reflects an “insurer” or a “consumer union” perspective. The examination procedure embodied in “Suggestions . . .” focuses upon the emergence of taut financial markets, taking a tendency to speculate and to innovate in financial usages as an inherent characteristic of banks and business institutions in general. The emergence of taut or fragile financial circumstances is viewed as a characteristic of financial markets over an extended period of good times and the emergence of particular banks or fringe banks as the focus of a problem situation is viewed as in good part the luck of a draw. That is, there

always will be a breaking point in a fragile financial situation, and the particular banks and near banks that emerge as the problem institutions do so mainly because of the way market developments impinge upon their particular circumstances. In the current situation problem banks can emerge because of their exposure to real estate investment trusts, to New York City bonds, or to the financing of giant corporations—but these problems in turn reflect prior economic and financial market developments.

Thus, the perspective of the suggested examination procedure is clearly that of the monetary authorities. The questions the suggested examinations ask are, “Can we see the emergence of financial situations that will lead to our need to act as a lender of last resort?” and “How, if at all, is the emergence of such a situation the result of policy actions we take?”

It is also worth noting that a cash flow-oriented examination procedure is analogous to an internal control system for a complex financial organization that focuses upon liability exposure and the need of the unit to make position. In fact, we can view the suggested procedure as an attempt by the authorities to develop a unified perspective on bank operations, and this unified perspective is that of the manager of the cash position of the organization.

It is evident that experimentation with procedures and content is called for if such an alternative is to become operative. In particular, the underlying perspective in the suggested examination procedure is that banking is a dynamic, evolving, and innovative industry and the examination procedures need to evolve to keep up with changes in banking. Since the procedure was suggested, the emergence of the complex multinational bank holding companies has changed banking. There is not sufficient allowance in the suggestions as written for foreign banking operations. In the light of one dimension of the Franklin National debacle, there is need for a study of how to examine foreign banking operations and how to integrate foreign exchange exposure into the examination procedure.

V. Comments on the Suggested Procedure

One objective of the suggested bank examination is to generate information that can aid Federal Reserve policy-making. At present the information generated by bank examinations is not available for making monetary policy decisions. In order to make data generated by bank examinations available for policy-making decisions, it will be necessary to combine information obtained from individual banks into market aggregates. The examination procedure is so designed that information on prospective position-making programs for individual banks can be combined at the Board of Governors into aggregate data on prospective

position-making activity. In this way the authorities can infer which particular financial markets will be "under pressure" if "tight" market situations develop.

One purpose of the suggested examination procedure is to serve as a possible early warning system for financial difficulties, to signal the Federal Reserve that its responsibilities to "maintain orderly conditions" or to be "a lender of last resort" may be coming to the fore. For this aspect of Federal Reserve responsibilities, it may be that the situation, and the contemplated actions, of the "extreme" rather than the "average" bank are what is most relevant. Thus, the processing of the individual reports into market aggregates will not provide all the relevant information available from the suggested procedure. It will be necessary to use the examination information to identify those banks that can be expected to be most severely affected by the prospective market situation and examine their likely behavior under alternative scenarios as to market and economic developments.

The emphasis in the examination is upon bank and market usages as they exist, rather than upon some theoretical notion of how banks and markets should operate. Thus, the classification of activities in the examination will evolve with market and usage changes; under no circumstances are the examination's concerns to be frozen.

This examination procedure is designed to yield useful inputs into Federal Reserve policy-making. One input will be an improved knowledge of how banks are going about making their position and how the financial markets affected by position-making activity change over time. As the Federal Reserve can affect the cost (including the risks) of the various position-making techniques, knowledge of how positions are being made at the various classes of banks (including the fringe banks) is of vital importance.

In order to evaluate the liquidity of a bank, an analysis that is consistent with banking procedures is essential. It is necessary to identify the constraints implied by a bank's continuing business operations and to estimate how its resultant needs for cash can be met under different business and financial market conditions. Those items that management can control in the very short run are critical if a need for cash arises. These can be listed as position-making items. Basically, position-making revolves around the needs for cash to make payments, including those payments involved in debt repayment. However, for banks, legal and traditional requirements for cash exist. As a result, bank position-making activity takes place not only to obtain cash but also to make a reserve position or a desired cash items ratio.

A reporting or examination scheme that first estimates cash flows to and from a unit under a specified expected set of economic conditions will

yield a meaningful perspective on possible developments in banking and financial markets. Ways of estimating expected cash flows of a bank under specified overall economic conditions are needed. The view of a bank that is essential to such an examination is that a bank is an ongoing, continuing business that is affected by economic and financial conditions.

On each day a bank is acquiring loan assets as the result of a continuing customer relation with the emitter of the asset. To engage in a meaningful cash flow-oriented examination, estimates of such continuing relationships for each class of assets and liabilities are needed. Thus, the analysis of loan behavior (Form III, Appendix B) calls for data on loan commitments, both explicit and implicit. As a "customer's" behavior depends upon economic and money market conditions, some idea is needed as to how each class of assets and liabilities depends upon economic and money market conditions. This "idea" or conditional forecast will be the product of the examiner's view, gained from his own observations and his discussions with officials of the bank, of how the various accounts are expected to develop. Note that the meaning for the bank's locality of the hypothesized national economic conditions will need to be spelled out. Often the examined banker can be the source of this local implication. It is clear that the proposed examination procedure will require continuing cooperation between conventional bank examiners and staff economists.

