CHAPTER 1

Introduction

Brian P. Lancaster
Senior Analyst
Wachovia Capital Markets, LLC

Glenn M. Schultz, CFA
Senior Analyst
Wachovia Capital Markets, LLC

Frank J. Fabozzi, Ph.D., CFA
Professor in the Practice of Finance
Yale School of Management

Since the summer of 2007 and as this book goes to press in late 2007, it has been difficult to ignore the news on television, in the print media, and online without one or more of the following financial instruments mentioned: "subprime ABS CDOs," "structured finance products," and "credit derivatives." Even the popular web siteYouTube.com has seen the posting of numerous comedy skit videos and music videos about these financial instruments.

This greater awareness of the new media, comedians, and would-be musicians was obviously due to the 2007 subprime residential mortgage-backed security crisis. These terms have been referred to in some media reports as financial "toxic waste." While real credit issues have surfaced in subprime ABS and some CDOs, it is important to keep the current turmoil roiling the structured product markets in perspective. Securitized subprime mortgage backed securities represent 6% of the approximately $10 trillion structured products markets which consists of a wide variety of assets ranging from commercial real estate loans, to credit card debt to equipment leases, most of which have performed as well as if not better than equivalent rated corporate bonds. Put another way 94% or about $9.4 trillion of structured products have generally been money good, stable credit quality securities with upgrade downgrade ratios equal to or better than the corporate bond market.

Beyond the generally high quality of the investments, structured finance has played a critical role in improving the efficiency, liquidity, and availability of capital in the United States and abroad. At the simplest level through the transformative powers of statistical analysis and credit tranching, structured products efficiently connect pools of capital around the world to various financial markets and assets that heretofore only had access to localized specialty lenders. Borrowers are provided with the best possible borrowing rates and investors are provided with greater and more diverse investment opportunities to maximize their investment performance. Moreover, structured products allow for the distribution of risk to a wider variety of financial institutions both domestically and internationally than could otherwise be achieved through traditional balance sheet lending, a feature not lost on regulatory authorities.

The four obvious risks in the structured product endeavor are that (1) the rating agencies, the main arbiter of asset and bond credit quality get it wrong; (2) the originators of the original assets turn into "toll takers" not caring about credit quality but only fees; (3) the investors don't understand the risks and opportunities embedded in the securities they are acquiring; and (4) risk transfer and dispersion is not actually as clear cut as originally expected.

This book, written over a period spanning the greatest bull market in structured products history to arguably its most challenged period by some of Wall Street's top ranked and most seasoned analysts, offers the reader the unique insights that can only come from such a phenomenal roller coaster ride. With many structured finance spreads at or well beyond their historically widest spreads and defaults falling in some sectors and rising in others, there is more investment risk and opportunity in these markets than ever before. This comprehensive book is designed to help the reader identify the opportunities and mitigate the risks in what is perhaps the most fascinating and complex financial market in the world.

Section One of this book includes the forward, this introduction (Chapter 1) and Chapter 2 which provides an analysis of what is arguably one of the most critical and controversial topics in the entire structured products market: *structured finance operating companies* (SFOCs), which includes *structured investment vehicles* (SIVs) and *structured lending vehicles* (SLVs). SFOCs started in the late 1980s and have grown exponentially since 2002.

This chapter also analyzes vehicles of consumer asset backed securities (ABS), their role in the structured products markets as well as their trademark feature, *dynamic leverage*, which allows them to reduce or increase leverage in response to, or in anticipation of, market movements or collateral quality. SFOCs have purchased significant amounts of floating rate bonds across the structured products markets. In 2007, difficulties with these vehicles stemming from sector-level illiquidity and market value declines led to the effective closure of a range of structured products markets. To remain viable, SFOCs will need to learn from the events of 2007 and address both the liquidity and market value risks inherent in the structures.

Section Two (Chapters 3 through 8) starts off with analysis of *residential asset-backed securities* (RABS), the market at the center of the 2007 subprime mortgage crisis (Chapter 3). The market is covered from its inception in the 1990s through the creation of *credit default swaps* (CDSs) referencing RABS transactions. It includes a discussion of the loan level drivers of both voluntary repayment and default, providing an excellent starting point for anyone interested in modeling home equity loan cash flows. Combined with a detailed examination of the structures employed in a RABS securitization and a discussion of the mechanics of pay as you go CDSs, the chapter provides the investor with a solid understanding and methodology for valuing single-name CDS referencing RABS transactions.

