New Goods and Asset Prices

Inspired by the new trade and growth theories, this column explores the implications of new product introduction for savings and asset returns. It describes an extension of a standard macro-finance model that encompasses fluctuations in the quantity and variety of consumption over time. By raising the incentive to save, expectations of greater product variety reduce the risk-free rate and, by creating more consumption risk, fluctuations in variety growth raise the equity premium. As a result, incorporating new goods attenuates the risk-free rate and equity premium puzzles.

Faced with rising living standards over time, standard economic theory predicts that people should borrow to “smooth consumption". But since we can't all borrow from the future, this borrowing should drive up risk-free interest rates. In reality, we see nothing like this. Risk-free interest rates are in fact remarkably low---and far from the 8% predicted by theory. As I write, for example, the 10-year German bund, a benchmark rate, commands a yield of -.31%, while its U.K. counterpart, the 10-year Gilt, pays a paltry .78%. This gap between theory and data is the risk-free rate puzzle. In a recent paper, I argue that the source of the puzzle is an assumption embedded in the standard model: people consume a single good (Scanlon, 2019). If you think about it, the puzzle is natural in this one-good setting: if there are more goods in the future, people desire to transfer some of them to the present. The resulting rise in borrowing raises the risk-free rate.

Yet the one-good assumption sits uneasily with the increasing variety of goods available today. In my paper, I explore how the introduction of new goods affects two benchmark asset returns: the risk-free rate and the equity premium. To start with, consider the risk-free rate. Looking ahead, we see the prospect of substantially new goods like driverless cars, better drugs, new computer technologies, and so on. By offsetting diminishing marginal utility, these new and better goods raise the value of a future euro and increase the incentive to save. If you have ever put money aside for the next model of car or iPhone, that is the force at work here. According to my analysis, this greater saving generates a more realistic risk-free rate of around 2%. Moreover, unusually low or negative rates are less puzzling in this setting: if the future brings better consumption opportunities, future nominal returns confer greater purchasing power. The effective return to saving is higher.

While the risk-free rate is an important benchmark, the asset class we hear most about are equities. Over the past century, the market portfolio has commanded a premium of 6 % above the risk-free rate. You might think this makes equities a good buy, but equities have a catch: they pay poorly in recessions. And because recessions are already times of falling consumption, poor equity returns amplify business cycle risk. To compensate for this greater consumption risk, theory predicts that equities should pay more than risk-free assets. What is puzzling, however, is the standard model predicts a premium of around 1%---far from the 6% we see in the data. This is the equity premium puzzle.

Underlying the puzzle is the smoothness of consumption growth. If consumption fell by 20% in recessions along with the typical 20% fall in equity values, then equities *would* be risky. But therein lies the problem: consumption is remarkably stable, making equities appear relatively safe. Explaining a 6% premium in the face of fairly stable consumption growth is a topic economists have long wrestled with. Whatever the story, it must reconcile stable aggregate consumption growth with significant risk. A prominent theory draws on the concept of habit persistence. If people are

accustomed to a certain level of consumption, they become averse to even small consumption changes. Confronted with greater consumption risk, investors now demand higher equity returns.

Rather than focus on quantities, my paper examines how the *variety* of consumption changes over time. Most significantly, the research highlights how fluctuations in consumption variety comprise another form of risk---and an increasingly relevant one. The thing is, recessions not only bring a falling quantity of consumption, but also falling rates of new product introduction (Broda and Weinstein, 2010). One reason for this is low demand and cash flow during recessions forces firms to delay new product releases. Yet because consumers value variety and quality, this dynamic reduces consumer welfare. (To see what I mean, imagine only being able to shop in your local grocery store during recessions.) What this means is variety-adjusted consumption now becomes more volatile, and comoves more with equity returns. By generating greater consumption risk, this comovement raises the expected equity premium. As an example, Figure s 1 and 2 contrast the movements of the equity premium with the growth of consumption and new food product introduction in the U.S. between 1980-2018. Judging by this, focussing on quantities alone underestimates consumption risk.

Yet quantifying this channel is challenging. It entails estimating peoples' taste for variety, along with the covariance of variety growth with equity returns. Using data on trademarks and new product introductions, I estimate variety growth over time and its covariance with returns. Meanwhile, markups provide information on peoples' willingness to pay for greater variety. It turns out that introducing variety growth generates an equity premium of around 2.5%. In a further application, I explore the long-run implications of fluctuations in variety growth. Given the cumulative nature of innovation, even small changes in variety growth can have persistent effects on welfare. To examine the risk posed by such persistent changes, I incorporate fluctuations in variety into a model of long-run risk with Epstein-Zin preferences. In this setting, introducing variety growth generates a premium of around 3%. While these estimates are below the historical premium of 6%, many economists believe that the premium going forward is lower, around 2-3% (Cochrane, 2005).

