Summary

This thesis is composed of three chapters that form two parts. The first part is composed of two chapters and studies problems related to the exotic option market. In the first chapter we are interested in a numerical problem. More precisely we derive closed-form approximations for the price of some exotic options in the Black and Scholes framework. The second chapter discusses the construction of multivariate Lévy processes with and without stochastic volatility. The second part is composed of one chapter. It deals with a completely different issue. There we will study the problem of individual and temporal aggregation in panel data models.