

*i mercati finanziari*

Geoffrey Miller

Trust, Risk,  
and Moral Hazard  
in Financial Markets

il Mulino

# I MERCATI FINANZIARI

Collana di studi economici e giuridici

7.



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## I MERCATI FINANZIARI

Collana di studi economici e giuridici

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TRUST, RISK, AND MORAL HAZARD  
IN FINANCIAL MARKETS

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## FOREWORD

Geoffrey Miller is one of the world's leading scholars in financial regulation and the law of central banks, just to mention two of his main research interests, which also include ancient law. No surprise, therefore, that he spent a considerable part of his recent activity in Basel, Frankfurt, Florence and Genoa, the first two of which epitomize modern financial regulation and central banking, while the other two contributed to the diffusion of banking and banking law in early Europe. We were very fortunate to have Geoffrey, for three consecutive years, as the Fresco Visiting Professor at our law school in Genoa, teaching courses on banking and financial regulation to our PhD candidates, generously supported by Paolo Fresco, one of our outstanding alumni. The present book grew out of these advanced courses, as did our friendship with Geoff, which matured in joint research projects and pleasant convivial events. Being in charge of the doctoral program for corporate and financial markets law, and also an editor of this series, I was kindly asked and have the honor to write this brief introduction, which summarizes some of the book's main themes without pretending to add much to the brilliant and magisterial treatment of the same by the author.

The book is concerned with issues of trust, risk and moral hazard in financial markets. The Introduction briefly presents the 2008 financial crisis, which started in the home finance sector in the US, infected the international financial markets through the sub-prime mortgage securities and became a worldwide liquidity crisis. The book explains what went wrong and what can be done to address the problems evidenced by the crisis and reduce the chances of future crises. Chapter 1 investigates why



financial markets panic. It defines panic as a condition in which people become willing to buy or sell at any price out of concern that if they do not, they will be much worse off later. Panics occur when trust (i.e. a person's willingness to expose himself to the possibility of being hurt by another person) disappears from the market.

There are three principal ways to build trust: culture (including social norms), law and self-help, i.e. the ability to take actions to protect oneself against being exploited by others. Culture is important to create trust in financial markets, but only to a limited extent, because they tend to be impersonal. Law is heavily used in these markets, but does not protect trust fully in the case of short-term instruments (commercial paper, repurchase agreements etc.) and demand deposits, because sudden refusals to deal with issuers and withdrawals of deposits are enforced. Interestingly, this lack of legal protection is not normally a problem, for participants in the relevant markets (including banks) have access to the self-help remedy. Depositors can withdraw their funds from banks and dealers in short-term instruments can refuse to purchase new issues.

The book goes on to explore the macroeconomic foundations of financial crises. Chapter 2 explains two conditions that can lead to panic. The first is inflation, which is harmful to banks when it transmits into higher interest rates. Banks may suffer losses as a result of sudden increases in interest rates, to the extent that they do not manage the relevant risk. The second determinant of panic is the asset bubble, which the author considers as typically caused by extreme increases in available credit. His analysis of asset bubbles is fascinating and clarifies how lenders make more loans and push interest rates down, while investors have more liquidity and are more willing to buy assets, thus increasing demand. Bubbles tend to display a curve with accelerating slope. When the curve becomes unsustainable, the bubble bursts and panic spreads in the market. People become willing to sell their assets for steep losses and, consequently, the decline of prices accelerates.

After explaining how financial crises originate and develop, the book offers a unique and consistent framework for risk socialization in global financial markets. Chapter 3 identifies four strategies by which governments and central banks can respond to the risk of a panic. The first strategy is insuring creditors, the classic example being deposit insurance in the banking sector. The author analyses the different types of deposit insurance, which can be either backed by the government or privately funded, and their scope, which can also include implicit promises, particularly in the event of a crisis. The second strategy is providing liquidity either to borrowers in distress or to markets. Central banks provide liquidity through their discount window to commercial banks; during the 2008 crisis the Fed lent also to non-bank financial institutions, while central banks generally relaxed their collateral requirements. Central banks also provided liquidity to financial markets by loosening their monetary policy. The third strategy is for governments to acquire ownership in troubled institutions either through nationalization or partial equity investments, like for example those made by the US government under the «TARP» program during the recent crisis. The fourth strategy is to subsidize troubled institutions, either directly or indirectly, given that public subsidies are politically unpopular.

