

Speech

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Recent Events in Financial Markets

Good morning. In my remarks this morning, I will share my views on events in U.S. financial markets over the past several months. Specifically, I will describe what I believe were contributing factors in the breakdown of the price discovery mechanism in certain markets, and I will assess the future prospects for these markets. While I will draw some preliminary conclusions about recent market events, my views and those of other policymakers will likely continue to evolve as we develop a more informed perspective and benefit from further analysis.¹

Price Discovery

When markets are functioning properly, one of the key roles that they perform is what economists refer to as "price discovery."² Essentially, price discovery is the process by which buyers and sellers' preferences, as well as any other available market information, results in the "discovery" of a price that will balance supply and demand and provide signals to market participants about how most efficiently to allocate resources. This market-determined price will, of course, be subject to change as new information becomes available, as preferences evolve, as expectations are revised, and as costs of production change.

In well-functioning markets, the price discovery process represents the efforts of market participants to use all available information to decide whether to buy or to sell or to abstain from buying and selling. In efficient and competitive markets, participants will tend to undertake a certain amount of due diligence before making their decisions. This means that prices do not just appear by themselves; a substantial amount of work is required by buyers and sellers for markets to produce prices that clear markets and provide useful signals to consumers and producers. Indeed, this is one of the brilliant aspects of the market mechanism in that a number of participants, each pursuing their own interests and trying to maximize their own welfare and profits, determine a market-clearing price. A core principle of economics is that markets are more competitive, and therefore more efficient, when accurate information is available to both buyers and sellers. But for markets to work best, market participants must utilize available information, including analysis of costs and benefits of obtaining such information. In the case of new and innovative products, there might be a particularly strong demand for information. Then this information must be processed appropriately before decisions are made about whether to buy or sell.

In some instances, the price discovery process can break down and buyers and sellers are unable to discover any price at all--perhaps because of a lack of information or because of general uncertainty among market participants. I would suggest that this is fundamentally what has occurred in some financial markets over the past several months. This has certainly not been the case in all markets. For example, while equity markets in the United States have experienced greater price volatility in recent months, and credit spreads have widened in markets for highly-rated, traditional debt instruments, I believe this has been a function of reassessing risk rather than a broader failure of the price discovery process itself. Moreover, investment-grade corporations faced little trouble in issuing traditional debt instruments during the market turbulence in August and did so in significant volumes.

In some financial markets, however, the price discovery process appears to have actually broken down. In particular, I am referring to markets for structured credit products (for example, collateralized loan obligations and collateralized debt obligations) that are often complex and opaque, as well as instruments that are linked to these structured products, such as asset-backed commercial paper. Why did the price discovery process fail in these markets but not in others? I would suggest that there are two principal related causes.

First, some investors may not have done sufficient due diligence with regard to complex structured products. Prior to the recent market disruptions, many buyers and sellers of complex structured products appear not to have demanded sufficient information from sellers, and simply accepted investment-grade ratings of these securities as a substitute for their own risk analysis. When the problems in the subprime mortgage market began to emerge and delinquencies on subprime mortgages in pools backing these securities exceeded rating agency estimates, subsequently resulting in a number of downgrades, investors lost confidence in the quality of these ratings, and hence the quality of the information they had about these instruments, and pulled back from markets for structured products across the board.

A second, related factor contributing to the breakdown in price discovery is the recognition by investors of complexity and lack of transparency, both in the instruments themselves and in the markets more broadly. The complex structures of the innovative instruments, and the lack of transparency with regard to the underlying assets backing these instruments, made them more difficult and costly to value than many investors originally thought. At the same time, many investors realized that it was difficult to identify where the risks were lodged. This uncertainty, of course, is one of the trade-offs of a more market-intermediated finance system in which risks are more widely dispersed rather than concentrated in the banking system. As problems in the subprime mortgage market became more apparent, investors became unwilling to purchase products that could have any exposure not only to subprime mortgages, but to housing-related assets and other structured products more generally.

Put simply, investors suddenly realized that they were much less informed than they originally thought. In these circumstances, it is not necessarily surprising that investors pulled back from purchasing certain instruments at any price.

Prospects for Market Recovery

In light of these factors, what is the prognosis for recovery in markets for complex structured credit instruments? I would suggest that, while we have seen more normal price discovery activity slowly returning to some markets, the recovery may be a relatively gradual process, and these markets may not look the same when they re-emerge. Both investors and sellers will need to take steps for the price discovery process to be re-established in these markets.

In observing the challenges to price discovery and the repricing of risk in many markets recently, I have been reminded of a Russian proverb that was made famous in the context of international relations but applies equally to investment decisions: "Trust, but verify." Let me explain.

