

Financial Crisis in Retrospect: Bad Luck or Bad Policies?

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ABSTRACT

It is generally acknowledged that many recent financial crises, in both emerging and mature markets, are characterized by large scale coordination problems with common origins. Despite minimal consensus on their primary causes, most prominent theories suggest that these financial crises can be classified as either the result of bad policies or bad luck. In this paper, we attempt to outline the sources of coordination failure in financial markets due to the “soft budget constraints” produced by time-inconsistent policies in combination with elastic expectations on the part of financial investors. Thus, in our framework, financial crisis is conceived as the result of both bad policies and bad luck. That is, it results from a mismatch of institutional arrangements to the realities of human behavior.

KEYWORDS

Financial Markets; Volatility; Soft Budget Constraints; Institutions

1. Introduction

The financial market upheavals of the last two decades—beginning with the 1990 property bust and recession in Japan, continuing with the East Asian and Russian crises of 1997-98, and finally culminating in the worldwide financial crisis of 2007-08—have focused the attention of economists on the coincidence of financial market instability and general economic downturns observed in both developed economies and emerging markets whose financial sectors have been liberalized¹. Theories dealing with how and why financial crises of this sort occur abound in the literature, but they can generally be categorized as one of two types: those that stress structural imbalances which could have been observed in principle prior to the crises (a “bad policies” approach) and those that hold the crises to be reflections of sudden reversals of investor attitudes and beliefs with regard to the economic prospects of the countries in crisis

¹Although stock market instability preceded or accompanied the worldwide downturn of the 1930s, most 20th century developments in business cycle theory tended to downplay or ignore the role of the financial sector. Some exceptions are noted later in this article.

(a “bad luck” approach)². Neither class of theories is entirely satisfying, however; one could argue that both ignore important aspects of the coordination problems in financial markets. The “bad policies” approach, for example, ignores some inherent rationality and uncertainty problems in financial systems and the social phenomena those problems will tend to generate, while the “bad luck” approach minimizes the causal relationships governing economic regularities and reduces economic science entirely to an exercise in collective psychology or applied statistics.

We believe that the key to understanding modern financial crisis lies in understanding the institutional nature of financial markets, and the associated coordination failures that result from a mismatch of extra-market institutions to market incentives. Specifically, we argue in terms of the “soft budget constraint” first identified by

²These two classes of theories bear some relation to the terminology coined by Krugman [1] and used by Halcomb and Marshall [2] in their analysis of whether currency crises are foreseen by market participants. Those authors, however, deal specifically with the coincidence of banking and currency crisis in emerging markets. See also, Kaminsky and Reinhart [3] and McKinnon and Pill [4].

Kornai [5-7] and applied often in comparative and transition economics to explain the failure of liberalization to induce market-based behavior on the part of business managers. According to our argument, structural imbalances in the financial sector, brought about by time-inconsistent (*i.e.* “bad”) micro-level policies leading to budget softness, will typically be followed by macro-level crises in financial markets that correspond to the “bad luck” variety, depending on the elasticity of expectations among both entrepreneurs and investors. We justify this approach by referring to the historical record of the last two decades, beginning with the property bubble and economic downturn in Japan around 1990, and illustrating a pattern of micro-to-macro crisis that was largely missing from the post-WWII experience until now. Our argument suggests that recent trends toward economic openness, financial market liberalization, and global finance have caused a regime shift with regard to the predominant pattern of boom and bust, and that this new global macroeconomic regime must be properly understood before useful policies can be developed to deal with it.

We seek to illustrate how financial sector incentives, and the behavioral and institutional constraints that produce those incentives, work to bring about structural imbalances and, eventually, destructive herding behavior despite a lack of obvious signs of fiscal or macro-level unsustainability³. We base our analysis on the public nature of moral hazard and liquidity risk produced by soft budget constraints in the financial sector. Our story fits well with twin crisis models developed by Burnside, Eichenbaum, and Robelo [9,10] and Kaufman [11], particularly the latter, but we extend their ideas to include the specific incentive structures that soften financial sector budget constraints. We then outline a simple game-theoretic model of incentive structures faced by financial asset investors that, we believe, offers insights into the behavioral and institutional nature of modern financial market crises.

