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# Corporate control rights and the long-run equity risk premium

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**Abstract**

We address the role of incomplete contracting in the equity market in a long-run growth model. Equity delivers control rights, but holding equity might lead to disutility, since the right to vote is costly to carry. We analyze voting power and its burden in a equilibrium growth model. One of our main contributions is that we test our ex ante equity premium model using data for 44 countries over the years 1989–2005. Higher capital productivity, inflation and valuation of leisure increase the ex ante equity premium, as does lower population growth.


*JEL classification:* E2; G12

*Keywords:* Equity risk premium; Growth model; Control rights

## 1. Introduction

The return on equity exceeds the return on risk-free assets on average. A large body of the literature tries to find an explanation of the size of the ex post measured equity premium by considering differences in risk attitude. Because equity is more risky it gets a higher expected return in equilibrium. In the short run the return on equity can be lower than the risk-free rate; in general one has to consider a substantial time span to be sure to observe a positive equity premium. In this paper we present a long-run analysis of the equity risk premium, based on a growth model

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and assuming perfect foresight. Risk and uncertainty are not the focal point of attention, but we stress the utility derived from holding different assets under certainty. We assume that holding equity delivers disutility, while holding bonds yields direct utility. The difference in marginal utility is compensated in equilibrium by an additional return: the equity risk premium.

Our analysis differs from the well-known literature on the equity risk premium that focuses on ex post measures of the premium compensating risk. The literature labels the magnitude of the premium to be a major puzzle in financial economics. Given the fact that most developed equity markets have a Sharpe ratio of about 0.5, there should either be a large degree of consumption volatility (which we do not observe) or a huge degree of risk aversion (which is not supported by evidence from experimental economics). Since Mehra and Prescott (1985) many studies tried to give (partial) explanations of the existence and size of the premium on equity (see e.g. Kocherlakota, 1996, or more recently Mehra and Prescott, 2003). A twin puzzle is the risk-free rate puzzle (see Weil, 1989) that focuses on the fact that the real return on risk-free bills is so low. Ebrahim and Mathur (2001) present a classification of the 'solutions' to the equity premium puzzle. Most of the work on the equity premium is focused on matching the data on equity returns with observed interpretations of risk aversion (see e.g. Ferson, 1995). The common explanation of the existence of the equity premium is the uncertainty of equity prices and the risk attitude of investors. A second class of explanations is based on market segmentation (see Mankiw and Zeldes, 1991). Third, theoretical approaches of utility, like habit formation in consumption (see Campbell and Cochrane, 1999), uninsured idiosyncratic risks (see Constantinides and Duffie, 1996), and borrowing constraints (see Constantinides et al., 2002) are proposed. Fourth, incomplete markets and transaction costs are used. Finally, empirical observations, like survivorship bias (see Brown et al., 1995) or the use of ex ante real-time expectations versus ex post measured data (see Fama and French, 2002), are explored. Although all these elements probably carry at least a part of the explanation of the puzzle, there is no clear consensus on what factor dominates.

In this paper we deviate from the standard literature on the equity risk premium in two respects. First, we model the equity premium in general instead of partial equilibrium. So we follow Danthine et al. (1992) and Jermann (1998), which explain asset prices in production economies, wherein consumption and dividend payments are endogenized instead of being assumed to be given. The problem with these kinds of models is that agents can easily change their production plans in order to reduce fluctuations in consumption, which increases the problem of explaining the equity premium. Consumption so becomes smoother as risk aversion is increased. Jermann (1998) shows that capital adjustment costs, like in the $q$-model of investment, prevent instantaneous adjustment of capital and so help to explain the existence of the equity premium. Jermann moreover includes habit formation in a real business cycle (RBC) model. In Jermann's model the equity premium comes from a payout uncertainty premium and a term premium. One of the disadvantages of his model is that it generates relatively large long-term bond premia, which we do not observe in reality. To avoid these kinds of complications, one needs production technologies that allow easy transformation across time, but not across states of nature. Jermann experiments with the impact of leverage and finds that the equity premium increases in leverage, but still needs unrealistic levels of volatility of dividends. In this paper we also take the general equilibrium route, but look at a growth model instead of the impulse–response functions of an RBC or a dynamic stochastic general equilibrium (DSGE) model. We agree with Jermann that the equity premium is an equilibrium variable, determined by demand (by financial investors) and supply, say IPO's by firms, but we do not follow the approach of letting dividend and term structure uncertainty explain the premium. Secondly, we model another imperfection, namely incomplete contracting between the consumer and the producer. One might argue that uncertainty is 'solved' if one waits