On each day the inherited continuing assets and the newly acquired assets, which reflect the ongoing operations of the bank, yield a position that must be financed by liabilities. The view that banks are passive, tap emitters of liabilities is inconsistent with banking practices. Banks set terms upon their liabilities so that they acquire sufficient resources to finance the position that is the result of their normal operations. Thus, to a bank the manner in which its liabilities will respond to explicit and implicit rate differentials is of major importance. The cash flow to and the cash flow from a bank due to various deposit accounts, as well as the responsiveness, in the short run, of such deposits to the terms offered by the banker are major ingredients in the position-making strategy of the bank.

It is clear that much of the conditional cash flows we need to estimate for a bank can be thought of as elasticities in an empirical model of the institution. The "examiner" and the "examination process" by direct observations upon the ongoing institution are substitutes for the nonexistent empirically relevant model of the institution.

The suggested set of reports leads to identifying a position-making set of operations for the bank. These operations have boundaries determined by initial stocks, operating results over time intervals, commitments of assets to specified collateral, and standards of asset and liability structure which may be conventional or legal.

Schematically, we have balance sheet dates, $B_0, B_1, B_2 \dots$ and cash

flow intervals, ${}_0C_1, {}_1C_2, {}_2C_3, \dots$. Balance sheets are conventional. Cash flows are divided into cash flows to the unit, C^+ , and cash flows from the unit, C^- . For each balance sheet item the cash flows to and from the unit over an interval can be separated into those that are the result of prior commitments by the bank and those that are due to the "managerial decisions" of the period. Both "commitment" and "current" cash flows for any period will depend upon economic and financial market conditions.

At the examination date the balance sheet is observed. For each balance sheet class, the examination requires estimates of cash flow to (C^+), cash flow from (C^-), and the terminal balance sheet item (B_1). One possible way to estimate these is to estimate first the terminal balance sheet item (B_1) and then derive the net cash flows due to this item. This procedure ignores the information about cash flows over the period, as stated in various contracts and other commitments. For each category of loans, the contractual commitments to make payments as stated by the loan agreement plus the roll over (renewal commitments) yield a cash flow to the bank. The procedure is designed to exploit the available data in the existing contractual and other commitments. Thus, the flow estimates will not be simply the results of estimating terminal balance sheets and then deriving flows by differencing.

Actually, for the loan and investment accounts the initial balance sheet entry plus and minus the cash flows are not equal to the terminal balance sheet entry. This is so because the cash flow includes both principal and interest. Consider a bond worth \$1,000 at the beginning and worth the same at the end of a period. It could generate a cash flow—the semiannual interest payment during the period. (We might adopt the convention of entering all "current" mortgages at 100.) Thus, there would be no change in the value of the mortgages that survive the period of analysis even though they generate a cash flow. Thus, once you look at cash flow analysis closely, the alternative of obtaining net cash flows by differencing terminal and initial balance sheets is not available.

The report forms have been set up so that, for the deposit accounts, the initial balance sheet entry plus the cash flow to and minus the cash flow from equals the terminal balance sheet entry. (Interest on passbook savings is handled as it is in order to achieve this consistency.) There is little, if any, constraint from commitments on cash flows due to deposits. It might be that for the deposit accounts, estimates of the terminal date deposits can act as a "control" in estimating cash flows. Notions of deposit turnover rates can generate the cash flow from. This, together with estimates of the terminal balance sheet values can yield estimates of the expected cash flows to on account of the various deposit accounts. A consistency check of this kind for deposits, where little in the way of commitments exists, may be useful.

The arithmetic of the deposit accounts is not consistent with that of the loan accounts. There is no reason in the logic of the suggested examination for such consistency. Experimentation in estimating cash flows due to deposits will be necessary to determine whether linking the terminal balance sheet to the initial balance sheet by cash flows is useful.

As a result of the "normal" expected operations of the bank over a period, a terminal cash position is attained. The usual position-making activities of a bank are identified by designating some set of assets and liabilities as position-making accounts. Feasible or likely programs of position-making, given the assumption about money market conditions, will need to be sketched; usually more than one feasible solution will exist. At present we can ignore the problem of choice among feasible solutions.

For money market banks, at any one time, the choice from among a set of conventional position-making operations will depend upon sharp pencil cost computations. This set of conventional position-making operations can be considered as an entity. The Federal Reserve's problem will be to estimate whether position-making by the deficit banks will be possible by operations within this set of conventional activities or whether some "exotic" markets will have to be tapped. In order to do this, they will need to estimate the contribution of surplus banks and other financial units to the supply of funds in the conventional markets. The position-making programs will need to be evaluated in terms of their impact upon the bank as a continuing institution.

The broad structure of the suggested procedure divides bank activities into classes that are consistent with standard balance sheet items; that is, forms are included for the analysis of cash flows due to deposit, loan, investment, and operation activity. Adjustments for compensating balances and collateralized deposits are needed to clean up cash flows and allow an estimate of the assets available for position-making. The crux of the report is the form on which the position-making accounts are identified. From the cash needs as derived from the liability structure and business operations and the cash position as derived from activity in the various accounts, a need to acquire or place cash by position-making activity emerges. The final steps in the examination procedure are to develop feasible position-making operations and to evaluate the liquidity of the bank under the hypothesized economic and financial conditions.

Footnotes

¹Hyman P. Minsky: "Financial Instability Revisited: The Economics of Disaster," in Board of Governors of the Federal Reserve System: *Reappraisal of the Federal Reserve Discount Mechanism*, 3 vols. (Washington, 1971-1972), vol. 3, pp. 95-137.

²George J. Benston, "Bank Examination," New York University, Graduate School of Business Administration, Institute of Finance, *Bulletin*, Nos. 89-90, May 1973.