Chapter 4 deals with the central question whether governments should socialize risk. The first problem is how to assess the costs and benefits of socializing risk. The author highlights the difficulties of this assessment, which must be made by governments on the basis of imperfect information, under the intense pressure of a crisis. The second problem is that of incentives for government officials, who have a strong interest in socializing risk. In addition to being subject to pressures from potential victims of a crisis, officials know how hard it is for critics to demonstrate that a bail out is contrary to the public interest. The interesting conclusion is that bail outs are more likely than not in a crisis (with notable exceptions like the failure of Lehman Brothers).

Chapter 5 considers the effects of risk socialization on moral hazard. Government intervention can create incentives to take on more risk than would be preferred by creditors or by society as whole. This is particularly true for banks and financial firms, which generally exhibit high leverage, while their creditors (particularly demand depositors and holders of short-term instruments) have limited ability to protect themselves because of information problems. As a result, strategies of risk socialization exacerbate moral hazard in financial markets. To start with, deposit insurance lowers depositors' incentives to protect themselves through self-help. Central bank's lender of last resort function creates moral hazard to the extent that bankers know that, if all other sources of financing fail, they have access to its discount window. For similar reasons, the expectation that the government will make equity investments in the case of a crisis generates moral hazard, even if fair value is paid for the investment. The same holds true for public subsidies, even if they are accompanied by a promise to repay the government.

The book goes on to introduce the new and promising concept of intellectual hazard. Chapter 6 defines it as the systemically significant risk of conceptual errors in processing risk-related information in complex organizations. For example, few people in financial institutions and regulatory agencies fully appreciated the implications of the housing market bubble or understood the risks that subprime mortgage-backed securities posed for the world's financial system. Intellectual hazard exists whenever production becomes segmented into complex organizational forms. Like moral hazard, it can present systemic risks by affecting organizations that are very large or interconnected. The author identifies three categories of intellectual hazard. First, complexity biases arise from the propensity of an actor to wrongly analyze a situation due to limited ability to interpret complex sets of information. Second, incentive biases arise from the self-interest of an actor wanting to see the world in a particular way. Third, asymmetry biases appear when actors in a complex orga-

nization bring pre-formed judgments or attitudes to bear in the analysis of information.

The negative aspects of intellectual hazard are ordinarily managed through checks and balances within organizations. However, when unusual conditions, like a bubble, affect the entire system, these checks and balances can be severely eroded. To the extent that intellectual hazard is pro-cyclical, it is a form of systemic risk. The author draws some illuminating examples of intellectual hazard from the recent crisis. Banks and securities firms relied too heavily on mathematical models, without adequately evaluating their assumptions and limitations. Central banks ran into several biases, including the doctrine of the «great moderation» put forward by Ben Bernanke not long before the crisis. Regulators also manifested intellectual hazard, including the Basel Committee, which showed complexity bias by issuing arcane and specific requirements that actors of financial institutions enforced with «tunnel vision» (to do what is demanded without looking beyond).

Chapter 7 summarizes some of the book's outcomes that are relevant to an analysis of the 2008 crisis. It also focuses on the growth of mortgage-backed securities and the originate-to-distribute model that came to prevail in the financial markets, with a profound impact on incentives. The book goes on to consider reform proposals in the aftermath of the crisis. When the Fresco lectures were given in June 2010 the main reforms, like the *Dodd-Frank Wall Street Reform and Consumer Protection Act* of 2010, had not yet been passed. However, the author included references to these reforms in the final text, which is therefore updated to the end of last year.

Chapter 8 follows the book's framework by distinguishing between reforms aimed at preventing the macro conditions that lead to financial crisis and reforms concerning the organizational and structural aspects of financial intermediation, like intellectual hazard, shadow banking and capital adequacy. The author emphasizes the importance of the first set of reforms. As shown in the first chapter, panics usually follow on the occurrence of either inflation or asset bubbles. Therefore, avoiding these two

conditions would help mitigating the problem of financial panics. Given that inflation is often politically motivated, independent central banks have a key role to play in controlling inflation. However, controlling asset bubbles is still problematic, as shown by repeated crises over the last thirty years. Moreover, the central bank's basis for acting against a bubble may be weak. Nonetheless, the author believes that governments could do more in preventing bubbles, particularly through the use of «yellow flags» that help identifying a bubble before it gets out of hand. This recommendation is no doubt to follow and recent reforms in Europe, like the creation of the European Systemic Risk Board, move in this direction.

Looking at the future of financial reforms, a lot still needs to be done also in the US, where many new regulations are expected to implement the Dodd-Frank Act. However, this book offers an excellent framework for analysis and discussion of the emerging legislation. Focusing on Europe, the present policy discussion concerning crisis management and bank resolution can be better understood in the light of the two chapters on risk socialization, which explain the strategies of government intervention and the reasons for intervening. Similarly, the chapter on moral hazard helps to understand the impact of the risk socialization strategies, like deposit guarantee systems, presently reviewed in Europe. Moreover, the issue of intellectual hazard is rather unexplored in Europe and the book will no doubt stimulate further analysis of this fascinating topic, which is central to complex organizations also in areas other than financial markets.

Genoa, 30 January 2011

GUIDO FERRARINI

Prof. Geoffrey Miller's lectures at the University of Genoa were recorded and can be viewed following the link on the Genoa Centre for Law and Finance website: [http://www.clfge.org/fresco\\_lectures.html](http://www.clfge.org/fresco_lectures.html).

## INTRODUCTION

This book is concerned with issues of trust, risk, and moral hazard in financial markets. The topic sounds technical, and it is in part. But the fundamental subject is not technical at all. It is about one of the fundamental features of human lives, and one of the most important preconditions to people's ability to enjoy the benefits of comfort, security, and opportunity for themselves and their children.

When we consider the successful societies of the world, we often think about their wonderful culture – their art, their music, their literature and their architecture. We may think about their physical achievements – roads, ports, tunnels, cities and so on. Or we may think about their worldly power – their empires, armies, victories in battle, etc. All these are important, of course.

But we will probably not think about their financial systems. These are just not at the level of dignity of things like culture and art, material accomplishments, or political and military power. Nevertheless, a successful financial system is just as much the hallmark of a great society as any of the other attributes. Even two thousand years ago, Rome had vibrant markets and market institutions. Scholars of the Roman economy have demonstrated that prices were set quite efficiently and that a complex network of financial institutions mediated transactions in different markets through arbitrage, making the Roman financial system as advanced, for its day, as were the Roman systems of roads, water supply and military organization. Rome even had the capacity, as financial markets do today, of experiencing crises in which prices became unstable and confidence in economic transactions evaporated.

The same is true of the great cities of renaissance Europe – Genoa, Florence, Rome, Venice, Siena and others in Italy; London, Paris, Antwerp and others elsewhere in Europe. The worldly success of these cities was supported by a well-functioning financial architecture – a banking system – without which kings and princes could not have built the grand palaces or commissioned the magnificent art.

Think, on the other hand, about what happens when a well-developed financial system is absent. Countries that lack such a system are usually impoverished, and also are usually places where personal freedom and democracy are in short supply. North Korea, Myanmar, and some countries in Africa come to mind. Consider also the fact that when a country liberalizes its financial system, economic development often follows; an example is the spectacular growth of the Chinese economy since the end of the Cultural Revolution and the transition to market-based economic policies.

