

Procyclicality and Margin Requirements

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This article explores the extent to which margin requirements induce procyclicality. Margin refers to the amount of equity (i.e., cash) as a share of total assets purchased on credit. The terms “margin” and “haircut” are often used interchangeably. A haircut refers to the percentage discount on the value of collateral that determines the amount of a loan (i.e., credit). A feature common to both is that they determine the maximum amount of leverage. The higher the margin, or haircut, the lower the maximum amount of leverage. The term “margin” is used throughout this article. Margin rules that stipulate lower margin requirements during boom times (liquid markets, low volatility) and higher margin requirements during down times (illiquid markets, high volatility) induce procyclical behaviour. For the definition, and the broader implications of procyclicality on market prices, see p. 31.

Many financial transactions employ margin requirements, including those carried out by clearing houses and futures exchanges, as well as repo agreements and security-lending transactions. This article reviews margin requirements as they apply to margin accounts and to capital requirements for the proprietary inventory positions of investment dealers in Canada. It begins with a high-level overview of the rules, followed by an examination of their procyclical aspects, and concludes with some recommendations.

RULES FOR MARGIN ACCOUNTS AND PROPRIETARY INVENTORY CAPITAL

The rules governing margin accounts administered by investment dealers are set by the Investment Industry Regulatory Organization of Canada (IIROC) and are outlined in Dealer Member Rule 100.¹ Rule 100 generally applies to

parties that do not qualify as an “acceptable counterparty” or an “acceptable institution” and that are therefore classified as “other.”² Retail investors, unregulated financial firms, corporations with a net worth below \$75 million, and trusts or private partnerships with less than \$100 million in net assets are among the parties that fall into this category. Since “acceptable” parties are, in most cases, exempt from IIROC-imposed minimum margin rules, any margin requirement is entirely at the discretion of their investment dealer. The IIROC is currently reviewing this exemption.

Investment dealers are required to hold regulatory capital against their proprietary inventory positions, and this amount is also calculated using the margin rules detailed in Rule 100. In both cases, for margin accounts and for regulatory capital purposes, the objective of these rules is to set margin rates at levels that appropriately account for exposure to market risk. A high-level description of these rules as they relate to fixed-income and equity securities is provided below.

FIXED-INCOME SECURITIES

Margin requirements for bonds, debentures, treasury bills, and notes are generally higher for securities with longer maturities, lower credit ratings, and for unhedged positions. For example, a Government of Canada bond with a maturity between 1 and 3 years carries a margin of 1 per cent, while a corporate bond of high credit quality and the same maturity is margined at 6 per cent. Margin requirements for other types of debt, foreign exchange, and derivative securities are also defined in IIROC Dealer Member Rule 100. These minimum margins are temporarily increased when price volatility increases beyond specific thresholds. This

¹ IIROC Rule 100 is applied to a much wider set of financial instruments and, combined with other rules, has a broader set of applications than described in this article.

² See General Notes and Definitions to IIROC Dealer Member Form 1 on the IIROC website for the definitions of acceptable counterparty and acceptable institution.

temporary increase, the bond margin surcharge, is 50 per cent of the margin normally required.

EQUITIES

Current IIROC margin requirements for equities and warrants traded on major stock exchanges are set according to a “market price per share” methodology. Generally, for securities that are trading at or above \$2 per share, the required margin is 50 per cent. If the securities are among the approximately 500 (highly liquid, low volatility) exempt securities, the margin is 30 per cent for client account positions and 25 per cent for Dealer Member capital requirements. Margin requirements go up to 60 per cent and 80 per cent for all securities that trade below \$2 and \$1.75 per share, respectively. Securities priced below \$1.50 have a margin rate of 100 per cent (i.e., they cannot be carried on margin).

Equity margins based on the VaR method

Value at risk (VaR) is a widely used method for determining regulatory capital requirements (see “Procyclicality and Value at Risk” on p. 51) as well as margin rates. It allows one to calculate the expected amount of loss, given a desired confidence level and a specified holding period. The IIROC plans to introduce a method for calculating equity margins that is based on a single-position VaR. This new approach to margin rates, referred to as “basic margin rate,” will also utilize measures of price risk and liquidity risk to arrive at margin rates for each equity security listed in Canada or the United States. More specifically, price risk will be assessed based on the highest level of daily price volatility calculated using trading data for the most recent 20, 90, and 260 days. Liquidity risk will be assessed based on the average daily traded volume and the public float value of securities.