¹A statement of this interpretation is scheduled for fall publication: Hyman P. Minsky, *John Maynard Keynes*, Columbia Essays on Great Economists, (New York: Columbia University Press, 1975, forthcoming). Insights into this interpretation can be gathered from Hyman P. Minsky, "Money and the Real World: A Review Article," *Quarterly Review of Economics and Business*, XIV (Summer 1974), 7-17.

²Hyman P. Minsky, "The Modelling of Financial Instability: An Introduction," in Instrument Society of America, *Modelling and Simulation Volume 5: Proceedings of the Fifth Annual Pittsburg Conference* (Pittsburg, 1974), pt. 1, pp. 267-73. Reprinted in U.S., Congress, Senate, Committee on Banking, Housing and Urban Affairs, *Compendium of Major Issues in Bank Regulation*, Committee Print (Washington: Government Printing Office, 1975), pp. 354-64.

Appendix A Detailed Comments

For the present, we are interested mainly in the overall structure of the report. The details are very much subject to revision. The initial problems are whether the stock-flow-stock format that emphasizes the independent determination of the flows is meaningful and whether the gathering of the required numbers is feasible. Most of the details will need to be determined experimentally, and many questions cannot be answered until some effort is made at learning by doing.

Form I: Hypothesis and Critique. The time horizon and the economic and money market conditions hypothesized are to be specified on this form. It also is to include a short summary of any difficulties that the examiner perceives the bank as facing; particular emphasis should be placed upon position-making.

A complete examination might consist of a number of reports, each one differing in the hypotheses specified. Form I really states: "If we assume H_1, H_2, H_3 , then P_1, P_2, P_3 follows," where the H's are economic and financial conditions and the P's are position-making activities. In these notes we will assume that the implications of one hypothesis over a single time horizon are being determined.

It will be necessary to feed hypotheses about the expected behavior of economic and financial variables into the examination process. For example, an hypothesis forwarded from Washington to the examiners in the field might state that over the relevant period the economy is expected to be "strong." This may be made precise by stating that nationally the demand for business loans is expected to increase at an annual rate of, say, 8 percent per year and that this is expected to be accompanied by a 1/2 percent increase in the Treasury bill rate. In addition, the prime rate is expected to increase by either 1/4 or 1/2 percent. These money market and economic conditions should have implications for the willingness of the bank to switch among categories of loans, and from loans to investments and vice

versa. The examiner may determine how the bank can be expected to react either by discussing the expected developments with the bank managers or by analyzing previous behavior of the bank.

It usually will be necessary to add some special details dealing with the local or regional economy to the national hypotheses as forwarded from Washington before the bank's reaction can be gauged. Thus, for California an expected national increase at the rate of 8 percent per year in bank credit might be translated into a 10 percent per year rate of increase in the demand for bank credit in California. The same national forecast might imply no change in loan demand for a bank in upstate New York.

Thus, the expected growth or decline of each locality or region as a function of the behavior of the national economy will have to be estimated. In order to obtain local implications of each specification of national economic conditions, each Reserve Bank's economic research department will be required to translate the national hypothesis into a local or district hypothesis.

Note that if a complete set of examinations with varying hypotheses are to be undertaken, each Reserve Bank's research department will have to spell out the local meaning of, for example, three phrases applied to the national economy: normal seasonal, strong, and weak. It might be that the hypotheses sketching for the purposes of guiding examiners should be one end result of the review of economic conditions that is part of the preparation for the open market committee meeting. Thus, a joint product of open market committee preparation in the form of hypotheses for bank examinations will come into being.

A cash flow-oriented bank examination can be meaningful only if it is based upon a forecast of economic and financial market conditions. Such an examination will require close working coordination between economists and examiners. The details of how this coordination is to be brought about will need to be developed. However, it is clear that a significant economic analysis input will be part of every such examination.

Form II: Deposit Analysis. The standard form for ordinary balance sheet items consists of four columns: (1) an initial balance sheet, (2) cash flows to (over the interval), (3) cash flows from (over the interval), and (4) a final balance sheet. The initial balance sheet column is labelled " B_0 "; the final balance sheet column is labeled " B_1 ." There are two cash flow columns: the cash flow to is labeled $C+$, and the cash flow from is labeled $C-$. For example, a balance sheet item will be entered for demand deposits, IPC, small. Additions to deposits will be entered in the plus cash flow column. Withdrawals will be an entry in the minus cash flow column. Presumably, if there were no other changes, the initial position, the cash flow plus, and the cash flow minus can be summed to get the final balance sheet position.

Six categories of demand deposits are identified in the preliminary form. Always, for all forms the final set of classes can be determined only by a combination of consultation among those concerned and experimentation.

Before the report is implemented, some aspects of correspondent relations among banks may have to be clarified. A useful by-product of this examination may be a clearer understanding of correspondent relations and whether the nature and extent of such relations have any significance for system performance.

Various categories of time and savings deposits are to be analyzed. I have allowed for five classes. The special treatment of negotiable CDs is worth noting. Here, an initial position, a cash flow from the organization on the basis of CDs, and a final position, which are the CDs whose time to maturity is longer than the horizon of the report, are considered. No provision is made for the emission of negotiable CDs; CDs do not yield a cash flow to the organization. The reason for this is that CD sales are assumed to be a position-making activity.

Note that the interest cost over the period is treated as if it were a deposit at the initial date. Only the withdrawals of interest are allowed for (column C-). The explanation for this is given on the form.

Form III: Loan and Lending Analysis. Loans are broken down into three broad classes: loans to nonfinancial businesses and households, loans to financial organizations, and loans to states and municipalities. All in all, some 14 classes of loans to businesses and households, four classes of loans to financial organizations, and a single class of loans to states and municipalities are identified, a total of 19 classes. For each class, the initial position is divided between clean (some other word will be better) and scheduled (classified) loans. Scheduled loans are questionable at the initial date, B_0 .