2. Literature

There is usually some level of consensus about how particular financial episodes begin and are propagated throughout the economy. For example, the recent worldwide crisis is thought to have begun in US financial markets as the housing property bubble burst, confidence in financial institutions eroded, and corporate (financial and non-financial) balance sheets were exposed as being overly leveraged and under-capitalized. There is little

³Implicit to our analysis is the role of transactions and their costs in economic behavior, as well as the assumption that contracts between agents are interpreted in a farsighted manner. Actors look ahead, perceive risk, and embed transactions costs in governance structures that have hazard-mitigating purpose and effect [8].

doubt that lending standards, credit ratings, and the like were at least partly to blame. Likewise, it is generally acknowledged that the crisis was far more than merely a liquidity episode, but also one of solvency and transparency [12]. The reasons behind the crisis, however, are still subject to much debate. Generally, the reasons can be grouped into those that emphasize identifiable structural imbalances, or bad policies, and those that emphasize aspects of statistical probability or human decision making, or bad luck.

Markowitz [12] and Poole [13] are representative of the former category. Markowitz [12] states that the 2007-08 crisis resulted from “the mandate by the U.S. Congress for the Federal National Mortgage Association (Fannie Mae) to vastly increase its support of low-income housing” which caused banks to lower lending standards, and was aggravated by “highly leveraged financial instruments that were not well understood by the companies that used them” ([12], p. 25). Poole [13] agrees that the crisis was “a consequence of a serious under-pricing of the risk of subprime mortgages and securities of various sorts issued against that paper,” and that “lobbying and large campaign contributions” by Fannie Mae and Freddie Mac, “and the failure of Congress to understand the risks,” prevented reforms that could have stemmed the crisis. Similar structural emphasis can be found in analyses of earlier episodes such as the East Asian and Russian crises of 1997-98 (see, e.g., Halcomb and Marshall [2]; Kaufman [11]; and Goldstein [14]).

Other analyses, however, focus on a different set of factors, placing emphasis on aspects of human behavior or statistically improbable (and thus unanticipated) events that result from unique circumstances, perhaps combined with lax supervision or simplistic views of market decision making. Krugman [2,15,16] leans toward this view. He suggests that asset price inflation, brought about by excessive lending on the part of “essentially unregulated” financial institutions in East Asia, led to a cycle of overpricing that eventually became unsustainable and collapsed, resulting in reverse cycle of under-pricing that forced those and other financial institutions into insolvency [16]. In models such as these, moral hazard is not a condition brought about by unwise policies, but a fundamental condition of financial market activity. Likewise, so-called “Black Swan” explanations of financial instability [17,18] and those that rely on cognitive errors in decision making to support collective mispricing [19] suggest the same inherent aspect of financial instability. Even Cowen [20] and Poole [21], though acknowledging the role of governmental entities in the latest crisis, nonetheless attribute it to the idea that market participants systematically underestimate risk, or that “we are not as shielded from a dose of bad luck as

we would like to think” ([20]).

3. The Soft Budget Constraint (SBC) and Financial Market Behavior

The most complete overview of the nature, causes, and consequences of the “soft budget constraint” (SBC) syndrome produced until now is Kornai, Maskin, and Roland [22], where the authors define the phenomenon as occurring whenever one or more supporting organizations (called S-organizations) stand ready to cover all or part of a deficit suffered by a budget-constrained organization (BC-organization) in financial difficulty. As they note, this broad definition of the SBC syndrome encompasses a large number of “BC-organization—S-organization” pairings, including those involving state-owned enterprises, financial institution rescues through private or public bailouts (e.g. “too-big-to-fail” policies), support of non-profits, federal support of state and local governments, and even international rescues of sovereign states [22]. We exploit this broad definition to include situations where government subsidization or guarantees of funding flows to the financial sector play a major role.

