

1999

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Recommended Citation

Dr. John Kambhu, *Banking Supervision and Government Policy: Intermediation in Today's Financial Markets*, 4 Fordham J. Corp. & Fin. L. 41 (1999).

Available at: <https://ir.lawnet.fordham.edu/jcfl/vol4/iss1/6>

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BANKING SUPERVISION AND GOVERNMENT POLICY: INTERMEDIATION IN TODAY'S FINANCIAL MARKETS*

*Dr. John Kambhu***

I am grateful for the invitation to address some issues that I think are important in the financial markets. I will speak about intermediation in today's financial markets, particularly, the role of credit risk in trading activity, and how it relates to intermediation in its broadest sense. Please note that these are my own personal views and not necessarily the views of the Federal Reserve System. In fact, I will not speak about the Federal Reserve System, but about economics, which is what I know best.

I will begin with the importance of trading activity in today's capital markets, similar to the issues raised earlier in this symposium.¹ I find it reassuring that we came to similar conclusions, because it means that we all looked at the same elephant and wound up describing it in pretty similar terms, and therefore we were not describing different pieces of the elephant.

* This speech was originally presented at the Derivatives and Risk Management Symposium on Stability in World Financial Markets, held at Fordham University School of Law on January 28, 1999.

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1. See Leon M. Metzger, *Recent Market Events and the Foundation for Global Market Crises: Hedge Funds*, *supra* at 5; Walter H. Weiner, *Recent Market Events and the Foundation for Global Market Crises: The Experience of Republic National Bank*, *supra* at 17; Philip H. Harris, *Recent Market Events and the Foundation for Global Market Crises: A Lawyer's Perspective*, *supra* at 25.

THE IMPORTANCE OF TRADING ACTIVITY

The markets for intermediated credit are becoming a smaller percentage of financial market activity. Tradable debt instruments, such as bonds and notes, are market-traded securities which are becoming increasingly important in intermediation. In fact, in the G-7 countries over the last two decades, the growth rate of traded debt securities has exceeded the growth of bank lending by four-to-one. Banks are therefore becoming less important than they used to be in terms of quantity and volume.

In the textbook view of money and banking, all intermediation probably occurred through the banking system. Banks were the primary repositories of savers' capital wealth, which they then recycled through bank loans to the real sectors of the economy. Another point about the old banking system is that all financial risks were bundled together on the bank's balance sheets. Namely, credit risk, interest rate risk, and liquidity risk all sat on the bank's balance sheet. Today's world is very different, in that financial risks are placed directly in the hands of investors, in the form of tradable securities.

These securities are highly differentiated, and the risks are now unbundled. You can have one instrument, which only has the interest rate risk, while you can buy another instrument, which only has the credit risk. These risks have all been unbundled and split apart in the form of different types of securities. You can now specialize in the kind of risk you choose to hold, or not to hold.

Prices play an important role in this system. Since the risks are distributed into a broad array of tradable instruments, the relative prices of these instruments must bear some coherent relationship to each other; otherwise, the entire system falls apart.

Trading activity enters the scenario because there are traders or speculators out there who play an important role in the system. Their trades maintain the coherence in the relative prices that you see in the financial markets today. They also provide liquidity to markets by short-term trading and by absorbing temporary differences in supply and demand.

Take the interest rate swap market, for example, and look at a borrower or a bond issuer, perhaps a corporation, who has an interest rate risk. The interest rate swap market allows lenders and borrowers with different attitudes toward interest rate risk to transfer the interest rate risk in the borrowing relationship to a third party. This transfer of unwanted interest rate risk allows the borrower to obtain better financing terms.

The interest rate swap market is able to intermediate this interest rate risk, only because the price of interest rate derivatives is related in some meaningful way to benchmark interest rates. The stability of interest rate swap spreads depends on the role of speculators who arbitrage momentary differences in interest rate swap spreads and provide stability to the interest rate derivatives markets. This is one example of how traders or speculators provide meaningful links between different types of markets in a world where all risks have been unbundled from each other.