For each class, information is needed about the initial value, the cash flows to the bank generated by the initial position in the loan class, the cash flows from the bank due to the various "ways" in which loans of this class can be acquired, and the terminal value.

In principle, obtaining information about cash flows to a bank that a loan class is expected to generate is not difficult. For clean or current loans, all that has to be done is to read and sum the contracts and make some allowance for the nonfulfillment of the contracts. For scheduled or classified loans, after reading and summing the contracts, an estimate of the proportion of the contractual commitments that will be forthcoming needs to be made.

Note that in the forms no separation of the cash flows into interest and principal is made. In the case of a fully amortized mortgage loan, the gross monthly payments over the period being analysed are the cash flow to the

bank. For discounted notes due during the period, the cash flow to the bank is the face value of the note. For loans or investments that yield only an interest flow, the cash flow is the interest receipts.

A problem arises because many loans are rolled over when due. An accounting convention of treating such loans as if the contractual terms were fulfilled, thus generating a cash flow to the organization, and treating the roll over as a new loan which is the result of an explicit or implicit loan commitment, thus generating a cash flow from the bank, yields a consistent way of looking at roll overs. The weakness of this convention is that it exaggerates the cash flows to and from the bank.

The loan acquisition process is broken down into the acquisition of loans from explicit commitments, from implicit commitments, and from managerial decisions taken during the period. In the analysis of the loan portfolios, the examiner will note, as a parenthetical comment, the total of explicit commitments and, by procedures that have to be determined, will estimate and note the implicit loan commitments. Managerial decisions will always be some forecast of new loans to be made during the period on the basis of day-to-day decision-making during the period.

The first step in a possible technique for estimating implicit lines of credit is to note the maximum previous credit for all of the relevant customers, even those out of debt at the examination date. The loan officer will be asked whether the customer is as, more, or less creditworthy than at the time of the previous maximum loan. The maximum previous amount plus or minus an allowance for change in creditworthiness will be the implicit line of credit.

One way to estimate drawings from lines of credit is to estimate normal drawings by examining previous experience. This normal estimate can then be modified to allow for the specific business condition hypothesis being used.

A factor in estimating managerial decision loans will be the aggressiveness of the bank in seeking new business. A combination of a forecast of good times plus an active pursuit of new business will imply that a large cash drain will take place due to managerial decision loan acquisition.

For most loan classes, there is an additional line labeled "shifts from clean to scheduled." This shift from clean to scheduled loans is a forecast of how many of the loans now considered "clean" will become scheduled items over the time horizon. It will reflect not only the examiners' view of the loans the bank has and might take on, but also the economic and money market condition hypotheses underlying the report.

Not all items follow the standard format. For example, instalment loans (direct) will have just one acquisition item; no allowance is made for commitments. For mortgage loans, regardless of origin, allowances are

made for sales out of portfolio. In addition, in the mortgage loans (other origins), allowance is made for the purchase of seasoned mortgages. It is assumed that no explicit commitments exist for loans to households for the carrying of securities. An item that may be questionable is the treatment of bankers' acceptances and open market paper as loan items which may involve commitments.

On the loans to financial organizations, the only item of special importance is loans to dealers and brokers, except U.S. Government security dealers. A question is whether all loans to dealers and brokers should be considered as a position-making activity or whether there are some loans to dealers and brokers that are part of the normal ongoing business of the bank.

Note that the current innovative frontier in bank credit cards and other overdraft-type arrangements will make the estimation of drawings by customers over time horizons an important concern of bank management and the regulating authorities.

Form IV: Compensating Balances. The problem arises because the cash flow to and the cash flow from due to loans were estimated ignoring compensating balances. If a loan with a compensating balance is repaid, the cash flow to the bank is smaller than the amount of the loan by the amount of the compensating balance. If a loan is made which requires a compensating balance, then the loss of cash as this loan is used is smaller, by the size of the compensating balance, than the size of the loan. The cash flow to and from needs to be adjusted to allow for changes in compensating balances. This is taken care of in Form IV, and the net cash flow due to activity in loan accounts is determined in Form IV. This, instead of the sum from Form III, becomes an entry into the cash position analysis of Form VIII.

Form V: Analysis of Investment Accounts. Cash flow to due to an investment class includes cash received as interest and as investments mature. The cash flow from due to an investment class is always the result of purchases of the investment. For state and municipal securities provision is made for purchase commitments. In many areas banks have undertaken implicit commitments to bid on all local government new issues. This means that additions to the state and municipal account may be outside that period's control. This is quite different from the other securities, especially federal government securities.

Form VI: Cash Flows Due to Operations. Basically this form is straightforward. No provision need be made for balance sheet items, and accruals can be ignored. Payroll, dividends, and other operating expenses cause a cash flow from; rent revenues and sales of services cause a cash flow to. There is a question as to whether trust department activities might be entered here; I have no notion of how—and even of whether—trust activities need be considered.

Form VII: Position-Making Accounts and the Activity Therein. Some nine position-making activities or accounts are identified. These accounts are: (1) Treasury bill operations, (2) other governments less than two years, (3) federal funds, (4) loans to government dealers, (5) correspondent balances, (6) Eurodollar market operations, (7) negotiable CDs, (8) discounting, and then (9) an all-other class. The position-making accounts, in contrast to the others, have seven columns. A division is made between "normal" activity in the account and special activity occasioned by the need to make a position. For Treasury bills, an initial position, the amount that is due in the time period under consideration, and new acquisitions under normal circumstances are combined to get B_1^* , which is the estimated terminal date "normal" or "operating" Treasury bill situation.