Chapters 4 and 5 examine two of the largest and oldest nonresidential consumer ABS markets—credit-card-backed securities and auto-loan-backed securities. Each chapter serves as a guide to understanding the characteristics and credit quality of the respective underlying collateral as well as the structures that were adapted to suit the unique cash flow characteristics of the collateral. An investor approach to evaluating these securities as well as the delinquency and loss performance of credit cards, prime, near-prime, and subprime auto deals are also discussed.

The student-loan-backed securities sector, generally acknowledged as one of the most stable sectors of the ABS market, has grown at a steady pace as the cost of college education continues to rise and demand for loans has increased. In Chapter 6 securitization of both government-guaranteed student loans and private student loans are discussed. Generic structures and underlying collateral characteristics including prepayments and risk associated with this asset class are provided.

Small businesses are often viewed as one of the fundamental contributors to the growth and success of economies and consequently financing is one of the keys to their success. In the United States, the U.S. Small Business Administration (SBA) provides assistance to entrepreneurs by guaranteeing portions of loans to borrowers that may not have otherwise qualify for financing. Chapter 7 provides a guide to understanding the securitization of the unguaranteed portions of SBA loans as well as conventional small business loans, techniques which could have applications in a variety of countries wishing to accelerate their own small business development.

The correct valuation of subprime ABS credit default swaps is one of the hottest topics in the structured product markets and was the driver behind many of the large write-offs being taken by major financial institutions in 2007. Chapter 8 focuses on the techniques required for investors that are looking to consider whether going long or short subprime ABS CDS. The chapter argues that Subprime ABS CDS can be valued in a risk neutral framework using scenario analysis. Multiple scenarios are useful for valuation of ABS CDS and bonds because of the complex nature of the ABS deal structure. Investors cannot derive the price of the CDS by looking simply at the expected mortgage performance of a deal. Rather, the full distribution of mortgage performance probabilities are needed in order to generate the fundamental price of an ABS CDS.

Section Three (Chapters 9 through 13) are devoted to perhaps one of the most misunderstood structured products, *collateralized debt obligations* (CDOs) and their many forms. Chapter 9 serves as an introduction for the novice, describing the different CDO structures (managed versus static, synthetic versus cash flow) and the purposes for which they are created (arbitrage verus balance sheet). The chapter also gives a step-by-step guide to the CDO life cycle. Included in the life cycle description is an explanation of the major phases of a cash flow CDO: ramp-up, reinvestment, and amortization. The cash flow waterfalls, various features that impact the waterfall (such as overcollateralization and interest coverage tests, interest diversion tests, and turbo and pay-in-kind tranches), various covenants and tests, and controlling class rights are explained in this chapter. Chapter 9 should help investors distinguish among truths, half-truths, and myths that have appeared in the popular press as well as commentators in professional investment publications who have attacked CDOs.

Chapter 10 builds on the introduction given in Chapter 9, describing and analyzing the various types of CDOs and the underlying assets that make up the collateral. The chapter highlights the special risks and considerations for various collateral classes. The focus is on the most prominent CDO sectors found in the primary market in the summer of 2007. The new issue mix that will be used as CDO collateral, however, can change significantly over time. As an example, high-yield corporate bonds were the most prevalent assets of new issue CDOs in the 1990s, while by 2006 ABS was the most prominent collateral. Investors must strike a balance between the higher yield they will be offered for an emerging asset class or innovative structure with the risk that the product will remain illiquid and possibly obsolete.

The sometimes complex and counterintuitive terminology and mechanics of credit default swaps on corporate entities, ABS, and CDOs, one of the most ubiquitous structured product types, are examined in Chapter 11. The chapter explores actively traded CDS indices, tranche trading strategies, and the dynamics of synthetic CDOs concluding with a discussion of correlation.

Chapter 12 takes on the controversial topic of how CDO managers can be evaluated. Along the way, investors are provided with a toolkit to appraise CDOs as potential or current investments. Some of the challenges in comparing managers, including timing biases and the lack of benchmarks, are discussed. Investors should also be aware of the conflicting interests of note and equity holders, as well as how a manager's interest can be aligned with a particular investor class. By using historical rating transition data and equity cash flow studies, a more complete picture of investor concerns when examining CDOs is provided. Finally, the rating agencies' various reports and research are described. Details about that material is described in the chapter along with an explanation of how they can aid portfolio managers in assessing their CDO investments.

