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Journal of Banking & Finance 31 (2007) 1863–1886
Journal of BANKING & FINANCE
www.elsevier.com/locate/jbf

Momentum strategies in commodity futures markets

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Received 9 May 2005; accepted 12 December 2006
Available online 25 January 2007

Abstract

The article tests for the presence of short-term continuation and long-term reversal in commodity futures prices. While contrarian strategies do not work, the article identifies 13 profitable momentum strategies that generate 9.38% average return a year. A closer analysis of the constituents of the long–short portfolios reveals that the momentum strategies buy backwardated contracts and sell contangoed contracts. The correlation between the momentum returns and the returns of traditional asset classes is also found to be low, making the commodity-based relative-strength portfolios excellent candidates for inclusion in well-diversified portfolios.
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JEL classification: G13; G14

Keywords: Commodity futures; Momentum; Backwardation; Contango; Diversification

1. Introduction

Commodity futures are excellent portfolio diversifiers and, for some, an effective hedge against inflation (Bodie and Rosansky, 1980; Bodie, 1983). They also offer leverage and are not subject to short-selling restrictions. Besides, the nearby contracts are typically very liquid and cheap to trade. For all these reasons, commodity futures are good candidates for strategic asset allocation and have been proved to be useful tools for alpha generation (Jensen et al., 2002; Vrugt et al., 2004; Wang and Yu, 2004; Erb and Harvey, 2006).

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doi:10.1016/j.jbankfin.2006.12.005

This article examines the profitability of 56 momentum and contrarian strategies in commodity futures markets. The momentum strategies buy the commodity futures that outperformed in the recent past, sell the commodity futures that underperformed and hold the relative-strength portfolios for up to 12 months. The contrarian strategies do the opposite. They buy the commodity futures that underperformed in the distant past, sell the commodity futures that outperformed and hold the long–short portfolios for periods ranging from 2 to 5 years. To put this differently, the article investigates whether the short-term price continuation and the long-term mean reversion identified in equity markets by Jegadeesh and Titman (1993, 2001) and De Bondt and Thaler (1985) are present in commodity futures markets. The paper also builds on the research of Erb and Harvey (2006) who show that a momentum strategy with a 12-month ranking period and a 1-month holding period is profitable in commodity futures markets.

While contrarian strategies do not work, the article identifies 13 profitable momentum strategies in commodity futures markets. Tactically allocating wealth towards the best performing commodities and away from the worst performing ones generates an average return[1] of 9.38% a year. Over the same period, a long-only equally-weighted portfolio of commodity futures lost 2.64%. In line with the analysis of Erb and Harvey (2006), this result suggests that active investment strategies have historically been profitable in commodity futures markets.

While they are not merely a compensation for risk, the momentum returns are found to be related to the propensity of commodity futures markets to be in backwardation or in contango. The results indeed suggest that the momentum strategies buy backwardated contracts and sell contangoed contracts. Therefore our analysis indicates that one can link the momentum profits in commodity futures markets to an economic rationale related to Keynes (1930) and Hicks (1939) theory of normal backwardation. Interestingly, the momentum returns are also found to have low correlations with the returns of traditional asset classes, making the commodity-based relative-strength strategies good candidates for inclusion in well-diversified portfolios.

There are strong rationales for implementing momentum strategies in commodity futures markets rather than in equity markets: Our commodity-based long–short strategies minimize transaction costs,[2] trade liquid contracts with nearby maturities, are not subject to the short-selling restrictions that are often imposed in equity markets and focus on 31 commodity futures only (as opposed to hundreds or thousands of stocks). It is therefore

[1] The term "return" is used loosely to refer to the performance of the momentum and contrarian strategies. It is noted that the term is improper in futures markets as, aside from the initial margins, no cash payment is made at the time the position is opened. It follows that a definition of returns that implicitly assumes that investors purchase the futures contract at the settlement price is, by definition, inaccurate. Note however that a definition that considers the initial margin as an investment is also incorrect since the initial margin is just a good faith deposit (and not an investment) and is redeemed to the trader (along with accrued interests and marking-to-market profits or losses) at the time he/she enters a reversing trade. Based on this and in line with, among others, Dusak (1973) and Bessembinder (1992), the paper measures futures returns as the change in the logarithms of settlement prices. Had futures returns been measured relative to the margins and on a fully-collateralized basis, the momentum profits would have been further enhanced. Our definition of return is free of collateral and therefore more conservative.

[2] Transaction costs in futures markets range from 0.0004% to 0.033% (Locke and Venkatesh, 1997), which is much less than the conservative 0.5% estimate of Jegadeesh and Titman (1993) or the more realistic 2.3% estimate of Lesmond et al. (2004) for the equity market.

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