The same setup is not possible in all other categories. For example, discounting only takes place as a position-making move. In analyzing discounting an initial amount would all be repaid over the period. The B_1^* column would always be 0. A position-making activity, borrowing from the Federal Reserve Bank, exists; the final position in discounting will equal the amount of position-making by this channel.

To the usual four columns three more are added in Form VII. These are two more flow columns, labeled P^+ and P^- , which detail the special cash flow operations attributable to the need to make a position, and a final balance sheet column B_1 . The first four columns in this form could be completed in the usual manner. After this is done, Form VIII should be completed.

Form VIII: Cash Position Prior to Position-Making. Here the initial cash, due from banks, reserves with the Federal Reserve Bank, and items in the process of collection are summed into an initial total cash position. It is assumed that shifting among the various cash items to get needed reserves is a trivial operation.

The net change in cash due to each of the deposit, loan, investment, and operating activities as well as from normal operations in the position-making assets, positive if it's an addition and negative if it's a loss, is added to the initial cash position. This gives an estimate of the total cash position at the terminal date prior to position-making activities. A computation of the expected reserve needs at the terminal date follows. To this, other cash needs due to correspondent relations, business needs, and banking convention are added to get total cash needed. Given the estimates of total cash prior to position-making and total cash needs, an estimate of the cash deficit or surplus is derived.

Form IX: Collateralized Deposits. Here the expected availability of various classes of securities for position-making is determined.

Form X: Feasible Position-Making Program. In Form X the deficit or excess in cash is entered. Also indicated is a program of position-making operations in Treasury bills, other government securities, federal funds,

etc., which will make up the cash deficit or place the surplus. A number of different position-making programs may be feasible, and will be evident to the analysts examining the report. The examiner should enter his view as to the most likely program based either upon how the bank made its position in the past or upon knowledge of the bank management's thinking. These position-making activities are entered into Form VII to form a basis for estimating the final balance sheet items for each of the position-making accounts.

Form X is the crux of the analysis. The organization is liquid or illiquid over the period examined depending on whether the position-making operations are easy or difficult to carry out. If, for a significant number of banks, position-making entails unusual dependence upon some particular set of markets or dependence upon unusual markets, or the examiner's reports, when analysed, show that the expected sum of the borrowings in, say, the federal funds market exceeds the expected supply, then the examination procedure will indicate that position-making difficulties are likely. Thus, the beginnings of liquidity problems in the banking system could be forecast.

Appendix B

Examination forms

- I. Hypotheses and Critique
- II. Deposits
- III. Loans and Loan Acquisition
- IV. Compensating Balances
- V. Investments
- VI. Operations
- VII. Position-Making
- VIII. Cash Positions Prior to Position-Making
- IX. Collateralized Deposits
- X. Feasible Position-Making Program

Note: In all the forms, X in a cell means no entry; - means entry.

I. Hypotheses and Critique

A. Hypotheses

1. Time horizon: _____
2. Economic conditions: _____
3. Money market conditions: _____

- B. Critique (a short statement of any foreseen difficulties with particular emphasis placed on *unusual* position-making activities).

II. Deposits

| | Initial balance B ₀ | Cash flows + C - | Terminal balance B ₁ |
|-------------------------------|--------------------------------------|---------------------|---------------------------------------|
| A. Demand deposits | | | |
| 1. IPC (small) | — | X X | — |
| Deposits | X | — X | X |
| Withdrawals | X | X — | X |
| 2. IPC (large) | — | X X | — |
| Deposits | X | — X | X |
| Withdrawals | X | X — | X |
| 3. State and municipal | — | X X | — |
| Deposits | X | — X | X |
| Withdrawals | X | X — | X |
| 4. U.S. Government | — | X X | — |
| Deposits | X | — X | X |
| Withdrawals | X | X — | X |
| 5. Correspondent ¹ | — | X X | — |
| Deposits | X | — X | X |
| Withdrawals | X | X — | X |
| 6. Other | — | X X | — |
| Deposits | X | — X | X |
| Withdrawals | X | X — | X |
| Total² | Σ— | Σ— | Σ— |
| Service charges ³ | | | \$— |
| Corrected final deposits | | | \$— |

¹Questions as to whether correspondent balances are result of normal business or of position-making activity

²For each class and for the total (B₀) + (C+) - (C-) = B₁

³Service charges are debits to deposit accounts for which the bank does not lose cash.

II. Deposits (continued)

| | Initial | Cash flows | | Terminal |
|-------------------------------------|---------------------------|------------|-----------|---------------------------|
| | balance B ₀ | + | C - | balance B ₁ |
| B. Time and savings deposits | | | | |
| 1. Passbook | | | | |
| Deposits | — | X | X | — |
| Withdrawals | X | — | X | X |
| Interest ¹ | X | X | — | X |
| 2. Certificates of deposit | | | | |
| Sales | — | X | X | — |
| Redemptions | X | — | X | X |
| Interest ¹ | X | X | — | X |
| 3. Other time deposits | | | | |
| Deposits | — | X | X | — |
| Withdrawals | X | — | X | X |
| Interest ¹ | X | X | — | X |
| 4. State and municipal | | | | |
| Deposits | — | X | X | — |
| Withdrawals | X | — | X | X |
| Interest ¹ | X | X | — | X |
| 5. CDs (negotiable) ² | | | | |
| Redemptions | — | X | X | — |
| Interest ¹ | X | X | — | X |
| Totals | Σ— | Σ— | Σ— | Σ— |

¹Enter total expected interest payment as an initial deposit. Cash payments plus expected withdrawals are entered as C-. To determine B₁ sum the two B₀'s and +C, subtract the two C-

Interest is treated in this manner for it is an addition to accounts which does not have as its counterpart a cash flow to the organization.