CDO equity—one of the most opaque and potentially profitable corners of the structured products markets—is explored in Chapter 13. After first discussing the advantages and risks of CDO equity investments, an analysis of the drivers of CDO equity cash flows and investment timing issues is provided. The chapter concludes with an analysis of equity return performance.

Commercial mortgage-backed securities (CMBS)—born out of the troubled Resolution Trust Corporation era of the early 1990s when commercial banks and insurance companies shut down commercial real estate lending—have grown to become a significant part of many fixed income indexes and provided 40% of U.S. commercial real estate finance in 2007. Section Four (Chapters 14 through 18) is devoted to this market sector. Chapter 14 discusses in detail what a CMBS is and how investors should appropriately analyze and value the product. In addition, the chapter takes a look at how CMBS has performed with respect to defaults and losses historically and discusses who should and does invest in CMBS.

Like CMBS, *commercial real estate CDOs* (CRE CDOs) were born at a time of crisis—the Russian default induced liquidity crunch of 1998. Evolving from simple static structures which provided nonmark to market, match funded financing for lower-rated CMBS, managed CRE CDOs allowed for the inclusion of a broad array of commercial real estate debt assets including short-term whole loans, bridge loans, B-notes, mezzanine debt, and preferred equity. Chapter 15 analyzes managed CRE CDO structures and examines in detail the legal and credit issues of the primary collateral types such as B-notes, rake bonds, mezzanine loans, and preferred equity.

While synthetic CDOs were first used by European banks in the early 1990s as a means of transferring on balance sheet corporate risk while maintaining client relationships, their application to commercial real estate finance only began in 2005. Chapter 16 explores the growth and development of synthetic CRE CDOs including such topics as what constitutes an event of default, the negative basis trade, monoline insurer involvement, as well as how they may be used by financial institutions to reduce commercial real estate capital requirements and transfer risk. Synthetic CRE CDOs had been growing in popularity prior to the dislocation in the structured products markets in 2007 and could show much promise in helping diversify and transfer commercial real estate risk from the balance sheet of financial institutions.

In Chapter 17, we extend our tour of commercial real estate securitization techniques with a trip abroad—the European commercial real estate CDO market. An American import, CDO technology was first applied to European commercial property finance in 2006. The active management framework of the CDO structure has increased the accessibility of European *commercial real estate* (CRE) investments by addressing (1) the high prepayment velocity synonymous with European CRE; (2) the lack of transparency in investments; and (3) the regulatory morass and country-specific investment nuances. Although the number of transactions to market has been limited, the variation in managers, collateral, and structures make these deals useful benchmarks for developing an understanding of the market. This chapter reviews European CRE CDO collateral types and structures, and outlines an investor approach to uncovering the opportunities and risks in the sector.

Chapter 18, the last chapter in Section Four, is designed to educate the newcomer about the Government National Mortgage Association (GNMA) multifamily securities market and provide the seasoned investor with an updated view of the sector. After a brief history, the chapter first takes a look at how the securities are created. It then looks at the underlying collateral, how the securities are valued, and the inherent risks. The chapter concludes with an analysis of both historical prepayments and defaults for GNMA deals.

Commercial ABS are covered in the three chapters that comprise Section Five (Chapters 19 through 21) which include aircraft securitization, intermodal equipment, and life insurance reserve securitization.

Pooled lease-aircraft-backed securitizations have been used since the early 1990s to finance the aircraft portfolios of leasing companies. Chapter 19 reviews the development of the aircraft ABS market and its overall place in aircraft financing. This is followed by an overview of deal modeling.

The use of intermodal shipping containers has grown rapidly based on the gains to efficiency in cargo transportation. Chapter 20 explains how one of the smaller asset securitization markets provide container lessors with match-term funding against assets while allowing for growth, as additional assets can be funded via the master indenture structure. Generally taking the form of wrapped bonds with significant overcollateralization, bonds in this sector have performed consistently to their structuring assumptions.

Securitization has been used by life insurers and reinsurers to meet statutory reserve requirements in a match-term funded form. Chapter 21 shows how life insurance reserve securitizations provide investors with a diversification opportunity where the primary drivers of performance, lapsation and mortality, perform independently of business cycles.