The primary issue of concern is the degree to which the SBC syndrome allows for managerial discretion leading to decision-making that diverges from the principles of market-constrained profit maximization and, thus, frustrates the economic system’s ability to optimize resource allocation. In other words, the proliferation of inefficient firms is likely where no threat of failure (bankruptcy) exists, or where the actions of managers do not directly relate to the profit-loss scenarios facing the firm. As noted by Kornai and others, when budget softness has been prevalent, firms have “realized that their losses would be covered by the state, and so operated quite independently of profit considerations” (Dewatripont and Maskin [23]). Effective oversight of managerial decision-making is especially important in cases where budget softness provides for perverse incentives that affect resource allocation on a grand scale.

Take, as an example, firms with a controlling minority structure (CMS) which are, as pointed out by La Porta, de-Silanes, and Shleifer [24] and Bebchuk, Kraakman, and Triantis [25], widespread in the developing world. In a CMS firm, certain shareholders exercise control while retaining only a small fraction of the equity claims on a company’s cash flows. Such a radical separation of control and cash flow rights can occur in three principal ways: through dual-class share structure, stock pyramids, and cross-ownership ties. The CMS structure places control in the hands of an insider who holds a small fraction of equity, but insulates the controlling shareholder from the market for corporate control. This issue is important because it creates the potential to combine the incentive

problems associated with both controlling structure and dispersed ownership into one ownership structure [25]. The incentive problem can be exacerbated by the degree to which these large CMS firms are diversified. Following Granovetter [26], as firms grow and diversify they begin to resemble “business groups,” where such conglomerates are defined as a collection of firms bound together in some formal and/or informal ways, characterized by something more than a short term strategic alliance, but less than a legally consolidated single entity. The deciding factor is the magnitude of private benefits accruing to the controller when he keeps or acquires the asset, and private benefits tend to come from self-dealing or appropriation opportunities. These models suggest that the unique agency costs structure of the CMS firm pushes it to pursue more growth and diversification than would otherwise (efficiently) be the case. We suggest that this is true even of firms that are not, technically, CMS firms, as long as financial guarantees and/or low interest lending from the financial sector, supported by government policies, produce the same separation of control and consequences.

On the financial side, Goldstein and Turner [27] also point out that banks have often operated as “quasi-fiscal” agents of governments, providing a mechanism for channeling assistance to industries or addressing social concerns (DiPasquale and Glaeser [28]). Combine this with the strong expectation that troubled banks would be bailed out by the government, and the result is poor quality investment decisions by both financial and non-financial firms [1]. In the 1997-98 Asian crisis, for example, poor corporate governance added to the problem by encouraging speculative investment in real estate and continued investment in industries that were either already, or prone to, overcapacity, such as memory chips, automobiles, steel, petrochemicals, and base metals. Such resource allocation made the affected countries extremely susceptible to contagion⁴.

4. Financial Sector Incentives and Soft Budget Constraints

The presence of corporate debt guarantees and government-sanctioned low interest policies puts the financial sector in a peculiar situation. On the one hand, the banking industry is the market institution that takes on the role of corporate “watchdog” in the absence of direct stockholder control. Indeed, this role was once widely recognized by theorists and often considered a strength, rather than a weakness, of the Asian model relative to the

⁴In summarizing the experience of transition economies in Europe and elsewhere, Kornai [29] identifies the connection between the SBC and financial instability: “False, unduly low prices that fail to take account of the real risk of investments generate false credit demand and investment intentions” [29]. See also, Mashkin and Xu [30].

American one⁵. On the other hand, this role is compromised by the industry's involvement in politically-motivated financial policies, because these policies might often conflict with sound financial reasoning. In fact, we suggest that such incongruence is made virtually certain by the nature of these policies, leading in turn to a set of rather predictable consequences. Absent the proper discipline necessary to effectively monitor corporate budget constraints, the banking industry is left without the means for rational allocation of financial resources, thus making the system vulnerable to large-scale coordination failure.

