

Design of Contracts and Securities

Overview by Franklin Allen

University of Pennsylvania

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Financial intermediaries use contracts with their customers and sell securities in financial markets. The design of the contracts they use and the securities they issue is thus of fundamental importance. The first chapter in this section, Chapter 1, by Paolo Fulghieri and Eitan Goldman, considers the design of debt contracts. The second chapter, Chapter 2, by Xudong An, Yongheng Deng, and Anthony B. Sanders, is concerned with the design of securities. In particular, it focuses on structured financing and the determination of subordination levels.

Chapter 1, Fulghieri and Goldman's chapter, provides a nice synthesis of the literature on the design of debt contracts. The basic question in much of this literature is to determine situations where debt contracts are optimal. The authors start by considering a static one-period framework. They consider the papers that show that debt contracts are optimal if it is costly to check whether the borrower is able to make the contractual payment or not. They then go on to consider the multiperiod case and the situation where the checking can be random rather than deterministic. While the costly state verification literature focuses on the allocation of cash flows, there is also a significant literature on the allocation of control rights. Here, if the borrower cannot make the payment, the penalty is that it is no longer possible to use the assets. A third strand of the literature considers the role of debt in providing incentives for entrepreneurs to work hard and take appropriate risks. All the literature considered up to this point in the chapter assumes that the borrower has the same information as the lender. The next section focuses on what happens if the borrower has superior information. Finally, the rationale for the structure of debt contracts in terms of maturity structure, collateral, and covenants is considered.

Chapter 2, An, Deng, and Sanders' chapter is concerned with securitization. They consider how pools of loans can be sold in tranches to help overcome the asymmetric-information problem between issuer and investor. They start with a survey of the theoretical literature on this topic. These papers are concerned with explaining why there are different levels of subordination, with senior tranches having very low levels of risk and junior tranches much higher levels. The remainder of the chapter contains an empirical analysis of the structuring of securitizations using data from commercial mortgage-backed securities (CMBS). It is found that the deal cutoff debt service coverage ratio (DSCR) and loan-to-value (LTV) ratio, the composition of property types, and the prepayment protection explain most of the cross-sectional variation in subordination levels.

A number of factors concerning the design of contracts and securities are omitted in these two chapters. The focus is almost entirely on debt. There is also a literature analyzing the rationale for equity. For example, Fluck (1998, 1999) and Myers (2000) consider why corporations should use outside equity rather than other types of security. More recently, Dittmar and Thakor (2007) provide a theory of equity issuance based on differences in beliefs. Boot, Radhakrishnan, and Thakor (2006) consider the choice between public and private equity, given a tradeoff between managerial autonomy and the cost of capital.

A significant part of the literature on equity is concerned with corporate governance issues. Grossman and Hart (1988) and Harris and Raviv (1988, 1989) were early papers considering the allocation of voting rights to shares. They were concerned with identifying circumstances where one-share-one-vote is optimal. Full accounts of this literature are given in Harris and Raviv (1991, 1992), Allen and Gale (1994), and Allen and Winton (1995).

More recent literature has focused on the optimal design of corporate charters. Bebchuk (2002) shows how the existence of asymmetric information at the time a corporate charter is structured can explain many empirical observations that are difficult to understand in standard settings with symmetric information. For example, one puzzle has been why companies going public in the United States usually include antitakeover provisions. In an asymmetric-information context, such provisions can provide a signal. Remmers (2004) shows how mutual fund shares can be designed to ensure good governance of these institutions. It is somewhat surprising that there is not more literature on corporate governance and security design. It is a rich area for future research.

Another area not covered in this section is the role of security design in an international context. Shiller (1993) suggests a wide range of markets to improve risk sharing in a variety of contexts, including between countries. Geanakoplos and Kubler (2003) use a security design approach to consider whether a country's debt should be denominated in domestic currency or U.S. dollars. Bisin and Acharya (2005) consider the role of security design in ensuring optimal risk sharing when markets are incomplete. This is also an important area for future research.

In addition to these areas of research, there are a number of interesting contributions to the security and contract design literature that take off in new directions. Garmaise (2001) considers firms that raise money in markets where investors have diverse beliefs

but are rational, in the sense that they condition on available data. It is shown that in this situation the optimal design of securities is quite different from the case where there are rational expectations and differences in beliefs are due to differences in information. In particular, under rational beliefs, optimal securities maximize differences in opinion, whereas under rational expectations, they minimize them.

Noe, Rebello, and Wang (2006) consider markets where agents initially have different beliefs and then learn adaptively. In particular, agents learn optimally using genetic algorithms. It is shown that the securities that are issued in the long run in this environment have stable payoffs in most states but involve large losses in some states. This is again very different from the standard rational expectations paradigm, where optimal securities involve payoffs in a single state.

DeMarzo, Kremer, and Skrzypacz (2005) contrast informal and formal mechanisms for selling items when the means of payment is securities rather than cash. With an informal mechanism, the bidders design the securities to offer and sellers choose the most attractive. In this case, the structure of the securities can convey information and there is effectively a signaling game. In a formal mechanism, the seller commits to consider a limited menu of offers. Among other things it is shown that informal mechanisms are the lowest generators of revenue across a wide set of possible mechanisms.

In conclusion, the two chapters in this section provide an introduction to some of the issues concerned with the design of contracts and securities. Many other issues remain, and there is much research to be done in this area.

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