²Negotiable CD sales are a position-making activity and, hence, are not included.

III. Loans and Loan Acquisition

| | Initial | Cash flows | | Terminal |
|---|---------------------------|------------|-----|---------------------------|
| | balance B ₀ | + | C - | balance B ₁ |
| A. Loans to nonfinancial businesses and households | | | | |
| 1. Uncollateralized business loans | | | | |
| Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Commitments: explicit (—) | X | X | — | X |
| implicit (—) | X | X | — | X |
| Managerial decision | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |
| 2. Collateralized business loans | | | | |
| Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Commitments: explicit (—) | X | X | — | X |
| implicit (—) | X | X | — | X |
| Managerial decision | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |
| 3. All other short-term non-financial business loans | | | | |
| Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Commitments: explicit (—) | X | X | — | X |
| implicit (—) | X | X | — | X |
| Managerial decision | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |
| 4. Loans to finance foreign trade | | | | |
| Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Commitments: explicit (—) | X | X | — | X |
| implicit (—) | X | X | — | X |
| Managerial decision | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |
| 5. Term loans | | | | |
| Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Commitments: explicit (—) | X | X | — | X |
| implicit (—) | X | X | — | X |
| Managerial decision | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |

(continued on following page)

III. Loans and Loan Acquisition (continued)

| | Initial | Cash flows | | Terminal |
|---|---------------------------|------------|-----|---------------------------|
| | balance B ₀ | + | C - | balance B ₁ |
| 6. Instalment loans (dealer) | | | | |
| Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Commitments: explicit (—) | X | X | — | X |
| implicit (—) | X | X | — | X |
| Managerial decision | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |
| 7. Instalment loans (direct) ¹ | | | | |
| Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Managerial decision | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |
| 8. Dealer floor loans | | | | |
| Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Commitments: explicit (—) | X | X | — | X |
| implicit (—) | X | X | — | X |
| Managerial decision | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |
| 9. Mortgage loans (builder-originated) | | | | |
| Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Commitments: explicit (—) | X | X | — | X |
| implicit (—) | X | X | — | X |
| Sales of mortgages ² | X | — | X | X |
| New mortgages | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |
| 10. Mortgage loans (Other origins) ³ | | | | |
| Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Sales of mortgages ² | X | — | X | X |
| Purchase of seasoned mortgages | X | X | — | X |
| New mortgages acquired | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |
| 11. Construction loans | | | | |
| Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Commitments: explicit (—) | X | X | — | X |
| implicit (—) | X | X | — | X |
| Managerial decision | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |

(continued on following page)

III. Loans and Loan Acquisition (continued)

| | Initial | Cash flows | | Terminal |
|---|---------------------------|------------|-----|---------------------------|
| | balance B ₀ | + | C - | balance B ₁ |
| 12. Loans to households to carry securities | | | | |
| Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Acquisition | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |
| 13. All other household loans | | | | |
| Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Acquisition | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |
| 14. Bankers' acceptances and open market paper | | | | |
| Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Commitments: explicit (—) | X | X | — | X |
| implicit (—) | X | X | — | X |
| Managerial decision | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |
| B. Loans to financial organizations | | | | |
| 1. Loans to sales and consumer finance companies | | | | |
| Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Commitments: explicit (—) | X | X | — | X |
| implicit (—) | X | X | — | X |
| Managerial decision | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |
| 2. Loans to savings and loan associations, mutual savings banks, etc. | | | | |
| Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Commitments: explicit (—) | X | X | — | X |
| implicit (—) | X | X | — | X |
| Managerial decision | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |
| 3. Loans to life insurance companies | | | | |
| Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Commitments: explicit (—) | X | X | — | X |
| implicit (—) | X | X | — | X |
| Managerial decision | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |

(continued on following page)

III. Loans and Loan Acquisition (continued)

| | Initial | Cash flows | | Terminal |
|--|---------------------------|------------|-----|---------------------------|
| | balance B ₀ | + | C - | balance B ₁ |
| 4. Loans to dealers and brokers, except U.S. Government security dealers | | | | |
| Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Commitments: explicit (—) | X | X | — | X |
| implicit (—) | X | X | — | X |
| Managerial decision | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |
| C. Loans to states and municipalities | | | | |
| 1. Clean | — | — | X | — |
| Scheduled | — | — | X | — |
| Commitments: explicit (—) | X | X | — | X |
| implicit (—) | X | X | — | X |
| Managerial decision | X | X | — | X |
| Shifts from clean to scheduled (—) | X | X | X | X |

¹Assumption is that there are no significant commitments for direct instalment loans

²Aside from mortgage originations and mortgage repayments, there is apparently a fair amount of sales of mortgages by banks to insurance companies, etc. Such sales are a +C for the selling bank and should be so entered.

³It may be that items 9 and 10 should be combined. The total mortgage position could be divided into clean and scheduled and the distinction between builder-originated and other sources be carried only in the acquisition process. This would result in the following headings for mortgages:

- Mortgages
- Clean
- Scheduled
- Commitments: explicit (—)
- implicit (—)
- Other new mortgages acquired
- Purchases of seasoned mortgages
- Sales of mortgages
- Shifts from clean to scheduled (—)

IV. Compensating Balances

Estimated terminal compensating balance (T) _____

Initial compensating balance (I) _____

Difference (+ if T > I, - if I > T) _____

Cash flow to due to loans [E(+C)] _____

Cash flow from due to loans [E(C-)] _____

Net cash flow _____

Adjustment due to compensating balances _____
(+ if T > I, - if I > T)*

Total (net reserve flow due to activity in loan accounts) = + _____

*Explanation of adjustment: if the terminal compensating balance exceeds the initial balance, then the net cash flow from due to loan activity over the period was smaller than the amount entered as cash flow from due to loans by a net amount equal to the increase in compensating balances. Symmetrically, if the initial balance exceeds the terminal balance, the net cash flow to due to loan activity was smaller by the amount of compensating balances written off in the loan repayment process.

