Chapter 13
Evidence for Some Underlying Time Series Momentum

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ABSTRACT
The chapter documents significant and momentary momentum pattern in stock returns times series. Moreover, the chapter gives evidence that this time series momentum is the main driver of the cross-sectional momentum pattern. The temporary time series momentum pattern is midway between the behavioural and rational financial theories. Given the strong and positive autocorrelation in stock returns time series, the authors argue that investors are temporary under reacting, and they progressively find their full rationality. Using monthly returns inherent to all stocks listed on Tunisian stock market, from January 2000 to December 2009, the authors examine momentum strategy’s excess returns before and after considering time series momentum in stocks returns. Results show that momentum strategy is still profitable, but no longer puzzling. Furthermore, the chapter aims to reconcile between the behavioural and the rational financial theories, through the introduction of the progressive investors rationality.

INTRODUCTION
The momentum effect in stock returns is a medium term cross sectional regular stocks’ prices trend, that was notified by practitioners, by financial analyst and also it was documented by almost all academic studies whenever and wherever it is explored. Such regular cross sectional stocks’ trend involves the opportunity to make certain profits (risk free) through the bought of past winner stocks and the short sale of the past losers. Moreover, this medium term continuation tendency of the monthly stock returns seems to be resilient and not connected to a particular period or to particular sample. Even, after considering the transaction costs, the momentum strategies continue to provide significant and positive yields, Jegadeesh and Titman (1993), Korajczyk and Sadka (2004).

A so persistent finding raised the researcher’s interest to explore the origins of such sure and profitable strategies. Nevertheless we distinguish two opposed research fields that are rational and behavioural fields.

In the first field, we find researches that are trying to preserve the full investor rationality and the market efficiency hypothesis. Especially they are trying to uncover some hidden risk to justify the profitability of the momentum strategies. The
second field includes academicians who rely on the psychologists’ experimental results and reject the hypothesis of investors’ full rationality. They find that this hypothesis is very simplistic and too far away from the human reality, so they call to break with this assumption and to recognize that investors are humans and their behaviours are naturally subject to some psychological and cognitive biases.

That is investors are enabling to react properly to information, so they either under react or over react to any new information.

These latest argument seem to be more plausible, especially when the rational academicians recognize the anomaly of the momentum effect to the CAPM and to the three-factor model, Fama and French (1996). Especially, the literature could not associate the momentum strategy to any underlying conventional risk, in order to explain its puzzling profitability. Moreover, the researches for new nature of risks that could be associated to the momentum strategy was not conclusive. Especially, they lack to theoretical support to be sufficiently plausible.

In this paper, we try to reconcile between these two theories, especially we try to explore to what extent we can talk about a progressive rationality. Especially, we argue that it’s about time to recognize the natural investors irrationality and to consider the under and over reactions induced by the inappropriate investors’ reactions to news. That is we argue that the investors under or over reactions to news involve serial autocorrelation among stocks returns times series. And this time series momentum is the main driver of the puzzling cross sectional momentum. Moreover, the loss of autocorrelation significance after some lag, let us arguing that investor who we suppose initially irrational gradually learns how to find his full rationality.

 Unlike the previous behavioural studies that are trying to identify the psychological or the cognitive biases that may support a theoretical framework involving medium term momentum effect in stock returns, in this paper we propose, rather to explore the stock returns time series pattern and to test the resilience of the cross sectional momentum before and after considering the time series momentum, regardless of the responsible bias’ identity.

To fulfil our objective we propose to introduce an appropriate autoregressive process, and then we re-implement the momentum strategy on the serial autocorrelation adjusted stock returns. The results show that the adjusted momentum strategies’ pay offs are no longer anomalous to the three-factor model.

Especially, the 6/6 adjusted momentum strategy returns are henceforth fully captured by a β and a size effects.

The rest of the paper is organised as follows: section I is reserved to a review the rational and the behavioural literatures developed in regard of the momentum effect. Section II documents the presence of the momentum effect in the Tunisian monthly stock returns. Section III exposes the methodology and the results of the pre and post introduction of the autoregressive process to the three-factor model. Section IV concludes the paper.

THE MOMENTUM EFFECT IN STOCK RETURNS: A LITERATURE OVERVIEW

As we said earlier, the exploration of the momentum effect was led by two schools of thoughts: i.e. the rational school and the behavioural one. In two successive paragraphs, we try to synthesize the main thesis advanced in each school.

Overview of the Rational Literature: Risk-Related Explanations

The adhering to this literature is trying to explain the momentum effect whilst preserving the full rationality hypothesis. In this regard we find the