Few would dispute that a well-functioning financial system is essential to the full realization of human potential. But few also would claim that even the best-designed financial systems are perfect. Panics and sudden losses of confidence are just as much hallmarks of advanced financial systems as are arbitrage, value-at-risk, option pricing, and derivative financial instruments. Instability seems to come with the territory.

In 2008 the entire world received a powerful reminder that financial markets are fragile as well as powerful. The panic that gripped the markets in September 2008 was global in scope and devastating in its consequences. By some measures, \$30 trillion in value was wiped off the world's balance sheet in just a few months. And the repercussions of those events are still being felt.

So financial markets are sensitive creatures. They remind me of the character in a famous poem by Henry Wadsworth Longfellow: «when he was good, he was very good, but when he was bad he was horrid». The same goes for financial markets: when they are good, they are very good, but when they are bad they are horrid.

This book will examine financial markets at the beginning of the second decade of the twenty-first century. In the course of this review, we will see the good, the bad, and the ugly of these institutions. We will inquire why they function well and why they break down. And we will ask whether they can be improved and, if so, how.

### *A brief overview of the crisis and its aftermath*

We start with a brief introduction to the financial crisis. Everyone knows what happened, in broad outline, but not everyone is familiar with the risks that the world's financial markets still face. It has been a very fluid crisis, breaking out first in the home finance sector in the United States; transmitting to the international financial sector through the subprime mortgage security route; becoming a worldwide liquidity crisis affecting all financial markets; and spilling over into the real economies of the world with recession, high unemployment, and slow growth.

In the United States, the next stage of the crisis, one that is still underway, is in the commercial real estate sector. Commercial real estate loans typically have three- to five-year terms. For this reason, these loans did not pose much of a problem in 2008 because they were not yet due. The problem is that loans made at the height of the boom – 2005 to 2007 – were based on inflated values during a time of easy money, and now they're coming up on the end of their terms. Over the next five years, about \$1.4 trillion in commercial real estate loans will require new financing. Meanwhile commercial property values have fallen more than 40% nationally since their 2007 peak. Vacancy rates are up and rents are down, further depressing the value of these properties.

Recent estimates conclude that approximately \$770 billion (53%) of US commercial mortgages maturing through 2014 are under water in the sense that the debt exceeds the current market value of the property. Even



worse, more than 60% of mortgages maturing in 2012 and 2013 are in that situation. Many of these loans are likely to default. Partly, the reason for the high levels of default is that the borrowers themselves will be unable to pay or refinance the mortgage. But the problem is worse than that. Even if the borrower could pay off the mortgage, many will decide not to do so. Much commercial real estate in the United States is financed on a nonrecourse basis, meaning that the borrower has no personal obligation to repay the loan. The bank's only recourse, in the event of default by the borrower, is to foreclose on the mortgage and take over the collateral. The borrower has, in effect, a put option on the property equal to the value of the outstanding loan. If the mortgage loan is underwater – if the debt exceeds the value of the assets – it is in the borrower's interest to walk away from the loan and let the bank take over the property.

The problems in the US commercial real estate sector are beginning to be recognized, but much too slowly. The Congressional Oversight Panel (the federal bailout watchdog agency), issued a report in the early months of 2010. It said:

There is a commercial real estate crisis on the horizon, and there are no easy solutions to the risks commercial real estate may pose to the financial system and the public. The Panel is concerned that until Treasury and bank supervisors take coordinated action to address forthrightly and transparently the state of the commercial real estate markets – and the potential impact that a breakdown in those markets could have on local communities, small businesses, and individuals – the financial crisis will not end.

Unfortunately, those words have not been heeded. The United States adopted a major financial reform in 2010, the Dodd-Frank Act, but neither the Congress nor the federal banking agencies have adequately addressed problems in the commercial real estate sector.

The collapse of the commercial real estate bubble, in turn, is likely to have an impact on a part of the finan-