



The share market boom and the recent disinflation in the OECD countries: The tax-effects, the inflation-illusion and the risk-aversion hypotheses reconsidered¹

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Received 6 September 2000; received in revised form 1 June 2001; accepted 25 July 2001

Abstract

This paper tests the tax-effect, the inflation-illusion and the risk-aversion hypotheses using pooled cross-section and time series data for the OECD countries for the postwar and the Great Depression periods. The estimates suggest that share markets suffer from inflation illusion and fail to incorporate into share prices the tax penalties that are associated with inflation due to depreciation at historical costs. © 2002 Board of Trustees of the University of Illinois. All rights reserved.

JEL classification: E310; E440; G120

1. Introduction

This paper tests the extent to which the relationship between share returns and changes in expected inflation can be explained by the tax-effects, the inflation-illusion, and the risk-aversion hypotheses using panel data for the OECD countries over the period from 1953 to 1999 and the Great Depression.²

The tax-effects hypothesis of Nichols (1968), Feldstein (1980a, 1980b), and Summers (1981a), suggests that taxable profits are overstated in periods of increasing inflation, because depreciation rules for tax purposes are at historical costs. The inflation-illusion hypothesis of Modigliani and Cohn (1979) propounds that share markets fail to account for the fact that increasing inflation reduces the real value of debt for levered firms and use the nominal

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interest rate to discount real expected cash flow. The risk-aversion hypothesis of Pindyck (1984) does not advocate a direct link between real share returns and the change in inflation, but asserts that inflation proxies the variance in returns to capital, which is intimately related to the risk premium on shares.

Although numerous papers have tested the relationship between real share returns and the *level* of inflation, not much attention has been devoted to examining the effects of *changes* in inflation on share returns and dividend yields. Furthermore, there has been no rigorous attempt to discriminate between various theories that seek to explain the relationship between share returns and changes in inflation in the postwar period, and particularly not in the Depression period, as discussed in Section 2. The analytical implications of the tax-effects, the inflation-illusion, and the risk-aversion hypotheses are derived in Section 3, and Sections 4, 5, and Section 6 tests the extent to which the theories can explain the negative relationship between share returns and changes in inflation. In Section 7 the relationship between the risk premium and price changes is examined, and Section 9 concludes the paper.

2. Review of the literature

The study of the interaction between share returns and inflation has had a long history. Fisher (1911) argued that shares are hedged against inflation and therefore that there is a one to one relationship between nominal share returns and expected inflation. Numerous empirical studies have been undertaken over the past 25 years to examine the relationship between nominal and real share returns and expected inflation (see Barnes et al., 1999). Most papers have found that share returns are not hedged against expected inflation and have interpreted this as evidence against the Fisher hypothesis.³

Fama (1981) argues that regressions of share returns on expected inflation yield biased coefficient estimates because expected income growth has been omitted from the estimates. He finds that the Fisher hypothesis cannot be rejected when expected income growth is accommodated in the estimates of the Fisher equation.⁴ However, recent research indicates that the Fisher hypothesis is rejected even if expected income growth is accommodated in the estimates.⁵

Using survey data on expected inflation and earnings Sharpe (2000) finds that expected real earnings growth is negatively related to expected inflation, but that equity valuations are negatively affected by inflation expectations after accommodating expected real earnings growth in the estimates. Finally, long-run estimates and estimates for high inflation economies, have tended to show a stronger link between share returns and expected inflation than estimates for low inflation economies and estimates that use high frequency data.⁶

The relationship between share returns and changes in inflation has attracted much less attention than tests of the Fisher hypothesis. Early tests by Modigliani and Cohn (1979), Summers (1981a), and Pindyck (1984) investigated the relationship between share returns and changes in inflation. However, their empirical tests covered only a period of increasing inflation and did not allow for the structural relationship between share returns and changes in inflation as predicted by the theory in question. Cohn and Lessard (1981) test the inflation-illusion hypothesis using quarterly data over the period from 1969 to 1979 for eight

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