

# 1 Introduction

The sub-prime mortgage crisis, in the end of 2007, made the financial world rethink about risk evaluation. This thesis is related to two major questions that arose with the crisis. Why investors believed it was possible to earn higher returns without incurring in higher risks? Which variables might help to estimate risk?

Starting by the first question, there is a vast literature in finance about the “anomalies” to the Efficient Markets Hypothesis (EMH). These anomalies consist of empirical evidence that some sets of public information allow the formation of portfolios with greater expected return without incurring in greater risks. In the case of stocks, for instance, it would be possible to form portfolios with greater return than an aggregate index (the S&P 500, for instance), and at most the same systematic risk.<sup>1</sup> However, finding such anomalies may not mean that the EMH does not hold, but that the models used to estimate risk (or to price assets) is not adequate. And we are led to the second question.

We tackle these issues assuming that demand shocks (for instance, a coordination of sell trades) may drive prices away from the long term equilibrium prices. This means that prices of stocks may change due to other factors other than news that affect companies' businesses. Indeed, it is not unusual that financial press attribute falls in stock prices to gain realization, that is, to unusual volume of sales after a large cumulative return, however there are few academical works on this subject. The three essays that follow link demand shocks to risk estimation.

The first essay evaluates whether stocks that present abnormal high volume have a greater return in the following weeks, which is not necessarily linked to higher risk, as reported by Gervais, Kaniel and Mingelgrin (2001). We change the empirical procedure to evaluate risk, and see if this affects their conclusion.

The second essay evaluates whether cumulative returns affect the response of volatility to return shocks. Volatility, defined as the standard deviation of returns, is the most widely used measure of risk. And thus we test whether

cumulative returns help to predict volatility, since it should be the expected risk that would determine current price. If investors coordinate sales under certain circumstances characterized by cumulative returns, such as the realization of gains mentioned above, then cumulative returns are expected to forecast demand shocks, and, thus abnormal returns.

The third essay is motivated by recent literature, particularly Harvey and Siddique (2000), that shows the relevance of skewness of returns' distribution to risk evaluation. Indeed, if risk is understood as the possibility of incurring into financial losses, the skewness might play a role at risk evaluation, besides the standard deviation (volatility). The third essay, then, tries to identify determinants of skewness that were not previously described in financial literature.

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<sup>1</sup> For a review on anomalies literature see Schwert (2003).