Journal of Economic Behavior & Organization 81 (2012) 442–465

Contents lists available at ScienceDirect

Journal of Economic Behavior & Organization

journal homepage: www.elsevier.com/locate/jebo

Boom–bust cycles: Leveraging, complex securities, and asset prices

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ARTICLE INFO

Article history:
Received 22 November 2009
Received in revised form 29 June 2011
Accepted 11 July 2011
Available online 20 July 2011

JEL classification:
C61
C63
G21
D83
D92

Keywords:
Credit
Leverage
Mortgage
Credit risk
Structured finance
Leveraged financing
Mortgage-backed security
Collateral
Collateralized default obligation
Booms
Busts
Dynamic
Cycles

ABSTRACT

Recent history suggests that many boom–bust cycles are naturally driven by linkages between the credit market and asset prices. Additionally, new structured securities have been developed, e.g., MBS, CDOs, and CDS, which have acted as instruments of risk transfer. We show that there is a certain non-robustness in the pricing of these instruments and we create a model in which both their role in the recent financial market meltdown, and in which the mechanism by which they exacerbate leverage cycles, is explicit. We first discuss the extent to which complex securities can amplify boom–bust cycles. Then, we propose a model in which distinct financial market boom–bust cycles emerge naturally. We demonstrate the interaction of leveraging and asset pricing in a dynamical model and spell out some implications for monetary policy.

1. Introduction

Efficient capital markets are supposed to evaluate and price risk; but frequently, if risk assessment is measured and priced through financial market instruments, we observe significant non-robustness in risk evaluation and asset prices.[1] Moreover, markets exhibit externalities, resulting in failures, dis-inter-mediation, and meltdowns. The busts, precipitated by financial instability, usually entail contagion effects and strong negative impacts for the real side of the economy. There is some synchronized behavior of economic agents and some mechanisms, observable in boom–bust cycles, that are rather general: the boom period triggers overconfidence, overvaluation of assets, over-leveraging, and the underestimation of

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[1] Some historically important approaches to risk assessment, credit-default, etc. are gather together in Semmler and Bernard (2007).

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doi:10.1016/j.jebo.2011.07.002

risk; then follows a triggering event and the market mood turns pessimistic; finally, undervaluation of asset prices and deleveraging. Most of the historically experienced boom–bust cycles exhibited such features.[2] We consider three historical illustrations.

First is the emerging-markets crisis of the 1990s. Several emerging markets experienced such cycles in the 1990s; for example Mexico (1994), Asia (1997/1998), Russia (1998), and Argentina (2001). Those countries, after capital market liberalization, passed through a considerable boom period characterized by overvaluation of asset prices, the lowering of risk perceptions, foreign borrowing, and capital inflows. Yet, suddenly, the distrust of the countries' fundamentals led to a sudden reversal of these same capital flows; this triggered rapid exchange-rate depreciation, financial instability, and consequently, a sharp decline in economic activity.

Second is the information technology boom–bust cycle of the 1990s. In the US and Europe, during the period from 2001 through 2002, the financial markets experienced a significant decline in asset prices, commonly referred to as the bursting of the Information Technology (IT) stock market bubble (the dot-com bust). Overvaluation of asset prices and the lowering of risk perceptions, in combination with a decade of dubious accounting practices (see MacAvoy and Millstein, 2004) and short-sighted investment, led to a situation where, suddenly, equity valuations sharply declined.

Third is the recent financial meltdown, which began in the US sub-prime (mortgage) market in 2007, evolved as credit crisis through the US-banking system in 2008/2009, and subsequently spread world-wide, causing a world-wide financial panic, and staggering declines in global growth rates. This time, the usual boom–bust mechanism was reinforced by new financial innovations; specifically, the development of new financial intermediations through complex securities, e.g., mortgage backed securities (MBS), collateralized default obligations (CDO), and credit default swaps (CDS). The complex securities, which were supposed to outsource and diversify idiosyncratic risk, have, jointly with the changes in the macroeconomic environment, actually accelerated not only the boom, but also the bust, firstly through high asset prices and high leveraging and then, secondly, an asset–price collapse and credit crunch. Those innovations provided the magnification of a financial mechanism through which the asset price boom and bust became more distinct.

