Abstract for "Does the Stock Market Evaluate Intangible Assets?"

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Hall (2000 and 2001) pointed out that the conventional Tobin's Q considering only tangible assets in the US stock market persistently exceeded 1. Then, he argued that adjustment costs associated with capital formation in tangible assets are accumulated as intangible assets within a firm and the gap between Tobin's Q and 1 is accounted for intangible assets. However, there are few papers examining the relationship between firm value and intangibles directly, although many studies measuring the aggregate intangible assets and conducting growth accounting including intangibles are published.

In this paper, we aim to examine the Hall's argument using the listed firm level data in Japan. Following Corrado et al. (2009), we measure five types of intangible assets (software, R&D, advertising, firm-specific human resources, organizational change) and compare the conventional Tobin's Q ratio with the revised Tobin's Q ratio including intangibles. While the mean value of conventional Q exceeds 1, the revised Q including intangibles is almost 1 on average, as suggested by Hall. The standard deviation of the revised Q is smaller than that of the conventional Q. This implies that rate of return on capital including intangibles converges to the same rate as suggested by Görzig and Görnig (2012). When we divide all samples into two sectors: ICT sectors and non-ICT sectors, the mean value of Tobin's Q in ICT sectors is higher than that in non-ICT sectors in both measures, which implies that firms in ICT sectors are highly evaluated than those in non-ICT sectors. However, the mean value of the revised Q in the ICT sectors is 1.13, which is much closer to 1 than the mean value of conventional Q in the ICT sectors. These findings show that the stock market evaluate intangibles particularly firms in ICT sectors.

Using our measure of intangibles, we examine the contribution of intangibles to firm value econometrically. Following Bond and Cummins (2000), we regress overvaluation of the conventional Tobin's Q on intangible assets. Estimation results by pooled OLS, IV, and panel estimations show that greater intangible assets increase firm value. In particular, in firms in the ICT sectors, the positive and significant contribution of intangibles to firm value is supported. We examine the contribution of each component of intangibles to firm value. Estimation results show that only software contributes to firm value positively and significantly. We also conduct quantile regression for robustness check, because many samples of Tobin's Q palace far from a mean value. The estimation results of quantile regression support the positive and significant contribution of intangibles to firm value.

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