That is, if 20 percent of a loan is in the form of a compensating balance, the borrower need only repay 80 percent of the loan in cash. The other 20 percent can be repaid by debiting the compensating balance. As the compensating balance was not available for making payments, it is assumed the desired cash is reduced by the amount of the reduction in the required balance when loans are repaid.

V. Investments

| | Initial | Cash flows | | Terminal |
|---|---------------------------|------------|-----|---------------------------|
| | balance B ₀ | + | C - | balance B ₁ |
| A. Government securities (2-5 years) | — | — | X | — |
| Planned purchases | X | X | — | X |
| Planned sales | X | — | X | X |
| Shifts to < 2 year category | X | — | X | X |
| Shifts from > 5 year category | X | X | — | X |
| B. Government securities (>5 years) | — | — | X | — |
| Planned purchases | X | X | — | X |
| Planned sales | X | — | X | X |
| Shifts to <5 year category | X | — | X | X |
| C. State and municipals* | — | — | X | — |
| Purchases: commitments (—) | X | X | — | X |
| other | X | X | — | X |
| Sales: commitments (—) | X | — | X | X |
| other | X | — | X | X |
| D. Other investments | — | — | X | — |
| Purchases: commitments (—) | X | X | — | X |
| other | X | X | — | X |
| Sales: commitments (—) | X | — | X | X |
| other | X | — | X | X |
| | Σ | Σ+C | ΣC- | Σ |

VI. Operations

| | Initial | Cash flows | | Terminal |
|-----------------------------|---------------------------|------------|-----|---------------------------|
| | balance B ₀ | + | C - | balance B ₁ |
| A. Payroll | X | X | — | X |
| B. Dividends, cash | X | X | — | X |
| C. Other operating expenses | X | X | — | X |
| D. Revenues from rent | X | — | X | X |
| E. Sale of services | X | — | X | X |
| Total: | X | Σ | Σ | X |

*Should a distinction be made by time to maturity?

VII. Position-Making

| | Initial | Cash flows | | Terminal | Cash flows | | Terminal |
|---|---------------------------|------------|------------|---------------------------|------------|------------|---------------------------|
| | balance B ₀ | + C | - | balance B ₁ | + P | - | balance B ₁ |
| A. Treasury bills | — | | X | — | X | X | — |
| New acquisitions | X | X | — | X | X | X | — |
| Position-making activity | X | X | X | X | — | — | X |
| B. Other Government securities (<2 years) | — | | X | — | X | X | — |
| New acquisitions | X | X | — | X | X | X | X |
| Shifts from > 2 years | X | X | — | X | X | X | X |
| Position-making activity | X | X | X | X | — | — | X |
| C. Federal funds | — | | — | 0 | X | X | — |
| Sales commitments () | -X | X | — | X | X | X | X |
| Purchases commitments () | X | — | X | X | X | X | X |
| Normal activity position | X | X | X | — | X | X | X |
| Position-making activity | X | X | X | X | — | — | X |
| D. Loans to Government bond dealers | — | | X | — | X | X | — |
| Commitments () | X | X | — | X | X | X | X |
| Managerial decision | X | X | — | X | X | X | X |
| Position-making activity | X | X | X | X | — | — | X |
| E. Correspondent balances ¹ | | | | | | | |
| F. Eurodollars ² | | | | | | | |
| G. Negotiable wholesale CDs | | | | | | | |
| Normal placements | X | — | X | — | X | X | — |
| Position-making activity | X | X | X | X | — | X | X |
| H. Discounting | — | X | — | 0 | X | X | X |
| Position-making activity | X | X | X | X | — | X | — |
| I. Other position-making activities (details) | | | | | | | |
| Σ | Σ | Σ+C | ΣC- | Σ | Σ+P | ΣP- | Σ |

¹ I don't know how to handle correspondent balances. This problem will take investigation. A bank will both owe and own correspondent balances

² The treatment of Eurodollar balances will also require investigation

VIII. Cash Positions Prior to Position-Making

| | |
|---|--|
| Initial cash and due from banks | _____ |
| Initial reserve with Federal Reserve and items in process of collection | _____ |
| Total cash¹ | _____ |
| Net change in cash due to: | |
| Deposits | _____ |
| Loans ² | _____ |
| Investments | _____ |
| Operations | _____ |
| Normal operations in position-making accounts | _____ |
| Total cash change due to normal activity | _____ |
| Forecast cash at B₁ | _____ |
| Terminal Date Reserve Needs | |
| <u>Type of deposit</u> | <u>Reserve ratio</u> <u>Required reserve</u> |
| Demand | _____ |
| Passbook savings | _____ |
| CDs | _____ |
| Other time | _____ |
| Total required reserve | _____ |
| Other cash needs | _____ |
| Total cash needs¹ | _____ |
| Deficit (-) or surplus (+) cash | _____ |

¹ It is assumed that division of cash between reserves and other accounts is trivial.

² After adjusting for compensating balances.

