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Time varying stock return predictability: Evidence from US sectors

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ABSTRACT

This paper argues that dividend yield stock return predictability is time-varying. We conjecture that such time-variation is linked to the business cycle. Employing monthly data for US sector portfolios we estimate 5-year rolling fixed window predictive regressions. The resulting series of time-varying predictive coefficients is regressed on industrial production growth and a recession dummy. Our results support the view of a negative relationship between predictability and output growth. That is the strength of the predictive relationship between returns and the dividend yield is stronger during contractionary periods, while during expansions the magnitude of the relationship declines.

1. Introduction

Predicting stock returns remains a central issue in empirical finance. Predictability has implications not only for investment behavior and portfolio management but is crucial in our understanding of asset pricing. Within the finance literature, a debate has emerged regarding the ability of key financial variables to predict returns. Although the debate for and against predictability continues (see Spiegel, 2008), in this note we conjecture that such predictability is time-varying and this time-variation may

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be the cause of previous contradictory results. Furthermore, we believe that such time-variation is itself predictable and may vary with the economic cycle. This arises where we can decompose realized returns as the sum of risk premia and random shocks, whereby the latter are unpredictable. Thus, any predictability will derive from time-varying risk premia, which are themselves affected by the business cycle. This in turn, may also imply heterogeneous patterns across business cycle expansions and recessions. We therefore believe the results in this paper will shed important light on the debate not only regarding whether predictability exists but also on the nature of the relationship between stock prices and underlying economic fundamentals.

The debate surrounding stock return predictability largely goes back to Campbell and Shiller (1988a,b) and Fama and French (1988) who argue that the dividend yield could be used as a predictor for stock returns. Subsequent to this, a vigorous debate has been ongoing as to whether such predictability is robust.[3] Most recently, attention has turned to whether there is evidence of time-variation within predictability relationships. Notably, Chen (2009) has reported evidence that the dividend yield may predict either returns or dividend growth, but across different time periods. Park (2010) argues that in a sub-sample of US data that includes the 1990s the predictive power of the dividend yield disappears. In a related, but earlier study, Goyal and Welch (2003) argues that increased persistence in the dividend yield had led to a decline in its predictive power for stock returns even prior to the 1990s. Engsted and Pedersen (2010), employing long-term annual data for the US, Sweden, Denmark and the UK, report evidence of time-variation in the strength of predictive power for returns and dividend growth. Henkel et al. (2011) argue that stock return predictability occurs only during economic contractions for the G7 markets but disappears during expansions. This, they argue, is related to not only to time-variation within the predictor variables, but also, and perhaps of greater significance, counter-cyclical risk premiums (i.e., higher risk premiums during recessions). In a different econometric setting, Hjalmarsson (2010) uses panel data techniques and a recursive regression approach to provide evidence in favor of time-varying predictability, particularly arising from using interest rate variables.

Overall, the above literature leans towards the view that returns predictability may exist over certain time periods but without a clear view of what determines such time periods. Our paper seeks to determine whether such time-variation in predictability is indeed related to the business cycle.

2. Data and methods

2.1. Data

Monthly observations for twelve US sector portfolios from January 1927 through December 2009 (a total 996 observations) are collected from the Center for Research on Security Prices (CRSP). Specifically, these are the total monthly returns on the following sectors: consumer non-durables (e.g., food, tobacco, textiles, apparel, leather, toys, etc.), consumer durables (e.g., cars, television sets, furniture, household appliances, etc.), manufacturing (machinery, trucks, planes, paper, etc.), energy (oil, gas, and coal extraction), chemicals, business equipment (e.g., computers, software, and electronic equipment), telecommunications, utilities, wholesale/retail shops and some services (e.g., laundries and repair shops), healthcare/medical equipment/drugs, money/finance, plus a residual 'other' sector that includes mining, constructions, transportations, hotels, business services, and entertainment. The dividend yield is defined as the ratio between trailing 12-month moving average dividends paid on all NYSE stocks and the total NYSE capitalization 12 months before is also obtained from CRSP. The use of trailing 12-month averages is common in the construction for monthly dividend yield in order to avoid seasonality in the dividend series (e.g., Fama and French, 1988; Henkel et al., 2011).

[3] Example of evidence in support of predictability include Campbell and Shiller (2001), Campbell and Yogo (2006), Campbell and Thompson (2008), Cochrane (2008) and Kellard et al. (2010). However several authors have argued against such predictability due to econometric issues relating to persistence in the regressor(s) or small sample bias (see, for example, Lanne, 2002; Valkanov, 2003; Ang and Bekaert, 2007; Welch and Goyal, 2008). Moreover, while much of this literature has focussed exclusively on the dividend yield, exceptions using the term spread and default premium have been reported by, for example, Keim and Stambaugh (1986) and Fama and French (1989).