



# THE UNIVERSITY OF CHICAGO

Department of Statistics

## DISSERTATION PROPOSAL

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Estimation of Integrated Covariation when Sampling Times are  
Endogenous

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### ABSTRACT

When estimating integrated covariation between two assets based on high-frequency data, simple assumptions are usually imposed on the relationship between the price processes and the observation times. In my first project, I introduced an endogenous 2-dimensional model and showed that it is more general than the existing endogenous models of the literature. In addition, I established a central limit theorem for the Hayashi-Yoshida estimator in this general endogenous model in the case where prices follow pure-diffusion processes. The natural extension of this project is to find general conditions (which are even more general than the model), build a slightly different estimator and show on numerical simulations that the behavior of this estimator is better than the standard Hayashi-Yoshida estimator in case of endogeneity. Moreover, I will investigate the possibility of adding noise in this endogenous model. Finally, I will talk about another project on models with fixed costs.

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