IX. Collateralized Deposits

Deposits requiring collateral (terminal date)

| | |
|---------------------|-------|
| Government | _____ |
| State and municipal | _____ |
| Other | _____ |
| Total | _____ |
| Collateral | |

| <u>Type of security</u> | <u>Owned at terminal date</u> | <u>Pledged</u> | <u>Available for position-making</u> |
|-------------------------------|-------------------------------|----------------|--------------------------------------|
| Government (2-5 years) | _____ | _____ | _____ |
| Government (> 5 years) | _____ | _____ | _____ |
| Treasury bills | _____ | _____ | _____ |
| Other Government (< 2 years) | _____ | _____ | _____ |
| State and municipal | _____ | _____ | _____ |
| Total | _____ | _____ | _____ |

X. Feasible Position-Making Program

| | |
|---|-------|
| | + C - |
| Deficit or excess cash | - - |
| Position-making activity in: | |
| Treasury bills | - - |
| Other Government securities (< 2 years) | - - |
| Federal funds | - - |
| Loans to Government dealers | - - |
| Correspondent balances | - - |
| Eurodollar operations | - - |
| Negotiable CDs | - - |
| Discounting | - - |
| Other | - - |
| | Σ Σ |

NOTE: A number of feasible position-making programs may be designed. Each such program will result in a different final balance sheet for items in Form VII. The critique in Form I will refer to the programs of Form X.

If a number of different hypotheses and horizons are being considered, a +C- column for each hypothesis will be needed in this form. Form X will be a many-columned form, one for each hypothesis. The cash position and position-making of the various hypotheses will be most clearly seen here.

Appendix C
Additional 1975 comments

1. A view that underlies this report is that the viability of an institution—be it a bank or an ordinary business firm—depends upon economic conditions. In light of experience since 1967 it is evident that any conditional analysis will have to consider how the organization will be affected by wide swings in interest rates.
2. Since the 1967 report there has been a sharp increase in formal lines of credit which specify the commitments of banks. An examination procedure of the type suggested would reinforce this trend and, as a result, the data on commitments would be more readily available.
3. As the focus of this examination procedure shifts towards the giant banks, national economic conditions become the dominant determinant of the expected cash positions and the need to break national forecasts down to local forecasts decreases.
4. The view that banks aggressively sell their liabilities, while rather novel in 1967, is part of today's conventional wisdom. The set of liabilities that banks "sell" is much greater in 1975 than in 1967, and the focus upon deposits rather than liabilities in the 1967 report is a bit old-fashioned.
5. It needs to be emphasized, perhaps more strongly than in the 1967 report, that the flow estimates are not to be derived by first estimating an end-of-period balance sheet and then determining the cash flow that will achieve this result; the cash flows both to and from a unit on assets and liabilities are to be estimated and the resultant terminal balance sheet position is to be determined.
6. With the growth of bought funds, the deposit argument has to be reconsidered. One way in which banking changed between 1967 and 1975 was that demand and passbook savings accounts declined as a proportion of total liabilities. Even in the face of expanded deposit insurance, more sophisticated liability structures have made the ratio of potentially volatile deposits significantly higher than in the early postwar era.
7. Position-making now encompasses dealing in many more markets than hitherto. One problem in bringing this suggestion up to date is to separate volatile liabilities and position-making activity. It is also clear—as was implicit in the 1967 report—that position-making activity and, thus, the key financial markets for Federal Reserve control can change radically over short periods of time. Without the depth of information that the suggested procedure develops, the Federal Reserve often finds itself way behind the developments in money markets.
8. (Form II) It might be desirable to break business deposits into compensating balances and other.
9. (Form II) The deposits of financial institutions should be separated

- out, particularly if the focus of the examination is the large banks.
10. (Form II) In light of the recent difficulties of some large regional banks, it might be desirable to break CDs down between those sold in the bank's own market and those which are sold through brokers and dealers.
 11. (Form II) It is now known that the simple setup of liabilities which identified only demand and time deposits was a gross oversimplification. Repurchase agreements certainly need to be included. Both demand and time deposits should be separated into domestic and foreign. The treatment of holding company commercial paper is of interest and some way should be found to treat transactions between holding companies and commercial banks.
 12. (Forms II, III) One glaring oversight in the reports is the absence of any capital accounts, although the change in the capital account due to retained earnings is implicit in the treatment of operating expenses and the way in which cash flows due to interest receipts and costs are entered. However, in the accounts as written, there is no way of treating an infusion of cash through new issues of debt or equity capital.
Incidentally, if the period under consideration is one in which there is a considerable infusion of bank capital through newly chartered banks, the examination procedure would miss these developments.
Perhaps we can view new issues of debt or equity capital as a position-making activity.
 13. (Form III) The term "scheduled items" is used for substandard loans of various kinds.
 14. (Form III) The important item to note is that the loan acquisitions are broken down into the results of explicit and implicit commitments and managerial decisions. The cash flow-oriented bank examination might well have another summary sheet which draws together the commitments by class of loan and the expected drawings on these commitments.
 15. (Form III) Because of the proliferation of offshore branches in the period since 1967, a separate analysis of the offshore loan activity of the large banks would be in order.
 16. (Form V) In light of the recent behavior of interest rates and the quality ratings of municipal securities, some attention should be paid to the market value of the investment portfolio. A marked shortfall of market value below book value will make investments unavailable for position-making.
 17. Form X could serve as an input into Federal Reserve policy-making. If such information were channeled to the Board of Governors regularly and aggregated, the emergence of overall cash deficits or surpluses for banks could be tracked. This, in turn, could be fed back by the Board of Governors into implications for market interest rates, and into the Federal Reserve's own program for feeding reserves into the banking system.

Although the objective of the procedure is to develop a system which warns of emerging market difficulties, the way in which overall market pressures would affect particular banks should enable one to determine which banks and which markets will be most particularly affected.