THE PROCYCLICALITY OF MARGIN REQUIREMENTS

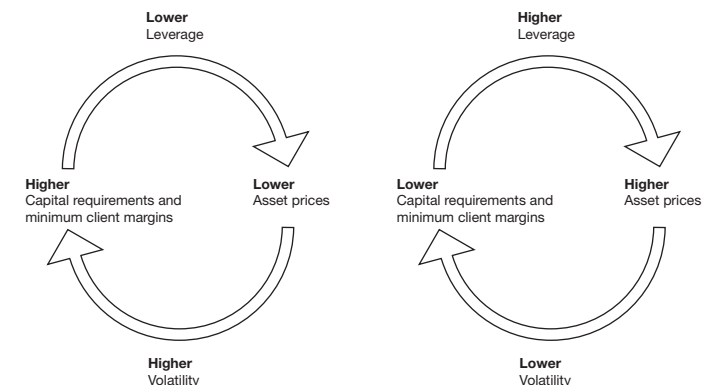
Client margin accounts are inherently procyclical, irrespective of margin rules. The minimum required margin for listed stocks trading at a price greater than \$2 is 50 per cent of market value (30 per cent for highly liquid stocks). Thus, up to half of the total investment (or 70 per cent for liquid securities) may be borrowed from the investment dealer. The amount of the loan stays fixed, while the marked-to-market value of the portfolio fluctuates with market conditions. As the marked-to-market value of the investment grows, investors may take on more risk without contributing additional capital (i.e., purchase additional assets and drive the price up further). In contrast, as the marked-to-market value of the investment declines, investors are faced with margin calls and must deposit additional funds at a time when their portfolio is declining in value. Investors may choose to sell assets to meet margin calls,

causing a further decline in asset prices. Thus, because of daily marking to market of securities positions and the use of leverage, margin accounts are inherently procyclical, regardless of the type of margin rules applied. When margin rules themselves are also procyclical, the effects are amplified.

Margin rules that prescribe higher margins during periods of increased price volatility, or as the prices of securities decline, exacerbate procyclicality. A case in point is the bond margin surcharge that is triggered when there is a significant increase in the volatility of bond prices. Since increased price volatility is often a by-product of illiquid markets and general market turmoil, the margin surcharge could serve to propagate the downturn because securities may need to be sold to meet the increased requirements for regulatory capital or margins. Margins on equity securities also exhibit procyclicality, since they progressively increase as the price of the security declines below \$2. About half of TSX-listed securities currently trade at or below \$2.50. Although their public float value is small, this is a significant increase compared with early 2007. The new margin rules for equities have not yet been implemented, but the proposed methodology would make these rules even more procyclical, since the margins would be closely tied to the near-term price volatility and liquidity of the securities.

Procyclicality will cause the regulatory capital requirements of investment dealers to rise during periods of increased volatility and to fall during boom times when volatility is subdued. Likewise, client margin rates will rise (fall) with increased (decreased) volatility. The resulting decrease (increase) in the leverage of firms and investors would cause asset prices to fall (rise). Subsequently, volatility is likely to rise (fall), feeding the propagation mechanism illustrated in Figure 1.

Figure 1: The procyclicality of asset prices: An illustration



PRACTICAL CONSIDERATIONS

IIROC Rule 100 sets the *minimum* required margins on margin accounts held at investment dealers. In practice, the margin rates set by investment dealers may be, and often are, higher than the required minimum. Rates are typically determined based on a combination of quantitative and qualitative characteristics. The quantitative model factors in characteristics of the asset such as asset type, term, price volatility, and liquidity, as well as the costs of investment dealers (e.g., clearing house collateral requirements). The qualitative aspect relates to the prevailing sentiment and/or subjective criteria and has the potential to make margin rates highly procyclical. From the perspective of the investment dealer, increasing margin rates reduces leverage and may be especially important during times of increased volatility. It is thus not surprising that since the start of the market turmoil, margins on a wide range of equity securities have gone up (in some cases, to 100 per cent), resulting in a large number of margin calls. Likewise, for fixed-income securities, estimates by Citibank suggest that average margins for investment-grade bonds in the United States have risen to about 18 per cent from 2 per cent (Citigroup Global Markets 2009). In Canada, margins on investment-grade bonds are currently close to 15 per cent, but comparisons over time and across asset classes are difficult, owing to a lack of official data.

MITIGATING PROCYCLICALITY

One way to mitigate the procyclicality of margin rules is to make them less dependent on near-term market conditions. This involves determining price volatility and, hence, margin rates, using long historical data sets, making sure that past extreme events are captured in the data. If there are no extreme events in the data, then stress tests can be used to simulate such outcomes. This should lead to less variability in required minimum margin rates. It may, however, lead to higher margins on average.

As far as customer margin accounts are concerned, higher but stable margin rates would have the desired effect of reducing leverage, thereby making investors less susceptible to the sudden swings in wealth that encourage procyclical behaviour.

Finally, since investment dealers can impose margin rates above the minimum levels required, they are likely to do so during market downturns, thereby increasing the procyclicality in the system. To mitigate this behaviour, regulators could increase their monitoring of margins to prevent unjustified and reactionary increases, or provide dealers with guidelines for applying margins with a “through-the-cycle” perspective.

REFERENCES

Citigroup Global Markets Ltd. 2009. *Flow and Structured Credit* (23 January).