Consider the lending decision of a private bank (or financial investor) in a system devoid of such guarantees. Each individual bank is forced to justify lending entirely on the basis of internalized marginal costs and benefits. The benefits, of course, refer mainly to the expected interest earned on new loans, while the costs include the risks associated with lending, particularly those of default and liquidity. A loan is considered acceptable only to the extent that expected (net) interest income from the loan exceeds the costs (in present value terms) associated with these risks. While this doesn't ensure that bad loans will not be made, reasonable views about expectations suggest the absence of sub-optimal lending policies on a systematic basis. Contrast this with a bank facing the prospect of lending without incurring all of the costs of that lending, as would be the case with government guarantees, because the bank is able to effectively externalize some of the costs of default (credit policy) and liquidity (interest rate policy) risk. The theory of externalities is clear as to the tendencies toward systematic over-production (in this case, over-lending) that result in such a situation. The bank will continue to lend to the point where the marginal benefits of lending equal the marginal *private* costs of doing so, and where these private costs are less than the marginal *social* costs of the guaranteed loans, the amount of lending will exceed the socially-optimal amount.

But it may be asked: Why do banks continue to lend even while the level of corporate and individual borrowing approaches unsustainable levels? Surely, despite the incentives in the banking industry, excessive levels of corporate debt will act as a brake on the lending behavior of banks. The answer we posit is a sort of prisoner's dilemma whereby, given 1) *the absence of complete information about what other banks intend and 2) uncertainty about the location of debt ceilings and the regulatory regime that governs the economics of financial sector retrenchment*, individual banks have an incentive to lend although a situation in which every bank does so

will ultimately prove unsustainable. The incentives facing individual banks are, in other words, analogous to the well-known cartel problem. Each individual bank knows that it may lend profitably to the point where the marginal benefit of lending equals the marginal private cost of doing so, but that if all (or most) banks do so, in unison, the system as a whole runs a risk that savers will react by withdrawing funds as they perceive the system approaching the limits of what the system can sustain. The introduction of foreign funds into the savings pool will raise the threshold of lending that can take place, especially if foreign governments are willing to accept some of the responsibility of guaranteeing payment to lenders, so that more risk can be externalized across national boundaries⁶. However, because these funds tend to be short-term and volatile, they will also raise the potential costs of externalization.

To illustrate, assume a competitive banking system consisting of N homogeneous banks, where investment demand is downward sloping and elastic and the supply of savings is upward sloping⁷. Government guarantees operate to lower domestic interest rates below equilibrium (world) levels and spur investment. Exchange rates are assumed to be pegged or, at least, managed so that inflationary finance cannot be completely translated into currency devaluation. Each bank, when making a lending decision, faces two types of risk: private and public. Private risk is tied to the probability of the investment project being unsuccessful for the borrowing firm. Public risk is associated with the moral hazard of government guarantees, as well as liquidity risk associated with the banks' asset/liability position. This public risk is effectively externalized when banks lend under a system of government-sanctioned subsidization, so that an individual bank cannot avoid it by reducing its loan portfolio (declining to lend). Each bank can, therefore, choose to lend at low (government-subsidized) domestic rates, or follow market signals to assess risk as if it were entirely private and thus charge the equilibrium (world) rate for funds.

Each individual bank's decision is based, in part, on the perceived actions of all other, N-1, banks. Mutual interdependence in the banking industry stems from the fact that there are relatively few large banks that compete vigorously for borrowers across the geographic and corporate spectrum, and that are potentially covered by an implicit guarantee against failure (*i.e.* "too big to fail"). A bank's decision to participate in a low-interest policy (L) will be a maximization process based on the expected returns from lending; the associated private and public

⁶The Fed's willingness to "bail out" investment funds hurt by a crisis is an example of one such guarantee.

⁷Our argument could actually be bolstered by eliminating the assumption of investor homogeneity and accounting for differentials in the ability to assess risks, but that is reserved for later research.