Another example, discussed earlier by Leon Metzger, is convergence trades.² Convergence traders smooth anomalous variations in the prices of related financial instruments. Sometimes, however, traders choose to withdraw or are forced to withdraw from their trading activity or the markets. The buying and selling pressures they otherwise would have absorbed or smoothed out will immediately affect market prices. In fact, the market turmoil during September and October of last year was probably due in part to the withdrawal of convergence traders from the markets.

THE POLICY ISSUE

The policy issue I want to consider next is how to promote the robustness of trading activity, given its key role in how capital markets work today. The key question is, how can we maintain trading activity when it is needed to provide liquidity and absorb market shocks?

2. See Leon M. Metzger, *Recent Market Events and the Foundation for Global Market Crises: Hedge Funds*, *supra* at 5, 6-10 (discussing various arbitrage strategies based on the expected narrowing or convergence in value between two different securities).

My contention is that credit risk has an important role to play in this issue. In considering credit risk, it is important to bear in mind that the ultimate objective is the maintenance of market functioning. Reducing credit risk at the expense of impairing market liquidity would be a bad policy outcome. The ultimate test of the policy is not whether it reduces credit risk, but rather how it reduces risk and how that effects the rest of the economy.

THE ROLE OF LEVERAGE IN TRADING

In discussing credit risk, we must address leverage. Leverage may be defined in various ways, but essentially it is a measure of the degree of risk taken, relative to the ability to bear that risk. In balance sheet terms, it is the measure of assets relative to net worth, or vulnerability to financing risk. Leverage can also be defined in terms of some measure of risk relative to net worth – for example, value-at-risk³. In the world of derivatives and off-balance-sheet instruments, this latter risk-based measure of leverage is perhaps a more meaningful measure of leverage. In fact, bank capital regulations have recently been changed to reflect a measure of leverage that is risk-based.⁴

Leverage in trading activity can be acquired in three basic forms. One is the financing of long positions through “repo” or repurchase transactions. Another is through convergence trades by combining long and short positions on related assets. Leverage may also be acquired through derivative transactions. All of these methods of obtaining leverage involve credit risk.

3. Value-at-risk [hereinafter VAR] is a type of sophisticated risk-management model used by banks to estimate the amount of given portfolio loss they are likely to incur over a given period of time. See *The Risk Business*, *ECONOMIST*, Oct. 17, 1998, at 21, 23 (discussing VAR modeling and its vulnerabilities). See also Risk-Based Capital Standards: Market Risk, 62 Fed. Reg. 68,064, 68,064-65 (1998) (to be codified at 12 C.F.R. pt. 3, 208, 225 & 325 as amended by 64 Fed. Reg. 19,034 (1999)) (explaining how institutions use VAR calculations in connection with regulatory capital standards).

4. See generally James V. Houpt, *Banking Supervision and Government Policy: Developments in Capital Standards*, *infra* at 51 (discussing recent changes to bank capital regulations, including the Market Risk Amendment to the Basle Capital Accord).

Leverage allows traders to assume larger positions and benefits the economy because it allows traders to support market liquidity in the securities markets. Leverage can also be fragile because high levels of leverage increase the likelihood of insolvency. Losses on net worth may result directly in insolvency, or in higher credit risk from leverage, which may prevent the leveraged entity from obtaining credit to cover temporary mismatches in cash flows of different parts of its balance sheet. Despite its solvency, a highly leveraged entity may still fail because it cannot obtain financing.

When leveraged investors are overwhelmed by market or liquidity shorts, their positions at risk will be dumped back into the market. They will either directly impact creditors and trading counterparties through credit losses, or indirectly impact other market participants through price changes that occur when investors who have been willing to take on particular kinds of risk, or high risk in general, disappear from the markets. The indirect impact is probably most important, since price volatility and sharp declines in asset prices will increase uncertainty about credit risk in the economy. This can interfere with the intermediation of credit in the capital markets, which could then impact Main Street.

The question becomes, how should we constrain leverage? What is the proper balance between basic liquidity providing the benefit of leverage to support trading activity in the markets, and the fragility of high levels of leverage?