The Asian financial market crisis and the technology bubble of the 1990s seem to be well understood.[3] Yet, the current financial crisis is less well analyzed. It seems to be neither a financial crisis triggered by a currency run nor a technology bubble, but rather a home-made financial crisis resulting from two driving forces: macroeconomic changes (financial market liberalization,[4] low interest rates, high liquidity, easy credit, and external imbalance), and the use of new financial innovations and new tools of risk management which substantially helped to increase leveraging.

Conclusive studies of the recent financial market events are still missing. Yet, there is some preliminary analysis. Popular wisdom attributes the last boom and the run-up in housing sector to Greenspan's low interest rate policy. There is evidence to suggest that interest rates had already come down significantly since the middle of the 1980s, along with the decline in inflation; the housing boom started much later. There is also some truth to the view that Greenspan has expressed: that the Fed can reduce short term interest rates, but has no power over long-term rates and, consequently, the yield curve, which also impacts mortgage rates. In fact, the yield curve, in recent years, had become rather flat or even downward sloping as the US had become a magnet for capital and attracted savings from the rest of the world; this kept the interest rate on the long end rather low.

Another view takes the housing sector as central. It is argued that the purchase of housing by baby-boomers led to the rise in housing prices; see Mankiw and Weil (1989), but this demographic shift seems to have occurred much earlier. Piazzesi and Schneider (2008a,b) also refer to the housing sector. They show how baby-boomer activity forced a flow of investments

[2] The economic literature that stress this line of thinking arises mostly in the Keynesian tradition, e.g., Minsky (1975, 1982, 1986); Tobin (1980), Kindleberger and Aliber (2005) and Gallegati et al. (2011). These thinkers have been very influential in studying financially driven boom–bust cycles. There is also another important insight into this interaction as represented by Shiller's (1991, 2001) overreaction hypothesis. For the most part, the above research is influenced by Keynes' view on the role of "animal spirit" in booms and busts. Another non-neoclassical tradition, also stressing those negative externalities, originates in work by Stiglitz and his co-authors. They draw upon recent developments in information economics, wherein systematic attempts have been made to describe how actual financial markets operate by referring to the concepts of asymmetric information, adverse selection, and moral hazard.

[3] During the 1990s, work was done on understanding the Asian crisis. Mishkin (1998), for example, has posited an explanation of the Asian financial crisis of 1997/1998 using an information-theoretic approach. A similar theory, by Krugman (1999a,b), laid the blame on banks' and firms' deteriorating balance sheets. Miller and Stiglitz (1999) employ a multiple-equilibria model to explain financial crises in general. These theories point to the perils of too-fast liberalization of financial markets and to the consequent need for government bank supervision and guarantees. However, Burnside et al. (1999) view government guarantees as actual causes of financial crises. These authors argue that the lack of private hedging of exchange rate risk by firms and banks led to financial crises in Asia. Other authors, following the bank run model of Diamond and Dybvik (1983) argue that financial crises occur if there is a lack of short-term liquidity. Further modeling of financial crises triggered by exchange-rate shocks can be found in Edwards (1999). The latter discusses the role of the IMF as the lender of last resort. Recent work on the role of currency in financial crises can be found in Kato et al. (2009) and Roethig et al. (2007). The latter authors pursue a macroeconomic approach to model currency and financial crises and consider the role of currency hedging in mitigating financial crises. See also the papers by Bernanke and Mishkin, see Bernanke (1983), Bernanke and Blinder (1998), Bernanke and Gertler (1994), Bernanke et al. (1998), and Mishkin (1998); on the IT bubble, see Semmler (2011, Ch. 7).

[4] Proponents of capital market liberalization cite possible benefits generated by free capital mobility such as: (1) reducing trading costs, low costs of financial transaction in particular; (2) increase of investment returns; (3) lowering the cost of capital when firms invest; (4) increasing liquidity in the financial market; and (5) increasing economic growth and positive employment effects. We do not want to deny those possible benefits, yet the proper sequencing of market liberalizations, sufficient safety precautions, and properly prudential regulations are important.