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# Presentation

Three years ago I had the priviledge to start a Ph.D. program, something that I have barely dream back when I was doing my bachelor degree in my home country. And here I am, presenting to you what I have done with the opportunity the department of applied economics gave me.

I decided to write about cryptocurrencies because this phenomena encapsulates three things I am more passionated about: economics, statistics and technology.

The dissertation is composed by three manuscripts, all of them with a clear empirical scope.

The first is an exploratoy study where center the attention on Bitcoin, how it is conceived and a test for potential drivers that define it variation.

The second chapter introduce a conceptual framework coming from the behavioral economics literature to understand the guidelines that governs agents’ decision within the cryptocurrency market, and the expected outcomes of those rules.

Finally, the third chapter combines some of the insights from the previous two, by

# Outline

Here I enlisted the main parts of my presentation, I’ll begin with a motivation, main objectives, a background, continuing to the literature review. The fifth section will be the data and methodology, followed by the empirical results and ending with some of the main conclusions.

# Motivation

The digital economy have been increasing the exposure of state-of-art ideas, opportunities and changes in economics paradigms.

Back in 2016 when I was preparing my research proposal I knew that all related to the Digital Economy was the branch I wanted to write about. Particularly, there were three topics: big data from a pragmatic perspective, mostly incentivated after reading a small article from Varian named Big Data: New tricks for Econometrics. Second, the role of Fake News and missinformation in society decision making and finally Blockchain. In the end, I decided to start from the last one, focused on Bitcoin.

I feel the need to briefly contextualize this presentation with the results I got from my fist manuscript.

I have divided the potential drivers of Bitcoin price organized by Internal, macro-financial, and interest from the public.

I employed a space state or dynamic linear model to let the variables change over time, and a Spike and slab method for variable selection.

The main findings of my first chapter were that:

# Chapter I

It has been employed a method that provides a more fexible analytic framework that decomposes each of the components of the time series, applies variable selection, and dynamically examines the behavior of the explanatory variables, all in a transparent and tractable setting.

## LOFW

I had been continously asked two questions:

Let me start by giving you some background information in order to understand the basics of Bitcoin.

# Background

Just to provide some of the most important concepts:

# What is Bitcoin?

As you are probably aware, Bitcoin is buzzword, news are constantly making references and giving insights about its uncommon characteristics and behavior that have been showing since the later 2013.

The truth is that as a product of technology environment, the economic scene has been showing a lagged analysis about Bitcon. And eventhough some literature is already available, it is difficult to define what is it.

Altcoins or alternative coins are:

One could effectibly defend the chance that cryptocurrencies meet the medium of exchange and unit of account functions of money, nonetheless, in the case of the store of value, CC’s show excessive volatility which make them not suitable for transactional purposes.

On the other side, they can be something in between gambling and investing, which make an exceptional case of study. The reason is that for any investing situation one need to assign a objective value, which is not possible in the case of cryptocurrencies.

## Searching for the parallelism

Cryptocurrency nature is a puzzle, in my quest towards finding an economic framework that could make sense and support my intuitions I found financial economics served as a good start.

Classic modern finance economics theory is based on Fama, Ross, Scholes, among other authors.

One imporant assumption is that financial markets are efficient

## Searching for the parallelism: behavioral economics

An opposite perspective rose in the 80s

## literature

Any disclosure evoking a new economy will always be an allure for people ready to obtain profits, notably in cryptocurrency markets it is accompanied by a perception of foolproof investment, a sense of low probability of losing money

Shiller insisted in stating that crashes seems to be determined endogenously by investors, either by reaction to others’ actions or second degree manifestations expressed in prices. Moreover, some investors conveyed they rely on “gut feeling” as their forecasting method (in contraposition to fundamental or technical analysis).

Social judgment is intrinsic to cryptocurrency market since the valuation of any currency is contingent to the extension of the group that founds it valuable

Anybody has been in a situation where our thoughts and actions are seemly aligned with what others do. Typical transmission mechanisms are expressed as word-of-mouth communication, news and social media exposition, in-place observation, or second degree manifestations such as market prices (see Grossman and Stiglitz 1976). One important feature herding or behavioral convergence is that it entails a coordination mechanism, it can be a social learning heuristic by observing other decision-makers or coordination based on some signal such as price movements Devenow and Welch (1996)

# Methodology

if market participants tend to follow aggregate market behavior and ignore their own priors during periods of large average price movements, then the linear and increasing relation between dispersion and market return will no longer hold. Instead, the relation can become non-linearly increasing or even decreasing

The implicit indication of the CSSD it’s that it quantifies the average proximity of individuals’ returns to the mean, by extension, CSSD will always be equal or above zero, where a value tied to the lowest bound expresses a situation when all returns flow in harmony while a deviation from the zero mark represents dispersion.

# Conclusion

Just a quick recap of the main results

provide support for the key arguments.