As I mentioned earlier, one of the reasons that the price discovery mechanism has broken down in some U.S. markets in recent months is that a number of investors failed to exercise due diligence and relied on rating agency assessments. That is, there was a lot of trust but not much verification. I would suggest that the value of independent due diligence on the part of investors is especially high for newer and more-complex products compared with more traditional, familiar, and less-complex products.

Reducing the chance of unanticipated losses may require significant effort on the part of investors looking to purchase complex structured products and the creators or sellers of those products. To be able to better understand the risk profile of such instruments, some market participants will have to invest in three ways to revive the price discovery mechanism. First, they will likely need to collect more detailed data. In particular, investors will need to gather data more systematically to help them understand the nature and risks of the underlying assets and the structures of the instruments.

Second, investors will likely require enhanced systems to warehouse and model data related to these instruments to better understand their risk profile, especially under stress conditions. Third, investors will likely need to ensure that they have the appropriate human capital expertise--that is, people--to interpret, understand, and act appropriately on the results of their modeling and analysis. The investment in data, modeling, and assessment will take time so there may be an extended period before normal price discovery will return in markets for some existing products.

In turn, given the likely increase in the costs of producing and evaluating certain complex instruments, these actions and efforts may affect investors' risk-reward calculus by increasing required returns--or the "hurdle rates"--on these investments. Creators and sellers may respond by reducing complexity, improving quality of underlying assets or increasing transparency and disclosure. In light of recent events, market innovation may result in new instruments that satisfy the needs of both buyers and sellers--instruments that, of course, should not just be accepted on their face but should be subject to proper due diligence. In the end, investors will decide for themselves whether acquiring the data and expertise necessary to participate in certain markets is worth the cost. As a result, it is likely that these markets and instruments will look different than they did prior to the recent market turmoil.

Let me close by highlighting the role of the Federal Reserve over the past several months as a backstop source of liquidity in interbank funding markets. As price discovery broke down in a variety of markets, financial institutions, as intermediaries and liquidity providers themselves in the affected markets, became protective of their liquid reserves and balance sheet capacity. As a result, overnight and term interbank funding markets have come under pressure. The Federal Reserve accordingly took a number of steps to try to alleviate these pressures.

The Fed's initial action in early August was to increase liquidity in short-term money markets through larger open-market operations--the standard means by which it seeks to ensure that the federal funds rate is maintained at or close to the target rate set by the Federal Open Market Committee. This extra provision of liquidity helped bring the funds rate down to its target early in the day; it also eased banks' concerns about the availability of funding and thus assisted the functioning of the interbank market. The vigorous provision of funds through open market operations succeeded in damping pressures in overnight funding markets. Yet, markets for term interbank funding remained strained.

On August 17, the Federal Reserve Board took further action by cutting the discount rate--the rate at which it lends directly to banks--by 50 basis points, or half a percentage point. The Fed also adjusted its usual practices to facilitate the provision of financing for as long as thirty days, renewable at the request of the borrower. These actions also appear to have improved market functioning, though strains, particularly in term funding markets, persist even now. Moreover, judging from forward curves in interbank and overnight indexed swaps markets, market participants expect pressures in term funding markets to persist for several quarters.

I should emphasize that the purpose of these actions was not to insulate financial institutions from the consequences of their business decisions, but rather to facilitate the orderly function of markets more broadly in the face of risks to the overall economy. I believe that this provision of liquidity has contributed, at least in part, to the recent improvements we have seen in the functioning of financial markets.

Importantly, the Federal Open Market Committee's most recent action, the 50 basis point cut in the target federal funds rate in September, was an attempt to help offset the potential effects of financial market turmoil on real economic activity. The breakdown in the price discovery process can, after all, have real economic consequences that the Federal Reserve should, in my opinion, consider when fulfilling its statutorily mandated goals of maximum employment and price stability.

Conclusion

In the months ahead, the Federal Reserve will continue to monitor developments in the financial markets and act as needed to support the effective functioning of these markets and to foster

sustainable economic growth and price stability. In addition, we will be reviewing the events of the past several months to understand the likely causes and effects.

Thank you very much, and I look forward to a lively dialogue following my esteemed colleagues' remarks.

Footnotes

1. These views are my own and do not necessarily reflect those of the Federal Reserve Board or the Federal Reserve System as a whole. [Return to text](#)

2. See, for example, the work of Friedrich A. Hayek, including "Competition as a Discovery Procedure" in *New Studies in Philosophy, Politics, Economics and the History of Ideas*. Chicago: University of Chicago Press, 1978. [Return to text](#)

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