

Long-Run Consumption Risk with Durable Goods: UK Evidence for Equity and Bond Markets

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It is a widely accepted fact that the consumption-based capital asset pricing model (CCAPM) fails to provide a good explanation of many important features of the behaviour of financial market returns in a large range of countries over a long period of time. However, within a representative consumer/investor model, it is hard to see how the basic structure of the consumption based model can be safely abandoned. As a result much effort has been put into generalisations of the model which relax some of the most extreme assumptions and introduce realistic additional sources of correlation between elements of consumer choice and asset returns. Some of the most promising generalisations are those offered by the replacement of the assumption of power utility with utility of the recursive form. Initial empirical analysis of the impact of allowing attitudes to risk to differ from attitudes to time, as this approach allows, were not very successful. However, Bansal and Yaron in a series of papers, pointed out that this distinction could be used to good effect if consumption contained a small persistent and heteroskedastic component. They also showed that this would be most effective in explaining important features of the behaviour of equity returns if the elasticity of intertemporal substitution were large enough. Empirical analysis of the long-run risk model has so far been very limited. The positive evidence presented by Bansal and Yaron and others is based mostly on calibration and moment comparisons and has been very influential. Evidence based on econometric estimation has more recently been presented by authors who are more sanguine.

A separate generalisation of the consumption-based model, initially proposed by Yogo, re-examines the role of durable and non-durable goods. Yogo shows that allowing Epstein-Zin preferences to incorporate non-separability of durable and non-durable consumption in utility provides for an Euler equation which can be shown to provide a much better explanation of equity market features than either the basic CAPM or CCAPM. This analysis is at the level of the Euler equation and takes the rate of return on total wealth as given.

This paper reports on joint research with Na Guo on developments of the durable consumption model to allow for long-run risk in durable consumption. The analysis in the paper is for the UK. There are a number of reasons why this is of independent interest. There is thus far no evidence for the UK on the ability of either the durable consumption or long-run risk models. Moreover, the nature of the time series process that best explains non-durable consumption growth in the UK suggests that the standard non-durable long-run risk model is unlikely to fit the facts. In short, there is no evidence for the presence of a persistent,

heteroskedastic component in non-durable consumption growth. However, there is some quite persuasive evidence that such a component exists in durable consumption growth. The model is examined for the case of a common stationary persistent component for dividends and durable consumption and for the case where consumption and dividends are cointegrated. This then implies that dividends and consumption cannot deviate from each other in the long run. It also means that in the short run their growth can deviate from each other, although only by a stationary amount. Model solutions and estimates are presented which provide evidence in favour of aspects of the modelling approach.

Finally, the paper presents some initial calculations on the ability of the the long-run durable consumption risk model to explain the term structure of indexed government bonds in the UK. The uniquely well-developed market for indexed government debt in the UK provides an excellent opportunity to evaluate the model. Evidence for the model in this case is more positive than has been found for the US.