Given investors' diverse exposures to risk, and differences in their links to other market participants, a regulatory restriction on balance sheet leverage is an unreasonable solution. At any given leverage ratio, the fragility of a portfolio depends on the price and liquidity risk of the portfolio content, and not its leverage ratio. In addition, a high capital requirement based on balance sheet concepts alone, will perversely encourage risk taking because it will cause fund managers to take on higher risk in order to meet the return targets on the required capital.

If we do not want a regulatory solution, the only game left in town is credit discipline, which I find promising. The exercise of credit discipline in trading relationships has the potential to provide a balance between the benefits and costs, or the benefits

and risk of leverage. Each counterparty's assessment of its ability in principle to shoulder credit exposure through a leveraged entity should constrain leverage below excessive levels. This may occur directly through trading limits, counterparty limits, and initial margin requirements; or indirectly, through the price of credit that determines the net return on leveraged activities. If creditors raise their charges on transactions with leveraged entities, it reduces the profitability of such trades and will in turn lower the return. Counterparty discipline, however, is not perfect. It fails from time to time, and I think Long-Term Capital Management⁵ is an example of its failure.

5. On September 23, 1998, with the encouragement of the Federal Reserve Bank of New York, fifteen major banks injected \$3.625 billion into Long-Term Capital Management, L.P. [hereinafter LTCM], a private investment fund engaged in highly leveraged securities transactions based on advanced mathematical models, to prevent its collapse and potential default on an estimated \$125 billion it had borrowed on \$2.2 billion in capital. See Anita Raghavan & Mitchell Pacelle, *To the Rescue? A Hedge Fund Falters, so the Fed Persuades Big Banks to Ante Up; Firms to Lend \$3.6 Billion as Long-Term Capital Loses on its Bond Bets*, WALL ST. J., Sep. 24, 1998 at A1 (reporting on an "extraordinary gathering" in which the Federal Reserve Bank of New York persuaded large banks to invest over \$3.5 billion in LTCM in return for a 90% ownership stake, and to prevent a financial crisis should it unwind its positions); Steven Mufson, *What Went Wrong? Fund's Big Bettors Learned that Risk Trumps Math, History*, WASH. POST, Sep. 27, 1998, at H1 (corrected Sep. 29, 1998) (listing fourteen major banks and institutions which invested a total of \$3.6 billion); Steven Syre, *Fleet, BankBoston in Syndicate Backing Troubled Hedge Fund*, BOSTON GLOBE, Sep. 26, 1998, at F1 (reporting that Fleet Financial Group had loaned \$25 million to LTCM as part of the bail-out); Joseph Kahn & Peter Truell, *Troubled Investment Fund's Beis Now Estimated at \$1.25 Trillion*, N.Y. TIMES, Sep. 26, 1998, at A1 (citing financiers' estimates that LTCM had leveraged borrowings of \$125 billion into \$1.25 trillion in open trading positions). For comprehensive information on LTCM's background and near-collapse, see Michael Lewis, *How the Eggheads Cracked*; N.Y. TIMES, Jan. 24, 1999, § 6, at 24; Carol J. Loomis, *A House Built on Sand*, FORTUNE, Oct. 26, 1998, at 110; Michael Siconolfi, Anita Raghavan & Mitchell Pacelle, *All Bets are Off: How the Salesmanship and Brainpower Failed at Long-Term Capital*; WALL ST. J., Nov. 16, 1998, at A1.

DIVERSITY OF MEASURES FOR CONTROLLING CREDIT RISK

In my view, a “one size fits all” approach will not work very well to control credit risk, because of the diversity of credit risk and the liquidity profiles of the borrowers. There are a variety of tools out there for controlling credit risk, such as better information, variation margin, initial margin, other forms of collateral, pricing and credit spreads, as well as capital requirements and the availability of capital needed to support credit risk. Differences among borrowers in the costs of these different tools that creditors use to control credit risk determine which particular method is chosen in any particular circumstance. These differences in cost show us that a “one size fits all” approach is not very reasonable.