Overall, the paper highlights the importance of accounting for new goods in asset returns and risk premia. Ultimately the goal of all savings and investment is consumption, but the nature of consumption changes over time. In turn, this has implications for purchasing power conferred by returns. By raising the incentive to saving, new goods reduce measured risk-free interest rates. Meanwhile, the comovement of variety growth with equity returns accentuates the pain of recessions and reduces the incentive to invest in equities. By focussing only on quantities, standard models miss these implications. Increasingly, however, goods are becoming more diverse and less tangible, raising the significance of the channels discussed here.

Figure 1: The Equity Premium and Aggregate Consumption Growth

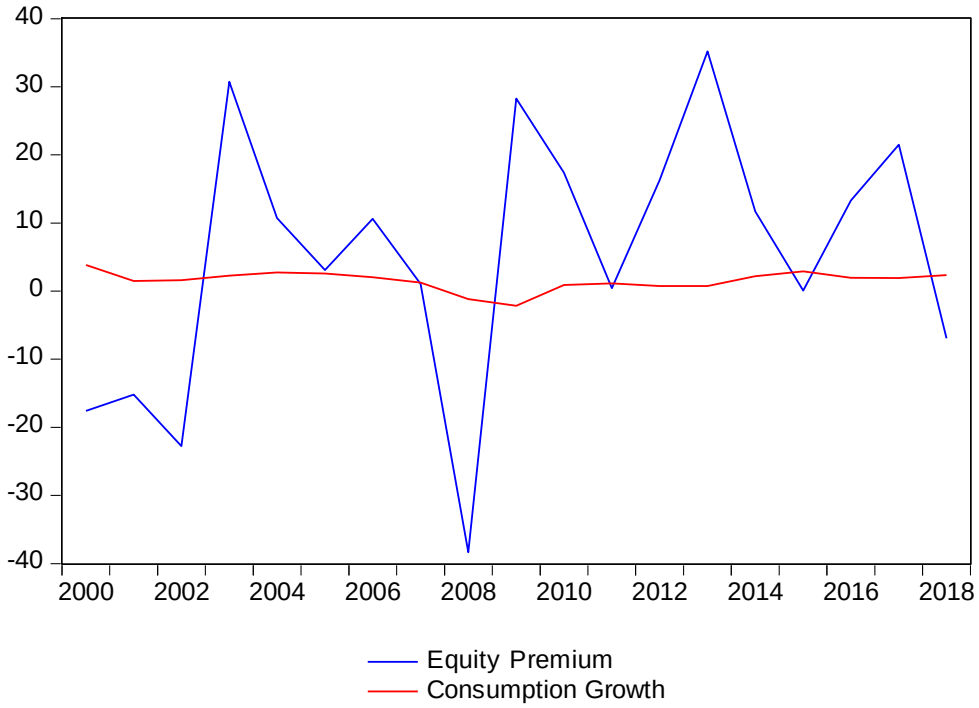
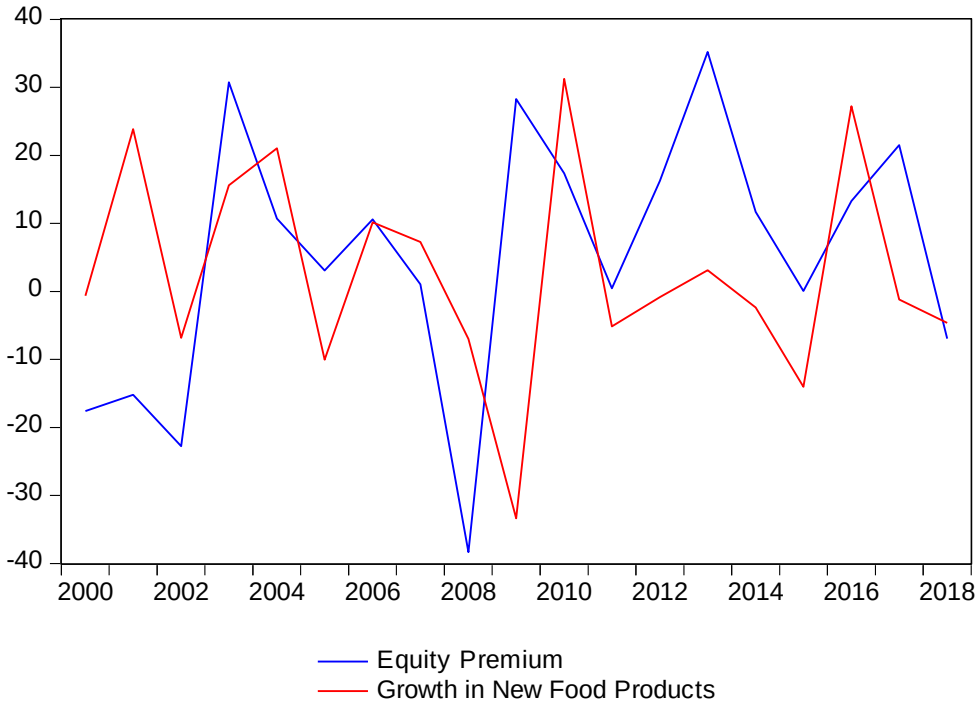


Figure 2: The Equity Premium and New Food Product Growth



References

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