University of Zurich[UZH]

The Stylized Facts of Factor Returns

Bachelor's Thesis

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Executive Summary

In recent years, interest in factor-based investment strategies has grown immensely, and with the rising supply of factor-based exchange traded funds, these strategies are more accessible than ever before. Therefore, knowing about the statistical and distributional characteristics of factor-based investment returns is of great importance not only for academics but also for practitioners.

A vast amount of studies research the existence of various statistical properties of financial asset returns. Properties that are consistent over different financial instruments are commonly referred to as *stylized facts*. In this thesis, we follow the findings of Cont (2001), and studies referred to therein, and examine these properties in factor returns. Factor-based investment instruments are an asset class that have not been researched in the named paper.

Furthermore, we take a closer look at the distributional characteristics of the factor returns and compare those with three hypothetical distributions; the Gaussian distribution, the Student's t distribution and the normal inverse Gaussian distribution. Additionally, the factors are analysed over two periods; a time of crisis and a time characterized by strong economic growth. Another aim of this thesis is researching and discussing the statistical differences of the factors and how their statistical properties change over time. Last, we review the findings and discuss their implication on risk management.

We find evidence that the stylized empirical properties found in the returns of other financial instruments also exist in factor-based investment returns. Additionally, we find some differences in their statistical characteristics. Furthermore, we find that the statistical properties significantly change over time. Finally, we observe that the NIG distribution seems to best reproduce the return distributions of various factors and is therefore well-suited for risk management applications.