

SUMMARY OF THE WORK IN PROGRESS

The Value and the Quantity of Capital, joint with Espen Henriksen and Chris Telmer

Abstract

The distinction between the quantity and the value of capital in the U.S. has grown increasingly large over the last 20 or 30 years. Hall (2001) as well as McGrattan and Prescott (2000) have argued that this distinction reflects the increasing importance of intangible capital that is incorrectly measured by conventional methods. However, if the value of intangible capital is the main determinant of the spread between the value and the quantity of capital, one might have trouble explaining the long excursions of Tobin's Q below 1 for the period 1970-1982.

In this paper we argue that the spread between the value and the quantity of capital should also reflect the value of the growth options. To make our point we propose a simple model of firm dynamics where firms employ only one type of capital (tangibles) and they derive value from installed projects (assets in place) and new projects (growth options).

Within this framework, we show that, at the lower end, Tobin's Q can reach values as low as 0.5, consistent with the evidence in Hall (2001) for the period 1970-1982. At the higher end, however, the model has the potential of generating high magnitudes for Tobin's Q (of about 2), but the model can not reproduce the highest values reported by Hall, or the dramatic increase in Q during 1982-2004. To account for these features of the data, we augment the model with vintage capital, innovations to the technological growth and delays in adjusting to the new technologies.