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The *forward looking* information content of equity and bond markets for aggregate investments

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ABSTRACT

The literature on aggregate investment has recently shifted attention away from the stock market in favor of the bond market as a consequence of the disappointing empirical results of stock market's *Q* and the ability of credit spreads to forecast investment and output growth. In this paper we examine the different information content of Tobin's *Q* and corporate bond spread for aggregate investments in the US by means of wavelet analysis. The evidence shows that equity and bond markets' information contents are complementary each other rather than alternative. In particular, a progressive shift in the respective contributions of stock market's *Q* and the relative price of corporate bonds for aggregate investments emerges when moving from higher to lower scales, the contribution of stock market's *Q* being predominant at higher scales, whereas that of the relative price of corporate bonds has a tendency to increase as the time scale decreases.

1. Introduction

Empirical works testing Tobin's *Q* theory (Tobin, 1969) have generally adopted the stock market value of corporate equity as a proxy of the shadow value of capital by assuming that the observable

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stock market valuation of a firm can provide an accurate, i.e. error-free, measure of the present value of its expected future profitability. However, stock market mis-pricing is generally called for in explaining the disappointing empirical performance of the Q model because of stock market valuations tendency to deviate from fundamentals for long period of time due to waves of optimistic and pessimistic sentiment among the investors (e.g. Gilchrist and Himmelberg, 1995; Erickson and Whited, 2000, 2006; Cummins et al., 2006).[1]

Financial asset prices and interest rate spreads are considered good indicators for fluctuations of future economic activity. Standard asset pricing theory suggests that asset prices and interest rate spreads contain potentially useful information about expected future returns and expected default risk, respectively. For example, interest rate spreads are expected to contain information about firms' expected default risk. Higher corporate bond prices, reflecting stronger future profitability, will result in a lower probability of default for firms and thus in smaller credit spreads. Similarly, higher stock prices are expected to reflect stronger corporate investment opportunities and earning growth prospects. As such, stock market prices tend to reflect relevant forward-looking assessments of future economic growth.[2]

This similar forward looking information content of bond and equity markets provides the motivation for the recent literature on aggregate investment to shift its attention away from the stock market in favor of the bond market. Indeed, following Lettau and Ludvigson (2002), which provide evidence that corporate credit spreads are useful predictors of the variation in aggregate investments, a very extensive and rapidly growing literature has investigated the relationship between standard default-risk indicators, such as credit spreads, and investments, e.g. Gilchrist and Zakrajsek (2007), Gilchrist et al. (2010) and Gourio and Michaux (2012).

Within the Q-framework the benefits of using bond market prices in alternative to a stock market based measure have been evidenced by Philippon (2009) and Shen (2010) using US aggregate data. In particular, Philippon (2009) constructs a measure of Q based on corporate bond yields, called bond market's Q, that largely outperforms a standard Q measure. The explanation provided by Philippon for the bond market's Q performing better than the usual measure of Q is related to differences in their relative degree of mis-pricing. Specifically, the bond market might be less noisy than the equity market because equity market can be subject to severe mis-pricing, while the bond market is not, or at least not as much (see Philippon, 2009). Similar conclusions are obtained by Shen (2010) by testing the Q theory using the credit spreads directly. Indeed, his main findings are that the Q model is a good approximation and that, again, the credit market may suffer less from mis-pricing than the equity market, so that it may be possible to infer over/under-priced equity market valuation from credit spreads.

The stability across frequencies and over time of the relationship between aggregate investment and Tobin's Q has been recently analyzed in two related papers by Gallegati and Ramsey (2013a, 2013b) using the time–frequency lens of wavelet analysis. The key finding in both papers is that when instability over time is taken into account the results are consistent with the hypothesis that the information content of stock market valuations tends to be more effective for investment in the long-term since existing market valuations are likely to better reflect fundamentals on longer time frames.

In this paper, we go a step further as to Gallegati and Ramsey's (2013b) paper by analyzing the role of corporate bond spreads alone, rather than in conjunction with other variables as in Philippon's (2009) bond market's Q. Specifically, we examine whether equity and bond market prices, as measured by stock market's Q and corporate bond spreads, have different *forward-looking* information content for aggregate investment using wavelet analysis. The following features are worth mentioning about

[1] Finance literature explain stock market mis-pricing claiming that investors have subjective beliefs about future dividend growth rates (see Scheinkman and Xiong, 2003) or use nominal discount rates instead of real discount rates (see Ritter and Warr, 2002). In contrast to such empirical failure of the Q approach the empirical finance literature provides evidence that stock prices are important predictor of aggregate investments (see Fama, 1981, 1990; Fischer and Merton, 1985; Barro, 1990; Schwert, 1990; Chen, 1991).

[2] The Standard & Poor's 500 index and 10-year Treasury bonds less Federal funds are current components of the Conference Board composite leading indicator for the US economy (CLI).