Collateral information and credit spreads, for example, may be substitutes in controlling credit risk. The method initially chosen typically depends on the relative cost of the collateral to the borrower, and the credit spreads which provide equivalent compensation to the creditor for the credit risk. For creditworthy customers, credit can be acquired on an unsecured basis, because the credit risk spread is cheaper than the cost of providing collateral.

For high credit risk customers, the cost of putting up collateral is probably cheaper than paying the credit spread. A common example is to put up your home as collateral in order to obtain cheaper financing costs on your mortgage.

Supervisors and regulators of banks and securities firms have not usually interfered in the private choices regarding the different approaches taken to managing credit risk, as long as prudential standards are generally met. The regulatory bank capital requirements for collateralized derivative exposures, for example, receive lower capital requirements than uncollateralized exposures. The decision whether or not to collateralize an exposure is, however, left to the counterparties of the transaction.

This approach has worked reasonably well in the over-the-counter derivatives markets. For example, credit losses over the first three-quarters of 1998 in the over-the-counter derivatives markets were less than two-tenths of one percentage point of the

outstanding credit exposures for U.S. banks. In 1997, those credit losses were less than one-twentieth of one percentage point of outstanding credit exposures. Losses will occur from time to time in any activity, but overall this approach has worked reasonably well.

Another example where diversity in the management of credit risk is good for the economy is in the use of variation margin. In exchange-traded futures contracts, daily changes in market value of the contract are settled by a daily cash payment or collateral posting at the end of each day, so that every market price change results in a cash or collateral settlement. In the over-the-counter markets, however, the market value of the contract becomes a credit exposure between the counterparties, and the protection against the exposure is usually the capital of the counterparties.

Variation margin can reduce credit exposure in a derivatives transaction, but it imposes higher liquidity risk on the counterparties. The protection provided by the variation margin is worth the cost of having to post collateral on a daily basis for counterparties with low creditworthiness, but for others it is not worth the cost. For creditworthy counterparties, the cash flow management demands of the variation margin imposes costs that exceed the benefits of the credit risk reduction. Examples of this occur in the interest rate swap market, where a borrower can use a swap to hedge the interest rate risks of a bond obligation. The swap can be structured so that the timing of its cash flow exactly matches and offsets the cash flow of the bond.

In a futures contract, however, matching cash flows is impossible. Although an exchange-traded futures contract can provide the same exact present-value hedging of the transaction, the cash flow mismatches between the bond obligation and the futures position can be very large. That imposes severe liquidity risk on the use of futures contracts to hedge interest rate risk, particularly for corporate borrowers. The swap market has grown so large partly because it provides this valuable service: It economizes the scarce resource of cash for counterparties with high credit quality. The efficient use of cash and the ability to structure cash flows between the hedge and the underlying position to be hedged is a great advantage.

CONCLUSION

A diversity of credit risk management practices provides benefits to market participants. Public policy should not interfere too crudely in the way market participants choose to manage their credit exposures, since the capital markets need exchange-traded products as well as over-the-counter products. Neither of these market forms dominates the other across all the criteria that are important for maintaining a functioning market.

You cannot have an economy that works very well with only one type these markets. Forcing all trading activity onto a futures exchange, for example, would introduce higher liquidity risk into the financial system, and every blip in market prices would generate large variation margin flows. That liquidity risk could cause, in the worst circumstance, a forced unwinding or liquidation of positions during volatile markets. Perversely, that method of protecting against credit risk will probably cause capital markets to become more volatile and could amplify the volatility of asset prices. This would lead to reduced credit risk, at the cost of increasing price risk and liquidity risk in the financial system.

Since I am an economist, you know that at some point in my talk I am going to say "on the other hand." I will say it now. On the other hand, futures exchanges do provide the benefit of a venue for trading with very low credit risk, although not totally without it. They do, however, have high liquidity risk. In any event, while not all trading should be forced onto futures exchanges, at least some trading should occur there.

In conclusion, a well-functioning financial market has a need for both exchange-traded and over-the-counter trading of very similar products. Since we know that diversity is good for biological populations, it is probably good for the financial systems as well.

Notes and Observations