



ELSEVIER

Journal of Banking & Finance 26 (2002) 223–242

Journal of
BANKING &
FINANCE

www.elsevier.com/locate/econbase

Measuring off-balance-sheet leverage

Peter Breuer *

Research Department, International Monetary Fund, 700 19th Street NW, Washington, DC 20431, USA

Abstract

The simultaneous unwinding of leveraged positions can trigger financial market turbulence. Although balance-sheet measures of leverage are available, it is useful to construct a measure of leverage that incorporates both on- and off-balance-sheet activities. This paper provides measures of leverage implicit in derivative contracts by decomposing the contracts into cash market equivalent components. A leverage ratio can then be calculated for this replicating portfolio, which consists of own funds (equity) and borrowed funds equivalents (debt). Methods for aggregating leverage by institution and by markets are presented. The interaction between leverage and risk is discussed, and a modified capital adequacy ratio is calculated, which captures off-balance-sheet exposure. © 2002 Elsevier Science B.V. All rights reserved.

JEL classification: G1; G13; G21; G32

Keywords: Highly leveraged institutions; Risk; Derivatives; Capital adequacy; Hedge funds

1. Introduction

Leverage has been singled out as one of the most important factors in the buildup of financial conditions that enabled a single event – the unilateral Russian debt moratorium – to trigger the financial crisis in the fall of 1998,

* Tel.: +1-202-623-6364; fax: +1-202-589-6364.

E-mail address: pbreuer@imf.org (P. Breuer).

permeating even the deepest and most liquid financial markets in the world (e.g., International Monetary Fund, 1999). The crisis in mature markets has been partially attributed to the rapid and simultaneous unwinding of leveraged positions triggered by adverse price movements. It can further be argued that the ability of highly leveraged institutions to accumulate leverage off the balance sheet and thus their ability to elude the scrutiny of supervisors and the counterparty due diligence process contributed to the vanishing liquidity in normally highly liquid markets. Market participants were caught by surprise when their competitors desired to unwind their leveraged positions all at the same time because they did not know the extent of leveraged positions of everyone else in the market.¹ The President's Working Group (1999) concluded that the central public policy issue raised by the near collapse of the long-term capital management hedge fund is how to constrain leverage more effectively and called for an appropriate measurement of leverage and risk. While a controversy surrounds the issue of constraining leverage, observers agree that traditional on-balance-sheet measures do not accurately depict the degree of an institution's leverage because a significant degree of leverage is assumed through off-balance-sheet activities, which are not fully reflected on the balance sheet.

Efforts to measure leverage implicit in derivatives, repurchasing agreements and short sales have only been rudimentary. There appear to have been no attempts in the academic literature to examine off-balance-sheet leverage. The subject has recently been identified as a public policy issue by a number of reports. In addition to the President's Working Group, the Basel Committee on Banking Supervision (1999a) underscored the important role leverage played during the mature markets crisis in 1998 and claimed that leverage of unregulated hedge funds could be reduced if banks obtained more information about their off-balance-sheet exposures. However, the report makes no concrete suggestions how this would be achieved in practice. The Counterparty Risk Management Policy Group (1999) presents the first attempt to define various leverage ratios in broad terms. The report recognized that a decomposition of instruments into "notional equivalents" would be necessary. However, it did not define these notional equivalents, and called for "a detailed set of guidelines for conversion of off-balance-sheet positions into notional amounts" (Counterparty Risk Management Policy Group, 1999).

This paper develops a technique to measure the degree of leverage implicit in individual derivative contracts. The quantitative measure of leverage implicit in

¹ For example, LTCM's on-balance-sheet leverage may have conveyed a misleading picture: News reports indicate that its on-balance-sheet leverage ratio moved from a factor of 25 to 167 at the height of the collapse while its (undefined) off-balance-sheet leverage ratio moved from a factor of 270 to 2100.

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات