

Unexpected Inflation, Firm Characteristics and Equity Returns in a New-Keynesian Model

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Abstract

We construct a stochastic dynamic model in which firms differ in characteristics such as size, book value, sensitivity to market demand and degree of price stickiness. This establishes an explicit economic relation between firm level characteristics and the relationship between unexpected inflation and equity returns. The dynamic no-arbitrage model with three macro factors is embedded in a standard New-Keynesian framework in a monopolistic competitive environment. A key assumption is that the central bank adjusts the short-term nominal interest rates so that the targeted *ex post* real interest rate rises when inflation exceeds its target value. In our model unexpected inflation is driven by demand-pull and cost-push factors represented by the aggregate demand and supply shocks. Under a given monetary policy rule, the effect of these two fundamental shocks on the dividends and interest rates varies across different firms based on their size, relative importance of growth option, sensitivity to market demand and price-setting mechanism.

Our findings can be summarized as follows. First, we find that if the public believes that inflation will induce strong deflationary countermeasures by the central bank, unexpected inflation is bad for the stock market. Second, we show that with strong interest rate effects, equity returns of firms whose assets are dominated by growth option—in our model, firms of smaller size—are more negatively correlated with unexpected inflation. Third, we find that under certain calibrations equity returns of firms with higher degree of price stickiness respond more negatively to unexpected inflation. Fourth, our model is capable of explaining the phenomenon that bad news on the aggregate demand is sometimes good for the stock markets by dissecting the information on the interest rate and dividend bundled in the aggregate demand news. Our results appear consistent with the limited existing empirical evidence.

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