⁵A summary of competing perspectives on credit-based industrial policy that pre-dates the Japanese decline of the 1990s can be found in Quinn and Jacobson [31].

risk of the loan; and, in part, on what they perceive all other banks to be doing. Given that returns are private but a large portion of the risk associated with those returns is public, and thus cannot be avoided unless all (or most) other banks refuse to lend (DL), the following pay-off matrix can be developed (see **Table 1**).

The expected pay-off for lending is $E(\Pi) = f(\pi, r')$, where π is the total return from new loans discounted for the probability of default (private risk) and r' is the cost of public risk associated with lending at subsidized (below-market) rates or inclusive of guarantees. Bank A receives the greatest expected pay-off by choosing to participate in the subsidized loan market, regardless of what other banks choose. Since banks are assumed to be homogeneous, the Nash equilibrium condition is for all banks to participate in the government's financial policies (L) despite the collective default and liquidity risks that are associated with systemic over-lending. (**Table 1**)

Thus, our theory of banking industry behavior is primarily a behavioral one, in which financial investors respond in predictable ways to incentives that are the unintended consequence of particular policies, including explicit and implicit industrial and credit (low interest) policies, central bank exchange rate manipulation, and debt guarantees for corporate lending. In a sense, therefore, we posit a model of crisis in financial markets that contains elements of *both* the bad policy and bad luck approaches. Much of what passes for rational economic and financial policy is based on our initial, simple model of investor behavior, in which both the risks and rewards of financial asset investment are considered private. Such a view, however, ignores the important realities of investor behavior and institutional structure described in this paper; that is, the fact that financial market risks, in particular, are *not* completely private but usually somewhat collective in nature, and that investors will act predictably in the face of identifiable dichotomies between the private nature of returns and the public nature of those risks. In the absence of complete stockholder oversight, it is essential that the discipline of financial markets be sufficiently unhindered in order to match rational investment policy with corporate profit maximization.

In other words, when corporations are faced with incentives to over-borrow, it is the financial sector that must act as a brake on collective overinvestment. Its failure to fulfill this role is, in our view, the primary cause of the systemic economic-financial crises that characterize

the post-1990 financial regime. Note that, in conjunction with the bad luck approach to financial crisis, financial investors in our model make decisions at odds with underlying risk factors—*i.e.*, they appear to under-estimate risks. However, we attribute this behavior to an incentive problem created by the institutional framework in which investors find themselves, one that divorces the collective risks of investment from the individual decisions of investors themselves. If we are correct, this view points to underlying structural problems that, if unaddressed, can be expected to produce similar episodes in the future. The human tendency to under-estimate risks is well-established, but policies can be designed to minimize its impact.

5. Conclusion

We have presented an extension of the financial crisis models of Kaufman [11] and others with the goal of clarifying some specific institutional issues as well as tying financial crises to the soft budget constraint phenomenon identified by Kornai [7]. The analysis presented in this paper suggests that one of the most fundamental issues in any financial system concerns the ability of the banking sector to correctly price risky ventures under situations where corporations have an incentive toward over-borrowing. In the absence of sufficient corporate oversight, due to agency problems or other impediments, the financial system must be free of the market-distorting influence of political interference in the form of subsidization and guarantees in order to best serve its most important function. Furthermore, our analysis implies that, in addition to the minimization of political distortions that impact financial incentives, a well-functioning market for corporate control may be another key factor for the stability of financial markets. Perhaps the most important factor, however, is the realization that both human psychology and human institutions tend to exaggerate the optimism and pessimism of human actors. Until this is understood, modern financial capitalism will continue to deal with the prospect of economic crisis on a grand scale.

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Table 1. The bank lending decision under uncertainty.

		All Other Banks			
		L		DL	
Bank A	L	$\Delta r' > 0$	$\Delta \pi > 0$	$\Delta r' = 0$	$\Delta \pi > 0$
	DL	$\Delta r' > 0$	$\Delta \pi = 0$	$\Delta r' = 0$	$\Delta \pi = 0$

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