Information Criterion for Selection of Ubiquitous Factors

Common Trends in Financial Time Series

Hellington H. Takada\textsuperscript{a,b} and Julio M. Stern\textsuperscript{b}

\textsuperscript{a}Quantitative Research, Itaú Asset Management, Brazil
\textsuperscript{b}Institute of Mathematics and Statistics, University of São Paulo, Brazil

INTRODUCTION

Originally, factor analyses (FA) were developed in social sciences and psychology (1) and it is a statistical procedure with the aim of reducing the number of observed variables (2). The objective of FA is to reduce the dimensionality of the original data set $X = [X_1, X_2, \ldots, X_p]$, with $X_i$ being the $i$-th variable, using a linear representation $X = BF + \epsilon$, where $B$ is the factor loading matrix and $\epsilon$ is the error term. The factor loadings indicate the correlation between each observed variable and the underlying factors.

In this section, the objective is to present the main concepts related to ubiquitous factors (UFs) and their application in financial time series. The UF concept is based on the idea that some common factors can influence multiple assets or financial indices simultaneously. The selection of these factors is crucial for understanding the dynamics of financial markets.

FINITE CRITERION FOR SELECTION OF UBQUITOUS FACTORS

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**SPECIAL FACTOR SPECIFIC**

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**REFERENCES**


**CONCLUSIONS**

In conclusion, the UF concept is based on the idea that some common factors can influence multiple assets or financial indices simultaneously. The selection of these factors is crucial for understanding the dynamics of financial markets.

**TABLE 2: UFs and NFCs for PC and NFC factors**

<table>
<thead>
<tr>
<th>Factor</th>
<th>PC</th>
<th>NFC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1</td>
<td>0.982</td>
<td>0.993</td>
</tr>
<tr>
<td>Factor 2</td>
<td>0.995</td>
<td>0.967</td>
</tr>
<tr>
<td>Factor 3</td>
<td>0.969</td>
<td>0.931</td>
</tr>
<tr>
<td>Factor 4</td>
<td>0.956</td>
<td>0.924</td>
</tr>
</tbody>
</table>

**FIGURE 4: Plot indicating the UFs**

The UFs are indicated in the plot, showing the common trends in the financial time series.